

ATTACHMENT 12

ASBESTOS INSPECTION REPORTS  
Schofield Barracks  
Quad E- Buildings 549, 550, 551, and 552

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# Schofield Barracks



## Building 549

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## Executive Summary

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Soil and Land Use Technology, Inc. (SaLUT) performed an asbestos identification and assessment reinspection of Building 549 located at Schofield Barracks, Hawaii. The results of the original survey conducted in 1993 (*Asbestos Survey and Management Plan Report for Building 549 of Quad E at the Schofield Barracks Military Reservation, Hawaii*, Baker Environmental, Inc. for the Corps of Engineers, Fort Shafter), and one survey of limited scope conducted in 1996 (*Asbestos and Lead-Based Paint Survey for Design of FY96 OMA PKG A-71, Repair Barracks Latrines, Building Nos. 549, 550, 551 & 552, Schofield Barracks, Oahu, Hawaii*, R. M. Towill Corporation) were included to the extent that the suspect materials found in those surveys could be identified. The survey was conducted by SaLUT in accordance with the U.S. Army Corps of Engineers Honolulu Engineer District Scope of Work dated September 18, 2001. The survey was conducted on January 2, 2002 through February 1, 2002.

All accessible areas of the building were inspected for suspect asbestos-containing building materials (ACBMs). Eighty-four samples of suspect asbestos containing material were collected. Analytical results confirmed that asbestos is present as duct sealant, floor tile, floor tile mastic, pipe adhesive, and plaster. A summary of the ACBMs encountered is provided on the next page. This report provides a detailed description of the ACBM locations, quantities, and hazard assessments based on conditions existing at the time of the inspection. No areas were found to contain ACBM causing high or imminent exposure potential.



*Photograph 1. Front of Building 549.*



*Photograph 2. Rear of Building 549.*

## ***BUILDING SUMMARY***

<b>Facility</b>	Schofield Barracks
<b>Building</b>	549
<b>Inspector(s)</b>	John Willard, Kenneth Reynolds
<b>Inspection Date(s)</b>	January 2, 2002, through February 1, 2002.
<b>Building Area</b>	75,000 sf

### **Inaccessible areas (overview)**

Roof

### **Areas with limited access (overview)**

Beneath wall-to-wall carpeting (“LCA” on building drawings)

### **Areas with no access (overview)**

Above ceilings with no access (“NAC” on building drawings)

Spaces that are sealed (“NA” on building drawings)

<b>Types of ACBMs Encountered</b>		<b>Approximate Quantity</b>
<b>Thermal System Insulation</b>		
<b>Surfacing</b>	Plaster	7,308 sf
<b>Miscellaneous</b>	Duct sealant	2,817 sf
	Floor tile	23,799 sf
	Floor tile mastic	40,423 sf
	Pipe adhesive	14,075 sf
	Cement board	1,637 sf
<b>Functional Areas with High to Imminent Exposure Potential</b>	None	



*Photograph 3. Side of Building 549.*

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# 1 Introduction

SaLUT performed an inspection of Building 549 to identify and assess all accessible ACBMs. This was a reinspection conducted between January 2, 2002, and February 1, 2002, in accordance with the requirements outlined in the Scope of Work dated September 18, 2001. The results of the original survey conducted in July and August 1993 (*Asbestos Survey and Management Plan Report for Building 549 of Quad E at the Schofield Barracks Military Reservation, Hawai'i*, Baker Environmental, Inc. for the Corps of Engineers, Fort Shafter) and one survey of limited scope conducted in 1996 (*Asbestos and Lead-Based Paint Survey for Design of FY96 OMA PKG A-71, Repair Barracks Latrines, Building Nos. 549, 550, 551 & 552, Schofield Barracks, Oahu, Hawaii*, R. M. Towill Corporation) were included.

The following is a description of the building:

<b>Function</b>	Barracks
<b>Size</b>	75,000 square feet; three floors
<b>Foundation</b>	Concrete
<b>Exterior walls</b>	Concrete masonry units with plaster coat
<b>Roof</b>	Asphalt roofing material (inaccessible)
<b>Mechanical systems</b>	Main mechanical room containing furnace and boiler on First Floor; secondary mechanical rooms on Second and Third Floors; pipes are insulated with fiberglass covered with foil wrap; sealant on foil wrap
<b>Climate control</b>	Series of air conditioning units, each feeding multiple rooms; ducts are insulated with fiberglass covered with foil wrap; sealant on foil wrap
<b>Interior walls</b>	Drywall, cementitious panels, plaster
<b>Floors</b>	Floor tile, ceramic tile, carpet, concrete
<b>Ceilings</b>	Fixed ceilings, ceiling tile

Survey and assessment protocols were based on those adopted by the U.S. Environmental Protection Agency (EPA) as detailed in the Asbestos Hazard Emergency Response Act (AHERA; 40 CFR 763, Subpart E), and those of the Hawaii Department of Health in Hawaii Administrative Rule (HAR) 11-502 *Asbestos-Containing Materials in Schools*. In addition to identifying materials considered suspect by AHERA survey protocols, accessible roofing and other exterior materials were also addressed. SaLUT's inspectors identified and sampled all materials considered to be suspect under the regulations and other documents listed in Section 2 *Applicable Documents*, as well as those materials that have been found through other available literature and inspectors' experience (e.g., leveling paper and silver exterior paint) to potentially contain asbestos. This report does not address those suspect materials that would be expected in the building (e.g., sink undercoating in bathrooms of a residence) but were not encountered; the reader should assume that, if a suspect material is not mentioned in Section 3 *Findings*, the material was not found in the building.

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For the following reasons, SaLUT's survey differed from a normal reinspection, wherein the locations and conditions of previously identified ACBMs are verified, and the impacts of building renovations are determined:

- ❑ **Inability to identify the Baker survey's homogeneous materials with certainty.** Photographs of the positive materials were not included in the Baker inspection report available at the Directorate of Public Works (DPW). Many of the types of floor tile in the original survey were described by their predominant color only. Other types of floor tile appear to have received more than one description (possibly due to having been described by different inspectors).
- ❑ **Multiple layers of floor tile.** Many rooms had multiple layers of floor tile. Numerous instances were identified where floor tile located in the 1993 survey had been covered by other types of tile. This made it impractical to carry out the following tasks with completed accuracy:
  - Verify all locations of floor tiles identified in the original survey
  - Quantify types of floor tile
  - Identify all types of floor tile in the building (it was assumed that all types of floor tile were visible in at least one location)

To deal with these issues, under the direction of SaLUT's Project Manager and Principal Investigator, the inspectors modified the survey protocol as follows:

- ❑ **Floor tile.** Where a floor tile type could be sampled by SaLUT's inspectors without causing unacceptable damage, the original inspection was ignored, the floor tile was given a SaLUT homogeneous material identification, and the floor tile was sampled in accordance with the SAP. If the material could be equated to a type of Baker floor tile, this was noted. Where older types of floor tile were noted below SaLUT's samples, but the older materials could not be sampled, the floor tile and associated mastic were identified from the material locations in Baker's report.
- ❑ **Floor tile mastic.** Where new ceramic tiles replaced old floor tile, SaLUT's inspectors could not sample below the tiles without causing unacceptable damage. Therefore, SaLUT assumed the old floor tile mastic to still be present below the new ceramic flooring.
- ❑ **Other materials identified in previous inspections.** For all other materials (including those that were determined to not contain asbestos) that had been identified in the previous inspections, SaLUT's inspectors attempted to locate the materials. In a number of cases, the materials had been abated during various renovation projects. Where a material was identified, the SaLUT's lead inspector determined whether additional sampling was warranted.

The Towill inspectors generally took only a single sample of each material from each floor; this does not meet the current Hawai'i requirement that three samples be taken from each floor. One Towill sample confirmed asbestos as being present in the form of cement panels, previously identified by Baker's survey. Because all other Towill samples were non-asbestos containing, the results of this survey were disregarded.

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- **Other materials not identified in previous inspection.** SaLUT's inspectors identified and sampled a number of suspect materials that were not identified previously.

All samples were collected in accordance with the Sampling and Analysis Plan (SAP) for the task except as noted above. Where applicable, corners of wall-to-wall carpeting were lifted to examine flooring materials under the carpet. Metal roofs that would not support the inspector's weight were examined visually; if suspect materials were identified they were presumed to contain asbestos unless they could be sampled from an accessible edge of the roof. These situations, as well as other special situations, are discussed in the SAP located in Appendix A of this volume.

On-site inspection and assessments were conducted by John Willard and Kenneth Reynolds, EPA and State of Hawai'i accredited Asbestos Inspectors. Quality control review was conducted by Dr. David M. Heisler (Principal Investigator).



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## 2 Applicable Documents

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The following are the regulations, standards, and other documents applicable to the survey:

### U.S. Army Publications

AR 200-1	Environmental Protection and Enhancement
AR 385-40	Accident Reporting and Records
EM 385-1-1	USACE, Safety and Health Requirements Manual, 3 Sep 96
AR-420-70	Building and Structures
TB 420-70-8	Asbestos Survey and Abatement

### Title 29 Code of Federal Regulations, U.S. Department of Labor, Occupational Safety and Health Administration Standards

Part 1910.20	Access to Employee Exposure and Medical Records
Part 1910.95	Occupational Noise Exposure
Part 1910.134	Respiratory Protection
Part 1910.1000	Air Contaminants – Permissible Exposure Limits
Part 1910.1001	Asbestos
Part 1910.1200	Hazard Communication
Part 1926.59	Hazard Communication Construction
Part 1926.1101	Asbestos in Construction

### Title 40 Code of Federal Regulations, Environmental Protection Agency Standards

Part 61 Subpart A	National Emission Standards for Hazardous Air Pollutants
Part 763	Asbestos Hazard Emergency Response Act

### American National Standards Institute Standards

Z9.2-1979	Fundamentals Governing the Design and Operation of Local Exhaust Systems
Z88.20-1988	Practices for Respiratory Protection

### U.S. Environmental Protection Agency Guidelines

EPA/600/R-93/116	Method of the Determination of Asbestos in Bulk Building Materials
EPA/5605-85-024	Guidance for Controlling Asbestos Containing Building Materials

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### **Underwriters Laboratories, Inc. Publications**

586-77 (R-1982) Test Performance of High Efficiency Particulate Air Filter Units

### **State of Hawai'i Occupational Safety and Health Standards**

HIOSH 12-145 Asbestos in Construction

### **Hawai'i Administrative Rules**

Chapter 11-501 Asbestos Requirements  
 Chapter 11-502 Asbestos Containing Materials in Schools  
 Chapter 11-503 Fees for Asbestos Removal and Certification  
 Chapter 11-504 Asbestos Abatement Certification Program

### **USAED, Honolulu Contractual Documents**

Contract DACA83-01-D-0017 Indefinite-Delivery Indefinite-Quantity (IDIQ) Services Contract for Asbestos/Lead Survey and Abatement Services for Honolulu Engineer District (HED) Area of Responsibility, 14 September 2001

Contract DACA83-01-D-0017 Asbestos Survey for Various Buildings at Schofield Barracks, Wheeler Army Airfield, Fort Shafter, Tripler Army Medical Center, Waianae Recreational Center, Pohakuloa Training Area and Kiluea Military Reservation, Hawaii

Task Order 0001  
 Scope of Work

### **Previous Asbestos Surveys**

*Asbestos Survey and Management Plan Report for Building 549 of Quad E at the Schofield Barracks Military Reservation, Hawaii, Baker Environmental, Inc. for the Corps of Engineers, Fort Shafter*

*Asbestos and Lead-Based Paint Survey for Design of FY96 OMA PKG A-71, Repair Barracks Latrines, Building Nos. 549, 550, 551 & 552, Schofield Barracks, Oahu, Hawaii, R. M. Towill Corporation, 1996*

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## 3 Findings

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Thirty-eight homogeneous materials suspected of potentially containing asbestos were identified and sampled by SaLUT. SaLUT also identified, but did not sample, an additional six types of floor tile, nine types of floor tile mastic, and four types cementitious panels that were found to be ACM by Baker. SaLUT collected 84 bulk asbestos samples that were analyzed by Globetec Group, Inc. at their National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory in Honolulu using polarized light microscopy/dispersion staining (PLM/DS) techniques. For some homogeneous materials, the laboratory used a *stop on positive* procedure whereby if one sample was confirmed as ACM, the remaining samples were not analyzed. Composite samples of floor tile and floor tile mastic were split and the two components were analyzed individually as required by AHERA regulations. Therefore, the number of samples collected differs from the number of analyses. SaLUT submitted duplicates of five of the samples analyzed by Globetec to White Environmental Consulting, a second NVLAP-certified laboratory in Honolulu, for quality control analysis. For one sample (B1), initial analyses by Globetec indicate that the material contains asbestos. White found this same sample to be non-asbestos-containing. Because one laboratory determined that the sample contained asbestos, the corresponding material was considered to be ACM.

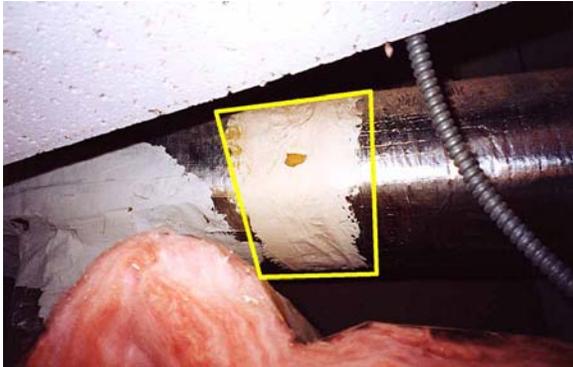
As a result of these laboratory analyses, nine homogeneous materials (one type of floor tile, three types of floor tile mastic, three types of duct sealant, one type of pipe adhesive, and one type of plaster) were confirmed as ACM by sample analysis, in addition to the six types of asbestos-containing floor tile, nine types of floor tile mastic, and four types of cementitious paneling identified by Baker and remaining in the building. The condition of the encountered positive materials was good, although some floor tiles were broken. Photographs 4 through 11 illustrate the ACMs sampled by SaLUT. Photographs 12-17 illustrate materials previously identified by Baker whose presence was confirmed by SaLUT inspectors. SaLUT was unable to photograph all floor tile and mastics identified by Baker because some are located below floor tile sampled by SaLUT and were only revealed in the small areas where SaLUT's samples were taken.

All identified homogeneous materials considered to be potentially asbestos containing ("suspect") are listed on the *Homogeneous Materials Listing* (Table 1). These materials are grouped according to class (i.e., miscellaneous, surfacing, and thermal system insulation) and floor of the building. For each suspect material, the friability, general locations in the building, and sample numbers are indicated, as well as whether the material was determined to be ACM or not. Red sample numbers indicate those samples that contained asbestos. Gray sample numbers indicate samples that were not analyzed because another sample of the same material contained asbestos. The ACMs identified by Baker and not sampled by SaLUT are listed following SaLUT's homogeneous materials.

Sample collection sites for identified suspect ACMs, as well as locations of identified ACMs, are indicated on the building drawings (Figure 2).

Table 2, *Summary of Asbestos-Containing Materials*, provides a summary of the encountered ACMs in the building. Each material is listed with information regarding the type, location, and condition of the ACM, along with the recommended response action for the material.

Laboratory analysis sheets for all samples collected by SaLUT, including the quality control analyses, are located at the end of this report. Due to laboratory error, a number of samples were not included in the initial analysis but were analyzed later. These results follow behind the other laboratory analysis sheets and before the quality control analyses. Laboratory analysis sheets for samples collected during the previous surveys are found in those reports.



*Photograph 4. DA1. White duct sealant (DA1) on foil duct wrap over fiberglass insulation contains asbestos.*



*Photograph 5. DA2. White duct sealant (DA2) on foil duct wrap over fiberglass insulation contains asbestos.*



*Photograph 6. DA3. White duct sealant (DA3) on foil duct wrap over fiberglass insulation contains asbestos.*



*Photograph FM1. The mastic (FM1) below this floor tile (FT1) contains asbestos. The floor tile does not.*



*Photograph 8. FM2. The mastic (FM2) below this floor tile (FT2) contains asbestos. The floor tile does not.*



*Photograph 9. FM3 and FT3. The floor tile (FT3) and its underlying mastic (FM3) contain asbestos.*



*Photograph 10. PA1. White pipe adhesive (PA1) on top of tan wrap that covers fiberglass insulation, contains asbestos.*



*Photograph 11. PL1. Asbestos-containing interior plaster.*



*Photograph 12. M001 and M008. This floor tile (M001) and its underlying mastic (M008) contain asbestos.*



*Photograph 13. M014 and M015. This floor tile (M014) and its underlying mastic (M015) contain asbestos.*



*Photograph 14. M031 and M032. This floor tile (M031) and its underlying mastic (M032) contain asbestos.*



*Photograph 15. M036 and M037. This floor tile (M036) and its underlying mastic (M037) contain asbestos.*



*Photograph 16. M042. Transite paneling (M042) in Room 45 contains asbestos.*



*Photograph 17. M050, M051, M052. Cement panels located above all exterior doors and windows contain asbestos.*

**Table 1. Homogeneous Materials Listing. Descriptions of asbestos-containing materials from Baker's survey are taken from Baker's report.**

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>First Floor</b>						
BM3	Yellow mastic	No	Below VB3	B67, B68, B69	No	
CK3	Window caulking	No	Outside rooms 9, 27, 47	B55, B56, B57	No	
DA3	White duct sealant on foil wrap covering fiberglass insulation	No	Throughout First Floor	B43, B44, B45	Yes	2,418 sf
DW3	Sheetrock	No	Hallways of rooms 13, 21; room 44	B49, B50, B51	No	
FM5	Yellow mastic	No	Below FT5	B61, B62, B63	No	
FM6	Yellow mastic	No	Below FT6	B70, B71, B72	No	
FM7	Yellow mastic	No	Below FT7	B73, B74, B75	No	
FT4	12" x 12" white floor tile with brown specks (same as Baker's M040)	No	Room 45	B58, B59, B60	No	
FT5	12" x 12" cream floor tile with red and white streaks	No	Room 44	B61, B62, B63	No	
FT6	12"x12" white floor tile with gray specks	No	Room 1	B70, B71, B72	No	
FT7	12"x12" blue floor tile with white streaks	No	Room 110	B73, B74, B75	No	
PA1	White pipe adhesive covering tan wrap and fiberglass insulation on 4" and 6" chiller pipe runs	No	Hallway 2; Arms Room; Rooms 1, 7, 11, 19, 24, 30-32, 38, 45, 46, 112A, 112B, 112C, 117-119, 132A, 143-145, 147	B64, B65, B66	Yes	14,075 sf
VB3	Brown vinyl baseboard	No	Rooms 1, 12, 20	B67, B68, B69	No	
<b>ACBMs From Baker's Survey Located by SaLUT</b>						
M031	12 x 12 floor tile Beige	No	Rooms 2-20, 44, 110, 112A, 112B, 112C, 113A, 114, 115, 117-119, 122, 126	See Baker's report	Yes	6,786 sf
M032	Flooring adhesive Black	No	Below M031	See Baker's report	Yes	6,786 sf
M034	12 x 12 floor tile Cream	No	Rooms 132A, 132B	See Baker's report	Yes	897 sf
M036	12 x 12 floor tile Light brown	No	Hallways 21-23; Rooms 38-43, 47-49	See Baker's report	Yes	2,211 sf
M037	Flooring adhesive Black	No	Below M036	See Baker's report	Yes	2,211 sf

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
M041	Flooring adhesive Black	No	Below old floor tile (M040) in Room 45	See Baker's report	Yes	713 sf
M042	Cement wall panel Transite panel	No	Room 45	See Baker's report	Yes	12 sf
M050	Cement wall panel Transite panel	No	Over exterior doors and windows	See Baker's report	Yes	415 sf
Second Floor						
BM2	Brown mastic	No	Below VB2	B10, B11, B12	No	
CK1	Window caulking	No	Room 237; outside Rooms 1A, 267	B13, B14, B15	No	
DA2	White duct sealant on foil wrap covering fiberglass insulation on ducts	No	Throughout Second Floor	B34, B35, B36	Yes	168 sf
DW2	Sheetrock	Yes	Hallways 218, 230, 269	B37, B38, B39	No	
FM2	Black/yellow mastic	No	Below FT2	B7, B8, B9	Yes	3,503 sf
FT2	12" x 12" white floor tile with brown specks	No	Rooms 221, 222, 225-227, 229, 232, 233, 237, 238, 240- 242, 245, 248, 256	B7, B8, B9	No	
VB2	Black vinyl baseboard	No	Rooms 222, 245, 252	B10, B11, B12	No	
ACBMs From Baker's Survey Located by SaLUT						
M001	12 x 12 floor tile Olive	No	Hallways 218, 230, 250, 260, 269, 279, 281; Rooms 1A, 1B, 200, 201, 203-206, 208, 209, 244, 246, 247, 251, 252, 255, 258, 265-267, 272- 278	See Baker's report	Yes	9,259 sf
M005	12 x 12 floor tile Light green	No	Room 253	See Baker's report	Yes	321 sf
M006	Flooring adhesive Black	No	Below M005	See Baker's report	Yes	321 sf
M007	Flooring adhesive Black	No	Below old floor tile (M004) in Rooms 226, 227, 266	See Baker's report	Yes	1,225 sf
M008	Flooring adhesive Black	No	Hallways 218, 230, 250, 260, 269, 279, 281; Rooms 1A, 1B, 200, 201, 203-206, 208, 209, 216, 217, 221, 222, 225-227, 229, 232, 233, 235, 237, 238, 241, 242, 244-248, 251, 252, 255, 256, 258, 265- 267, 272-278	See Baker's report	Yes	13,627 sf
M051	Cement wall panel Transite panel	No	Over exterior doors and windows	See Baker's report	Yes	605 sf

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>Third Floor</b>						
BM1	Brown mastic	No	Below VB1	B4, B5, B6	No	
CK2	Window caulking	No	Room 349; outside Rooms 4, 312	B22, B23, B24	No	
DA1	White duct sealant on foil wrap covering fiberglass insulation on ducts	No	Throughout the Third Floor	B25, B26, B27	Yes	168 sf
DW1	Sheetrock	Yes	Hallways A, B, 2	B28, B29, B30	No	
FM1	Black/yellow mastic	No	Below FT1	B1, B2, B3	Yes	2,458 sf
FM3	Black mastic	No	Below FT3	B16, B17, B18	Yes	1,359 sf
FT1	12" x 12" white floor tile with brown specks	No	Rooms 304, 305, 310, 312, 317, 323, 339, 340, 349, 358, 365	B1, B2, B3	No	
FT3	12" x 12" beige floor tile with red and white streaks	No	Hallway A; Rooms 303, 319, 325, 329	B16, B17, B18	Yes	1,359 sf
LN1	Vinyl sheet flooring	No	Room 302	B19, B20, B21	No	
VB1	Black vinyl baseboard	No	Rooms 319, 340, 342	B4, B5, B6	No	
<b>ACBMs From Baker's Survey Located by SaLUT</b>						
M014	12 x 12 floor tile Light brown	No	Hallways 2, B; Rooms 3, 4, 7, 337, 338, 341-345, 347, 351	See Baker's report	Yes	2,966 sf
M015	Flooring adhesive Black	No	Hallways 2, B; Rooms 3, 4, 7, 323, 325, 329, 337-345, 347, 349, 351, 358, 365	See Baker's report	Yes	5,862 sf
M020	Flooring adhesive Black	No	Below old floor tile (M019) in Hallway 1	See Baker's report	Yes	677 sf
M022	Flooring adhesive Black	No	Below old floor tile (M021) in Rooms 303-305, 310, 312, 317, 319	See Baker's report	Yes	1,681 sf
M052	Cement wall panel Transite panel	No	Over exterior doors and windows	See Baker's report	Yes	605 sf

Surfacing Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>First Floor</b>						
PL3	Interior plaster coating from building structure	No	Hallway 21; Rooms 7, 45	B46, B47, B48	No	
PL6	Exterior plaster coating from building structure	No	Exterior	B76, B77, B78	No	

Surfacing Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>Second Floor</b>						
PL2	Interior plaster coating from building structure	No	Hallways 218, 230; Room 272	B40, B41, B42	No	
PL4	Exterior plaster coating from building structure	No	Exterior	B79, B80, B81	No	
<b>Third Floor</b>						
PL1	Interior ceiling plaster coating from building structure	No	Hallways 1, A; rooms 303-312, 316, 317, 319, 323, 325, 328, 329, bathroom 2	B31, B32, B33	Yes	7,308 sf
PL5	Exterior plaster coating from building structure	No	Exterior balconies	B82, B83, B84	No	

Thermal System Insulation Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>First Floor</b>						
TK1	Hot water tank insulation	Yes	Boiler room	B52, B53, B54	No	
PI1	Pipe insulation on chiller lines between bracket mounts and pipe: 4" and 6" pipes	Yes	Hallway 2; Arms Room; Rooms 1, 7, 11, 19, 24, 30-32, 38, 45, 46, 112A, 112B, 112C, 117-119, 132A, 143-145, 147	B64, B65, B66	No	
<b>Second Floor</b>						
No suspect materials observed.						
<b>Third Floor</b>						
No suspect materials observed.						



FIGURE 1  
BUILDING DRAWING LEGEND

ASBESTOS CONTAINING MATERIALS AND QUANTITIES	
DA Duct Sealant	
FT/ Floor Tile FM and/or Mastic	
M*** Baker's ACM	
PA Pipe Adhesive	
PL Plaster	
ACCESSIBILITY	
NAC NO ACCESS ABOVE CEILING	
NA NO ACCESS TO THIS SPACE	
LCA LIMITED ACCESS BENEATH CARPET	
SYMBOLS	
 100	SPACE NUMBER
 B25	POSITIVE BULK SAMPLE LOCATION
 B35	NEGATIVE BULK SAMPLE LOCATION
 B45	NOT ANALYZED BULK SAMPLE LOCATION

FIGURE 2: BUILDING DRAWINGS  
 SCHOFIELD BARRACKS  
 BUILDING 549  
 FIRST FLOOR

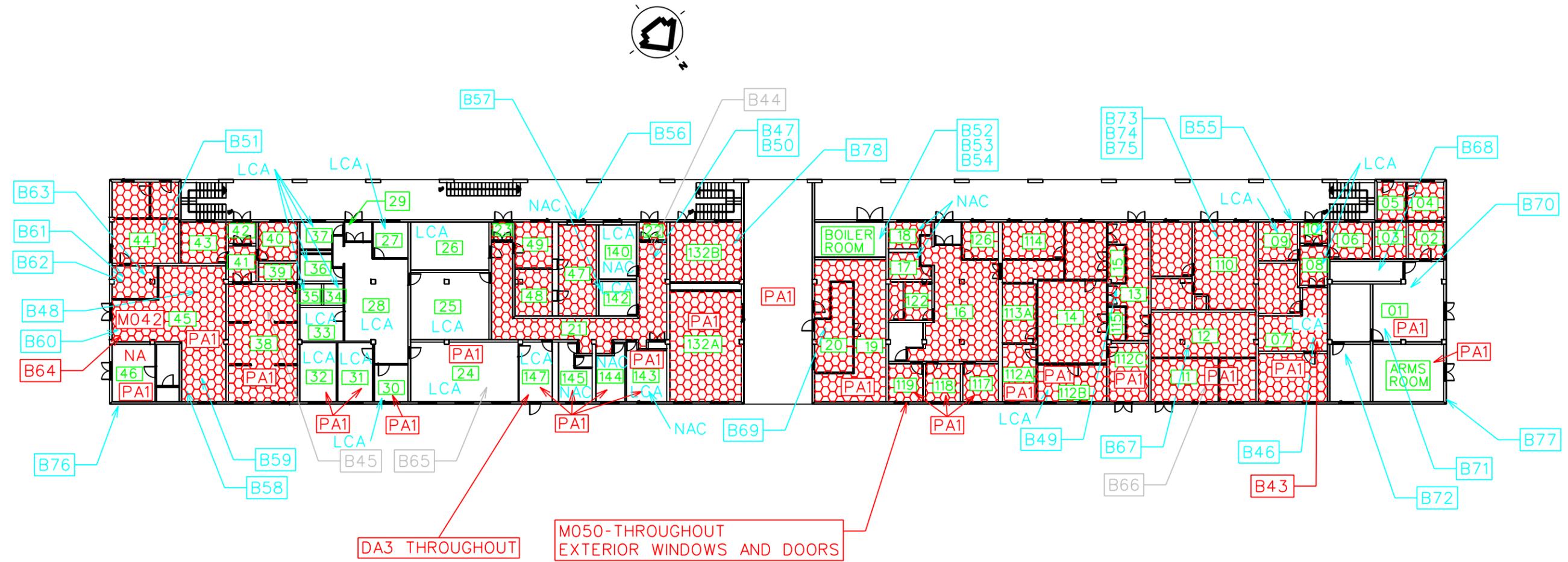


FIGURE 2: BUILDING DRAWINGS  
SCHOFIELD BARRACKS  
BUILDING 549  
SECOND FLOOR

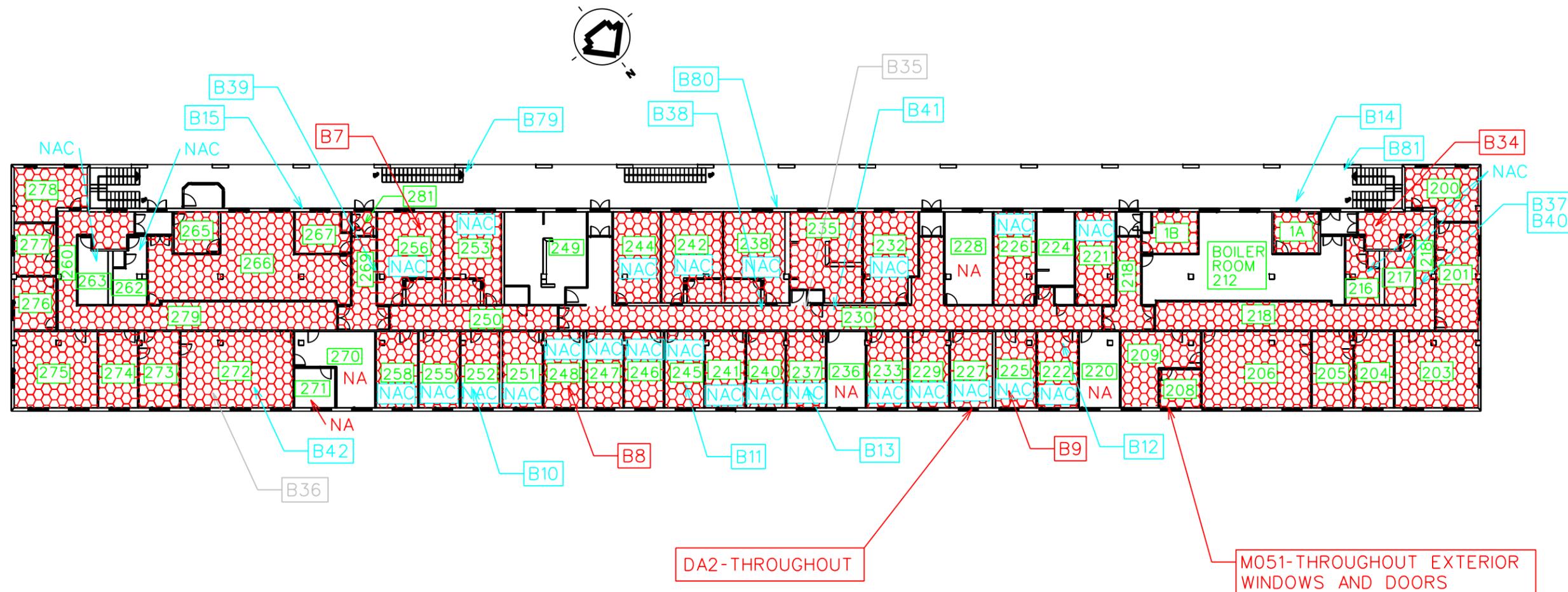
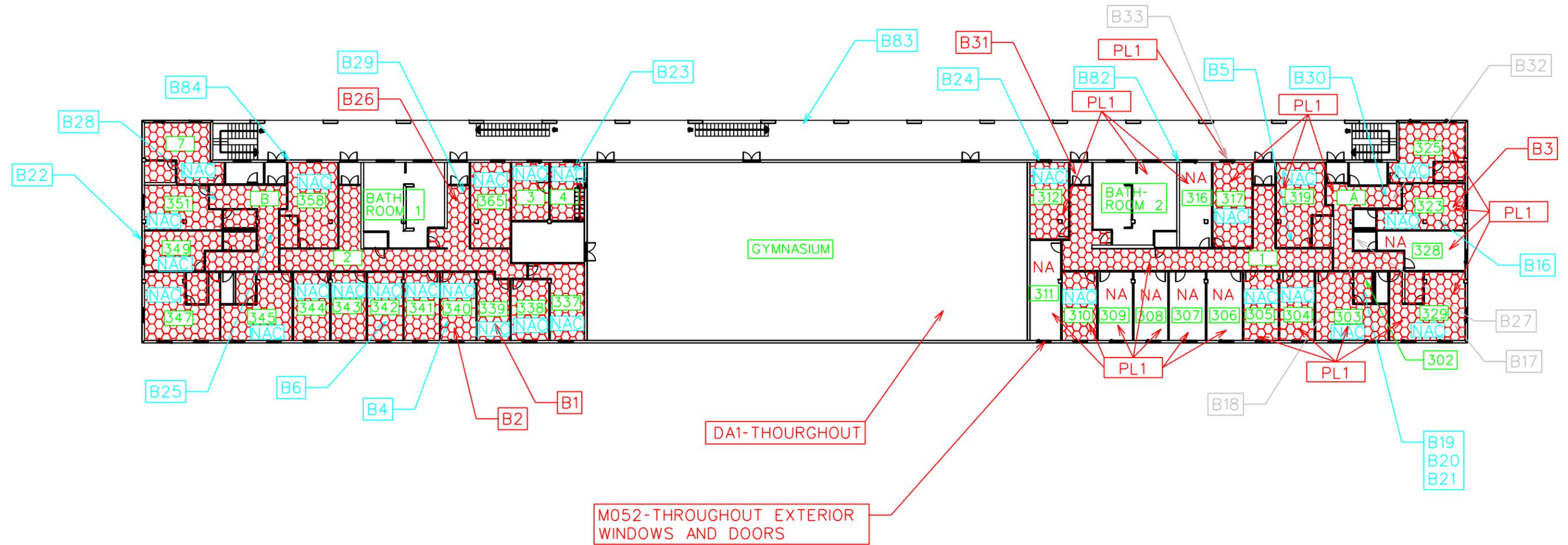


FIGURE 2: BUILDING DRAWINGS  
SCHOFIELD BARRACKS  
BUILDING 549  
THIRD FLOOR



## 4 Recommendations

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Each friable ACBM was assessed and placed in the appropriate AHERA category as specified in 40 CFR, Part 763.88. In addition to the seven AHERA assessment categories, SaLUT added an eighth category for all non-friable ACBM.

SaLUT also categorized the condition of each ACBM at the time of the survey, as follows:

- Good** No damage observed
- Fair** The area of distributed damage was less than 10 percent and greater than 2 percent. The area of localized damage was less than 25 percent and greater than 2 percent.
- Poor** The area of distributed damage was greater than 10 percent and the localized damage was greater than 25 percent.

Based on the AHERA assessment category and SaLUT's condition assessment, SaLUT recommends on or more of the following response actions for each ACBM:

- O&M** Maintain the ACBM. Perform operations and maintenance procedures in a manner that does not damage the material. These procedures are specified in 29 CFR 1926.1101 and HAR 11-502-10. Repair of damaged material must be performed in accordance with 29 CFR 1926.1101 and as specified in the management plan for the installation unless otherwise authorized, all repairs should be handled by State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101.
- Repair** Damaged areas should be repaired. Repair of damaged material must be performed in accordance with 29 CFR 1926.1101 and as specified in the management plan for the installation unless otherwise authorized, all repairs should be handled by State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101.  
Undamaged and repaired materials are subject to the O&M response action.
- Remove** The material should be removed. Removal must be performed by a State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101. Removal must follow the most stringent guidelines provided by either the State of Hawai'i or Federal regulations.

If the building is demolished or renovation will impact any ACBMs, those materials must be removed by a State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101. Removal must follow the most stringent guidelines provided by either the State of Hawai'i or Federal regulations.

Table 2 provides the AHERA assessment category, SaLUT's condition assessment, and SaLUT's recommended response action for each ACBM.

**Table 2. Summary of Asbestos-Containing Materials.**

Material Description	Location	Quantity	Friable	Cond. Assess.	AHERA Assess. Cat.	Recommended Response Action	Photo Ref.
<b>First Floor</b>							
DA3 White duct sealant on foil wrap covering fiberglass insulation	Throughout First Floor	2,418 sf	No	Good	8	O&M	6
PA1 White pipe wrap covering tan wrap and fiberglass insulation on 4" and 6" chiller pipe runs	Hallway 2; Arms Room; Rooms 1, 7, 11, 19, 24, 30-32, 38, 45, 46, 112A, 112B, 112C, 117-119, 132A, 143-145, 147	14,075 sf	No	Good	8	O&M	10
M031 12 x 12 floor tile Beige	Rooms 2-20, 44, 110, 112A, 112B, 112C, 113A, 114, 115, 117-119, 122, 126	6,786 sf	No	Good	8	O&M	14
M032 Flooring adhesive Black	Below M031	6,786 sf	No	Good	8	O&M	14
M034 12 x 12 floor tile Cream	Rooms 132A, 132	897 sf	No	Good	8	O&M	None
M036 12 x 12 floor tile Light brown	Hallways 21-23; Rooms 38-43, 47-49	2,211 sf	No	Good	8	O&M	15
M037 Flooring adhesive Black	Below M036	2,211 sf	No	Good	8	O&M	15
M041 Flooring adhesive Black	Below old floor tile (M040) in Room 45	713 sf	No	Good	8	O&M	None
M042 Cement wall panel Transite panel	Room 45	12 sf	No	Good	8	O&M	16
M050 Cement wall panel Transite panel	Over exterior doors and windows	415 sf	No	Good	8	O&M	17
<b>Second Floor</b>							
DA2 White duct sealant on foil wrap covering fiberglass insulation on ducts	Throughout Second Floor	168 sf	No	Good	8	O&M	5
FM2 Black/yellow mastic	Below FT2 (Rooms 225, 248, 256)	3,503 sf	No	Good	8	O&M	8

Material Description	Location	Quantity	Friable	Cond. Assess.	AHERA Assess. Cat.	Recommended Response Action	Photo Ref.
M001 12 x 12 floor tile Olive	Hallways 250, 260, 269, 279, 281; Rooms 1A, 1B, 200, 201, 203-206, 208, 209, 218, 230, 244, 246, 247, 251, 252, 255, 258, 265-267, 272-278	9,259 sf	No	Good	8	O&M	12
M005 12 x 12 floor tile Light green	Room 253	321 sf	No	Good	8	O&M	None
M006 Flooring adhesive Black	Below M005	321 sf	No	Good	8	O&M	None
M007 Flooring adhesive Black	Below old floor tile (M004) in Rooms 226, 227, 266	1,225 sf	No	Good	8	O&M	None
M008 Flooring adhesive Black	Hallways 250, 260, 269, 279, 281; Rooms 1A, 1B, 200, 201, 203-206, 208, 209, 216, 217, 218, 221, 222, 225-227, 229, 230, 232, 233, 235, 237, 238, 241, 242, 244-248, 251, 252, 255, 256, 258, 265-267, 272-278	13,627 sf	No	Good	8	O&M	12
M051 Cement wall panel Transite panel	Over exterior doors and windows	605 sf	No	Good	8	O&M	17
<b>Third Floor</b>							
DA1 White duct sealant on foil wrap covering fiberglass insulation on ducts	Throughout the Third Floor	168 sf	No	Good	8	O&M	4
FM1 Black/yellow mastic	Below FT1 (Rooms 323, 339, 340)	2,458 sf	No	Good	8	O&M	7
FM3 Black mastic	Below FT3	1,359 sf	No	Good	8	O&M	9
FT3 12" x 12" beige floor tile with red and white streaks	Hallway A; Rooms 300, 325	1,359 sf	No	Good	8	O&M	9
PL1 Interior plaster coating from building structure	Hallways 1, A; Outside Room 317	7,308 sf	No	Good	8	O&M	11
M014 12 x 12 floor tile Light brown	Hallway 2/B; Rooms 3, 4, 7, 337, 338, 341-345, 347, 351	2,966 sf	No	Good	8	O&M	13
M015 Flooring adhesive Black	Hallway 2/B; Rooms 3, 4, 7, 323, 235, 329, 337-345, 347, 349, 351, 358, 365	5,862 sf	No	Good	8	O&M	13

Material Description	Location	Quantity	Friable	Cond. Assess.	AHERA Assess. Cat.	Recommended Response Action	Photo Ref.
M020 Flooring adhesive Black	Below old floor tile (M019) in Hallway 1	677 sf	No	Good	8	O&M	None
M022 Flooring adhesive Black	Below old floor tile (M021) in Rooms 303-305, 310, 312, 317, 319	1,681 sf	No	Good	8	O&M	None
M052 Cement wall panel Transite panel	Over exterior doors and windows	605 sf	No	Good	8	O&M	17

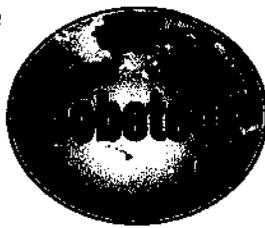
Table 3 provides SaLUT's cost estimate for abating (i.e., removing) each ACBM identified in the building. These estimates are conceptual cost estimates based on standard unit rates for different types of ACBM except for very small abatement projects, where the minimum cost is \$1,200. Contractor mobilization/demobilization, transportation, disposal, and other miscellaneous costs are included in the unit. Operations and maintenance (O&M) costs are not provided as part of the recommended response cost.

**Table 3. Asbestos Abatement Cost Estimates.**

Material Type	Location	Quantity	Unit Cost (\$)	Total Removal Cost	
<b>First Floor</b>					
DA3	White duct sealant on foil wrap covering fiberglass insulation	Throughout First Floor	2,418 sf	3	\$7,254
PA1	White pipe wrap covering tan wrap and fiberglass insulation on 4" and 6" chiller pipe runs	Hallway 2; Arms Room; Rooms 1, 7, 11, 19, 24, 30-32, 38, 45, 46, 112A, 112B, 112C, 117-119, 132A, 143-145, 147	14,075 sf	5	70,375
M031	12 x 12 floor tile Beige	Rooms 2-20, 44, 110, 112A, 112B, 112C, 113A, 114, 115, 117-119, 122, 126	6,786 sf	5	33,930
M032	Flooring adhesive Black	Below M031	6,786 sf	3	20,358
M034	12 x 12 floor tile Cream	Rooms 132A, 132	897 sf	5	4,485
M036	12 x 12 floor tile Light brown	Hallways 21-23; Rooms 38-43, 47-49	2,211 sf	5	11,055
M037	Flooring adhesive Black	Below M036	2,211 sf	3	6,633
M041	Flooring adhesive Black	Below old floor tile (M040) in Room 45	713 sf	3	2,139
M042	Cement wall panel Transite panel	Room 45	12 sf	5	60
M050	Cement wall panel Transite panel	Over exterior doors and windows	415 sf	5	2,075
<b>Second Floor</b>					
DA2	White duct sealant on foil wrap covering fiberglass insulation on ducts	Throughout Second Floor	168 sf	3	504

Material Type		Location	Quantity	Unit Cost (\$)	Total Removal Cost
FM2	Black/yellow mastic	Below FT2 (Rooms 225, 248, 256)	3,503 sf	3	10,509
M001	12 x 12 floor tile Olive	Hallways 250, 260, 269, 279, 281; Rooms 1A, 1B, 200, 201, 203-206, 208, 209, 218, 230, 244, 246, 247, 251, 252, 255, 258, 265-267, 272-278	9,259 sf	5	46,295
M005	12 x 12 floor tile Light green	Room 253	321 sf	5	1,605
M006	Flooring adhesive Black	Below M005	321 sf	3	963
M007	Flooring adhesive Black	Below old floor tile (M004) in Rooms 226, 227, 266	1,225 sf	3	3,675
M008	Flooring adhesive Black	Hallways 250, 260, 269, 279, 281; Rooms 1A, 1B, 200, 201, 203-206, 208, 209, 216, 217, 218, 221, 222, 225-227, 229, 230, 232, 233, 235, 237, 238, 241, 242, 244-248, 251, 252, 255, 256, 258, 265-267, 272-278	13,627 sf	3	40,881
M051	Cement wall panel Transite panel	Over exterior doors and windows	605 sf	5	3,025
<b>Third Floor</b>					
DA1	White duct sealant on foil wrap covering fiberglass insulation on ducts	Throughout the Third Floor	168 sf	3	504
FM1	Black/yellow mastic	Below FT1 (Rooms 323, 339, 340)	2,458 sf	3	7,374
FM3	Black mastic	Below FT3	1,359 sf	3	4,077
FT3	12" x 12" beige floor tile with red and white streaks	Hallway A; Rooms 300, 325	1,359 sf	5	6,795
PL1	Interior plaster coating from building structure	Hallways 1, A; Outside Room 317	7,308 sf	10	70,080
M014	12 x 12 floor tile Light brown	Hallway 2/B; Rooms 3, 4, 7, 337, 338, 341-345, 347, 351	2,966 sf	5	14,830
M015	Flooring adhesive Black	Hallway 2/B; Rooms 3, 4, 7, 323, 235, 329, 337-345, 347, 349, 351, 358, 365	5,862 sf	3	17,586
M020	Flooring adhesive Black	Below old floor tile (M019) in Hallway 1	677 sf	3	2,031
M022	Flooring adhesive Black	Below old floor tile (M021) in Rooms 303-305, 310, 312, 317, 319	1,681 sf	3	5,043
M052	Cement wall panel Transite panel	Over exterior doors and windows	605 sf	5	3,025
Total abatement cost					\$397,166





## Bulk Asbestos Analysis EPA Method 600/R-93-116, Visual Area Estimation

**Customer Name:** SaLUT  
**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

**Sampled By:** Client  
**Received By:** M. Rouf  
**TAT:** 5 Day  
**Report No:** 127  
**Date Printed:** 2/4/2002  
**Analyst:** M. Lee

**Total # of Sample(s):** 34      **Total # of Layer(s):** 49

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012902-549-KWR-B1	013102-01	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 339 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012902-549-KWR-B1	013102-01	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 339 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012902-549-KWR-B2	013102-02	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 340 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012902-549-KWR-B2	013102-02	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 340 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B3	013102-03	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 323 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B3	013102-03	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 323 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012902-549-KWR-B4	013102-04	1/31/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 340 <b>Materials:</b> Black Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012902-549-KWR-B4	013102-04	1/31/2002	2 of 2	None Detected	Tan/Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 340 <b>Materials:</b> Tan/Brown Mastic						
<b>Other Fibrous Materials:</b> Wollastonite<1%						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B5	013102-05	1/31/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 319 <b>Materials:</b> Black Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B5	013102-05	1/31/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 319 <b>Materials:</b> Brown Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B6	013102-06	1/31/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 342 <b>Materials:</b> Black Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B6	013102-06	1/31/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 342 <b>Materials:</b> Brown Brittle Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B7	013102-07	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 2nd Flr, Rm 256 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B7	013102-07	1/31/2002	2 of 2	Chrysotile	Black/Yellow	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E		<b>Location:</b> 2nd Flr, Rm 256		<b>Materials:</b> Black/Yellow Mastic		
<b>Other Fibrous Materials:</b>		Cellulose 1-3%				
<b>Non-Fibrous Materials:</b>		Asphalt/Binder, Adhesive/Binder				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B8	013102-08	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E		<b>Location:</b> 2nd Flr, Rm 248		<b>Materials:</b> Tan Floor Tile		
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Calcareous Matrix, Mica				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B8	013102-08	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E		<b>Location:</b> 2nd Flr, Rm 248		<b>Materials:</b> Black Asphaltic Mastic		
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Asphalt/Binder				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B9	013102-09	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E		<b>Location:</b> 2nd Flr, Rm 225		<b>Materials:</b> Tan Floor Tile		
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Calcareous Matrix, Mica				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B9	013102-09	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E		<b>Location:</b> 2nd Flr, Rm 225		<b>Materials:</b> Black Asphaltic Mastic		
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Asphalt/Binder				

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B10	013102-10	1/31/2002	1 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 2nd Flr, Rm 252 <b>Materials:</b> Gray Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B10	013102-10	1/31/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 2nd Flr, Rm 252 <b>Materials:</b> Brown Brittle Mastic						
<b>Other Fibrous Materials:</b> Wollastonite 1-3%						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B11	013102-11	1/31/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 2nd Flr, Rm 245 <b>Materials:</b> Black Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B11	013102-11	1/31/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 2nd Flr, Rm 245 <b>Materials:</b> Brown Brittle Mastic						
<b>Other Fibrous Materials:</b> Wollastonite 1-3%						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B12	013102-12	1/31/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 2nd Flr, Rm 222 <b>Materials:</b> Black Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B12	013102-12	1/31/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 2nd Flr, Rm 222 <b>Materials:</b> Brown Brittle Mastic						
<b>Other Fibrous Materials:</b> Wollastonite 1-3%						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B13	013102-13	1/31/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 2nd Flr, Rm 237 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> Cellulose< 1%						
<b>Non-Fibrous Materials:</b> Paint, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B14	013102-14	1/31/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 2nd Flr, Outside Rm 1A <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> Cellulose< 1%						
<b>Non-Fibrous Materials:</b> Paint, Calcite, Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B15	013102-15	1/31/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 2nd Flr, Outside Rm 272 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> Cellulose< 1%						
<b>Non-Fibrous Materials:</b> Paint, Calcite, Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B16	013102-16	1/31/2002	1 of 2	Chrysotile	Beige	5-10%
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 325 <b>Materials:</b> Beige Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B16	013102-16	1/31/2002	2 of 2	Chrysotile	Black	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 325 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B19	013102-19	1/31/2002	1 of 1	None Detected	Pink	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 302 <b>Materials:</b> Pink Vinyl w/ Fibrous Backing						
<b>Other Fibrous Materials:</b> Cellulose 30-40%						
<b>Non-Fibrous Materials:</b> Vinyl/Binder, Calcite, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B20	013102-20	1/31/2002	1 of 1	None Detected	Pink	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 302 <b>Materials:</b> Pink Vinyl w/ Fibrous Backing						
<b>Other Fibrous Materials:</b> Cellulose 30-40%						
<b>Non-Fibrous Materials:</b> Vinyl/Binder, Calcite, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B21	013102-21	1/31/2002	1 of 1	None Detected	Pink	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 302 <b>Materials:</b> Pink Vinyl w/ Fibrous Backing						
<b>Other Fibrous Materials:</b> Cellulose 30-40%						
<b>Non-Fibrous Materials:</b> Vinyl/Binder, Calcite, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B22	013102-22	1/31/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Rm 349 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> Cellulose < 1%						
<b>Non-Fibrous Materials:</b> Paint, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B23	013102-23	1/31/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Outside Rm 4 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Paint, Calcite, Glue/Binder						

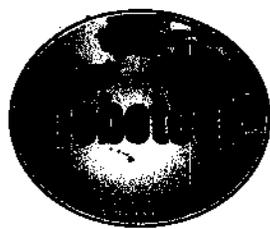
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B24	013102-24	1/31/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, Outside Rm 312 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> Cellulose < 1%						
<b>Non-Fibrous Materials:</b> Glue/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B25	013102-25	1/31/2002	1 of 1	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, HW B <b>Materials:</b> Paper w/ Metal Foil & Yellow Insulation						
<b>Other Fibrous Materials:</b> Cellulose 20-30%, Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Glue/Binder, Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B26	013102-26	1/31/2002	1 of 1	Chrysotile	White	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, HW 2 <b>Materials:</b> Paper w/ Metal Foil & White Paint						
<b>Other Fibrous Materials:</b> Cellulose 10-20%, Mineral Wool 5-10%						
<b>Non-Fibrous Materials:</b> Glue/Binder, Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B28	013102-28	1/31/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, HW B <b>Materials:</b> White Composite Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 5-10%, Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B29	013102-29	1/31/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, HW 2 <b>Materials:</b> White Composite Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20%, Fibrous Glass <1%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B30	013102-30	1/31/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, HW A <b>Materials:</b> White Composite Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 3-5%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B31	013102-31	1/31/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, HW 1, Ceiling <b>Materials:</b> White Compact Matrix w/Yellow Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B31	013102-31	1/31/2002	2 of 2	Chrysotile	Tan	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, HW 1, Ceiling <b>Materials:</b> Tan granular material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B34	013102-34	1/31/2002	1 of 1	Chrysotile	White	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 2nd Flr, HW 218 <b>Materials:</b> White Painted Paper w/Metal Foil & Insulation						
<b>Other Fibrous Materials:</b> Cellulose 20-30%, Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Glue/Binder, Paint, Metal Foil						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B37	013102-37	1/31/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E				<b>Location:</b> 2nd Flr, HW 218		<b>Materials:</b> White Composite Wall Material
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica, Calcite						

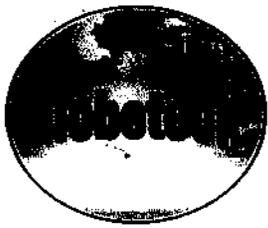
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B38	013102-38	1/31/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E				<b>Location:</b> 2nd Flr, HW 230		<b>Materials:</b> White Composite Wall Material
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B39	013102-39	1/31/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E				<b>Location:</b> 2nd Flr, HW 269		<b>Materials:</b> White Composite Wall Material
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B40	013102-40	1/31/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E				<b>Location:</b> 2nd Flr, HW 218-Column		<b>Materials:</b> Tan granular material
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Calcite, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B41	013102-41	1/31/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E				<b>Location:</b> 2nd Flr, HW 230		<b>Materials:</b> Tan granular material
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Calcite, Paint						

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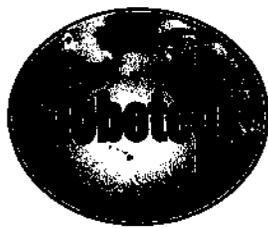
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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013002-549-KWR-B42	013102-42	1/31/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E		<b>Location:</b> 2nd Flr, HW 272		<b>Materials:</b> Tan granular material		
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Gypsum/Binder, Calcite, Paint				

Analyst:

for Mohammad Rouf, MPH, CHMM  
Laboratory Director

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## Bulk Asbestos Analysis EPA Method 600/R-93-116, Visual Area Estimation

**Customer Name:** SaLUT

**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

**Sampled By:** Client

**Received By:** M. Lee

**TAT:** 5 Days

**Report No:** 132

**Date Printed:** 2/4/2002

**Analyst:** M. Lee

**Total # of Sample(s):** 38

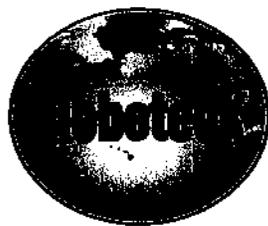
**Total # of Layer(s):** 46

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B43	020402-09	2/5/2002	1 of 1	Chrysotile	White	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E		<b>Location:</b> 1st Flr, Rm 7		<b>Materials:</b> Paper w/ White Paint		
<b>Other Fibrous Materials:</b>		Cellulose 10-20% Fibrous Glass 3-5%				
<b>Non-Fibrous Materials:</b>		Glue/Binder, Paint, Metal Foil				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B46	020402-12	2/5/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E		<b>Location:</b> 1st Flr, Rm 7		<b>Materials:</b> Tan Granular Matrix w/ Yellow/Green Paint		
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Gypsum/Binder, Calcite, Paint				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B47	020402-13	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E		<b>Location:</b> 1st Flr, Hw 21		<b>Materials:</b> Gray Granular Matrix		
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Gypsum/Binder, Calcite, Paint				

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B48	020402-14	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E				<b>Location:</b> 1st Flr, Rm 45		<b>Materials:</b> Gray Granular Matrix w/ Tan Paint
<b>Other Fibrous Materials:</b> None Detected				<b>Non-Fibrous Materials:</b> Gypsum/Binder, Calcite, Paint		

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B49	020402-15	2/5/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E				<b>Location:</b> 1st Flr, Hw 13		<b>Materials:</b> White Composite Wall Material
<b>Other Fibrous Materials:</b> Cellulose 40-50%, Fibrous Glass 1-3%				<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica, Calcite		

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B50	020402-16	2/5/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E				<b>Location:</b> 1st Flr, Hw 21		<b>Materials:</b> White Crumbly Matrix w/ Paint
<b>Other Fibrous Materials:</b> None Detected				<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica		

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B51	020402-17	2/5/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E				<b>Location:</b> 1st Flr, Rm 44		<b>Materials:</b> White Crumbly Material W/Paper
<b>Other Fibrous Materials:</b> Cellulose 5-10%, Fibrous Glass 1-3%				<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica		

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B52	020402-18	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E				<b>Location:</b> 1st Flr, Boiler Rm		<b>Materials:</b> Gray Lumpy Fibrous Matrix w/ Paint
<b>Other Fibrous Materials:</b> Mineral Wool 20-30%				<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica, Paint, Glass Beads		

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B53	020402-19	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E		<b>Location:</b> 1st Flr, Boiler Rm		<b>Materials:</b> Gray Lumpy Fibrous Matrix w/ Paint		
<b>Other Fibrous Materials:</b>		Mineral Wool 20-30%				
<b>Non-Fibrous Materials:</b>		Gypsum/Binder, Paint, Mica				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B54	020402-20	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E		<b>Location:</b> 1st Flr, Boiler Rm		<b>Materials:</b> Gray Lumpy Fibrous Matrix w/ Paint		
<b>Other Fibrous Materials:</b>		Mineral Wool 20-30%				
<b>Non-Fibrous Materials:</b>		Gypsum/Binder, Paint, Mica				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B55	020402-21	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E		<b>Location:</b> 1st Flr, Outside Rm 9		<b>Materials:</b> Gray Soft Gummy Matrix		
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Cement/Binder, Calcite				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B56	020402-22	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E		<b>Location:</b> 1st Flr, Outside Rm 47		<b>Materials:</b> Gray Soft Gummy Material		
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Cement/Binder, Calcite				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B57	020402-23	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E		<b>Location:</b> 1st Flr, Outside Rm 27		<b>Materials:</b> Gray Soft Gummy Material		
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Cement/Binder, Calcite				

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B58	020402-24	2/5/2002	1 of 1	None Detected	Light Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 45 <b>Materials:</b> Light Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B59	020402-25	2/5/2002	1 of 1	None Detected	Light Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 45 <b>Materials:</b> Light Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B60	020402-26	2/5/2002	1 of 1	None Detected	Light Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 45 <b>Materials:</b> Light Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B61	020402-27	2/5/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 44 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B62	020402-28	2/5/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 44 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B63	020402-29	2/5/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 44 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B64	020402-30	2/5/2002	1 of 3	Chrysotile	White	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 45 <b>Materials:</b> Paper w/ Metal Foil						
<b>Other Fibrous Materials:</b> Cellulose 3-5% Mineral Wool 5-10%						
<b>Non-Fibrous Materials:</b> Paint, MetalFoil, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B64	020402-30	2/5/2002	2 of 3	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 45 <b>Materials:</b> Tan lumpy material						
<b>Other Fibrous Materials:</b> Mineral Wool 50-60%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B64	020402-30	2/5/2002	3 of 3	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 45 <b>Materials:</b> Yellow Fibrous Material						
<b>Other Fibrous Materials:</b> Mineral Wool 80-90%						
<b>Non-Fibrous Materials:</b> Glue/Binder, Glass Beads						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B67	020402-33	2/5/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 12 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B67	020402-33	2/5/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 12 <b>Materials:</b> Yellow Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

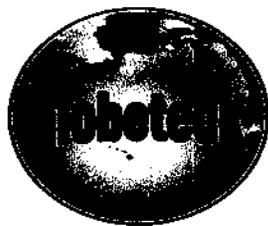
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B68	020402-34	2/5/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 1 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B68	020402-34	2/5/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 1 <b>Materials:</b> Yellow Mastic						
<b>Other Fibrous Materials:</b> Mineral Wool <1%						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B69	020402-35	2/5/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 20 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B69	020402-35	2/5/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 20 <b>Materials:</b> Brown Brittle Mastic						
<b>Other Fibrous Materials:</b> Wollastonite 1-3%						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B70	020402-36	2/5/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 1 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B71	020402-37	2/5/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 1 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B72	020402-38	2/5/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 1 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B73	020402-39	2/5/2002	1 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 110 <b>Materials:</b> Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B73	020402-39	2/5/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 110 <b>Materials:</b> Yellow Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B74	020402-40	2/5/2002	1 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 110 <b>Materials:</b> Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B74	020402-40	2/5/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 110 <b>Materials:</b> Yellow Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B75	020402-41	2/5/2002	1 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 110 <b>Materials:</b> Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B75	020402-41	2/5/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 110 <b>Materials:</b> Yellow Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B76	020402-42	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, EXT. of Rm 45 <b>Materials:</b> Gray Crumbly Matrix						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B77	020402-43	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, EXT. of Arms Rm <b>Materials:</b> Gray Hard Granular Matrix w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B78	020402-44	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, EXT. of Rm 132B <b>Materials:</b> Gray Hard Granular Matrix						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B79	020402-45	2/5/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 2nd Flr, EXT. Corner of Arms Rm East <b>Materials:</b> Tan Granular Matrix w/ Paint						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B80	020402-46	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 2nd Flr, EXT. Lanai-Center <b>Materials:</b> Gray Hard Granular Matrix w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B81	020402-47	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 2nd Flr, EXT. Lanai-West <b>Materials:</b> Gray Crumbly Matrix						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

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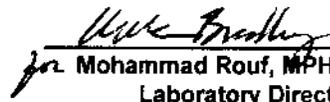
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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B82	020402-48	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, EXT. Lanai-West <b>Materials:</b> Gray Granular Matrix w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B83	020402-49	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, EXT. Lanai-Center <b>Materials:</b> Gray Hard Granular Matrix w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B84	020402-50	2/5/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 3rd Flr, EXT. Lanai-East <b>Materials:</b> Gray Hard Granular Matrix w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Analyst: \_\_\_\_\_

  
Dr. Mohammad Rouf, MPH, CHMM  
Laboratory Director

The result quantitations reported are an estimation based on the methods of visual microscopic estimation which is considered only a semi-quantitative technique. This report applies only to the sample(s) received and analyzed by GLOBETECK. Results do not necessarily reflect the makeup of the entire span of the material from which the samples were derived. Sampling techniques and/or sample handling may affect the integrity of the sample/s before submission to GLOBETECK. Laboratory and hence the outcome of the laboratory results. Samples not destroyed by testing are retained a minimum of thirty days. GLOBETECK Laboratory, recommends re-analysis by point count or Transmission Electron Microscopy (TEM) for materials that are found to contain less than ten percent (<10%) asbestos by PLM. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of GLOBETECK.



544 Ohohia Street, Suite 2, Honolulu, HI 96819, Phone : (808) 833-5787, Fax: (808) 833-5987

## Bulk Asbestos Analysis

### EPA Method 600/R-93-116, Visual Area Estimation

**Customer Name:** SaLUT  
**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

**Sampled By:** Client  
**Received By:** W. Bradley  
**TAT:** Rush  
**Report No:** 132 (274) Add  
**Date Printed:** 3/28/2002  
**Analyst:** M. Lee

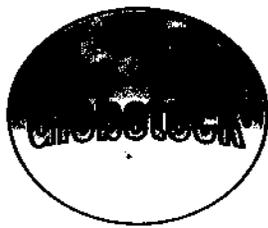
**Total # of Sample(s):** 8      **Total # of Layer(s):** 8

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B61	020402-27	3/28/2002	2 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 44 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B62	020402-28	3/28/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 44 <b>Materials:</b> Adhesive w/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B63	020402-29	3/28/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 44 <b>Materials:</b> Adhesive w/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Paint, Calcite						

The result quantitations reported are an estimation based on the methods of visual microscopic estimation which is considered only a semi-quantitative technique. This report applies only to the sample(s) received and analyzed by GLOBETECK. Results do not necessarily reflect the makeup of the entire span of the material from which the samples were derived. Sampling techniques and/or sample handling may affect the integrity of the sample/s before submission to GLOBETECK Laboratory and hence the outcome of the laboratory results. Samples not destroyed by testing are retained a minimum of thirty days. GLOBETECK Laboratory recommends re-analysis by point count or Transmission Electron Microscopy (TEM) for materials that are found to contain less than ten percent (<10%) asbestos by PLM. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of GLOBETECK.



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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B65	020402-31	3/28/2002	2 of 3	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 24 <b>Materials:</b> Muddy Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20%, Mineral Wool 1-3%						
<b>Non-Fibrous Materials:</b> Clay, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
013102-549-JSW-B66	020402-32	3/28/2002	2 of 3	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 11 <b>Materials:</b> Muddy Material						
<b>Other Fibrous Materials:</b> Cellulose 1-3%, Fibrous Glass 3-5%, Synthetic Fibers 5-10%						
<b>Non-Fibrous Materials:</b> Clay, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B70	020402-36	3/28/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 1 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B71	020402-37	3/28/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 1 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-549-JSW-B72	020402-38	3/28/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 549, Quad E <b>Location:</b> 1st Flr, Rm 1 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

The result quantitations reported are an estimation based on the methods of visual microscopic estimation which is considered only a semi-quantitative technique. This report applies to the sample(s) received and analyzed by GLOBETECK. Results do not necessarily reflect the makeup of the entire span of the material from which the samples were derived. Sampling techniques and/or sample handling may affect the integrity of the sample/s before submission to GLOBETECK. Laboratory and hence the outcome of the laboratory results. Samples not destroyed by testing are retained a minimum of thirty days. GLOBETECK Laboratory, recommends re-analysis by point count or Transmission Electron Microscopy (TEM) for materials that are found to contain less than ten percent (<10%) asbestos by PLM. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of GLOBETECK.

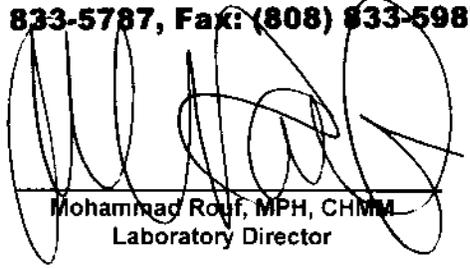


# Globeteck

**NVLAP**<sup>®</sup>  
NVLAP ID# 200541-0

544 Ohohia Street, Suite 2, Honolulu, HI 96819, Phone : (808) 833-5787, Fax: (808) 833-5987

Analyst: \_\_\_\_\_



Mohammad Rouf, MPH, CHMM  
Laboratory Director

The result quantitations reported are an estimation based on the methods of visual microscopic estimation which is considered only a semi-quantitative technique. This report applies only to the sample(s) received and analyzed by GLOBETECK. Results do not necessarily reflect the makeup of the entire span of the material from which the samples were derived. Sampling techniques and/or sample handling may affect the integrity of the sample/s before submission to GLOBETECK. Laboratory and hence the outcome of the laboratory results. Samples not destroyed by testing are retained a minimum of thirty days. GLOBETECK Laboratory, recommends re-analysis by point count or Transmission Electron Microscopy (TEM) for materials that are found to contain less than ten percent (<10%) asbestos by PLM. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of GLOBETECK.



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 Honolulu, Hawaii 96819  
 Phone (808) 833-5787 Fax (808) 833-5987

**CHAIN OF CUSTODY**

Project Name: <u>Schofield Barracks, Bldg 549 - Grade</u>		ANALYSIS REQUESTED						
Client: <u>Salut</u>		Asbestos (PLM/PCM)	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project # <u>01-290</u>								
Sampled by: <u>KWR</u>								
Sample Date: <u>01/29, 01/30/02</u>								
Turn Around Time: <u>5 Days</u>								
SAMPLE ID	LOCATION							
013102-01								
012902-549-KWR-B1	3 <sup>rd</sup> FLR, Rm 339							
013102-02	↓ B2							
013002-549-KWR-B3	↑ Rm 340							
012102-549-KWR-B4	Rm 373							
013002-549-KWR-B5	Rm 340							
06	Rm 319							
07	Rm 342							
08	2 <sup>nd</sup> FLR, Rm 256							
09	Rm 248							
10	Rm 275							
	Rm 252							
Relinquished by: <u>Ken Keyser</u>		Relinquished by:						
Signature: <u>Ken Keyser</u>		Signature:						
Time/Date: <u>01/30/02, 16:35</u>		Time/Date:						
Received by: <u>Ken Keyser</u>		Received by:						
Signature: <u>Ken Keyser</u>		Signature:						
Time/Date: <u>01/30/02, 16:35</u>		Time/Date:						

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CHAIN OF CUSTODY

Project Name: <u>BB, Bldg 549 - Queue</u>		ANALYSIS REQUESTED						
Client:		Asbestos P/M/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date: <u>01/30</u>								
Turn Around Time:								
SAMPLE ID	LOCATION							
013002-11								
013002-549-kwr-B11	<u>2nd FLR, Rm 245</u>							
12	<u>B12 Rm 222</u>							
13	<u>B13 Rm 237</u>							
14	<u>B14 Outside Rm 1A</u>							
15	<u>B15 Outside Rm 272</u>							
16	<u>B16 3rd FLR Rm 325</u>							
17	<u>B17 Rm 300</u>							
18	<u>B18 HWA</u>							
19	<u>B19 Rm 302</u>							
20	<u>B20 "</u>							

Relinquished by:	Received by:
Signature:	Signature:
Time/Date:	Time/Date:



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CHAIN OF CUSTODY

Project Name: SB Bldg 549 - Quade		ANALYSIS REQUESTED						
Client		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date: 01/20/02								
Turn Around Time:								
SAMPLE ID	LOCATION							
013102-24 Q13002-549-1002-B21	3 <sup>rd</sup> FLR, Rm 307							
22 B22	Rm 319							✓
23 B23	outside Rm 4							✓
24 B24	outside Rm 312							✓
25 B25	HW B							✓
26 B26	HW 2							⊕
27 B27	HW A							Not A ✓
28 B28	HW B							✓
29 B29	HW 2							✓
30 B30	HW A							✓
Relinquished by:		Relinquished by:						
Signature:		Signature:						
Time/Date:		Time/Date:						

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CHAIN OF CUSTODY

Project Name: SB, BLDG 549 - QUARLE		ANALYSIS REQUESTED						
Client:		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date: 01/30/02								
Turn Around Time:								
SAMPLE ID	LOCATION							
013002-71 013002-549-FLR-831	3 <sup>rd</sup> FLR, HW 1 ceiling							⊕
32 832	HW A Column							Not A
33 833	Outside Rm 317 ext. ceiling							Not A
34 834	2 <sup>nd</sup> FLR, HW 218							⊕
35 835	HW 230							Not A
36 836	Rm 272							Not A
37 837	HW 218							✓
38 838	HW 230							✓
39 839	HW 269							✓
40 840	HW 218 Column							✓
Relinquished by:		Relinquished by:						
Signature:		Signature:						
Time/Date:		Time/Date:						



Pg 1 of 5



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020402 -

CHAIN OF CUSTODY

Project Name: Schunfield Barracks, Bldg 549 - Ground  
Client: Sabat  
Project # 01-240  
Sampled by: JSW  
Sample Date: 01/31/02  
Turn Around Time: 5 DAY

SAMPLE ID	LOCATION	ANALYSIS REQUESTED						
		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
013102-549-JSW-D13	1 <sup>st</sup> FLR, Rm 7							
10	D44							Not A
11	B45							Not A
12	B46							
13	B47							
14	B48							
15	B49							
16	B50							
17	B51							
18	B52							

Relinquished by: John Willard Received by: John Willard  
Signature: [Signature] Signature: [Signature]  
Time/Date: 02-04-02/0826 Time/Date: 8:30AM 2/4/02

pg 2 of 5



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02.0402-

### CHAIN OF CUSTODY

Project Name <b>SB, BUD STA - QUAD E</b>		ANALYSIS REQUESTED						
Client		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date <b>01/21/02</b>		Received by:						
Turn Around Time:		Signature:						
		Time/Date:						
		Relinquished by:						
		Signature:						
		Time/Date:						

19  
013102  
20  
21  
22  
23  
24  
25  
26  
27  
28

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Honolulu, Hawaii 96819  
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020402 -

### CHAIN OF CUSTODY

Project Name: SB, BLDG 549 - QUACKE		ANALYSIS REQUESTED						
Client:		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date: 01/31, 02/01/02								
Turn Around Time:								
SAMPLE ID	LOCATION							
29 013102-549-Jsw-803	1st FLR, Rm 44							
30	B04 Rm 45							
31	B05 Rm 24							Not A
32	B06 Rm 11							Not A
33 020102-549-Jsw-807	B07 Rm 12							
34	B08 Rm 1							
35	B09 Rm 20							
36	B70 Rm 1							
37	B71							
38	B72							
Relinquished by:		Relinquished by:						
Signature:		Signature:						
Time/Date:		Time/Date:						

024065



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020402

CHAIN OF CUSTODY

Project Name: SB BUDG 549 - Queen E		ANALYSIS REQUESTED							
Client		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals	
Project #									
Sampled by:									
Sample Date: 02/01									
Turn Around Time:									
SAMPLE ID	LOCATION								
39 020102-549-350-873	1 <sup>st</sup> FLR, Rm 110								
40	B74								
41	B75								
42	B76								
43	B77								
44	B78								
45	B79								
46	B80								
47	B81								
48	B82								
Relinquished by:		Received by:						Relinquished by:	
Signature:		Signature:						Signature:	
Time/Date:		Time/Date:						Time/Date:	



**Bulk Sample Analysis for Asbestos**

WEC Project #: H02-166  
Client Project#: 01-290

Report #: 11609  
Report Date: 2/15/02

Client: **Soil and Land Use Technology, Inc.**  
3375 Koapaka Street Suite B286  
Honolulu, HI 96819

# Samples: 1      # Layers: 1

Collection Date: 1/31/02  
Collection By:  
TAT: One week (or more)  
Analysis By: S. Wells  
Analysis Date: 2/15/02  
Received By: Santos, K.  
Received Date: 2/8/02

Project Name/Location: Scholfield Barracks Bldg.549 Quad E

Client ID#	WEC ID#	Location		Layer
013102-549-JSW-B61	HB02-0606	1st Floor Room 44		1 of 1
<b>Asbestos</b>				
None Detected		Friable/Non Non Friable	Fibrous? No	Homo- genous No
		Material Tile		Color Beige
<b>Other Fibrous Materials</b>				
None Detected		<b>% Non Fibrous Materials: 100%</b>		
Sample Comments:				

Comments:

Analyst S. Wells      Date 2/15/02  
QC         Date 2/15/02

Analysis performed by EPA Method 600/R-93/116 with dispersion staining microscopy. All quantities reported are based on visual estimation by PLM, unless point-counting method is requested and noted for the sample. Test report relates only to items tested and must not be used by client to claim product endorsement by NVLAP or any agency of the U.S. Government. Test reports must not be reproduced without the approval of WEC Inc., and are subject to WEC Inc. General Terms and Conditions (see reverse). White Environmental Consultants, Inc. is an NVLAP accredited laboratory for bulk asbestos analysis. (Lab# 200350-0)

**Bulk Sample Analysis for Asbestos**

WEC Project #: H02-166  
Client Project#: 01-290

Report #: 11391  
Report Date: 2/5/02

Client: **Soll and Land Use Technology, Inc.**  
3375 Koapaka Street Suite B286  
Honolulu, HI 96819

# Samples: 1      # Layers: 3

Collection Date: 1/29/02  
Collection By: Client  
TAT: One week (or more)  
Analysis By: S. Wells  
Analysis Date: 2/5/02  
Received By: S.Santos  
Received Date: 1/30/02

Project Name/Location: Scholfield Barracks Bldg.549 Quad E

Client ID#	WEC ID#	Location	Layer						
012902-549-KWR-B1	HB02-0464-A	3rd Floor Room 339	1	of 2					
<b>Asbestos</b>		<b>Friable/Non</b>	<b>Fibrous?</b>	<b>Homo- genous</b>	<b>Material</b>	<b>Color</b>			
None Detected		Non Friable	Yes	No	Tile	Beige			
<b>Other Fibrous Materials</b>		<i>% Asbestos: None</i>							
<table border="1"> <thead> <tr> <th>Type</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>Cellulose</td> <td>2%</td> </tr> </tbody> </table>		Type	%	Cellulose	2%	<i>% Other Fibrous Materials: 2%</i>			
Type	%								
Cellulose	2%								
		<i>% Non Fibrous Materials: 98%</i>							
Sample Comments:									

Client ID#	WEC ID#	Location	Layer							
012902-549-KWR-B1	HB02-0464-B	3rd Floor Room 339	2	of 2						
<b>Asbestos</b>		<b>Friable/Non</b>	<b>Fibrous?</b>	<b>Homo- genous</b>	<b>Material</b>	<b>Color</b>				
<table border="1"> <thead> <tr> <th>Type</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>Chrysotile</td> <td>Trace</td> </tr> </tbody> </table>		Type	%	Chrysotile	Trace	Non Friable	Yes	No	Mastic	Yellow/Black
Type	%									
Chrysotile	Trace									
<b>Other Fibrous Materials</b>		<i>% Asbestos: Trace</i>								
<table border="1"> <thead> <tr> <th>Type</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>Cellulose</td> <td>7%</td> </tr> </tbody> </table>		Type	%	Cellulose	7%	<i>% Other Fibrous Materials: 7%</i>				
Type	%									
Cellulose	7%									
		<i>% Non Fibrous Materials: 93%</i>								
Sample Comments: <1% Chrysotile Asbestos detected in yellow & black mastic.										



**Bulk Sample Analysis for Asbestos**

WEC Project #: H02-166  
Client Project#: 01-290

Report #: 11400  
Report Date: 2/5/02

Client: **Soil and Land Use Technology, Inc.**  
3375 Koapaka Street Suite B286  
Honolulu, HI 96819

# Samples: 2      # Layers: 3

Collection Date: 1/30/02  
Collection By: Client  
TAT: One week (or more)  
Analysis By: S. Wells  
Analysis Date: 2/5/02  
Received By: S.Santos  
Received Date: 1/30/02

Project Name/Location: Scholfield Barracks Bldg.549 Quad E

Client ID#	WEC ID#	Location	Layer									
013002-549-KWR-B21	HB02-0465	3rd Floor Room 302	1 of 1									
<b>Asbestos</b>		<b>Friable/Non</b>	<b>Fibrous?</b>	<b>Homo- genous</b>	<b>Material</b>	<b>Color</b>						
None Detected		Non Friable	Yes	No	Sheet Vinyl	White						
<b>Other Fibrous Materials</b>		% Asbestos: None										
<table border="1"> <thead> <tr> <th>Type</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>Cellulose</td> <td>25%</td> </tr> <tr> <td>Synthetic</td> <td>5%</td> </tr> </tbody> </table>		Type	%	Cellulose	25%	Synthetic	5%	% Other Fibrous Materials: 30%				
Type	%											
Cellulose	25%											
Synthetic	5%											
		% Non Fibrous Materials: 70%										
Sample Comments:												

Client ID#	WEC ID#	Location	Layer							
013002-549-KWR-B41	HB02-0466	2nd Floor Hallway 230	1 of 1							
<b>Asbestos</b>		<b>Friable/Non</b>	<b>Fibrous?</b>	<b>Homo- genous</b>	<b>Material</b>	<b>Color</b>				
None Detected		Non Friable	Yes	No	Plaster	Tan/Green				
<b>Other Fibrous Materials</b>		% Asbestos: None								
<table border="1"> <thead> <tr> <th>Type</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>Cellulose</td> <td>Trace</td> </tr> </tbody> </table>		Type	%	Cellulose	Trace	% Other Fibrous Materials: Trace				
Type	%									
Cellulose	Trace									
		% Non Fibrous Materials: 100%								
Sample Comments:										



**WHITE  
ENVIRONMENTAL  
CONSULTANTS INC.**

2290 Alahao Pl., Honolulu, HI 96819-2283

(808) 843-0655

200350-0

FAX: (808) 843-0657

**Bulk Sample Analysis for Asbestos**

WEC Project #: H02-166  
Client Project#: 01-290

Report #: 11400  
Report Date: 2/5/02

Comments:

Analyst *St. J. Williams* Date *2/05/02*  
QC *[Signature]* Date *2/5/02*

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**Bulk Sample Analysis for Asbestos**

WEC Project #: H02-166  
Client Project#: 01-290

Report #: 11608  
Report Date: 2/15/02

Client: **Soil and Land Use Technology, Inc.**  
3375 Koapaka Street Suite B286  
Honolulu, HI 96819

# Samples: 1      # Layers: 1

Collection Date: 2/1/02  
Collection By: Client  
TAT: One week (or more)  
Analysis By: S. Wells  
Analysis Date: 2/15/02  
Received By: Santos, K.  
Received Date: 2/8/02

Project Name/Location: Scholfield Barracks Bldg.549 Quad E

Client ID#	WEC ID#	Location	Layer
020102-549-JSW-B81	HB02-0607	2nd Floor Ext. Lanai West	1 of 1

Asbestos	Friable/Non	Fibrous?	Homo- genous	Material	Color
None Detected	Non Friable	Yes	No	Plaster	Tan/Brown

**Other Fibrous Materials**

Type	%
Cellulose	Trace

% Asbestos: None  
% Other Fibrous Materials: Trace  
% Non Fibrous Materials: 100%

Sample Comments:

Comments:

Analyst Stan Wells      Date 2/15/02  
QC [Signature]      Date 2/15/02

Analysis performed by EPA Method 600/R-93/116 with dispersion staining microscopy. All quantities reported are based on visual estimation by PLM, unless point-counting method is requested and noted for the sample. Test report relates only to items tested and must not be used by client to claim product endorsement by NVLAP or any agency of the U.S. Government. Test reports must not be reproduced without the approval of WEC Inc., and are subject to WEC Inc. General Terms and Conditions (see reverse). White Environmental Consultants, Inc. is an NVLAP accredited laboratory for bulk asbestos analysis. (Lab# 200350-0)









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# Schofield Barracks



## Building 550



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## Executive Summary

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Soil and Land Use Technology, Inc. (SaLUT) performed an asbestos identification and assessment reinspection of Building 550 located at Schofield Barracks, Hawaii. The results of the original survey conducted in 1993 (*Asbestos Survey and Management Plan Report for Building 550 of Quad E at the Schofield Barracks Military Reservation, Hawaii*, Baker Environmental, Inc. for the Corps of Engineers, Fort Shafter), and one survey of limited scope conducted in 1996 (*Asbestos and Lead-Based Paint Survey for Design of FY96 OMA PKG A-71, Repair Barracks Latrines, Building Nos. 549, 550, 551 & 552, Schofield Barracks, Oahu, Hawaii*, R. M. Towill Corporation) were included to the extent that the suspect materials found in those surveys could be identified. The survey was conducted by SaLUT in accordance with the U.S. Army Corps of Engineers Honolulu Engineer District Scope of Work dated September 18, 2001. The survey was conducted on January 24, 2002 through March 5, 2002.

All accessible areas of the building were inspected for suspect asbestos-containing building materials (ACBMs). One hundred and sixty-two samples of suspect asbestos containing material were collected. Analytical results confirmed that asbestos is present as duct insulation, pipe insulation, floor tile, floor tile mastic, glazing, asphalt roofing material, pipe adhesive, duct adhesive, cement paneling, and vibration dampeners. A summary of the ACBMs encountered is provided on the next page. This report provides a detailed description of the ACBM locations, quantities, and hazard assessments based on conditions existing at the time of the inspection. No areas were found to contain ACBM causing high or imminent exposure potential.



*Photograph 1. Front of Building 550*



*Photograph 2. Rear of Building 550*

**BUILDING SUMMARY**

**Facility** Schofield Barracks  
**Building** 550  
**Inspector(s)** John Willard, Kenneth Reynolds  
**Inspection Date(s)** January 24, 2002 through March 5, 2002  
**Building Area** 105,000 sf

**Inaccessible areas (overview)**

None

**Areas with limited access (overview)**

Beneath wall-to-wall carpeting (“LCA” on building drawings)

**Areas with no access (overview)**

Above ceilings with no access (“NAC” on building drawings)  
 Rooms that were sealed (“NA” on building drawings)

Types of ACBMs Encountered		Approximate Quantity
<b>Thermal System Insulation</b>	Pipe insulation	133 lf
	Duct insulation	500 sf
<b>Surfacing</b>	None	
<b>Miscellaneous</b>	Asphalt roofing material	19,275 sf
	Cement paneling	1,625 sf
	Duct adhesive	2,649 sf
	Floor tile mastic	44,207 sf
	Floor tile	36,433 sf
	Window glazing	30 lf
	Pipe adhesive	1,280 sf
Vibration dampener	3 ea.	
<b>Functional Areas with High to Imminent Exposure Potential</b>	None	



*Photograph 3. Side of Building 550*

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# 1 Introduction

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SaLUT performed an inspection of Building 550 to identify and assess all accessible ACBMs. This was a reinspection conducted between January 24, 2002 and March 5, 2002, in accordance with the requirements outlined in the Scope of Work dated September 18, 2001. The results of the original survey conducted in July and August 1993 (*Asbestos Survey and Management Plan Report for Building 550 of Quad E at the Schofield Barracks Military Reservation, Hawai'i*, Baker Environmental, Inc. for the Corps of Engineers, Fort Shafter) and one survey of limited scope conducted in 1996 (*Asbestos and Lead-Based Paint Survey for Design of FY96 OMA PKG A-71, Repair Barracks Latrines, Building Nos. 549, 550, 551 & 552, Schofield Barracks, Oahu, Hawaii*, R. M. Towill Corporation) were included.

The following is a description of the building:

<b>Function</b>	Barracks
<b>Size</b>	105,000 square feet; three floors
<b>Foundation</b>	Concrete
<b>Exterior walls</b>	Concrete masonry units with plaster coat
<b>Roof</b>	Gravel over asphalt roofing material and roofing felt
<b>Mechanical systems</b>	Main mechanical room containing furnace and boiler on First Floor; secondary mechanical rooms on Second and Third Floors; pipes are insulated with fiberglass covered with foil wrap; sealant on foil wrap
<b>Climate control</b>	Series of air conditioning units, each feeding multiple rooms; ducts are insulated with various suspect materials or fiberglass; covered with foil wrap; sealant on foil wrap
<b>Interior walls</b>	Drywall, cementitious panels, plaster
<b>Floors</b>	Floor tile, ceramic tile, carpet, concrete
<b>Ceilings</b>	Fixed ceilings, ceiling tile

Survey and assessment protocols were based on those adopted by the U.S. Environmental Protection Agency (EPA) as detailed in the Asbestos Hazard Emergency Response Act (AHERA; 40 CFR 763, Subpart E), and those of the Hawaii Department of Health in Hawaii Administrative Rule (HAR) 11-502 *Asbestos-Containing Materials in Schools*. In addition to identifying materials considered suspect by AHERA survey protocols, accessible roofing and other exterior materials were also addressed. SaLUT's inspectors identified and sampled all materials considered to be suspect under the regulations and other documents listed in Section 2 *Applicable Documents*, as well as those materials that have been found through other available literature and inspectors' experience (e.g., leveling paper and silver exterior paint) to potentially contain asbestos. This report does not address those suspect materials that would be expected in the building (e.g., sink undercoating in bathrooms of a residence) but were not encountered; the reader should assume that, if a suspect material is not mentioned in Section 3 *Findings*, the material was not found in the building.

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For the following reasons, SaLUT's survey differed from a normal reinspection, wherein the locations and conditions of previously identified ACBMs are verified, and the impacts of building renovations are determined:

- ❑ **Inability to identify the Baker survey's homogeneous materials with certainty.** Photographs of the positive materials were not included in the Baker inspection report available at the Directorate of Public Works (DPW). Many of the types of floor tile in the original survey were described by their predominant color only. Other types of floor tile appear to have received more than one description (possibly due to having been described by different inspectors).
- ❑ **Multiple layers of floor tile.** Many rooms had multiple layers of floor tile. Numerous instances were identified where floor tile located in the 1993 survey had been covered by other types of tile. This made it impractical to carry out the following tasks with completed accuracy:
  - Verify all locations of floor tiles identified in the original survey
  - Quantify types of floor tile
  - Identify all types of floor tile in the building (it was assumed that all types of floor tile were visible in at least one location)

To deal with these issues, under the direction of SaLUT's Project Manager and Principal Investigator, the inspectors modified the survey protocol as follows:

- ❑ **Floor tile.** Where a floor tile type could be sampled by SaLUT's inspectors without causing unacceptable damage, the original inspection was ignored, the floor tile was given a SaLUT homogeneous material identification, and the floor tile was sampled in accordance with the SAP. If the material could be equated to a type of Baker floor tile, this was noted. Where older types of floor tile were noted below SaLUT's samples, but the older materials could not be sampled, the floor tile and associated mastic were identified from the material locations in Baker's report.
- ❑ **Other materials identified in previous inspections.** For all other materials (including those that were determined to not contain asbestos) that had been identified in the previous inspections, SaLUT's inspectors attempted to locate the materials. In a number of cases, the materials had been abated during various renovation projects. Where a material was identified, the SaLUT's lead inspector determined whether additional sampling was warranted.

The Towill inspectors took only a single sample of plaster from the exterior of the building; this does not meet the current Hawai'i requirement that three samples be taken from each floor. Because the Towill sample was non-asbestos containing, the results of this survey were disregarded.

- ❑ **Other materials not identified in previous inspection.** SaLUT's inspectors identified and sampled a number of suspect materials that were not identified previously.

All samples were collected in accordance with the Sampling and Analysis Plan (SAP) for the task except as noted above. Where applicable, corners of wall-to-wall carpeting were lifted to examine flooring materials under the carpet. Metal roofs that would not support the inspector's

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weight were examined visually; if suspect materials were identified they were presumed to contain asbestos unless they could be sampled from an accessible edge of the roof. These situations, as well as other special situations, are discussed in the SAP located in Appendix A of this volume.

On-site inspection and assessments were conducted by John Willard and Kenneth Reynolds, EPA and State of Hawai'i accredited Asbestos Inspectors. Quality control review was conducted by Dr. David M. Heisler (Principal Investigator).



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## 2 Applicable Documents

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The following are the regulations, standards, and other documents applicable to the survey:

### U.S. Army Publications

AR 200-1	Environmental Protection and Enhancement
AR 385-40	Accident Reporting and Records
EM 385-1-1	USACE, Safety and Health Requirements Manual, 3 Sep 96
AR-420-70	Building and Structures
TB 420-70-8	Asbestos Survey and Abatement

### Title 29 Code of Federal Regulations, U.S. Department of Labor, Occupational Safety and Health Administration Standards

Part 1910.20	Access to Employee Exposure and Medical Records
Part 1910.95	Occupational Noise Exposure
Part 1910.134	Respiratory Protection
Part 1910.1000	Air Contaminants – Permissible Exposure Limits
Part 1910.1001	Asbestos
Part 1910.1200	Hazard Communication
Part 1926.59	Hazard Communication Construction
Part 1926.1101	Asbestos in Construction

### Title 40 Code of Federal Regulations, Environmental Protection Agency Standards

Part 61 Subpart A	National Emission Standards for Hazardous Air Pollutants
Part 763	Asbestos Hazard Emergency Response Act

### American National Standards Institute Standards

Z9.2-1979	Fundamentals Governing the Design and Operation of Local Exhaust Systems
Z88.20-1988	Practices for Respiratory Protection

### U.S. Environmental Protection Agency Guidelines

EPA/600/R-93/116	Method of the Determination of Asbestos in Bulk Building Materials
EPA/5605-85-024	Guidance for Controlling Asbestos Containing Building Materials

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### **Underwriters Laboratories, Inc. Publications**

586-77 (R-1982)      Test Performance of High Efficiency Particulate Air Filter Units

### **State of Hawai'i Occupational Safety and Health Standards**

HIOSH 12-145      Asbestos in Construction

### **Hawai'i Administrative Rules**

Chapter 11-501      Asbestos Requirements  
 Chapter 11-502      Asbestos Containing Materials in Schools  
 Chapter 11-503      Fees for Asbestos Removal and Certification  
 Chapter 11-504      Asbestos Abatement Certification Program

### **USAED, Honolulu Contractual Documents**

Contract DACA83-01-D-0017      Indefinite-Delivery Indefinite-Quantity (IDIQ) Services Contract for Asbestos/Lead Survey and Abatement Services for Honolulu Engineer District (HED) Area of Responsibility, 14 September 2001

Contract DACA83-01-D-0017      Asbestos Survey for Various Buildings at Schofield Barracks, Wheeler Army Airfield, Fort Shafter, Tripler Army Medical Center, Waianae Recreational Center, Pohakuloa Training Area and Kiluea Military Reservation, Hawaii

Task Order 0001  
 Scope of Work

### **Previous Asbestos Surveys**

*Asbestos Survey and Management Plan Report for Building 550 of Quad E at the Schofield Barracks Military Reservation, Hawaii, Baker Environmental, Inc. for the Corps of Engineers, Fort Shafter*

*Asbestos and Lead-Based Paint Survey for Design of FY96 OMA PKG A-71, Repair Barracks Latrines, Building Nos. 549, 550, 551 & 552, Schofield Barracks, Oahu, Hawaii, R. M. Towill Corporation, 1996*

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## 3 Findings

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Eighty-one homogeneous materials suspected of potentially containing asbestos were identified and sampled by SaLUT. SaLUT also identified, but did not sample, an additional 14 types of floor tile, 17 types of floor tile mastic, one type of flex connector, one type of asphalt roofing material, and three types of cementitious panels that were found to be ACM by Baker. SaLUT collected 162 bulk asbestos samples that were analyzed by Globetec Group, Inc. at their National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory in Honolulu using polarized light microscopy/dispersion staining (PLM/DS) techniques. For some homogeneous materials, the laboratory used a *stop on positive* procedure whereby if one sample was confirmed as ACM, the remaining samples were not analyzed. Composite samples of floor tile and floor tile mastic were split and the two components were analyzed individually as required by AHERA regulations. Therefore, the number of samples collected differs from the number of analyses. SaLUT submitted duplicates of four of the samples analyzed by Globetec to White Environmental Consulting, a second NVLAP-certified laboratory in Honolulu, and five samples to AMA Analytical, Inc., a NVLAP-certified laboratory in Lanham, Maryland, for quality control analysis. For sample B21 (floor tile mastic), initial analysis by Globetec indicated that the material contained asbestos. White found this same sample to contain only trace amounts of asbestos. For sample B121 (asphalt roofing material), initial analysis by Globetec indicated that the material contained asbestos. AMA found this sample to be non-asbestos-containing. Because one laboratory determined that these samples contained asbestos, the corresponding materials were considered to be ACM.

As a result of these laboratory analyses, 21 homogeneous materials (two types of floor tile, nine types of floor tile mastic, two types of pipe wrap, one type of duct wrap, two types of duct adhesive, one type of pipe insulation, two types of pipe adhesive, one type of glazing, and one type of asphalt roofing material) were confirmed as ACM by sample analysis, in addition to the fourteen types of asbestos-containing floor tile, seventeen types of floor tile mastic, one type of flex connector, one type of asphalt roofing material, and three types of cementitious panels identified by Baker and remaining in the building. The condition of the encountered positive materials was good, although some floor tiles were broken. Photographs 4 through 22 illustrate the ACMs sampled by SaLUT. Photographs 23 through 26 illustrate ACMs identified by Baker, whose presence was verified by SaLUT inspectors. SaLUT was unable to photograph each type of floor tile and mastic identified by Baker because many are located below floor tile sampled by SaLUT and were only revealed in the small areas where SaLUT's samples were taken.

All identified homogeneous materials considered to be potentially asbestos containing ("suspect") are listed on the *Homogeneous Materials Listing* (Table 1). These materials are grouped according to class (i.e., miscellaneous, surfacing, and thermal system insulation) and floor of the building. For each suspect material, the friability, general locations in the building, and sample numbers are indicated, as well as whether the material was determined to be ACM or not. Red sample numbers indicate those samples that contained asbestos. Gray sample numbers indicate samples that were not analyzed because another sample of the same material contained asbestos. The ACMs identified by Baker and not sampled by SaLUT are listed following SaLUT's homogeneous materials.

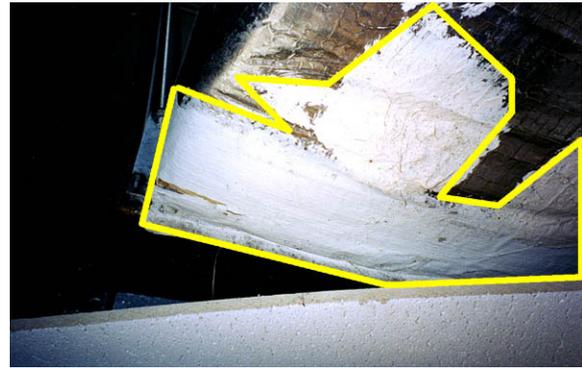
Sample collection sites for identified suspect ACMs, as well as locations of identified ACMs, are indicated on the building drawings (Figure 2).

Table 2, *Summary of Asbestos-Containing Materials*, provides a summary of the encountered ACMs in the building. Each material is listed with information regarding the type, location, and condition of the ACM, along with the recommended response action for the material.

Laboratory analysis sheets for all samples collected by SaLUT, including the quality control analyses, are located at the end of this report. Due to laboratory error, a number of samples were not included in the initial analysis but were analyzed later. These results follow behind the other laboratory analysis sheets and before the quality control analyses. Laboratory analysis sheets for samples collected during the previous surveys are found in those reports.



*Photograph 4. AR3. Asphalt roofing material (AR3) on an HVAC compressor located on the roof contains asbestos.*



*Photograph 5. DA1. White adhesive (DA1) on fiberglass duct insulation contains asbestos.*



*Photograph 6. DA3. White adhesive (DA3) located on fiberglass duct insulation contains asbestos.*



*Photograph 7. DI1. Mudded insulation (DI1) found on ducts located throughout the First Floor contains asbestos.*



*Photograph 8. FM1. The mastic (FM1) below this floor tile (FT1) contains asbestos. The floor tile does not.*



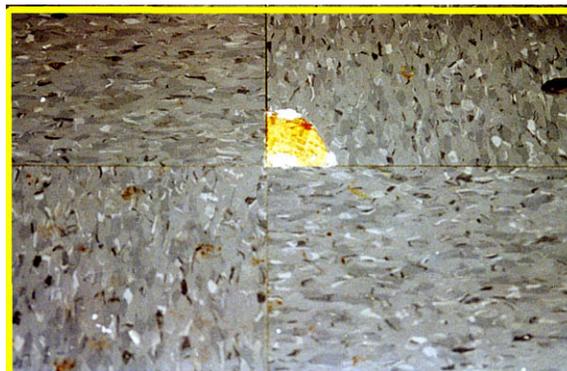
*Photograph 9. FM2. The mastic (FM2) below this white floor tile (FT2) contains asbestos. The floor tile does not.*



*Photograph 10. FM3. The mastic (FM3) below this white floor tile (FT3) contains asbestos. The floor tile does not.*



*Photograph 11. FM4. The mastic (FM4) below this blue floor tile (FT4) contains asbestos. The floor tile does not.*



*Photograph 12. FM6. This photograph shows White floor tile FT6 below blue mottled floor tile FT5 and yellow floor tile mastic FM5. The mastic (FM6) below white floor tile FT6 contains asbestos. Neither of the floor tiles (FT5 and FT6), nor the yellow floor tile mastic (FM5) contain asbestos.*



*Photograph 13. FM7. The mastic (FM7) below this floor tile (FT7) contains asbestos. The floor tile does not.*



*Photograph 14. FM8. The mastic (FM8) below this floor tile (FT8) contains asbestos. The floor tile does not.*



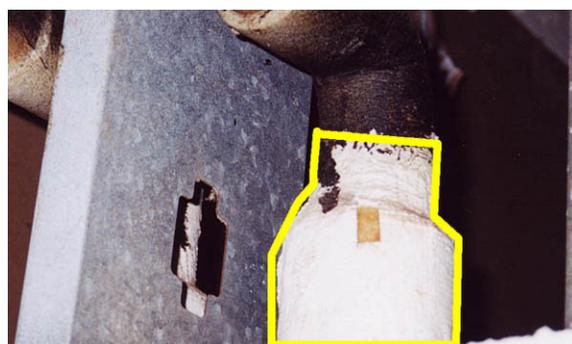
*Photograph 15. FM9. The mastic (FM9) below this floor tile (FT9) contains asbestos. The floor tile does not.*



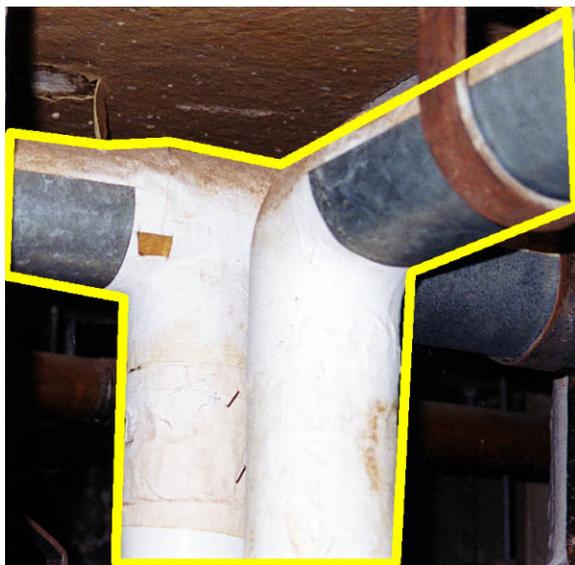
*Photograph 16. FM12 and FT12. This green floor tile (FT12) and its underlying mastic (FM12) contain asbestos.*



*Photograph 17. FM14 and FT14. This floor tile (FT14) and its underlying mastic (FM14) contain asbestos.*



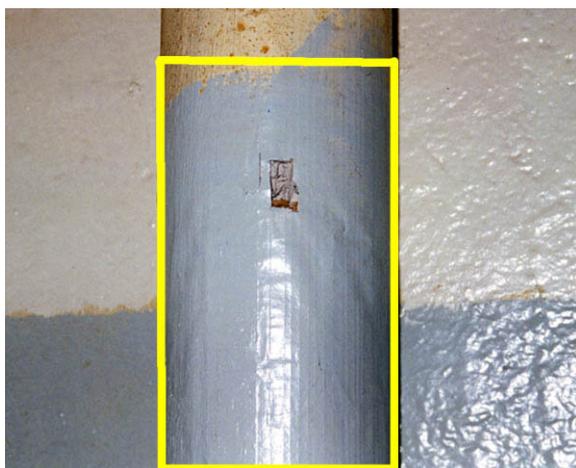
*Photograph 18. PA1. Black and white adhesive (PA1) on top of pipe insulation contains asbestos.*



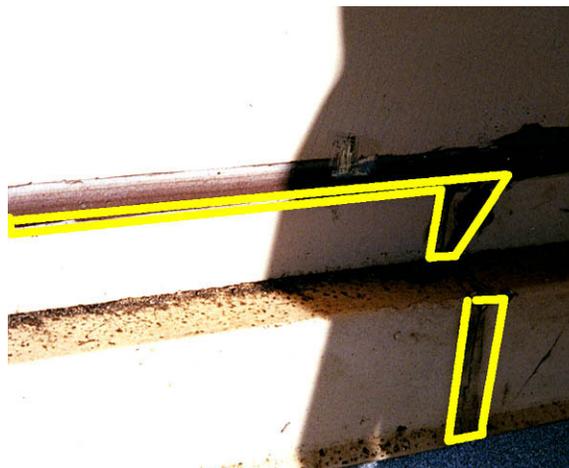
*Photograph 19. PA3. White adhesive (PA3) on fiberglass pipe insulation contains asbestos.*



*Photograph 20. PA5. White adhesive (PA5) on A/C water chiller pipe insulation contains asbestos.*



*Photograph 21. PA2 and PI2. This gray adhesive (PA2) and the mudded insulation (PI2) on the pipe below it contain asbestos.*



*Photograph 22. WG1. Silver glazing (WG3) on top of caulking (CK3) around air handler exhaust vents contains asbestos.*



*Photograph 23. MO01 and MO02. This floor tile (MO01) and its underlying mastic (MO02) contain asbestos.*



*Photograph 24. MO25 and MO26. This floor tile (MO25) and its underlying mastic (MO26) contain asbestos.*



*Photograph 25. MO32. This floor tile (MO32) contains asbestos. The mastic below (MO35) does not.*



*Photograph 26. MO34. The mastic (MO34) below this floor tile (MO33) contains asbestos. The floor tile does not.*

**Table 1. Homogeneous Materials Listing. Descriptions of asbestos-containing materials from Baker's survey are taken from Baker's report.**

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>First Floor</b>						
BM3	White/brown/yellow base-board mastic	No	Below VB3	B85, B86, B87	No	
CK4	Gray window caulking	No	Outside Rooms 114, 143, 189	B136, B137, B138	No	
DA3	White duct adhesive on top of foil wrap on ducts	No	Throughout First Floor	B70, B71, B72	Yes	2,418 sf
DA4	Off-white duct adhesive on top of foil wrap on ducts	No	Throughout First Floor	B79, B80, B81	No	
DW3	Sheetrock	Yes	Rooms 105-108, 114, 116, 130-132, 189, 190	B82, B83, B84	No	
FM5	Yellow mastic	No	Below FT5	B73, B74, B75	No	
FM6	Black/yellow mastic	No	Below FT6	B76, B77, B78	Yes	1,267 sf
FM7	Black mastic	No	Below FT7	B127, B128, B129	Yes	130 sf
FM8	Black mastic	No	Below FT8	B133, B134, B135	Yes	1,471 sf
FM9	Black mastic	No	Below FT9	B139, B140, B141	Yes	716 sf
FM10	Yellow mastic	No	Below FT10	B142, B143, B144	No	
FM11	Yellow mastic	No	Below FT11	B145, B146, B147	No	
FM12	Black mastic	No	Below FT12	B148, B149, B150	Yes	1,065 sf
FM13	Yellow mastic	No	Below FT13	B151, B152, B153	No	
FM14	Black mastic	No	Below FT14	B154, B155, B156	Yes	250 sf
FM15	Yellow mastic	No	Below FT15	B157, B158, B159	No	
FM16	White/brown mastic	No	Below FS1	B100, B101, B102	No	
FS1	Floor sheeting	No	Room 181	B100, B101, B102	No	
FT5	12" x 12" blue mottle	No	Rooms 160, 172, 173, 175, 188, 190	B73, B74, B75	No	
FT6	12" x 12" white floor tile	No	Below FT5 in Rooms 188, 190	B76, B77, B78	No	
FT7	12" x 12" white floor tile with brown specks	No	Room 137	B127, B128, B129	No	

Miscellaneous Materials						
	Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity
FT8	12" x 12" blue floor tile with white specks	No	Hallways 147, 148, 1100, 1101; Rooms 1, 136	B133, B134, B135	No	
FT9	12" x 12" brown mottle	No	Hallways 115, 117, 118; Rooms 105A, 198, 199	B139, B140, B141	No	
FT10	12" x 12" light tan floor tile with white specks	No	Rooms 110-113	B142, B143, B144	No	
FT11	12" x 12" cream floor tile with red streaks	No	Room 101	B145, B146, B147	No	
FT12	9" x 9" green floor tile with white streaks	No	Below FT11	B148, B149, B150	Yes	1,065 sf
FT13	12" x 12" white floor tile with brown streaks (double layer)	No	Room 101	B151, B152, B153	No	
FT14	12" x 12" white floor tile with light gray streaks	No	Room 2	B154, B155, B156	Yes	250 sf
FT15	12" x 12" white floor tile with brown blotches	No	Room 138	B157, B158, B159	No	
PA2	Gray pipe adhesive on top of paper pipe wrap and underlying insulation (PI2)	No	Throughout First Floor	B67, B68, B69	Yes	213 sf
PA3	White pipe adhesive on top of pipe wrap and underlying fiberglass insulation	No	Throughout First Floor	B91, B92, B93	Yes	213 sf
PA5	White pipe adhesive on top of pipe wrap and underlying insulation (PI5) on A/C chiller water lines	No	Throughout First Floor	B130, B131, B132	Yes	213 sf
PW4	White pipe wrap on top of pipe insulation (PI4)	No	Room 174	B118, B119, B120	No	
VB3	Black/blue vinyl baseboard	No	Hallway 147; Rooms 111, 190	B85, B86, B87	No	
WR2	White duct wrap covering insulation on ducts (DI2)	No	Throughout First Floor	B64, B65, B66	No	
ACBMs From Baker's Survey Located by SaLUT						
M001	12 x 12 floor tile Beige	No	Rooms 103-105, 109, 114, 116, 125	See Baker's report	Yes	1,500 sf
M002	Flooring adhesive Black	No	Hallways 115, 117, 118, 198, 199; Rooms 103-105, 109, 114, 116, 125	See Baker's report	Yes	2,148 sf
M004	Flooring adhesive Black	No	Rooms 136, 186	See Baker's report	Yes	2,364 sf
M010	Flooring adhesive Black	No	Room 100, 102	See Baker's report	Yes	852 sf
M011	12 x 12 floor tile Tan	No	Rooms 110-113 (below FT10)	See Baker's report	Yes	495 sf

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
M012	Flooring adhesive Black	No	Below M011	See Baker's report	Yes	495 sf
M013	12 x 12 floor tile Gray	No	Rooms 1, 2	See Baker's report	Yes	589 sf
M014	Flooring adhesive Black	No	Below M013	See Baker's report	Yes	589 sf
M015	12 x 12 floor tile Olive	No	Room 1A (below FT7), 126, 133, 136, 139, 142-145, 155, 160 (below FT5), 186 (below FT5), 189	See Baker's report	Yes	6,443 sf
M016	Flooring adhesive Black	No	Below M015	See Baker's report	Yes	6,443 sf
M046	Flooring adhesive Black	No	Room 137	See Baker's report	Yes	130 sf
M059	Flooring adhesive Black	No	Rooms 172, 173	See Baker's report	Yes	296 sf
M060	12 x 12 floor tile Rust	No	Rooms 176, 177	See Baker's report	Yes	162 sf
M070	Flex connector Cloth	No	Dining hall, outside air handling unit by Room 165	See Baker's report	Yes	3 ea.
M074	Cement wall panel Transite panel	No	Over exterior doors and windows	See Baker's report	Yes	415 sf
Second Floor						
BM1	Brown baseboard mastic	No	Below VB1	B4, B5, B6	No	
CK2	Window caulking	No	Exterior	B58, B59, B60	No	
DA2	Tan duct adhesive	No	Ducts in Hallways 205, 244, 292	B40, B41, B42	No	
DW2	Sheetrock	Yes	Hallways 205, 244, 292	B37, B38, B39	No	
FM3	Black mastic	No	Below FT3	B43, B44, B45	Yes	158 sf
FM4	Black/brown mastic	No	Below FT4	B46, B47, B48	Yes	158 sf
FT3	12" x 12" white floor tile with brown specks	No	Hallways 232, 233, 2105, 2108	B43, B44, B45	No	
FT 4	12" x 12" blue floor tile with white specks	No	Hallways 232, 233, 2105, 2108	B46, B47, B48	No	
SK1	Black sink undercoating	No	Rooms 208, 241, 256, 289	B1, B2, B3	No	
VB1	Black/brown vinyl baseboard	No	Hallway 205; Rooms 259, 297	B4, B5, B6	No	
ACBMs From Baker's Survey Located by SaLUT						
M018	12 x 12 floor tile Beige	No	Hallways 205-207, 216, 217, 2104-2107; Rooms 209, 211-215, 218-221	See Baker's report	Yes	2,964 sf
M019	Flooring adhesive Black	No	Below M018	See Baker's report	Yes	2,964 sf

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
M044 12 x 12 floor tile Olive	No	Hallways 232, 233, 242-244, 2109; Rooms 228-231, 234-240, 245	See Baker's report	Yes	3,889 sf	
M045 Flooring adhesive Black	No	Below M044	See Baker's report	Yes	3,889 sf	
M050 12 x 12 floor tile Rust	No	Hallways 253-255, 264, 265, 290, 2100, 2101; Rooms 249-252, 258, 259, 261, 263, 266-269	See Baker's report	Yes	3,300 sf	
M051 Flooring adhesive Black	No	Below M050	See Baker's report	Yes	3,300 sf	
M067 12 x 12 floor tile Light brown	No	Hallways 280-282, 291, 292, 298, 299, 2102, 2103; Rooms 276-279, 283-289, 293-297	See Baker's report	Yes	4,321 sf	
M068 Flooring adhesive Black	No	Below M067	See Baker's report	Yes	4,321 sf	
M075 Cement wall panel Transite panel	No	Over exterior doors and windows	See Baker's report	Yes	605 sf	
Third Floor						
BM2 Brown baseboard mastic	No	Below VB2	B7, B8, B9	No		
CK1 Gray window caulking	No	Interior and exterior of windows	B10, B11, B12	No		
DA1 White duct adhesive on top of foil duct wrap	No	Throughout Third Floor	B13, B14, B15	Yes	168 sf	
DW 1 Sheetrock	Yes	Hallways 305, 344, 365	B28, B29, B30	No		
FD1 Fire door	No	Room 368	B34, B35, B36	No		
FM1 Black mastic	No	Below FT1	B19, B20, B21	Yes	356 sf	
FM2 Black/tan mastic	No	Below FT2	B22, B23, B24	No		
FT 1 12" x 12" white floor tile with brown specks	No	Room 345	B19, B20, B21	No		
FT 2 12" x 12" cream floor tile with gray specks	No	Hallways 342, 3105, 3108; Rooms 332, 333, 340	B22, B23, B24	No		
PA1 Black/white pipe adhesive on top of paper wrap and underlying insulation on pipes	No	Throughout Third Floor	B52, B53, B54	Yes	640 sf	
SK2 Black sink undercoating	No	Rooms 389, 341	B16, B17, B18	No		
TC1 Cement ceiling panels	No	Bottom layer of roof (eaves of balconies)	B160, B161, B162	No		
VB2 Brown vinyl baseboard	No	Hallway 307; Rooms 357, 359	B7, B8, B9	No		

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>ACBMs From Baker's Survey Located by SaLUT</b>						
M025	12 x 12 floor tile Beige	No	Hallways 305-307, 316, 317, 3104, 3106, 3107, 3109; Rooms 300-304, 307, 309-315, 318-321	See Baker's report	Yes	4,210 sf
M026	Flooring adhesive Black	No	Below M025	See Baker's report	Yes	4,210 sf
M029	12 x 12 floor tile Olive	No	Hallways 332 (bottom layer), 333 (bottom layer), 342-344, 3105 (bottom layer), 3108 (bottom layer), 3109; Rooms 328, 329, 334-338	See Baker's report	Yes	2,060 sf
M030	Flooring adhesive Black	No	Hallways 332, 333, 342-344, 3105; Rooms 328, 329, 334-338, 345	See Baker's report	Yes	2,598 sf
M032	12 x 12 floor tile Rust	No	Hallways 353-355, 364, 365, 3100, 3101; Rooms 357, 360, 361, 366-369	See Baker's report	Yes	2,164 sf
M034	Flooring adhesive Black	No	Below M033 in Rooms 358, 359, 362, 363	See Baker's report	Yes	1,016 sf
M036	12 x 12 floor tile Light brown	No	Hallways 391, 392, 399, 3102, 3103; Rooms 376, 377, 383-385, 387, 388, 393-396, 398	See Baker's report	Yes	2,921 sf
M037	Flooring adhesive Black	No	Below M036	See Baker's report	Yes	2,921 sf
M040	12 x 12 floor tile Medium brown	No	Rooms 397	See Baker's report	Yes	100 sf
M041	Flooring adhesive Black	No	Below M040	See Baker's report	Yes	100 sf
M076	Cement wall panel Transite panel	No	Over exterior doors and windows	See Baker's report	Yes	605 sf
<b>Roof</b>						
AR1	Asphalt roofing material	No	Roof (below layer of gravel)	B106, B107, B108	No	
AR3	Asphalt roofing material	No	HVAC compressor	B121, B122, B123	Yes	425 sf
CK3	Gray caulking	No	Air handler exhaust vent	B109, B110, B111	No	
RF1	Brown roofing felt	No	Below AR1	B106, B107, B108	No	
RF2	Brown roofing felt	No	Below RS2	B112, B113, B114	No	
RS2	Asphalt roofing material (sheeting)	No	Roof	B112, B113, B114	No	

Miscellaneous Materials					
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity
WG1 Silver glazing	No	Covering of CK3	B109, B110, B111	Yes	30 lf
ACBMs From Baker's Survey Located by SaLUT					
M069 Asphaltic roofing material Asphalt with white insulation	No	Roof	See Baker's results	Yes	18,850 sf

Surfacing Materials					
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity
First Floor					
PL5 Exterior plaster coating from building structure	No	Exterior	B88, B89, B90	No	
PL6 Interior plaster coating from building structure	No	Arms Room (129), Rooms 111, 133, 154-156, 159-165, 168-173, 175, 176, 177, 180-186, 189, 191	B94, B95, B96	No	
PL7 Lathe plaster	No	Rooms 157-166, 172, 173, 175-179, 181-183, 186, 197	B97, B98, B99	No	
Second Floor					
PL1 Interior plaster coating from building structure	No	Beams and ceilings throughout Second Floor	B25, B26, B27	No	
PL4 Exterior plaster coating from building structure	No	Balconies	B55, B56, B57	No	
Third Floor					
PL2 Interior plaster coating from building structure	No	Throughout Third Floor	B31, B32, B33	No	
PL3 Exterior plaster coating from building structure	No	Balconies	B49, B50, B51	No	
Roof					
No suspect materials observed					

Thermal System Insulation Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>First Floor</b>						
DI1	Mudded duct insulation	No	Ducts throughout First Floor	B61, B62, B63	Yes	500 sf
DI2	Yellow/white duct insulation	No	Ducts throughout First Floor	B64, B65, B66	No	
PI2	Gray mudded pipe insulation	No	Rooms 187, 191	B67, B68, B69	Yes	133 lf
PI4	Pipe Insulation	No	Room 174	B118, B119, B120	No	
PI5	Pipe Insulation	No	Rooms 101, 133, 160	B130, B131, B132	No	
TK1	Gray mudded tank insulation	Yes	Room 195	B103, B104, B105	No	
TK2	Gray mudded tank insulation (includes white wrap)	Yes	Room 174	B115, B116, B117	No	
TK3	Gray mudded tank insulation	Yes	Room 124	B124, B125, B126	No	
<b>Second Floor</b>						
No suspect materials observed						
<b>Third Floor</b>						
PI1	White/black pipe insulation	No	Rooms 399, 397, 307	B52, B53, B54	No	
<b>Roof</b>						
No suspect materials observed						

FIGURE 1: BUILDING DRAWINGS  
 SCHOFIELD BARRACKS  
 BUILDING 550  
 FIRST FLOOR

BUILDING DRAWING LEGEND

ASBESTOS CONTAINING MATERIALS AND QUANTITIES	
DA Duct Sealant	DA*
DI Duct Insulation	DI*
FT/ FM Floor Tile and/ or Mastic	
M** Baker's ACM	M***
PA Pipe Adhesive	PA*

ACCESSIBILITY	
LCA LIMITED ACCESS BENEATH CARPET	LCA
NA NO ACCESS TO THIS SPACE	NA
NAC NO ACCESS ABOVE CEILING	NAC

SYMBOLS	
100	SPACE NUMBER
B25	POSITIVE BULK SAMPLE LOCATION
B35	NEGATIVE BULK SAMPLE LOCATION
B45	NOT ANALYZED BULK SAMPLE LOCATION

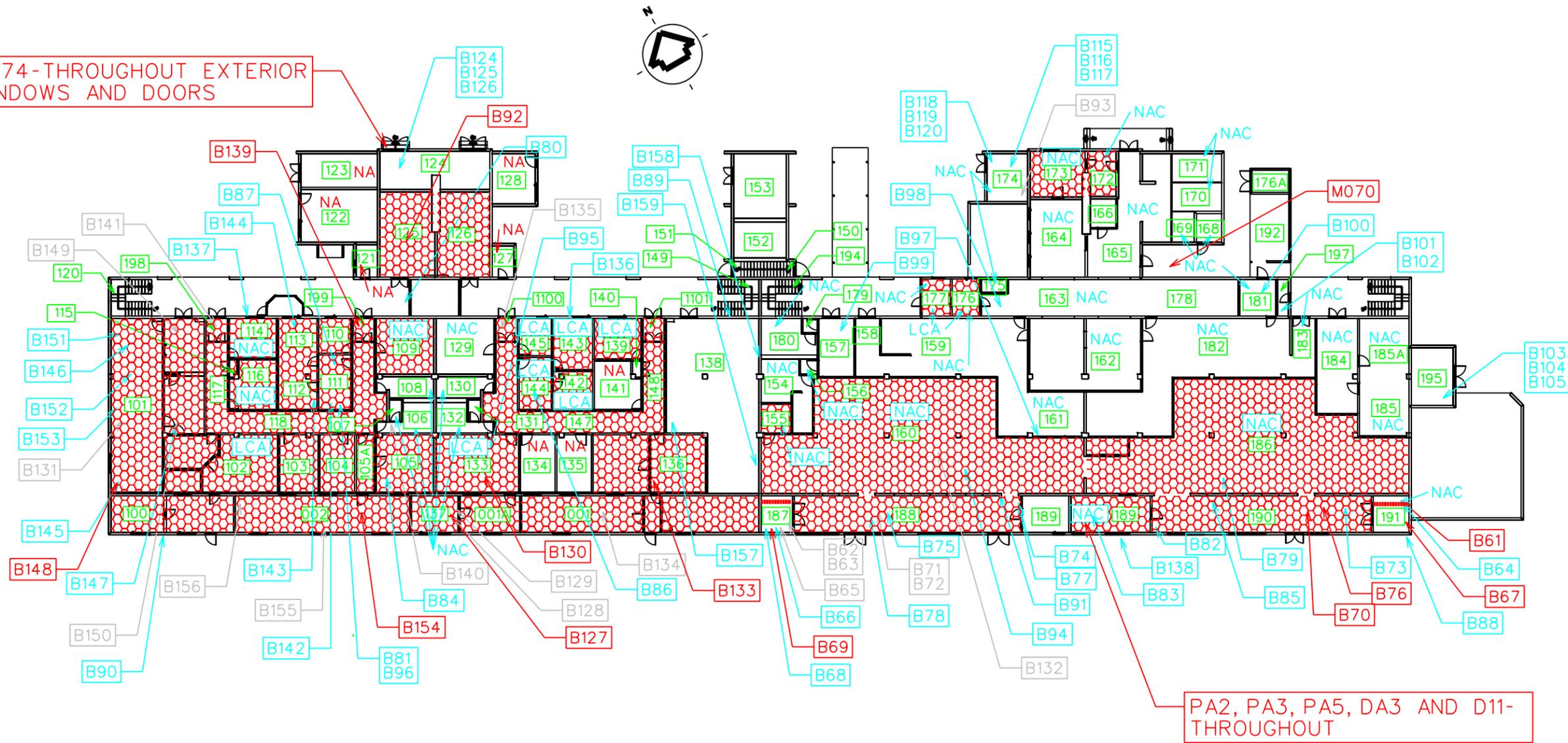


FIGURE 1: BUILDING DRAWINGS  
 SCHOFIELD BARRACKS  
 BUILDING 550  
 SECOND FLOOR

BUILDING DRAWING LEGEND

ASBESTOS CONTAINING MATERIALS AND QUANTITIES	
FT/ Floor Tile and/ FM or Mastic	
M** Baker's ACM	
ACCESSIBILITY	
NA	NO ACCESS TO THIS SPACE
NAC	NO ACCESS ABOVE CEILING
SYMBOLS	
	SPACE NUMBER
	POSITIVE BULK SAMPLE LOCATION
	NEGATIVE BULK SAMPLE LOCATION
	NOT ANALYZED BULK SAMPLE LOCATION

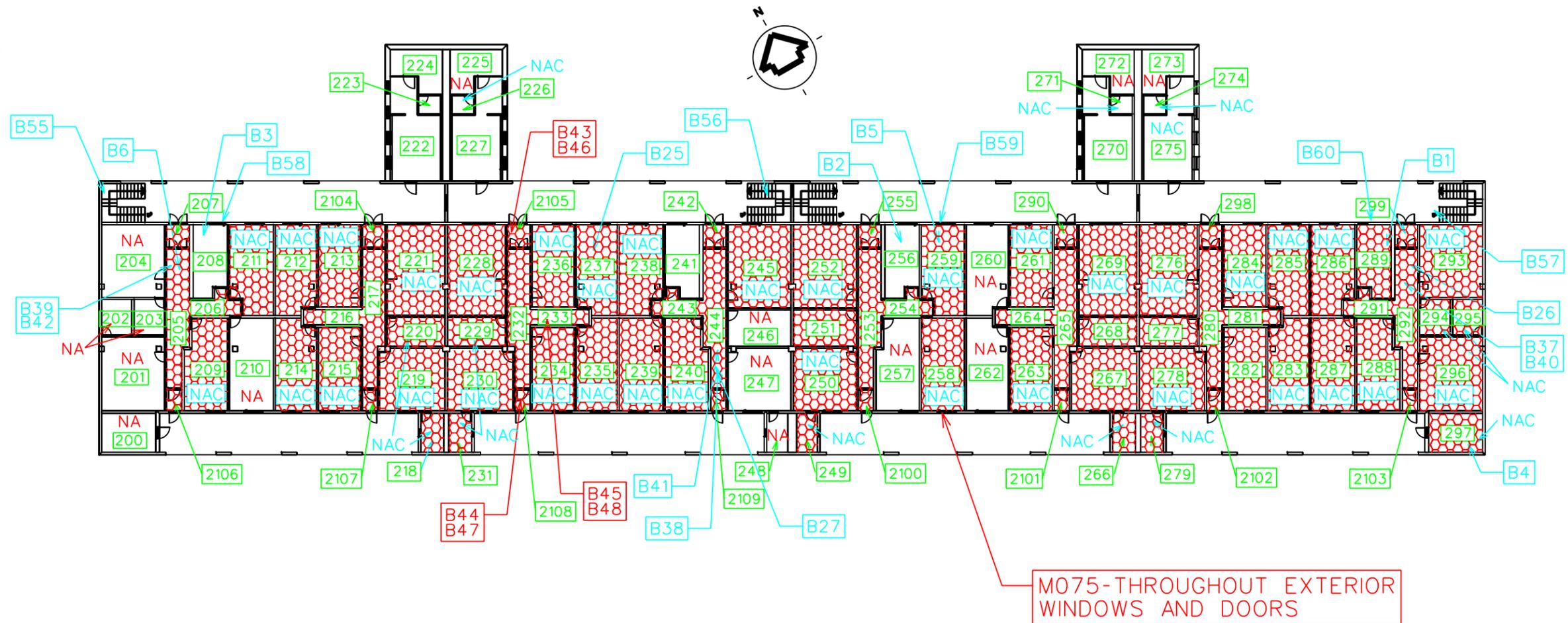


FIGURE 1: BUILDING DRAWINGS  
SCHOFIELD BARRACKS  
BUILDING 550  
THIRD FLOOR

BUILDING DRAWING LEGEND

ASBESTOS CONTAINING MATERIALS AND QUANTITIES	
DA Duct Sealant	DA*
FT/ FM Floor Tile and/ or Mastic	
M** Baker's ACM	M***
PA Pipe Adhesive	PA*
ACCESSIBILITY	
NA NO ACCESS TO THIS SPACE	
NAC NO ACCESS ABOVE CEILING	
SYMBOLS	
SPACE NUMBER	
POSITIVE BULK SAMPLE LOCATION	
NEGATIVE BULK SAMPLE LOCATION	
NOT ANALYZED BULK SAMPLE LOCATION	

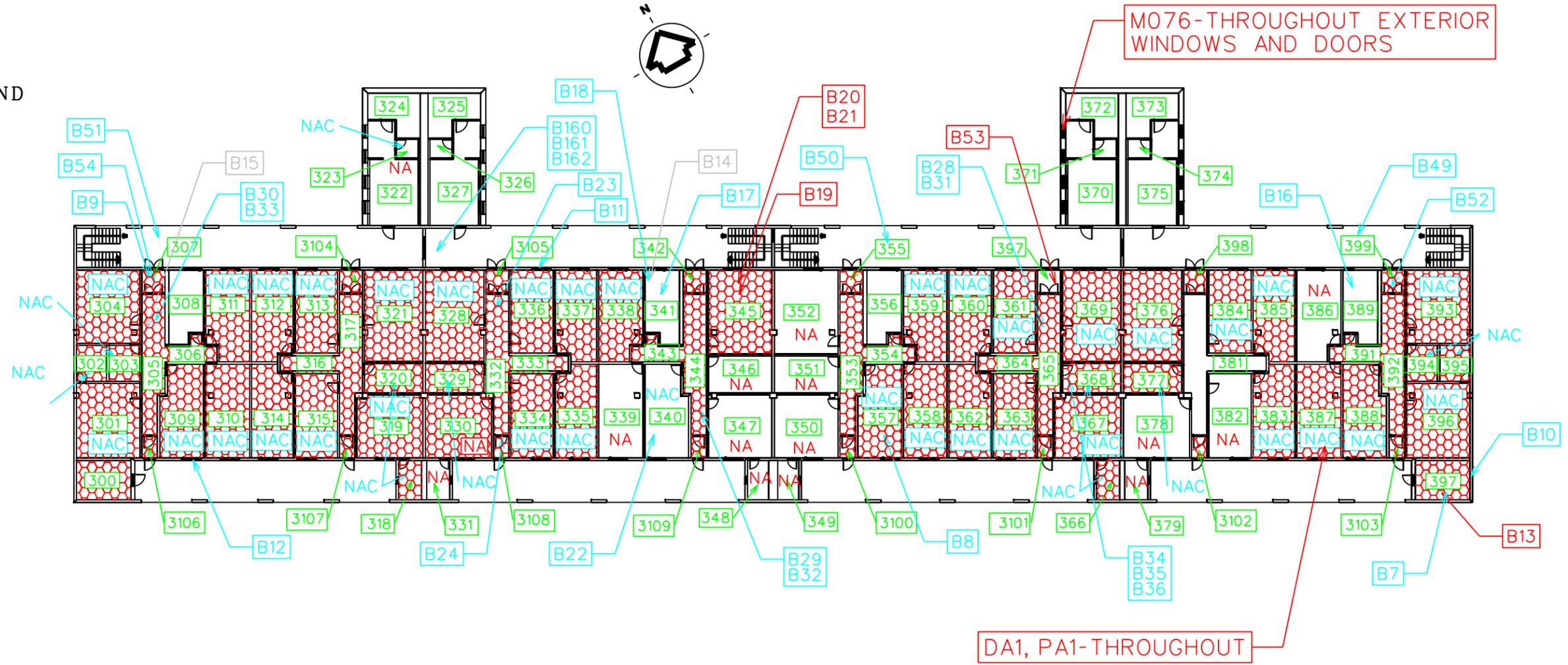
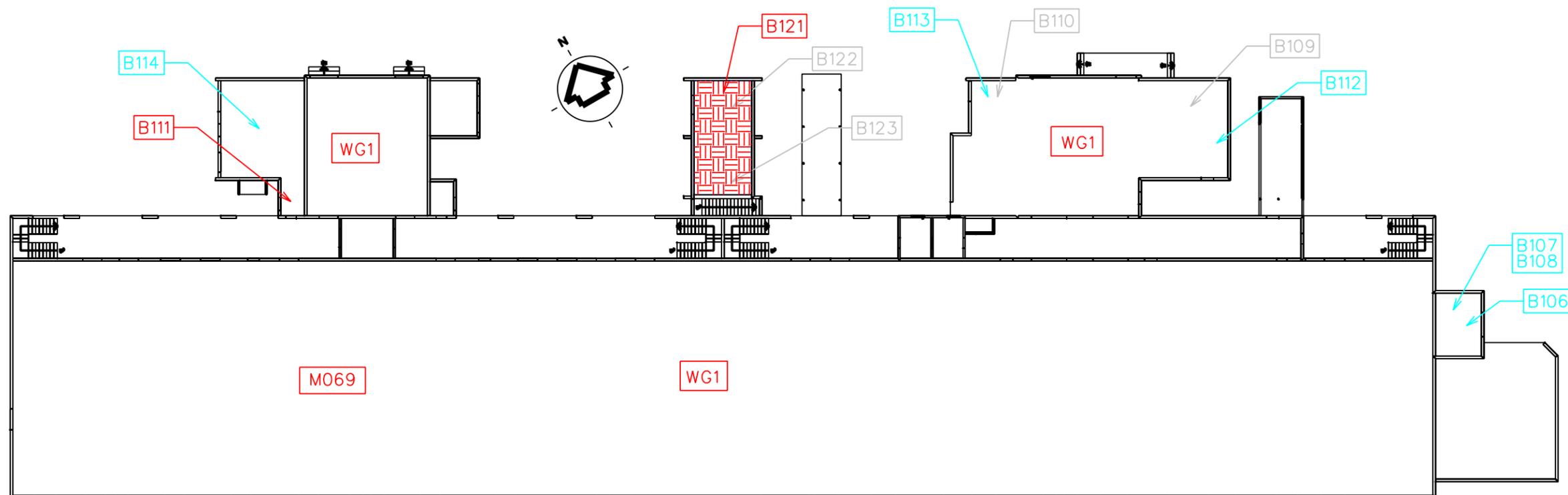


FIGURE 1: BUILDING DRAWINGS  
 SCHOFIELD BARRACKS  
 BUILDING 550  
 ROOF

BUILDING DRAWING LEGEND

ASBESTOS CONTAINING MATERIALS AND QUANTITIES	
AR Asphalt Roofing Tar	
M** Baker's ACM	
WG Window Glazing	
SYMBOLS	
 100	SPACE NUMBER
 B25	POSITIVE BULK SAMPLE LOCATION
 B35	NEGATIVE BULK SAMPLE LOCATION
 B45	NOT ANALYZED BULK SAMPLE LOCATION



## 4 Recommendations

Each friable ACBM was assessed and placed in the appropriate AHERA category as specified in 40 CFR, Part 763.88. In addition to the seven AHERA assessment categories, SaLUT added an eighth category for all non-friable ACBM.

SaLUT also categorized the condition of each ACBM at the time of the survey, as follows:

- Good** No damage observed
- Fair** The area of distributed damage was less than 10 percent and greater than 2 percent. The area of localized damage was less than 25 percent and greater than 2 percent.
- Poor** The area of distributed damage was greater than 10 percent and the localized damage was greater than 25 percent.

Based on the AHERA assessment category and SaLUT's condition assessment, SaLUT recommends on or more of the following response actions for each ACBM:

- O&M** Maintain the ACBM. Perform operations and maintenance procedures in a manner that does not damage the material. These procedures are specified in 29 CFR 1926.1101 and HAR 11-502-10. Repair of damaged material must be performed in accordance with 29 CFR 1926.1101 and as specified in the management plan for the installation unless otherwise authorized, all repairs should be handled by State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101.
- Repair** Damaged areas should be repaired. Repair of damaged material must be performed in accordance with 29 CFR 1926.1101 and as specified in the management plan for the installation unless otherwise authorized, all repairs should be handled by State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101.  
Undamaged and repaired materials are subject to the O&M response action.
- Remove** The material should be removed. Removal must be performed by a State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101. Removal must follow the most stringent guidelines provided by either the State of Hawai'i or Federal regulations.

If the building is demolished or renovation will impact any ACBMs, those materials must be removed by a State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101. Removal must follow the most stringent guidelines provided by either the State of Hawai'i or Federal regulations.

Table 2 provides the AHERA assessment category, SaLUT's condition assessment, and SaLUT's recommended response action for each ACBM.

**Table 2. Summary of Asbestos-Containing Materials.**

Material Description	Location	Quantity	Friable	Cond. Assess.	AHERA Assess. Cat.	Recommended Response Action	Photo Ref.
<b>First Floor</b>							
DA3 White duct adhesive on top of foil wrap on ducts	Throughout First Floor	2,418 sf	No	Good	8	O&M	6
DI1 Mudded duct insulation	Ducts throughout First Floor	500 sf	No	Good	8	O&M	7
FM6 Black/yellow mastic	Below FT6 (second layer of FT/FM in Rooms 188, 190)	1,267 sf	No	Good	8	O&M	12
FM7 Black mastic	Below FT7 (Room 137)	130 sf	No	Good	8	O&M	13
FM8 Black mastic	Below FT8 (Hallways 147, 148, 1100, 1101; Rooms 1, 136)	1,471 sf	No	Good	8	O&M	14
FM9 Black mastic	Below FT9 (Hallways 115, 117, 118; Rooms 105A, 198, 199)	716 sf	No	Good	8	O&M	15
FM12 Black mastic	Below FT12	1,065 sf	No	Good	8	O&M	16
FM14 Black mastic	Below FT14	250 sf	No	Good	8	O&M	17
FT12 9" x 9" green floor tile with white streaks	Below FT11 in Room 101	1,065 sf	No	Good	8	O&M	16
FT14 12" x 12" white floor tile with light gray streaks	Room 2	250 sf	No	Good	8	O&M	17
PA2 Gray pipe adhesive	On top of paper pipe wrap and underlying insulation (PI2) throughout First Floor	213 sf	No	Good	8	O&M	21
PA3 White pipe adhesive on top of pipe wrap and underlying fiberglass insulation	Throughout First Floor	213 sf	No	Good	8	O&M	19
PA5 White pipe adhesive on top of pipe wrap and underlying insulation (PI5) on A/C chiller water lines	Throughout First Floor	213 sf	No	Good	8	O&M	20
PI2 Gray mudded pipe insulation	Rooms 187, 191	133 lf	No	Good	8	O&M	21
M001 12 x 12 floor tile Beige	Rooms 103-105, 109, 114, 116, 125	1,500 sf	No	Good	8	O&M	23

Material Description	Location	Quantity	Friable	Cond. Assess.	AHERA Assess. Cat.	Recommended Response Action	Photo Ref.
M002 Flooring adhesive Black	Hallways 115, 117, 118, 198, 199; Rooms 103-105, 109, 114, 116, 125	2,148 sf	No	Good	8	O&M	23
M004 Flooring adhesive Black	Rooms 136, 186	2,364 sf	No	Good	8	O&M	None
M010 Flooring adhesive Black	Room 100, 102	852 sf	No	Good	8	O&M	None
M011 12 x 12 floor tile Tan	Rooms 110-113 (below FT10)	495 sf	No	Good	8	O&M	None
M012 Flooring adhesive Black	Below M011	495 sf	No	Good	8	O&M	None
M013 12 x 12 floor tile Gray	Rooms 1, 2	589 sf	No	Good	8	O&M	None
M014 Flooring adhesive Black	Below M013	589 sf	No	Good	8	O&M	None
M015 12 x 12 floor tile Olive	Room 1A (below FT7), 126, 133, 136, 139, 142-145, 155, 160 (below FT5), 186 (below FT5), 189	6,443 sf	No	Good	8	O&M	None
M016 Flooring adhesive Black	Below M015	6,443 sf	No	Good	8	O&M	None
M046 Flooring adhesive Black	Room 137	130 sf	No	Good	8	O&M	None
M059 Flooring adhesive Black	Rooms 172, 173	296 sf	No	Good	8	O&M	None
M060 12 x 12 floor tile Rust	Rooms 176, 177	162 sf	No	Good	8	O&M	None
M070 Flex connector Cloth	Dining hall, outside air handling unit by Room 165	3 ea.	No	Good	8	O&M	26
M074 Cement wall panel Transite panel	Over exterior doors and windows	415 sf	No	Good	8	O&M	None
<b>Second Floor</b>							
FM3 Black mastic	Below FT3 (Hallways 232, 233, 2105, 2108)	158 sf	No	Good	8	O&M	10
FM4 Black/brown mastic	Below FT4 (Hallways 232, 233, 2105, 2108)	158 sf	No	Good	8	O&M	11
M018 12 x 12 floor tile Beige	Hallways 205-207, 216, 217, 2104-2107; Rooms 209, 211-215, 218-221	2,964 sf	No	Good	8	O&M	None
M019 Flooring adhesive Black	Below M018	2,964 sf	No	Good	8	O&M	None

Material Description	Location	Quantity	Friable	Cond. Assess.	AHERA Assess. Cat.	Recommended Response Action	Photo Ref.
M044 12 x 12 floor tile Olive	Hallways 232, 233, 242-244, 2109; Rooms 228-231, 234-240, 245	3,889 sf	No	Good	8	O&M	None
M045 Flooring adhesive Black	Below M044	3,889 sf	No	Good	8	O&M	None
M050 12 x 12 floor tile Rust	Hallways 253-255, 264, 265, 290, 2100, 2101; Rooms 249-252, 258, 259, 261, 263, 266-269	3,300 sf	No	Good	8	O&M	None
M051 Flooring adhesive Black	Below M050	3,300 sf	No	Good	8	O&M	None
M067 12 x 12 floor tile Light brown	Hallways 280-282, 291, 292, 298, 299, 2102, 2103; Rooms 276-279, 283-289, 293-297	4,321 sf	No	Good	8	O&M	None
M068 Flooring adhesive Black	Below M067	4,321 sf	No	Good	8	O&M	None
M075 Cement wall panel Transite panel	Over exterior doors and windows	605 sf	No	Good	8	O&M	None
<b>Third Floor</b>							
DA1 White duct adhesive on top of foil duct wrap	Throughout Third Floor	168 sf	No	Good	8	O&M	5
FM1 Black mastic	Below FT1 (Room 345)	356 sf	No	Good	8	O&M	8
PA1 Black/white pipe adhesive on top of paper wrap and underlying insulation on pipes	Throughout Third Floor	640 sf	No	Good	8	O&M	18
M025 12 x 12 floor tile Beige	Hallways 305-307, 316, 317, 3104, 3106, 3107, 3109; Rooms 300-304, 307, 309-315, 318-321	4,210 sf	No	Good	8	O&M	24
M026 Flooring adhesive Black	Below M025	4,210 sf	No	Good	8	O&M	24
M029 12 x 12 floor tile Olive	Hallways 332 (bottom layer), 333 (bottom layer), 342-344, 3105 (bottom layer), 3108 (bottom layer), 3109; Rooms 328, 329, 334-338	2,060 sf	No	Good	8	O&M	None
M030 Flooring adhesive Black	Hallways 332, 333, 342-344, 3105; Rooms 328, 329, 334-338, 345	2,598 sf	No	Good	8	O&M	None

Material Description	Location	Quantity	Friable	Cond. Assess.	AHERA Assess. Cat.	Recommended Response Action	Photo Ref.
M032 12 x 12 floor tile Rust	Hallways 353-355, 364, 365, 3100, 3101; Rooms 357, 360, 361, 366-369	2,164 sf	No	Good	8	O&M	25
M034 Flooring adhesive Black	Below M033 in Rooms 358, 359, 362, 363	1,016 sf	No	Good	8	O&M	26
M036 12 x 12 floor tile Light brown	Hallways 391, 392, 399, 3102, 3103; Rooms 376, 377, 383- 385, 387, 388, 393-396, 398	2,921 sf	No	Good	8	O&M	None
M037 Flooring adhesive Black	Below M036	2,921 sf	No	Good	8	O&M	None
M040 12 x 12 floor tile Medium brown	Rooms 397	100 sf	No	Good	8	O&M	None
M041 Flooring adhesive Black	Below M040	100 sf	No	Good	8	O&M	None
M076 Cement wall panel Transite panel	Over exterior doors and windows	605 sf	No	Good	8	O&M	None
<b>Roof</b>							
AR3 Asphalt roofing material	HVAC compressor	425 sf	No	Good	8	O&M	4
WG1 Silver glazing covering CK3	Air handler exhaust vent	30 lf	No	Good	8	O&M	22
M069 Asphaltic roofing material Asphalt with white insulation	Roof	18,850 sf	No	Good	8	O&M	None

Table 3 provides SaLUT's cost estimate for abating (i.e., removing) each ACBM identified in the building. These estimates are conceptual cost estimates based on standard unit rates for different types of ACBM except for very small abatement projects, where the minimum cost is \$1,200. Contractor mobilization/demobilization, transportation, disposal, and other miscellaneous costs are included in the unit. Operations and maintenance (O&M) costs are not provided as part of the recommended response cost.

**Table 3. Asbestos Abatement Cost Estimates.**

Material Type	Location	Quantity	Unit Cost (\$)	Total Removal Cost
<b>First Floor</b>				
DA3 White duct adhesive on top of foil wrap on ducts	Throughout First Floor	2,418 sf	3	\$7,254
DI1 Mudded duct insulation	Ducts throughout First Floor	500 sf	20	10,000
FM6 Black/yellow mastic	Below FT6 (second layer of FT/FM in Rooms 188, 190)	1,267 sf	3	3,801

Material Type		Location	Quantity	Unit Cost (\$)	Total Removal Cost
FM7	Black mastic	Below FT7 (Room 137)	130 sf	3	390
FM8	Black mastic	Below FT8 (Hallways 147, 148, 1100, 1101; Rooms 1, 136)	1,471 sf	3	4,413
FM9	Black mastic	Below FT9 (Hallways 115, 117, 118; Rooms 105A, 198, 199)	716 sf	3	2,148
FM12	Black mastic	Below FT12	1,065 sf	3	3,195
FM14	Black mastic	Below FT14	250 sf	3	750
FT12	9" x 9" green floor tile with white streaks	Below FT11 in Room 101	1,065 sf	5	5,325
FT14	12" x 12" white floor tile with light gray streaks	Room 2	250 sf	5	1,250
PA2	Gray pipe adhesive	On top of paper pipe wrap and underlying insulation (PI2) throughout First Floor	213 sf	5	1,065
PA3	White pipe adhesive on top of pipe wrap and underlying fiberglass insulation	Throughout First Floor	213 sf	5	1,065
PA5	White pipe adhesive on top of pipe wrap and underlying insulation (PI5) on A/C chiller water lines	Throughout First Floor	213 sf	5	1,065
PI2	Gray mudded pipe insulation	Rooms 187, 191	133 lf	20	2,660
M001	12 x 12 floor tile Beige	Rooms 103-105, 109, 114, 116, 125	1,500 sf	5	7,500
M002	Flooring adhesive Black	Hallways 115, 117, 118, 198, 199; Rooms 103-105, 109, 114, 116, 125	2,148 sf	3	6,444
M004	Flooring adhesive Black	Rooms 136, 186	2,364 sf	3	7,092
M010	Flooring adhesive Black	Room 100, 102	852 sf	3	2,556
M011	12 x 12 floor tile Tan	Rooms 110-113 (below FT10)	495 sf	5	2,475
M012	Flooring adhesive Black	Below M011	495 sf	3	1,485
M013	12 x 12 floor tile Gray	Rooms 1, 2	589 sf	5	2,945
M014	Flooring adhesive Black	Below M013	589 sf	3	1,767
M015	12 x 12 floor tile Olive	Room 1A (below FT7), 126, 133, 136, 139, 142-145, 155, 160 (below FT5), 186 (below FT5), 189	6,443 sf	5	32,215
M016	Flooring adhesive Black	Below M015	6,443 sf	3	19,329
M046	Flooring adhesive Black	Room 137	130 sf	3	390
M059	Flooring adhesive Black	Rooms 172, 173	296 sf	3	888
M060	12 x 12 floor tile Rust	Rooms 176, 177	162 sf	5	810
M070	Flex connector Cloth	Dining hall, outside air handling unit by Room 165	3 ea.	100	300

Material Type		Location	Quantity	Unit Cost (\$)	Total Removal Cost
M074	Cement wall panel Transite panel	Over exterior doors and windows	415 sf	5	2,075
<b>Second Floor</b>					
FM3	Black mastic	Below FT3 (Hallways 232, 233, 2105, 2108)	158 sf	3	474
FM4	Black/brown mastic	Below FT4 (Hallways 232, 233, 2105, 2108)	158 sf	3	474
M018	12 x 12 floor tile Beige	Hallways 205-207, 216, 217, 2104-2107; Rooms 209, 211-215, 218-221	2,964 sf	5	14,820
M019	Flooring adhesive Black	Below M018	2,964 sf	3	8,892
M044	12 x 12 floor tile Olive	Hallways 232, 233, 242-244, 2109; Rooms 228-231, 234-240, 245	3,889 sf	5	19,445
M045	Flooring adhesive Black	Below M044	3,889 sf	3	11,667
M050	12 x 12 floor tile Rust	Hallways 253-255, 264, 265, 290, 2100, 2101; Rooms 249-252, 258, 259, 261, 263, 266-269	3,300 sf	5	16,500
M051	Flooring adhesive Black	Below M050	3,300 sf	3	9,900
M067	12 x 12 floor tile Light brown	Hallways 280-282, 291, 292, 298, 299, 2102, 2103; Rooms 276-279, 283-289, 293-297	4,321 sf	5	21,605
M068	Flooring adhesive Black	Below M067	4,321 sf	3	12,963
M075	Cement wall panel Transite panel	Over exterior doors and windows	605 sf	5	3,025
<b>Third Floor</b>					
DA1	White duct adhesive on top of foil duct wrap	Throughout Third Floor	168 sf	3	504
FM1	Black mastic	Below FT1 (Room 345)	356 sf	3	1,068
PA1	Black/white pipe adhesive on top of paper wrap and underlying insulation on pipes	Throughout Third Floor	640 sf	5	3,200
M025	12 x 12 floor tile Beige	Hallways 305-307, 316, 317, 3104, 3106, 3107, 3109; Rooms 300-304, 307, 309- 315, 318-321	4,210 sf	5	21,050
M026	Flooring adhesive Black	Below M025	4,210 sf	3	12,630
M029	12 x 12 floor tile Olive	Hallways 332 (bottom layer), 333 (bot- tom layer), 342-344, 3105 (bottom layer), 3108 (bottom layer), 3109; Rooms 328, 329, 334-338	2,060 sf	5	10,300
M030	Flooring adhesive Black	Hallways 332, 333, 342-344, 3105; Rooms 328, 329, 334-338, 345	2,598 sf	3	7,794
M032	12 x 12 floor tile Rust	Hallways 353-355, 364, 365, 3100, 3101; Rooms 357, 360, 361, 366-369	2,164 sf	5	10,820
M034	Flooring adhesive Black	Below M033 in Rooms 358, 359, 362, 363	1,016 sf	3	3,048
M036	12 x 12 floor tile Light brown	Hallways 391, 392, 399, 3102, 3103; Rooms 376, 377, 383-385, 387, 388, 393- 396, 398	2,921 sf	5	14,605

Material Type		Location	Quantity	Unit Cost (\$)	Total Removal Cost
M037	Flooring adhesive Black	Below M036	2,921 sf	3	8,763
M040	12 x 12 floor tile Medium brown	Rooms 397	100 sf	5	500
M041	Flooring adhesive Black	Below M040	100 sf	3	300
M076	Cement wall panel Transite panel	Over exterior doors and windows	605 sf	5	3,025
<b>Roof</b>					
AR3	Asphalt roofing material	HVAC compressor	425 sf	20	8,500
WG1	Silver glazing covering CK3	Air handler exhaust vent	30 lf	5	150
M069	Asphaltic roofing material Asphalt with white insula- tion	Roof	18,850 sf	20	377,000
Total abatement cost					\$735,674



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## Bulk Asbestos Analysis

### EPA Method 600/R-93-116, Visual Area Estimation

**Customer Name:** SaLUT  
**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

**Sampled By:** Client  
**Received By:** W. Liu  
**TAT:** 5 Days  
**Report No:** 236  
**Date Printed:** 3/13/2002  
**Analyst:** M. Lee

**Total # of Sample(s):** 3      **Total # of Layer(s):** 3

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030502-550-JSW-B160	030602-362	3/12/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Bottom Layer of Roof From Lanai Near Rm 327 <b>Materials:</b> Granular Material						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030502-550-JSW-B161	030602-363	3/12/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Bottom Layer of Roof From Lanai Near Rm 327 <b>Materials:</b> Granular Material						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030502-550-JSW-B162	030602-364	3/12/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Bottom Layer of Roof From Lanai Near Rm 327 <b>Materials:</b> Granular Material						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mineral Grains						

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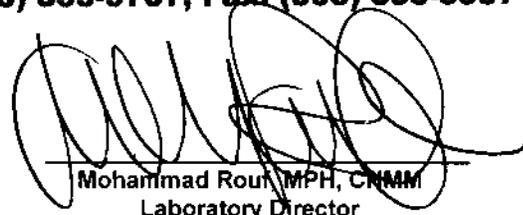


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Analyst: \_\_\_\_\_



\_\_\_\_\_  
Mohammad Rouni, MPH, CNMM  
Laboratory Director

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## Bulk Asbestos Analysis

### EPA Method 600/R-93-116, Visual Area Estimation

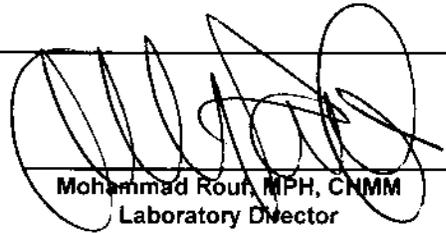
**Customer Name:** SaLUT  
**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

**Sampled By:** Client  
**Received By:** W. Bradley  
**TAT:** Rush  
**Report No:** 263  
**Date Printed:** 3/28/2002  
**Analyst:** M. Lee

**Total # of Sample(s):** 1      **Total # of Layer(s):** 1

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B152	032702-9	3/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E						
<b>Location:</b> 1st Flr, Rm 101* Yellow Mastic						
<b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Analyst: \_\_\_\_\_



Mohammad Roun, MPH, CNMM  
Laboratory Director

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## Bulk Asbestos Analysis EPA Method 600/R-93-116, Visual Area Estimation

**Customer Name:** SaLUT  
**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

**Sampled By:** Client  
**Received By:** M. Rouf  
**TAT:** 5 Days  
**Report No:** 131  
**Date Printed:** 2/4/2002  
**Analyst:** M. Lee

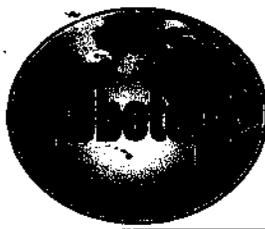
**Total # of Sample(s):** 46      **Total # of Layer(s):** 65

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B1	013102-94	2/1/02	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Room 289 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B2	013102-95	2/1/02	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Room 256 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B3	013102-96	2/1/02	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Room 208 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B4	013102-97	2/1/02	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Room 297 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B4	013102-97	2/1/02	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Room 297 <b>Materials:</b> Brown Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B5	013102-98	2/1/02	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Room 259 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B5	013102-98	2/1/02	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Room 259 <b>Materials:</b> Brown Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B6	013102-99	2/1/02	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 205 <b>Materials:</b> Black Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B6	013102-99	2/1/02	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 205 <b>Materials:</b> Brown Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B7	013102-100	2/1/02	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 397 <b>Materials:</b> Brown Rubbery Matrix						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B7	013102-100	2/1/02	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 397 <b>Materials:</b> Brown Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B8	013102-101	2/1/02	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 357 <b>Materials:</b> Brown Rubbery Matrix						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B8	013102-101	2/1/02	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 357 <b>Materials:</b> Brown Mastic						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B9	013102-102	2/1/02	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Hallway 307 <b>Materials:</b> Brown Rubbery Matrix						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B9	013102-102	2/1/02	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Hallway 307 <b>Materials:</b> Brown Mastic						
<b>Other Fibrous Materials:</b> Cellulose< 1%						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B10	013102-103	2/1/02	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 397 <b>Materials:</b> Gray Soft Rubbery Material						
<b>Other Fibrous Materials:</b> Cellulose<1% Mineral Wool< 1%						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B11	013102-104	2/1/02	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Outside Room 357 <b>Materials:</b> Gray Soft Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B12	013102-105	2/1/02	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Outside Room 307 <b>Materials:</b> Gray Soft Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B13	013102-106	2/1/02	1 of 1	Chrysotile	White	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 397 <b>Materials:</b> White Paper, Metal Foil						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Mineral Wool 3-5%						
<b>Non-Fibrous Materials:</b> Metal Foil, Paint, Glue/Binder						

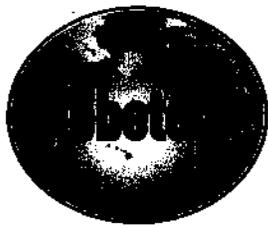
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B16	013102-109	2/1/02	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 389 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Fine Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B17	013102-110	2/1/02	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 341 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Fine Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B18	013102-111	2/1/02	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 341 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Fine Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B19	013102-112	2/1/02	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 345 <b>Materials:</b> White Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B19	013102-112	2/1/02	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 345 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B20	013102-113	2/1/02	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 345 <b>Materials:</b> White Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B20	013102-113	2/1/02	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 345 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B21	013102-114	2/1/02	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 345 <b>Materials:</b> White Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B21	013102-114	2/1/02	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 345 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B22	013102-115	2/1/02	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 340 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

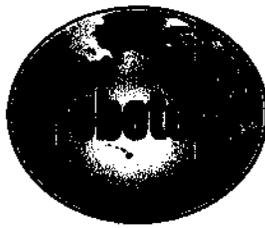
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B22	013102-115	2/1/02	2 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 340 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> Cellulose 3-5%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B23	013102-116	2/1/02	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Hallway 342 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B23	013102-116	2/1/02	2 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Hallway 342 <b>Materials:</b> Tan Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B24	013102-117	2/1/02	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Hallway 3108 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B24	013102-117	2/1/02	2 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Hallway 3108 <b>Materials:</b> Tan Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Mica						

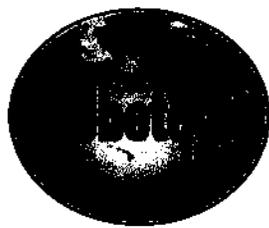
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B25	013102-118	2/1/02	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Room 237 <b>Materials:</b> Tan granular material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Calcite, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B26	013102-119	2/1/02	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 292 <b>Materials:</b> Tan granular material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Calcite, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B27	013102-120	2/1/02	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 244 <b>Materials:</b> Tan granular material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Calcite, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B28	013102-121	2/1/02	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Hallway 365 <b>Materials:</b> Composite Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B29	013102-122	2/1/02	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Hallway 344 <b>Materials:</b> Composite Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B30	013102-123	2/1/02	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Hallway 305 <b>Materials:</b> Composite Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 20-30% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B31	013102-124	2/1/02	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Hallway 365 <b>Materials:</b> Tan granular material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B32	013102-125	2/1/02	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Hallway 344 <b>Materials:</b> Tan granular material						
<b>Other Fibrous Materials:</b> Cellulose < 1%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B33	013102-126	2/1/02	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Hallway 305 <b>Materials:</b> Tan granular material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B34	013102-127	2/1/02	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 368 <b>Materials:</b> Gray Granular Matrix						
<b>Other Fibrous Materials:</b> Fibrous Glass, 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B35	013102-128	2/1/02	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 368 <b>Materials:</b> Gray Granular Matrix						
<b>Other Fibrous Materials:</b> Fibrous Glass, 1-3%						
<b>Non-Fibrous Materials:</b> Perlite, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B36	013102-129	2/1/02	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Room 368 <b>Materials:</b> Gray Granular Matrix						
<b>Other Fibrous Materials:</b> Fibrous Glass < 1%						
<b>Non-Fibrous Materials:</b> Perlite, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B37	013102-130	2/1/02	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 292 <b>Materials:</b> White Composite Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Fibrous Glass < 1%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B38	013102-131	2/1/02	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 244 <b>Materials:</b> White Composite Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B39	013102-132	2/1/02	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 205 <b>Materials:</b> White Composite Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica						

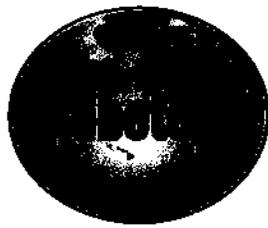
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B40	013102-133	2/1/02	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 292 <b>Materials:</b> Tan Painted Paper W/ Metal Foil						
<b>Other Fibrous Materials:</b> Cellulose 30-40%, Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B40	013102-133	2/1/02	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 292 <b>Materials:</b> Yellow Fibrous Material						
<b>Other Fibrous Materials:</b> Mineral Wool 80-90%						
<b>Non-Fibrous Materials:</b> Glue/Binder, Glass Beads						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B41	013102-134	2/1/02	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 244 <b>Materials:</b> Tan Painted Paper						
<b>Other Fibrous Materials:</b> Cellulose 30-40%, Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Metal Foil, Paint, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B42	013102-135	2/1/02	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 205 <b>Materials:</b> Tan Painted Paper						
<b>Other Fibrous Materials:</b> Cellulose 30-40%, Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Metal Foil, Paint, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B43	013102-136	2/1/02	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 2105 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B43	013102-136	2/1/02	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 2105 <b>Materials:</b> Black Mastic						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B44	013102-137	2/1/02	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 2108 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B44	013102-137	2/1/02	2 of 2	Chrysotile	Black	<1%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 2108 <b>Materials:</b> Black Mastic						
<b>Other Fibrous Materials:</b> Cellulose < 1%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B45	013102-138	2/1/02	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 233 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B45	013102-138	2/1/02	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 233 <b>Materials:</b> Black Mastic						
<b>Other Fibrous Materials:</b> Cellulose < 1%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B46	013102-139	2/1/02	1 of 2	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 2105 <b>Materials:</b> Blue Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B46	013102-139	2/1/02	2 of 2	Chrysotile	Brown	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 2105 <b>Materials:</b> Brown Mastic						
<b>Other Fibrous Materials:</b> Cellulose < 1%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B47	013102-140	2/1/02	1 of 2	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 2108 <b>Materials:</b> Blue Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B47	013102-140	2/1/02	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Hallway 2108 <b>Materials:</b> Black Mastic						
<b>Other Fibrous Materials:</b> Cellulose < 1%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

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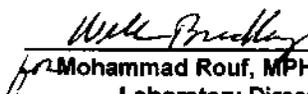
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NVLAP ID# 200541-0

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B48	013102-141	2/1/02	1 of 2	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E						
<b>Location:</b> 2nd Flr, Hallway 233						
<b>Materials:</b> Blue Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-550-KWR-B48	013102-141	2/1/02	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E						
<b>Location:</b> 2nd Flr, Hallway 233						
<b>Materials:</b> Black Mastic						
<b>Other Fibrous Materials:</b> Cellulose < 1%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Analyst: 

  
for **Mohammad Rouf, MPH, CHMM**  
Laboratory Director

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## Bulk Asbestos Analysis

### EPA Method 600/R-93-116, Visual Area Estimation

**Customer Name:** SaLUT  
**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

**Sampled By:** Client  
**Received By:** W. Bradley  
**TAT:** 5 Days  
**Report No:** 231  
**Date Printed:** 3/12/2002  
**Analyst:** M. Lee

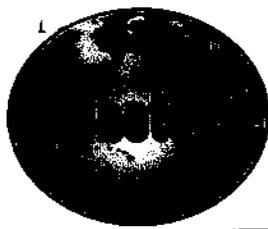
**Total # of Sample(s):** 105      **Total # of Layer(s):** 157

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B49	030402-86	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Lanai-East <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B50	030402-87	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Lanai-Center <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B51	030402-88	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Lanai-West <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B52	030402-89	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> 3rd Flr, Rm 399		<b>Materials:</b> White Wrapping Material W/Metal Foil		
<b>Other Fibrous Materials:</b>		Fibrous Glass 3-5%				
<b>Non-Fibrous Materials:</b>		Paint, Metal Foil				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B52	030402-89	3/9/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> 3rd Flr, Rm 399		<b>Materials:</b> Fibrous Material		
<b>Other Fibrous Materials:</b>		Mineral Wool 80-90%				
<b>Non-Fibrous Materials:</b>		Glue/Binder				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B53	030402-90	3/9/2002	1 of 3	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> 3rd Flr, Rm 397		<b>Materials:</b> Black Asphaltic Material		
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Asphalt/Binder				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B53	030402-90	3/9/2002	2 of 3	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> 3rd Flr, Rm 397		<b>Materials:</b> Fibrous Material		
<b>Other Fibrous Materials:</b>		Fibrous Glass 3-5%				
<b>Non-Fibrous Materials:</b>		Paint, Metal Foil				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B53	030402-90	3/9/2002	3 of 3	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> 3rd Flr, Rm 397		<b>Materials:</b> Fibrous Material		
<b>Other Fibrous Materials:</b>		Mineral Wool 80-90%				
<b>Non-Fibrous Materials:</b>		Glue/Binder				

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B54	030402-91	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Rm 307 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Fibrous Glass 5-10%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B54	030402-91	3/9/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 3rd Flr, Rm 307 <b>Materials:</b> Fibrous Material						
<b>Other Fibrous Materials:</b> Mineral Wool 80-90%						
<b>Non-Fibrous Materials:</b> Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B55	030402-92	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Lanai-West <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B56	030402-93	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Lanai-Center <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B57	030402-94	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Lanai-East <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B58	030402-95	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Outside Rm 208 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

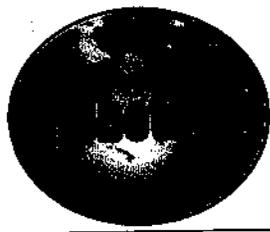
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B59	030402-96	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Outside Rm 259 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B60	030402-97	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 2nd Flr, Outside Rm 289 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B61	030402-98	3/9/2002	1 of 1	Chrysotile	White	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 191 <b>Materials:</b> White Muddy Material						
<b>Other Fibrous Materials:</b> Cellulose 3-5%, Fibrous Glass 3-5%						
<b>Non-Fibrous Materials:</b> Paint, MetalFoil, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B64	030402-101	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 191 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Mineral Wool 3-5%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B64	030402-101	3/9/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 191 <b>Materials:</b> Fibrous Material						
<b>Other Fibrous Materials:</b> Mineral Wool 80-90%						
<b>Non-Fibrous Materials:</b> Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B65	030402-102	3/9/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 187 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Mineral Wool 5-10%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B66	030402-103	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 187 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Mineral Wool 5-10%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B66	030402-103	3/9/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 187 <b>Materials:</b> Fibrous Material						
<b>Other Fibrous Materials:</b> Mineral Wool 80-90%						
<b>Non-Fibrous Materials:</b> Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B67	030402-104	3/9/2002	1 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 191 <b>Materials:</b> Gray Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B67	030402-104	3/9/2002	2 of 2	Amosite	Gray	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 191 <b>Materials:</b> Muddy Material						
<b>Other Fibrous Materials:</b> Mineral Wool 1-3%						
<b>Non-Fibrous Materials:</b> Clay, Mineral Grains						

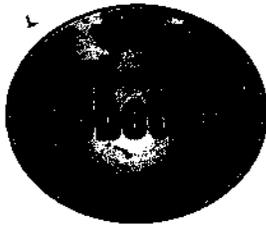
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B68	030402-105	3/9/2002	1 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 187 <b>Materials:</b> Paper w/ Metal Foil						
<b>Other Fibrous Materials:</b> Cellulose 10-20%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B68	030402-105	3/9/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 187 <b>Materials:</b> Fibrous Material						
<b>Other Fibrous Materials:</b> Mineral Wool 80-90%						
<b>Non-Fibrous Materials:</b> Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B69	030402-106	3/9/2002	1 of 1	Chrysotile	White	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 187 <b>Materials:</b> Paper w/ Metal Foil						
<b>Other Fibrous Materials:</b> Cellulose 3-5%, Mineral Wool 3-5%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B70	030402-107	3/9/2002	1 of 1	Chrysotile	White	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 190 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 5-10%, Mineral Wool 3-5%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B73	030402-110	3/9/2002	1 of 2	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 190 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

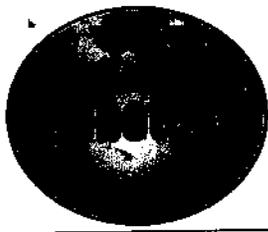
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B73	030402-110	3/9/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 190 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B74	030402-111	3/9/2002	1 of 2	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 188 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B74	030402-111	3/9/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 188 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B75	030402-112	3/9/2002	1 of 2	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 188 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B75	030402-112	3/9/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 188 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B76	030402-113	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 190 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B76	030402-113	3/9/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 190 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B77	030402-114	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 188 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B77	030402-114	3/9/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 188 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B78	030402-115	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 188 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B78	030402-115	3/9/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 188 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B79	030402-116	3/9/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 186 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20%, Fibrous Glass 5-10%						
<b>Non-Fibrous Materials:</b> Glue/Binder, Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B80	030402-117	3/9/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 125 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20%, Fibrous Glass 5-10%						
<b>Non-Fibrous Materials:</b> Glue/Binder, Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B81	030402-118	3/9/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 111 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20%, Fibrous Glass 5-10%						
<b>Non-Fibrous Materials:</b> Glue/Binder, Paint, Metal Foil						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B82	030402-119	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 190 <b>Materials:</b> Granular Material/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B82	030402-119	3/9/2002	2 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 190 <b>Materials:</b> Chalky Material w/Paper						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B83	030402-120	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 189 <b>Materials:</b> Granular Material/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B83	030402-120	3/9/2002	2 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 189 <b>Materials:</b> Chalky Material w/Paper						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B84	030402-121	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 105 <b>Materials:</b> Granular Material/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B84	030402-121	3/9/2002	2 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 105 <b>Materials:</b> Chalky Material w/Paper						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica						

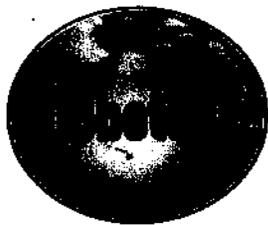
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B85	030402-122	3/9/2002	1 of 2	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 190 <b>Materials:</b> Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B85	030402-122	3/9/2002	2 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 190 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B86	030402-123	3/9/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Hw 147 <b>Materials:</b> Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B86	030402-123	3/9/2002	2 of 2	None Detected	White/Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Hw 147 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B87	030402-124	3/9/2002	1 of 3	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 111 <b>Materials:</b> Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B87	030402-124	3/9/2002	2 of 3	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 111 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B87	030402-124	3/9/2002	3 of 3	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 111 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B88	030402-125	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, South Rear Corner <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B89	030402-126	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Front-Center <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B90	030402-127	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, North-Rear <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B91	030402-128	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 160 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 3-5% Mineral Wool 5-10%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B91	030402-128	3/9/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 160 <b>Materials:</b> Fibrous Material						
<b>Other Fibrous Materials:</b> Mineral Wool 80-90%						
<b>Non-Fibrous Materials:</b> Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B92	030402-129	3/9/2002	1 of 2	Chrysotile	White	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 125 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 1-3% Mineral wool 1-3%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B92	030402-129	3/9/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 125 <b>Materials:</b> Fibrous Material						
<b>Other Fibrous Materials:</b> Mineral Wool 80-90%						
<b>Non-Fibrous Materials:</b> Glue/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B94	030402-131	3/9/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 160 <b>Materials:</b> Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

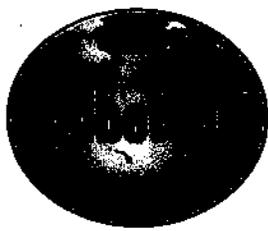
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B95	030402-132	3/9/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 133 <b>Materials:</b> Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B96	030402-133	3/9/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 111 <b>Materials:</b> Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B97	030402-134	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 161 <b>Materials:</b> Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B98	030402-135	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 163 <b>Materials:</b> Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B99	030402-136	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 157 <b>Materials:</b> Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B100	030402-137	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 181 <b>Materials:</b> Vinyl w/ Fibrous Backing						
<b>Other Fibrous Materials:</b> Cellulose 20-30%, Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Vinyl/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B100	030402-137	3/9/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 181 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B101	030402-138	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 181 <b>Materials:</b> Vinyl w/ Fibrous Backing						
<b>Other Fibrous Materials:</b> Cellulose 20-30%, Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Vinyl/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B101	030402-138	3/9/2002	2 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 181 <b>Materials:</b> Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B102	030402-139	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 181 <b>Materials:</b> Vinyl w/ Fibrous Backing						
<b>Other Fibrous Materials:</b> Cellulose 20-30%, Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Vinyl/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022602-550-JSW-B102	030402-139	3/9/2002	2 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 181 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B103	030402-140	3/9/2002	1 of 1	None Detected	Light Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 195 <b>Materials:</b> Soft Lumpy Material						
<b>Other Fibrous Materials:</b> Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Glass Beads						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B104	030402-141	3/9/2002	1 of 1	None Detected	Light Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 195 <b>Materials:</b> Soft Lumpy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B105	030402-142	3/9/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 195 <b>Materials:</b> Soft Lumpy Material						
<b>Other Fibrous Materials:</b> Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B106	030402-143	3/9/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> 1st Flr, Rm 195		<b>Materials:</b> Multi-layered Black Asphaltic Material		
<b>Other Fibrous Materials:</b> Cellulose 20-30%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B106	030402-143	3/9/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> 1st Flr, Rm 195		<b>Materials:</b> Fibrous Material		
<b>Other Fibrous Materials:</b> Cellulose 10-20%						
<b>Non-Fibrous Materials:</b> Perlite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B107	030402-144	3/9/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> 1st Flr, Rm 195		<b>Materials:</b> Multi-layered Black Asphaltic Material		
<b>Other Fibrous Materials:</b> Cellulose 20-30%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B107	030402-144	3/9/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> 1st Flr, Rm 195		<b>Materials:</b> Fibrous Material		
<b>Other Fibrous Materials:</b> Cellulose 10-20%						
<b>Non-Fibrous Materials:</b> Perlite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B108	030402-145	3/9/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> 1st Flr, Rm 195		<b>Materials:</b> Multi-layered Black Asphaltic Material		
<b>Other Fibrous Materials:</b> Cellulose 20-30%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B108	030402-145	3/9/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E				<b>Location:</b> 1st Flr, Rm 195		<b>Materials:</b> Fibrous Material
<b>Other Fibrous Materials:</b> Cellulose 10-20%						
<b>Non-Fibrous Materials:</b> Perlite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B109	030402-146	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E				<b>Location:</b> Roof, Rm 170		<b>Materials:</b> Gray Gummy Material
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B110	030402-147	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E				<b>Location:</b> Roof, Rm 174		<b>Materials:</b> Gray Gummy Material
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B111	030402-148	3/9/2002	1 of 2	Chrysotile	Silver	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E				<b>Location:</b> Roof, Rm 121		<b>Materials:</b> Paint
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Paint, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B111	030402-148	3/9/2002	2 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E				<b>Location:</b> Roof, Rm 121		<b>Materials:</b> Gray Gummy Material
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B112	030402-149	3/9/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> Roof, Rm 170		<b>Materials:</b> Multi-layered Black Asphaltic Material w/ Gravel		
<b>Other Fibrous Materials:</b> Cellulose 20-30%, Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

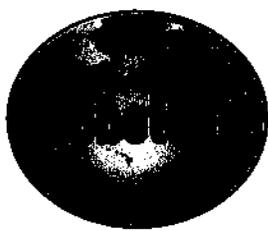
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B112	030402-149	3/9/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> Roof, Rm 170		<b>Materials:</b> Fibrous Material		
<b>Other Fibrous Materials:</b> Cellulose 70-80%						
<b>Non-Fibrous Materials:</b> Wood Pulps						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B113	030402-150	3/9/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> Roof, Rm 174		<b>Materials:</b> Multi-layered Black Asphaltic Material		
<b>Other Fibrous Materials:</b> Cellulose 20-30%, Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B113	030402-150	3/9/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> Roof, Rm 174		<b>Materials:</b> Fibrous Material		
<b>Other Fibrous Materials:</b> Cellulose 70-80%						
<b>Non-Fibrous Materials:</b> Wood Pulps						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B114	030402-151	3/9/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E		<b>Location:</b> Roof, Rm 122		<b>Materials:</b> Multi-layered Black Asphaltic Material		
<b>Other Fibrous Materials:</b> Cellulose 20-30%, Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B114	030402-151	3/9/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> Roof, Rm 122 <b>Materials:</b> Fibrous Material						
<b>Other Fibrous Materials:</b> Cellulose 70-80%						
<b>Non-Fibrous Materials:</b> Wood Pulps						

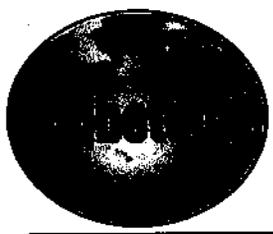
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B115	030402-152	3/9/2002	1 of 3	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 174 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Paint, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B115	030402-152	3/9/2002	2 of 3	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 174 <b>Materials:</b> Gray Crumbly Material						
<b>Other Fibrous Materials:</b> Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Glass Beads						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B115	030402-152	3/9/2002	3 of 3	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 174 <b>Materials:</b> Yellow Insulation						
<b>Other Fibrous Materials:</b> Cellulose 10-20%, Mineral Wool 20-30%						
<b>Non-Fibrous Materials:</b> Metal Foil, Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B116	030402-153	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 174 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20%, Fibrous Glass 5-10%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B116	030402-153	3/9/2002	2 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 174 <b>Materials:</b> Gray Crumbly Material						
<b>Other Fibrous Materials:</b> Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Glass Beads						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B117	030402-154	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 174 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20%, Fibrous Glass 5-10%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B117	030402-154	3/9/2002	2 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 174 <b>Materials:</b> Gray Crumbly Material						
<b>Other Fibrous Materials:</b> Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Glass Beads						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B118	030402-155	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 174 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Fibrous Glass 5-10%, Wollastonite 1-3%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B118	030402-155	3/9/2002	2 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 174 <b>Materials:</b> Foam						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Perlite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B119	030402-156	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 174 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20%, Mineral Wool 5-10%, Wollastonite <1%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

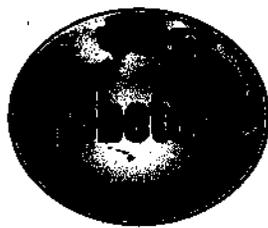
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B119	030402-156	3/9/2002	2 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 174 <b>Materials:</b> Foamy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Perlite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B120	030402-157	3/9/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 174 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20%, Mineral Wool 5-10%, Wollastonite <1%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B120	030402-157	3/9/2002	2 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 174 <b>Materials:</b> Foamy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Perlite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B121	030402-158	3/9/2002	1 of 1	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> Roof, Rm 153 <b>Materials:</b> Black Asphaltic Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20%, Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite, Paint, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B124	030402-161	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 124 <b>Materials:</b> Gray Crumbly Material						
<b>Other Fibrous Materials:</b> Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Glass Beads						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B125	030402-162	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 124 <b>Materials:</b> Gray Crumbly Material						
<b>Other Fibrous Materials:</b> Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Glass Beads						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B126	030402-163	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 124 <b>Materials:</b> Gray Crumbly Material						
<b>Other Fibrous Materials:</b> Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Glass Beads						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B127	030402-164	3/9/2002	1 of 2	None Detected	Light Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 137 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B127	030402-164	3/9/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 137 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B128	030402-165	3/9/2002	1 of 1	None Detected	Light Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 137 *Mastic Not Analyzed <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B129	030402-166	3/9/2002	1 of 1	None Detected	Light Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 137 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B130	030402-167	3/9/2002	1 of 2	Chrysotile	White	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 133 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Mineral Wool 3-5%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B130	030402-167	3/9/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 133 <b>Materials:</b> Fibrous Material						
<b>Other Fibrous Materials:</b> Mineral Wool 80-90%						
<b>Non-Fibrous Materials:</b> Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B131	030402-168	3/9/2002	1 of 1	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 101 *Wrapping Not Analyzed <b>Materials:</b> Fibrous Material						
<b>Other Fibrous Materials:</b> Mineral Wool 80-90%						
<b>Non-Fibrous Materials:</b> Glue/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B132	030402-169	3/9/2002	1 of 1	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 160 *Wrapping Not Analyzed <b>Materials:</b> Fibrous Material						
<b>Other Fibrous Materials:</b> Mineral Wool 80-90%						
<b>Non-Fibrous Materials:</b> Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B133	030402-170	3/9/2002	1 of 2	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B133	030402-170	3/9/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B134	030402-171	3/9/2002	1 of 1	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 1 *Mastic Not Analyzed <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B135	030402-172	3/9/2002	1 of 1	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 1100 *Mastic Not Analyzed <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B136	030402-173	3/9/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Outside Rm 143 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B137	030402-174	3/11/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Outside Rm 114 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B139	030402-176	3/12/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 199 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B140	030402-177	3/12/2002	1 of 1	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 118 *Mastic Not Analyzed <b>Materials:</b> Brown Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B141	030402-178	3/12/2002	1 of 1	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 198 *Mastic Not Analyzed <b>Materials:</b> Brown Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B142	030402-179	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 111 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B142	030402-179	3/12/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E <b>Location:</b> 1st Flr, Rm 111 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B143	030402-180	3/12/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E <b>Location:</b> 1st Flr, Rm 111 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B143	030402-180	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E <b>Location:</b> 1st Flr, Rm 111 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B139	030402-176	3/11/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 550, Quad E <b>Location:</b> 1st Flr, Rm 199 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B138	030402-175	3/11/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E <b>Location:</b> 1st Flr, Outside Rm 189 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B144	030402-181	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E <b>Location:</b> 1st Flr, Rm 111 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B144	030402-181	3/12/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E <b>Location:</b> 1st Flr, Rm 111 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B145	030402-182	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E <b>Location:</b> 1st Flr, Rm 101 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B145	030402-182	3/12/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E <b>Location:</b> 1st Flr, Rm 101 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B146	030402-183	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E <b>Location:</b> 1st Flr, Rm 101 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B146	030402-183	3/12/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E <b>Location:</b> 1st Flr, Rm 101 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B147	030402-184	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E <b>Location:</b> 1st Flr, Rm 101 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B147	030402-184	3/12/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E <b>Location:</b> 1st Flr, Rm 101 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B148	030402-185	3/12/2002	1 of 2	Chrysotile	Green	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E <b>Location:</b> 1st Flr, Rm 101 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B148	030402-185	3/12/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E						
<b>Location:</b> 1st Flr, Rm 101						
<b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B151	030402-188	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E						
<b>Location:</b> 1st Flr, Rm 101						
<b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B151	030402-188	3/12/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E						
<b>Location:</b> 1st Flr, Rm 101						
<b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B152	030402-189	3/12/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E						
<b>Location:</b> 1st Flr, Rm 101 * Mastic Not Available						
<b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B153	030402-190	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E						
<b>Location:</b> 1st Flr, Rm 101						
<b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B153	030402-190	3/12/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E						
<b>Location:</b> 1st Flr, Rm 101						
<b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

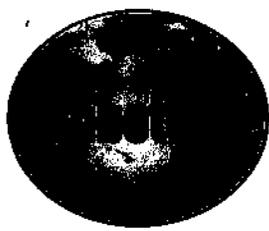
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B154	030402-191	3/12/2002	1 of 2	Chrysotile	Gray	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E						
<b>Location:</b> 1st Flr, Rm 2						
<b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B154	030402-191	3/12/2002	2 of 2	Chrysotile	Black	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E						
<b>Location:</b> 1st Flr, Rm 2						
<b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B157	030402-194	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E						
<b>Location:</b> 1st Flr, Rm 138						
<b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B157	030402-194	3/12/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E						
<b>Location:</b> 1st Flr, Rm 138						
<b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

The result quantitations reported are an estimation based on the methods of visual microscopic estimation which is considered only a semi-quantitative technique. This report applies only to the sample(s) received and analyzed by GLOBETECK. Results do not necessarily reflect the makeup of the entire span of the material from which the samples were derived. Sampling techniques and/or sample handling may affect the integrity of the sample/s before submission to GLOBETECK Laboratory and hence the outcome of the laboratory results. Samples not destroyed by testing are retained a minimum of thirty days. GLOBETECK Laboratory, recommends re-analysis by point count or Transmission Electron Microscopy (TEM) for materials that are found to contain less than ten percent (<10%) asbestos by PLM. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of GLOBETECK.



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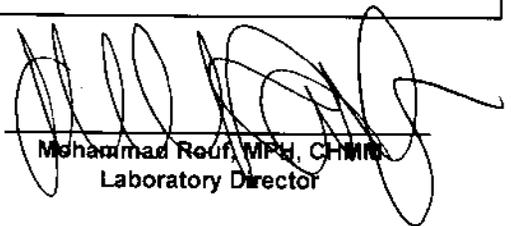
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B158	030402-195	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E						
<b>Location:</b> 1st Flr, Rm 138						
<b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B158	030402-195	3/12/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E						
<b>Location:</b> 1st Flr, Rm 138						
<b>Materials:</b> Adhesive w/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B159	030402-196	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E						
<b>Location:</b> 1st Flr, Rm 138						
<b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022702-550-JSW-B159	030402-196	3/12/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg. 550, Quad E						
<b>Location:</b> 1st Flr, Rm 138						
<b>Materials:</b> Adhesive w/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Paint						

Analyst: \_\_\_\_\_



Mohammad Reuf, MPE, CHMM  
Laboratory Director

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CHAIN OF CUSTODY

Project Name: <u>Schofield Barracks, Bldg 550 - Round E</u>		ANALYSIS REQUESTED						
Client: <u>Sabert</u>		Asbestos (PLM) PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project # <u>01-270</u>								
Sampled by: <u>KWR</u>								
Sample Date: <u>01/24, 01/29/02</u>								
Turn Around Time: <u>5 Day</u>								
SAMPLE ID	LOCATION							
013102-94								
012402-550-KWR-B1	2 <sup>nd</sup> FLR, Rm 289							
95								
96								
012902-550-KWR-B3	Rm 208							
012902-550-KWR-B4	Rm 297							
98								
99								
012902-550-KWR-B6	HW 205							
100								
	3 <sup>rd</sup> FLR, Rm 397							
101								
102								
012902-550-KWR-B9	HW 307							
103								
012902-550-KWR-B10	Rm 397							
Relinquished by: <u>Kem Pajonables</u>		Relinquished by:						
Signature: <u>Kem Pajonables</u>		Signature:						
Time/Date: <u>30 Jan 02 1635</u>		Time/Date:						
		Received by: <u>MICHAEL ROOF</u>						
		Signature: <u>[Signature]</u>						
		Time/Date: <u>1-30-02, 1635</u>						



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**CHAIN OF CUSTODY**

Project Name: <u>SB Bldg 550 - Quade</u>		ANALYSIS REQUESTED						
Client: <u>Salent</u>		Asbestos (PLM/PCM)	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date: <u>01/24, 01/29/02</u>								
Turn Around Time:								
SAMPLE ID	LOCATION							
013102-104								
012902-550-KWR-B11	3 <sup>rd</sup> FLR, Outside Rm 357							
105	↓							
012402-550-KWR-B13	Outside Rm 307							
106								
012902-550-KWR-B14	Rm 397							
107								
012902-550-KWR-B15	HW 344							Not A
108	↓							Not A
012902-550-KWR-B16	HW 305							
110								
	Rm 389							
	Rm 341							
111								
	Rm 341							
112								
	Rm 345							
113	"							
Relinquished by:	Received by:							
Signature:	Signature:							
Time/Date:	Time/Date:							



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**CHAIN OF CUSTODY**

Project Name: <u>SB, BLDG 550 - QUAD E</u>		ANALYSIS REQUESTED						
Client:		Asbestos (PLM/PCM)	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date: <u>01/29/02</u>								
Turn Around Time:								
SAMPLE ID	LOCATION							
01302-124								
012902-550-KWR-831	3 <sup>rd</sup> FLE, HW 305							
125	HW 344							
124	HW 305							
127	RM 308							
128								
129								
130	2 <sup>nd</sup> FLE, HW 292							
131	HW 244							
132	HW 205							
133	HW 292							
Relinquished by:		Relinquished by:						
Signature:		Signature:						
Time/Date:		Time/Date:						

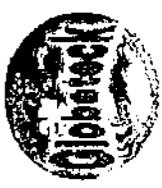
135



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### CHAIN OF CUSTODY

Project Name: SB, BUDG 550 - Quad E		ANALYSIS REQUESTED						
Client:		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date:	01/29/02							
Turn Around Time:								
SAMPLE ID	LOCATION							
013102-134 013102-550 - KWR-841	2nd FLR, HW 244							V
135	B42							V
136	B43							V
137	B44							V
138	B45							V
139	B46							V
140	B47							
141	B48							
142								
Relinquished by:		Received by:						
Signature:		Signature:						
Time/Date:		Time/Date:						



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**CHAIN OF CUSTODY**

Project Name: Schofield Barracks, Bldg 550 - Quade  
 Client: Salut  
 Project # 61-290  
 Sampled by: SSW  
 Sample Date: 02/26/02  
 Turn Around Time: SDRY  
030402

SAMPLE ID	LOCATION	ANALYSIS REQUESTED						
		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
850-SSW-849	3rd FLR, Lanani - East	✓						
850	Center	✓						
851	West	✓						
852	Rm 399	✓						
853	Rm 397	✓						
854	Rm 307	✓						
855	2nd FLR, Lanani - West	✓						
856	Center	✓						
857	East	✓						
858	Outside Rm 208	✓						

Relinquished by: MIKE AGUIRRE Received by: W. BENTLEY  
 Signature: [Signature] Signature: [Signature]  
 Time/Date: 1/25 2/1/02 Time/Date: 1/25 3/1/02



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**CHAIN OF CUSTODY**

Project Name: <b>SB, BLDG 550 - Guide</b>		ANALYSIS REQUESTED						
Client:		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date: <b>02/26/02</b>								
Turn Around Time:								
SAMPLE ID	LOCATION							
022602 550-SW-859	Outside Rm 259							
97	B40 ↓ Rm 289							
98	B61 1 <sup>st</sup> FLR, Rm 191							
99	B62 Rm 187							Not A
100	B63 ↓							Not A
101	B64 Rm 191							
102	B65 Rm 187							
103	B66 ↓							
104	B67 Rm 191							
105	B68 Rm 187							
Relinquished by:		Relinquished by:						
Signature:		Signature:						
Time/Date:		Time/Date:						



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**CHAIN OF CUSTODY**

Project Name: <u>SB BLDG 550 - Quad E</u>		ANALYSIS REQUESTED						
Client:		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date: <u>02/26/02</u>								
Turn Around Time:								
SAMPLE ID	LOCATION							
<u>106</u>	<u>1<sup>st</sup> FLR, Rm 187</u>							
<u>107</u>	<u>Rm 190</u>							
<u>108</u>	<u>Rm 188</u>							<u>NOT A</u>
<u>109</u>	<u>↓</u>							<u>NOT A</u>
<u>110</u>	<u>Rm 190</u>							
<u>111</u>	<u>Rm 188</u>							
<u>112</u>	<u>↓</u>							
<u>113</u>	<u>Rm 190</u>							
<u>114</u>	<u>Rm 188</u>							
<u>115</u>	<u>↓</u>							
<u>107</u>	<u>106</u>							
<u>108</u>	<u>107</u>							
<u>109</u>	<u>108</u>							
<u>110</u>	<u>109</u>							
<u>111</u>	<u>110</u>							
<u>112</u>	<u>111</u>							
<u>113</u>	<u>112</u>							
<u>114</u>	<u>113</u>							
<u>115</u>	<u>114</u>							
Relinquished by:		Relinquished by:						
Signature:		Signature:						
Time/Date:		Time/Date:						

022602 106



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**CHAIN OF CUSTODY**

Project Name: <b>SB, BUDG 550 - QUAD E</b>		ANALYSIS REQUESTED												
Client:		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals						
Project #														
Sampled by:														
Sample Date:	<b>02/26/02</b>													
Turn Around Time:														
SAMPLE ID	LOCATION													
117	Rm 125													
118	Rm 111													
119	Rm 190													
120	Rm 189													
121	Rm 105													
122	Rm 190													
123	HU 147													
124	Rm 111													
125	South Rear Corner													
Relinquished by:									Relinquished by:					
Signature:									Signature:					
Time/Date:									Time/Date:					

022602  
 550-Jsw-874



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**CHAIN OF CUSTODY**

Project Name: SB BUDG 550 - Quad E

Client: \_\_\_\_\_

Project #: \_\_\_\_\_

Sampled by: \_\_\_\_\_

Sample Date: 02/26/02

Turn Around Time: \_\_\_\_\_

SAMPLE ID	LOCATION	ANALYSIS REQUESTED						
		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
<u>126</u>	<u>1st FLR, Front - Center</u>	<input checked="" type="checkbox"/>						
<u>127</u>	<u>North - Rear</u>	<input checked="" type="checkbox"/>						
<u>128</u>	<u>Rm 1100</u>	<input checked="" type="checkbox"/>						
<u>129</u>	<u>Rm 125</u>	<input checked="" type="checkbox"/>						
<u>130</u>	<u>Rm 174</u>	<input checked="" type="checkbox"/>						<u>Not Analyzed</u>
<u>131</u>	<u>Rm 160</u>	<input checked="" type="checkbox"/>						
<u>132</u>	<u>Rm 133</u>	<input checked="" type="checkbox"/>						
<u>133</u>	<u>Rm 111</u>	<input checked="" type="checkbox"/>						
<u>134</u>	<u>Rm 161</u>	<input checked="" type="checkbox"/>						
<u>135</u>	<u>Rm 163</u>	<input checked="" type="checkbox"/>						

Relinquished by: \_\_\_\_\_ Received by: \_\_\_\_\_

Signature: \_\_\_\_\_ Signature: \_\_\_\_\_

Time/Date: \_\_\_\_\_ Time/Date: \_\_\_\_\_

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### CHAIN OF CUSTODY

Project Name: SB BLDG 550 - Ground		ANALYSIS REQUESTED						
Client:		Asbestos (PLM/PCM)	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date:	02/26	02/27/02						
Turn Around Time:								
SAMPLE ID	LOCATION							
136	1 <sup>st</sup> FLR, Rm 157							
137	B100							
138	B101							
139	B102							
140	Rm 145							
141	B104							
142	B105							
143	B106							
144	B107							
145	B108							
Received by:		Relinquished by:						
Signature:		Signature:						
Time/Date:		Time/Date:						

022602-550-550-D99  
 022702-550-550-550-D99



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**CHAIN OF CUSTODY**

Project Name: SB Bldg 550 - Queue

Client:

Project #

Sampled by:

Sample Date: 02/27/02

Turn Around Time:

SAMPLE ID	LOCATION	ANALYSIS REQUESTED						
		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
<del>144</del> 550-SW-8109	Roof - Rm 170	✓						
<del>147</del>	Rm 174							
<del>148</del>	Rm 121							
<del>149</del>	Rm 170							
<del>150</del>	Rm 174							
<del>151</del>	Rm 122							
<del>152</del>	1st Flr, Rm 174							
<del>153</del>								
<del>154</del>								
<del>155</del>								

Relinquished by: \_\_\_\_\_ Received by: \_\_\_\_\_  
 Signature: \_\_\_\_\_ Signature: \_\_\_\_\_  
 Time/Date: \_\_\_\_\_ Time/Date: \_\_\_\_\_



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**CHAIN OF CUSTODY**

Project Name: SB BUDASSO - QUADE

Client: \_\_\_\_\_

Project #: \_\_\_\_\_

Sampled by: \_\_\_\_\_

Sample Date: 02/27/02

Turn Around Time: \_\_\_\_\_

SAMPLE ID	LOCATION	ANALYSIS REQUESTED						
		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
156	1st FUR, Rm 174	✓						
157	B120 ↓	✓						
158	Roof, Rm 153	✓						
159	B122 ↓	✓						
160	B123 ↓ Rm 152	✓						Not A
161	1st FUR, Rm 124	✓						Not A
162	B125 ↓	✓						
163	B126 ↓	✓						
164	B127 Rm 137	✓						
165	B128 ↓	✓						

Relinquished by: \_\_\_\_\_ Received by: \_\_\_\_\_

Signature: \_\_\_\_\_ Signature: \_\_\_\_\_

Time/Date: \_\_\_\_\_ Time/Date: \_\_\_\_\_



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**CHAIN OF CUSTODY**

Project Name: SB BLDG 550 - Queue

Client: \_\_\_\_\_

Project #: \_\_\_\_\_

Sampled by: \_\_\_\_\_

Sample Date: 02/27/02

Turn Around Time: \_\_\_\_\_

SAMPLE ID	LOCATION	ANALYSIS REQUESTED						
		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
166	1 <sup>st</sup> FLR, Rm 137	✓						
167	Rm 133	✓						
168	Rm 101	✓						
169	Rm 160	✓						
170	Rm 136	✓						
171	Rm 1	✓						
172	Rm 1100	✓						
173	Outside Rm 143	✓						
174	Rm 114	✓						
175	Rm 189	✓						

Relinquished by: \_\_\_\_\_ Received by: \_\_\_\_\_

Signature: \_\_\_\_\_ Signature: \_\_\_\_\_

Time/Date: \_\_\_\_\_ Time/Date: \_\_\_\_\_



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**CHAIN OF CUSTODY**

Project Name: <u>SB BLDG 550 - Quade</u>		ANALYSIS REQUESTED						
Client:		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date:	<u>02/27/02</u>							
Turn Around Time:								
SAMPLE ID	LOCATION							
<u>176</u>	<u>1<sup>ST</sup> FLE, Rm 199</u>							
<u>177</u>	<u>Rm 118</u>							
<u>178</u>	<u>Rm 198</u>							
<u>179</u>	<u>Rm 111</u>							
<u>180</u>								
<u>181</u>								
<u>182</u>	<u>Rm 101</u>							
<u>183</u>								
<u>184</u>								
<u>185</u>								
Relinquished by:		Relinquished by:						
Signature:		Signature:						
Time/Date:		Time/Date:						

027702



**Globeteck Group, Inc**  
 544 Ohohia Street, Suite #4  
 Honolulu, Hawaii 96819  
 Phone (808) 833-5787 Fax (808) 833-5987

**CHAIN OF CUSTODY**

Project Name: SB BLDG 550 - QUAD E

Client: \_\_\_\_\_

Project # \_\_\_\_\_

Sampled by: \_\_\_\_\_

Sample Date: 07/27/02

Turn Around Time: \_\_\_\_\_

SAMPLE ID	LOCATION	ANALYSIS REQUESTED						
		Asbestos (PLM/PCM)	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
<del>184</del>	<del>550-300-8149</del>							
187	1 <sup>st</sup> FLR, Rm 101	✓						Not Anal.
188		✓						Not Anal.
189								
190								
191	Rm 7							⊕
192								Not Anal
193								Not Anal
194	Rm 138							
195								
196								

Relinquished by: \_\_\_\_\_ Received by: \_\_\_\_\_

Signature: \_\_\_\_\_ Signature: \_\_\_\_\_

Time/Date: \_\_\_\_\_ Time/Date: \_\_\_\_\_

022702

**Bulk Sample Analysis for Asbestos**

WEC Project #: H02-158  
Client Project#: 01-290

Report #: 11333  
Report Date: 2/4/02

Client: **Soil and Land Use Technology, Inc.**  
3375 Koapaka Street Suite B286  
Honolulu, HI 96819

# Samples: 1      # Layers: 2

Collection Date: 1/29/02  
Collection By: Client  
TAT: One week (or more)  
Analysis By: S. Wells  
Analysis Date: 2/3/02  
Received By: S.Santos  
Received Date: 1/30/02

Project Name/Location: Schofield Barracks - Quad E Bldg. 550

Client ID#	WEC ID#	Location	Layer
012902-550-KWR-B41	HB02-0462	Hall 244	1 of 1

Asbestos	Friable/Non Friable	Fibrous?	Homo-genous	Material	Color
None Detected	Non Friable	Yes	No	Wrap	Tan/Wht/Silver

**Other Fibrous Materials**

Type	%
Fibrous Glass	12%
Cellulose	25%

% Asbestos: None  
% Other Fibrous Materials: 37%  
% Non Fibrous Materials: 63%

Sample Comments:

Comments:

Analyst S. Wells      Date 2/03/02  
QC [Signature]      Date 2/4/02

Analysis performed by EPA Method 600/R-93/116 with dispersion staining microscopy. All quantities reported are based on visual estimation by PLM, unless point-counting method is requested and noted for the sample. Test report relates only to items tested and must not be used by client to claim product endorsement by NVLAP or any agency of the U.S. Government. Test reports must not be reproduced without the approval of WEC Inc., and are subject to WEC Inc. General Terms and Conditions (see reverse). White Environmental Consultants, Inc. is an NVLAP accredited laboratory for bulk asbestos analysis. (Lab# 200350-0)

**Bulk Sample Analysis for Asbestos**

WEC Project #: H02-158  
Client Project#: 01-290

Report #: 11332  
Report Date: 2/4/02

Client: **Soil and Land Use Technology, Inc.**  
3375 Koapaka Street Suite B286  
Honolulu, HI 96819

# Samples: 2      # Layers: 4

Collection Date: 1/24/02  
Collection By: Client  
TAT: One week (or more)  
Analysis By: S. Wells  
Analysis Date: 2/3/02  
Received By: S.Santos  
Received Date: 1/30/02

Project Name/Location: Schofield Barracks - Quad E Bldg. 550

Client ID#	WEC ID#	Location	Layer																			
012402-550-KWR-B1	HB02-0460	Room 289	1	of 1																		
<b>Asbestos</b>																						
None Detected																						
<table border="0"> <tr> <td></td> <td><b>Friable/Non</b></td> <td><b>Fibrous?</b></td> <td><b>Homo-</b></td> <td><b>Material</b></td> <td><b>Color</b></td> </tr> <tr> <td></td> <td>Non Friable</td> <td>Yes</td> <td>genous</td> <td>Mastic</td> <td>Brown</td> </tr> <tr> <td></td> <td></td> <td></td> <td>No</td> <td></td> <td></td> </tr> </table>						<b>Friable/Non</b>	<b>Fibrous?</b>	<b>Homo-</b>	<b>Material</b>	<b>Color</b>		Non Friable	Yes	genous	Mastic	Brown				No		
	<b>Friable/Non</b>	<b>Fibrous?</b>	<b>Homo-</b>	<b>Material</b>	<b>Color</b>																	
	Non Friable	Yes	genous	Mastic	Brown																	
			No																			
<i>% Asbestos: None</i>																						
<b>Other Fibrous Materials</b>																						
<table border="0"> <tr> <td><i>Type</i></td> <td><i>%</i></td> <td colspan="3"></td> </tr> <tr> <td>Cellulose</td> <td>5%</td> <td colspan="3"></td> </tr> </table>					<i>Type</i>	<i>%</i>				Cellulose	5%											
<i>Type</i>	<i>%</i>																					
Cellulose	5%																					
<i>% Other Fibrous Materials: 5%</i>																						
<i>% Non Fibrous Materials: 95%</i>																						
Sample Comments:																						

Client ID#	WEC ID#	Location	Layer																			
012402-550-KWR-B21	HB02-0461-A	Room 345	1	of 2																		
<b>Asbestos</b>																						
None Detected																						
<table border="0"> <tr> <td></td> <td><b>Friable/Non</b></td> <td><b>Fibrous?</b></td> <td><b>Homo-</b></td> <td><b>Material</b></td> <td><b>Color</b></td> </tr> <tr> <td></td> <td>Non Friable</td> <td>Yes</td> <td>genous</td> <td>Tile</td> <td>Beige</td> </tr> <tr> <td></td> <td></td> <td></td> <td>No</td> <td></td> <td></td> </tr> </table>						<b>Friable/Non</b>	<b>Fibrous?</b>	<b>Homo-</b>	<b>Material</b>	<b>Color</b>		Non Friable	Yes	genous	Tile	Beige				No		
	<b>Friable/Non</b>	<b>Fibrous?</b>	<b>Homo-</b>	<b>Material</b>	<b>Color</b>																	
	Non Friable	Yes	genous	Tile	Beige																	
			No																			
<i>% Asbestos: None</i>																						
<b>Other Fibrous Materials</b>																						
<table border="0"> <tr> <td><i>Type</i></td> <td><i>%</i></td> <td colspan="3"></td> </tr> <tr> <td>Cellulose</td> <td>Trace</td> <td colspan="3"></td> </tr> </table>					<i>Type</i>	<i>%</i>				Cellulose	Trace											
<i>Type</i>	<i>%</i>																					
Cellulose	Trace																					
<i>% Other Fibrous Materials: Trace</i>																						
<i>% Non Fibrous Materials: 100%</i>																						
Sample Comments:																						

**Bulk Sample Analysis for Asbestos**

WEC Project #: H02-158  
Client Project#: 01-290

Report #: 11332  
Report Date: 2/4/02

Client ID# 012402-550-KWR-B21	WEC ID# HB02-0461-B	Location Room 345	Layer 2 of 2																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Asbestos</th> <th style="width: 50%;"></th> </tr> <tr> <th>Type</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>Chrysotile</td> <td style="text-align: center;">Trace</td> </tr> </tbody> </table>		Asbestos		Type	%	Chrysotile	Trace	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Friable/Non</th> <th style="width: 25%;">Fibrous?</th> <th style="width: 25%;">Homo- genous</th> <th style="width: 25%;">Material</th> <th style="width: 25%;">Color</th> </tr> <tr> <td>Non Friable</td> <td>Yes</td> <td>No</td> <td>Mastic</td> <td>Yellow/Black</td> </tr> </thead> </table>		Friable/Non	Fibrous?	Homo- genous	Material	Color	Non Friable	Yes	No	Mastic	Yellow/Black
Asbestos																			
Type	%																		
Chrysotile	Trace																		
Friable/Non	Fibrous?	Homo- genous	Material	Color															
Non Friable	Yes	No	Mastic	Yellow/Black															
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Other Fibrous Materials</th> <th style="width: 50%;"></th> </tr> <tr> <th>Type</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>Cellulose</td> <td style="text-align: center;">4%</td> </tr> </tbody> </table>		Other Fibrous Materials		Type	%	Cellulose	4%	<p style="text-align: right;">% Asbestos: Trace</p> <p style="text-align: right;">% Other Fibrous Materials: 4%</p> <p style="text-align: right;">% Non Fibrous Materials: 96%</p>											
Other Fibrous Materials																			
Type	%																		
Cellulose	4%																		
<p>Sample Comments: &lt;1% Chrysotile Asbestos detected in small amount of black mastic mixed with yellow mastic.</p>																			

Comments:

Analyst Shirley Mills Date 2/03/02  
 QC [Signature] Date 2/4/02

Analysis performed by EPA Method 600/R-93/116 with dispersion staining microscopy. All quantities reported are based on visual estimation by PLM, unless point-counting method is requested and noted for the sample. Test report relates only to items tested and must not be used by client to claim product endorsement by NVLAP or any agency of the U.S. Government. Test reports must not be reproduced without the approval of WEC Inc., and are subject to WEC Inc. General Terms and Conditions (see reverse). White Environmental Consultants, Inc. is an NVLAP accredited laboratory for bulk asbestos analysis. (Lab# 200350-0)

Client: SALUT, Inc. Job Name: Schofield Barracks, Bldg 550-Quad E  
 Address: 11609 Edmonston Road Job Location: 01-290  
 Beltsville, Maryland 20705 Job Number: Not Provided  
 P.O. Number: Not Provided

Attention: Tina Perry

**Summary of Polarized Light Microscopy**

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Analyst ID	Comments
0238496	022602-550- JSW-B61	10	10	--	--	--	--	--	--	--	--	96	White	JC	
0238497	022602-550- JSW-B81	NAD	--	--	--	--	--	--	--	--	--	100	Beige	JC	
0238498	022602-550- JSW-B101	NAD	--	--	--	--	--	--	15	--	--	85	White	JC	
0238499	022602-550- JSW-B121	NAD	--	--	--	--	--	--	2	--	--	98	Black	JC	
0238500	022602-550- JSW-B141	NAD	--	--	--	--	--	--	--	--	--	100	Beige	JC	

The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

Analysis Method - EPA/600/R-93/116 dated July 1993

NAD = "No Asbestos Detected" TR = "Trace equals less than 1% of this component"

*John Contreras*  
John Contreras

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

An AIHA (#8863), NY LAP (#101143), & New York L.L.A.P. (#10920) Accredited Laboratory

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4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

Client: SALLI, Inc.

Job Name: Schofield Barracks, Bldg 550 Quad E

Chain Of Custody: 92209

Address: 11609 Edmonston Road

Job Location: Not Provided

Date Analyzed: 04/02/2002

Beltsville, Maryland 20705

Job Number: 01-290

Person Submitting: Tina Perry-Pinau

P.O. Number: Not Provided

Attention: Tina Perry

Page 1 of 1

## Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile	Amosite	Crocidolite	Other Asbestos	Mineral Wool	Fiberglass	Organic	Synthetic	Other	Particulate	Sample Color	Analyst ID	Comments
			Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent			
0238507	030502-550- JSW-B101	NAD	--	--	--	--	--	--	TR	--	--	100	White	JC	

The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
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Analysis Method - EPA/600/R-93/116 dated July 1993

NAD = "No Asbestos Detected" TR = "Trace equals less than 1% of this component"

*John Contreras*  
John Contreras

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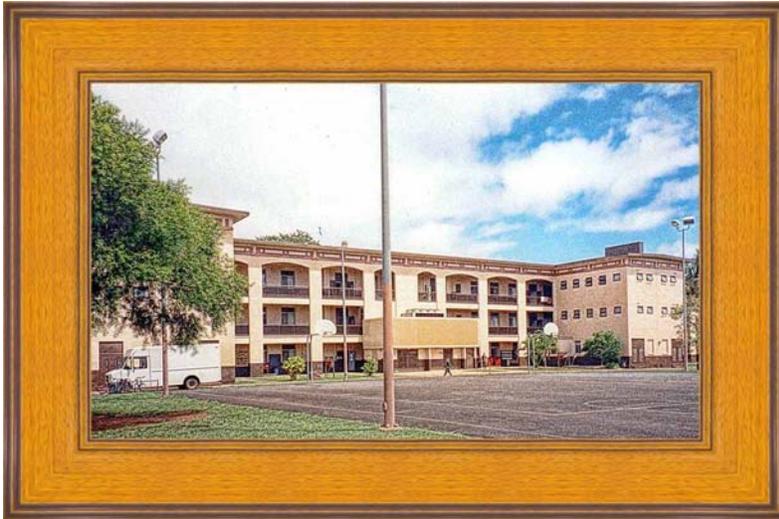






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# Schofield Barracks



## Building 551



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## Executive Summary

---

Soil and Land Use Technology, Inc. (SaLUT) performed an asbestos identification and assessment reinspection of Building 551 located at Schofield Barracks, Hawaii. The results of the original survey conducted in 1993 (*Asbestos Survey and Management Plan Report for Building 551 of Quad E at the Schofield Barracks Military Reservation, Hawaii*, Baker Environmental, Inc. for the Corps of Engineers, Fort Shafter), and one survey of limited scope conducted in 1996 (*Asbestos and Lead-Based Paint Survey for Design of FY96 OMA PKG A-71, Repair Barracks Latrines, Building Nos. 549, 550, 551 & 552, Schofield Barracks, Oahu, Hawaii*, R. M. Towill Corporation) were included to the extent that the suspect materials found in those surveys could be identified. The survey was conducted by SaLUT in accordance with the U.S. Army Corps of Engineers Honolulu Engineer District Scope of Work dated September 18, 2001. The survey was conducted on January 24, 2002 through March 4, 2002.

All accessible areas of the building were inspected for suspect asbestos-containing building materials (ACBMs). One hundred and seventeen samples of suspect asbestos containing material were collected. Analytical results confirmed that asbestos is present as pipe insulation, pipe wrap, floor tile, floor tile mastic, duct adhesive, caulking, and cementitious paneling. A summary of the ACBMs encountered is provided on the next page. This report provides a detailed description of the ACBM locations, quantities, and hazard assessments based on conditions existing at the time of the inspection. No areas were found to contain ACBM causing high or imminent exposure potential.



*Photograph 1. Front of Building 551.*



*Photograph 2. Rear of Building 551.*

## ***BUILDING SUMMARY***

<b>Facility</b>	Schofield Barracks
<b>Building</b>	551
<b>Inspector(s)</b>	John Willard, Kenneth Reynolds
<b>Inspection Date(s)</b>	January 24, 2002 through March 4, 2002.
<b>Building Area</b>	120,000 sf

### **Inaccessible areas (overview)**

None

### **Areas with limited access (overview)**

Beneath wall-to-wall carpeting (“LCA” on building drawings)

### **Areas with no access (overview)**

Above ceilings with no access (“NAC” on building drawings)

Rooms that were sealed (“NA” on building drawings)

<b>Types of ACBMs Encountered</b>		<b>Approximate Quantity</b>
<b>Thermal System Insulation</b>	Pipe insulation	415 lf
<b>Surfacing</b>	None	
<b>Miscellaneous</b>	Caulking	20 lf
	Cement paneling	1,625 sf
	Duct adhesive	2,481 sf
	Floor tile	34,792 sf
	Floor tile mastic	37,723 sf
	Pipe wrap	400 lf
<b>Functional Areas with High to Imminent Exposure Potential</b>	None	



*Photograph 3. Side of Building 551.*

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# 1 Introduction

---

SaLUT performed an inspection of Building 551 to identify and assess all accessible ACBMs. This was a reinspection conducted between January 24, 2002 and March 4, 2002, in accordance with the requirements outlined in the Scope of Work dated September 18, 2001. The results of the original survey conducted in July and August 1993 (*Asbestos Survey and Management Plan Report for Building 551 of Quad E at the Schofield Barracks Military Reservation, Hawai'i*, Baker Environmental, Inc. for the Corps of Engineers, Fort Shafter) and one survey of limited scope conducted in 1996 (*Asbestos and Lead-Based Paint Survey for Design of FY96 OMA PKG A-71, Repair Barracks Latrines, Building Nos. 549, 550, 551 & 552, Schofield Barracks, Oahu, Hawaii*, R. M. Towill Corporation) were included.

The following is a description of the building:

<b>Function</b>	Barracks
<b>Size</b>	120,000 square feet; three floors
<b>Foundation</b>	Concrete
<b>Exterior walls</b>	Concrete masonry units with plaster coat
<b>Roof</b>	Asphalt roofing tar
<b>Mechanical systems</b>	Main mechanical room containing furnace and boiler on First Floor; secondary mechanical rooms on Second and Third Floors; pipes are insulated with fiberglass or suspect insulation; covered with wraps
<b>Climate control</b>	Series of air conditioning units, each feeding multiple rooms; ducts are insulated with fiberglass; covered with sealant
<b>Interior walls</b>	Drywall, cementitious panels, plaster
<b>Floors</b>	Floor tile, ceramic tile, carpet, concrete
<b>Ceilings</b>	Fixed ceilings, ceiling tile

Survey and assessment protocols were based on those adopted by the U.S. Environmental Protection Agency (EPA) as detailed in the Asbestos Hazard Emergency Response Act (AHERA; 40 CFR 763, Subpart E), and those of the Hawaii Department of Health in Hawaii Administrative Rule (HAR) 11-502 *Asbestos-Containing Materials in Schools*. In addition to identifying materials considered suspect by AHERA survey protocols, accessible roofing and other exterior materials were also addressed. SaLUT's inspectors identified and sampled all materials considered to be suspect under the regulations and other documents listed in Section 2 *Applicable Documents*, as well as those materials that have been found through other available literature and inspectors' experience (e.g., leveling paper and silver exterior paint) to potentially contain asbestos. This report does not address those suspect materials that would be expected in the building (e.g., sink undercoating in bathrooms of a residence) but were not encountered; the reader should assume that, if a suspect material is not mentioned in Section 3 *Findings*, the material was not found in the building.

---

For the following reasons, SaLUT's survey differed from a normal reinspection, wherein the locations and conditions of previously identified ACBMs are verified, and the impacts of building renovations are determined:

- ❑ **Inability to identify the Baker survey's homogeneous materials with certainty.** Photographs of the positive materials were not included in the Baker inspection report available at the Directorate of Public Works (DPW). Many of the types of floor tile in the original survey were described by their predominant color only. Other types of floor tile appear to have received more than one description (possibly due to having been described by different inspectors).
- ❑ **Multiple layers of floor tile.** Many rooms had multiple layers of floor tile. Numerous instances were identified where floor tile located in the 1993 survey had been covered by other types of tile. This made it impractical to carry out the following tasks with completed accuracy:
  - Verify all locations of floor tiles identified in the original survey
  - Quantify types of floor tile
  - Identify all types of floor tile in the building (it was assumed that all types of floor tile were visible in at least one location)

To deal with these issues, under the direction of SaLUT's Project Manager and Principal Investigator, the inspectors modified the survey protocol as follows:

- ❑ **Floor tile.** Where a floor tile type could be sampled by SaLUT's inspectors without causing unacceptable damage, the original inspection was ignored, the floor tile was given a SaLUT homogeneous material identification, and the floor tile was sampled in accordance with the SAP. If the material could be equated to a type of Baker floor tile, this was noted. Where older types of floor tile were noted below SaLUT's samples, but the older materials could not be sampled, the floor tile and associated mastic were identified from the material locations in Baker's report.
- ❑ **Other materials identified in previous inspections.** For all other materials (including those that were determined to not contain asbestos) that had been identified in the previous inspections, SaLUT's inspectors attempted to locate the materials. In a number of cases, the materials had been abated during various renovation projects. Where a material was identified, the SaLUT's lead inspector determined whether additional sampling was warranted.

The Towill inspectors generally took only a single sample of each material from each floor; this does not meet the current Hawai'i requirement that three samples be taken from each floor. One Towill sample confirmed asbestos as being present in the form of cement panels, previously identified by Baker's survey. Baker also identified these cement panels, and their presence confirmed by SaLUT. Because all other Towill samples were non-asbestos containing, the results of this survey were disregarded.

- ❑ **Other materials not identified in previous inspection.** SaLUT's inspectors identified and sampled a number of suspect materials that were not identified previously.

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All samples were collected in accordance with the Sampling and Analysis Plan (SAP) for the task except as noted above. Where applicable, corners of wall-to-wall carpeting were lifted to examine flooring materials under the carpet. Metal roofs that would not support the inspector's weight were examined visually; if suspect materials were identified they were presumed to contain asbestos unless they could be sampled from an accessible edge of the roof. These situations, as well as other special situations, are discussed in the SAP located in Appendix A of this volume.

On-site inspection and assessments were conducted by John Willard and Kenneth Reynolds, EPA and State of Hawai'i accredited Asbestos Inspectors. Quality control review was conducted by Dr. David M. Heisler (Principal Investigator).



---

## 2 Applicable Documents

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The following are the regulations, standards, and other documents applicable to the survey:

### U.S. Army Publications

AR 200-1	Environmental Protection and Enhancement
AR 385-40	Accident Reporting and Records
EM 385-1-1	USACE, Safety and Health Requirements Manual, 3 Sep 96
AR-420-70	Building and Structures
TB 420-70-8	Asbestos Survey and Abatement

### Title 29 Code of Federal Regulations, U.S. Department of Labor, Occupational Safety and Health Administration Standards

Part 1910.20	Access to Employee Exposure and Medical Records
Part 1910.95	Occupational Noise Exposure
Part 1910.134	Respiratory Protection
Part 1910.1000	Air Contaminants – Permissible Exposure Limits
Part 1910.1001	Asbestos
Part 1910.1200	Hazard Communication
Part 1926.59	Hazard Communication Construction
Part 1926.1101	Asbestos in Construction

### Title 40 Code of Federal Regulations, Environmental Protection Agency Standards

Part 61 Subpart A	National Emission Standards for Hazardous Air Pollutants
Part 763	Asbestos Hazard Emergency Response Act

### American National Standards Institute Standards

Z9.2-1979	Fundamentals Governing the Design and Operation of Local Exhaust Systems
Z88.20-1988	Practices for Respiratory Protection

### U.S. Environmental Protection Agency Guidelines

EPA/600/R-93/116	Method of the Determination of Asbestos in Bulk Building Materials
EPA/5605-85-024	Guidance for Controlling Asbestos Containing Building Materials

---

### **Underwriters Laboratories, Inc. Publications**

586-77 (R-1982)      Test Performance of High Efficiency Particulate Air Filter Units

### **State of Hawai'i Occupational Safety and Health Standards**

HIOSH 12-145      Asbestos in Construction

### **Hawai'i Administrative Rules**

Chapter 11-501      Asbestos Requirements  
 Chapter 11-502      Asbestos Containing Materials in Schools  
 Chapter 11-503      Fees for Asbestos Removal and Certification  
 Chapter 11-504      Asbestos Abatement Certification Program

### **USAED, Honolulu Contractual Documents**

Contract DACA83-01-D-0017      Indefinite-Delivery Indefinite-Quantity (IDIQ) Services Contract for Asbestos/Lead Survey and Abatement Services for Honolulu Engineer District (HED) Area of Responsibility, 14 September 2001

Contract DACA83-01-D-0017      Asbestos Survey for Various Buildings at Schofield Barracks, Wheeler Army Airfield, Fort Shafter, Tripler Army Medical Center, Waianae Recreational Center, Pohakuloa Training Area and Kiluea Military Reservation, Hawaii

Task Order 0001  
 Scope of Work

### **Previous Asbestos Surveys**

*Asbestos Survey and Management Plan Report for Building 551 of Quad E at the Schofield Barracks Military Reservation, Hawaii, Baker Environmental, Inc. for the Corps of Engineers, Fort Shafter*

*Asbestos and Lead-Based Paint Survey for Design of FY96 OMA PKG A-71, Repair Barracks Latrines, Building Nos. 549, 550, 551 & 552, Schofield Barracks, Oahu, Hawaii, R. M. Towill Corporation, 1996*

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## 3 Findings

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Fifty-six homogeneous materials suspected of potentially containing asbestos were identified and sampled by SaLUT. SaLUT also identified, but did not sample, an additional 12 types of floor tile, 11 types of floor tile mastic, three types of cementitious panels, and one type of pipe insulation that were found to be ACBM by Baker. SaLUT collected 117 bulk asbestos samples that were analyzed by Globetec Group, Inc. at their National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory in Honolulu using polarized light microscopy/dispersion staining (PLM/DS) techniques. For some homogeneous materials, the laboratory used a *stop on positive* procedure whereby if one sample was confirmed as ACBM, the remaining samples were not analyzed. Composite samples of floor tile and floor tile mastic were split and the two components of each material were analyzed individually as required by AHERA regulations. Therefore, the number of samples collected differs from the number of analyses. SaLUT submitted duplicates of six of the samples analyzed by Globetec to AMA Analytical, Inc., a NVLAP-certified laboratory in Lanham, Maryland, for quality control analysis. For samples B1 (floor tile mastic) and B61 (floor tile), initial analyses by Globetec indicated that the materials contained asbestos. AMA found these same samples to be non-asbestos-containing. Because one laboratory determined that the sample contained asbestos, the corresponding materials were considered to be ACBM.

As a result of these laboratory analyses, 17 homogeneous materials (one type of floor tile, 10 types of floor tile mastic, two types of pipe wrap, one type of duct adhesive, one type of caulking, and two types of pipe insulation) were confirmed as ACBM by sample analysis, in addition to the 12 types of asbestos-containing floor tile, 11 types of floor tile mastic, three types of cementitious paneling, and one type of pipe insulation identified by Baker and remaining in the building. The condition of the encountered positive materials was good, although some floor tiles were broken. Photographs 4 through 15 illustrate the ACBMs sampled by SaLUT. Photographs 16 through 19 illustrate materials previously identified by Baker whose presence was confirmed by SaLUT inspectors. SaLUT was unable to photograph all floor tile and mastics identified by Baker because some are located below floor tile sampled by SaLUT and were only revealed in the small areas where SaLUT's samples were taken.

All identified homogeneous materials considered to be potentially asbestos containing ("suspect") are listed on the *Homogeneous Materials Listing* (Table 1). These materials are grouped according to class (i.e., miscellaneous, surfacing, and thermal system insulation) and floor of the building. For each suspect material, the friability, general locations in the building, and sample numbers are indicated, as well as whether the material was determined to be ACBM or not. Red sample numbers indicate those samples that contained asbestos. Gray sample numbers indicate samples that were not analyzed because another sample of the same material contained asbestos. The ACBMs identified by Baker and not sampled by SaLUT are listed following SaLUT's homogeneous materials.

Sample collection sites for identified suspect ACBMs, as well as locations of identified ACBMs, are indicated on the building drawings (Figure 2).

Table 2, *Summary of Asbestos-Containing Materials*, provides a summary of the encountered ACBMs in the building. Each material is listed with information regarding the type, location, and condition of the ACBM, along with the recommended response action for the material.

Laboratory analysis sheets for all samples collected by SaLUT, including the quality control analyses, are located at the end of this report. Laboratory analysis sheets for samples collected during previous surveys can be found in the reports of those surveys.



*Photograph 4. DA1. White duct adhesive (DA1) on fiberglass insulation contains asbestos.*



*Photograph 5. FM1. Black mastic (FM1) below this floor tile (FT1) contains asbestos. The floor tile does not.*



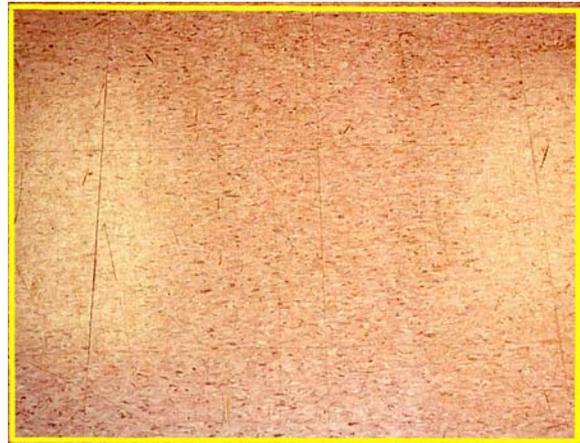
*Photograph 6. FM2. Black mastic (FM2) below this floor tile (FT2) contains asbestos. The floor tile does not.*



*Photograph 7. FM4. Black mastic (FM4) below this floor tile (FT4) contains asbestos. The floor tile does not.*



*Photograph 8. FM6. Black mastic (FM6) below this floor tile (FT6) contains asbestos. The floor tile does not.*



*Photograph 9. FM7. Black mastic (FM7) below this floor tile (FT7) contains asbestos. The floor tile does not.*



*Photograph 10. FM8. Black mastic (FM8) below this floor tile (FT8) contains asbestos. The floor tile does not.*



*Photograph 11. FM12. Black mastic (FM12) below this floor tile (FT12) contains asbestos. The floor tile does not.*



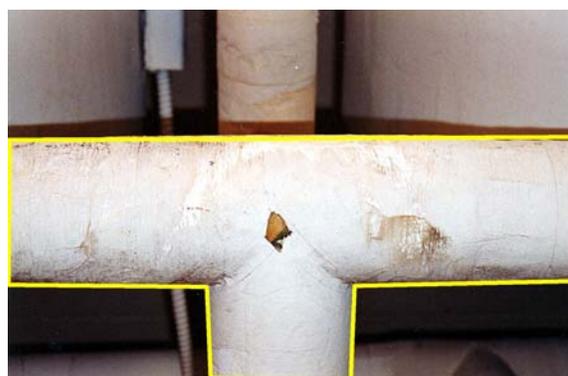
*Photograph 12. FM26. Black mastic (FM26) below the second layer of floor tile (FT25) contains asbestos. The floor tile and first layer of mastic (FM25) do not.*



*Photograph 13. FM9 and FT9. This floor tile (FT9) and its underlying mastic (FM9) contain asbestos.*



*Photograph 14. PI1 and PW2. White wrap (PW2) and the mudded pipe insulation (PI1) below contain asbestos.*



*Photograph 15. PW3. White pipe wrap (PW3) that covers fiberglass insulation on water lines contains asbestos.*



*Photograph 16. M002 and M003. This floor tile (M002) and its underlying mastic (M003) contain asbestos.*



*Photograph 17. M040 and M041. This floor tile (M040) and its underlying mastic (M041) contain asbestos.*



*Photograph 18. M042 and M043. This floor tile (M042) and its underlying mastic (M043) contain asbestos.*



*Photograph 19. M048. This floor tile (M048) contains asbestos. The underlying mastic (M049) does not.*

**Table 1. Homogeneous Materials Listing. Descriptions of asbestos-containing materials from Baker's survey are taken from Baker's report.**

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>First Floor</b>						
BM3	Brown baseboard mastic	No	Below VB3	B73, B74, B75	No	
CK4	Window caulking	No	Outside Rooms 114, 135, 199	B112, B113, B114	No	
DA1	White duct adhesive on top of fiberglass insulation on ducts	No	Rooms 102, 110-112, 123, 125, 131-133, 137-145, 192	B64, B65, B66	Yes	2,481 sf
DW3	Sheetrock (includes plaster coating)	Yes	Rooms 106-108, 111, 121, 126, 128-130, 135, 138, 166	B70, B71, B72	No	
FM5	Yellow mastic	No	Below FT5	B40, B41, B42	No	
FM6	Black mastic	No	Below FT6	B52, B53, B54	Yes	1,947 sf
FM7	Black mastic	No	Below FT7	B55, B56, B57	Yes	329 sf
FM8	Black mastic	No	Below FT8	B58, B59, B60	Yes	200 sf
FM9	Black mastic	No	Below FT9	B61, B62, B63	Yes	863 sf
FM10	Yellow/brown mastic	No	Below FT10	B67, B68, B69	No	
FM11	Yellow mastic	No	Below FT11	B103, B104, B105	No	
FM25	Yellow mastic	No	Below FT25	B106, B107, B108	No	
FM26	Black mastic	No	Second layer of mastic below FT25	B106, B107, B108	Yes	692 sf
FT5	12" x 12" cream floor tile with brown and white streaks	No	Room 193	B40, B41, B42	No	
FT6	12" x 12" white floor tile with brown streaks	No	Hallways 181-183, 1108, 1109; Rooms 189, 190-192, 194, 195	B52, B53, B54	No	
FT7	12" x 12" pink mottle floor tile	No	Room 195	B55, B56, B57	No	
FT8	12" x 12" brown mottle floor tile	No	Hallways 181-183, 1108, 1109; Arms Room 184	B58, B59, B60	No	
FT9	12" x 12" light brown floor tile	No	Rooms 188, 196-199	B61, B62, B63	Yes	863 sf
FT10	12" x 12" white floor tile with gray specks	No	Hallways 172-174, 1106, 1107; Rooms 158, 159, 164-168 (on top of M002)	B67, B68, B69	No	

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
FT11	12" x 12" blue floor tile with white specks	No	Room 155	B103, B104, B105	No	
FT25	12" x 12" white floor tile with brown blotches (double layer)	No	Hallways 143-145, 1100, 1113; Room 142	B106, B107, B108	No	
PW2	White pipe wrap covering PI1	No	HVAC line (Rooms 131, 155, 193)	B49, B50, B51	Yes	200 lf
PW3	White pipe wrap covering fiberglass insulation	No	Water lines	B79, B80, B81	Yes	200 lf
VB3	Black/brown vinyl baseboard	No	Hallway 1100; Rooms 102, 176	B73, B74, B75	No	
ACBMs From Baker's Survey Located by SaLUT						
M002	12 x 12 floor tile Rust	No	Hallways 172-174, 1106, 1107; Rooms 156-168, 171, 175, 176	See Baker's report	Yes	3,444 sf
M003	Flooring adhesive Black	No	Below M002	See Baker's report	Yes	3,444 sf
M009	12 x 12 floor tile Olive	No	Hallway 146; Rooms 131, 133-135, 137-141	See Baker's report	Yes	1,902 sf
M010	Flooring adhesive Black	No	Hallways 143-146; Rooms 131, 133-135, 137-142	See Baker's report	Yes	2,524 sf
M012	Flooring adhesive Black	No	Below M011 in Room 101	See Baker's report	Yes	1,058 sf
M013	12 x 12 floor tile Beige	No	Hallways 117-119, 1110, 1111; Rooms 100, 102-105, 110-116, 123	See Baker's report	Yes	3,243 sf
M014	Flooring adhesive Black	No	Below M013	See Baker's report	Yes	3,243 sf
M016	Flooring adhesive Black	No	Below M015 in Room 125	See Baker's report	Yes	378 sf
M018	Flooring adhesive Black	No	Below M017 in Room 101	See Baker's report	Yes	1,058 sf
M050	12 x 12 floor tile Dark brown	No	Room 136	See Baker's report	Yes	1,076 sf
M051	Flooring adhesive Black	No	Below M050	See Baker's report	Yes	1,076 sf
M056	Cement wall panel Transite panel	No	Over exterior doors and windows	See Baker's report	Yes	415 sf
Second Floor						
BM2	Brown baseboard mastic	No	Hallway 206; Rooms 252, 288	B10, B11, B12	No	
CK2	Window caulking	No	Outside Rooms 212, 258, 286	B88, B89, B90	No	
DW1	Sheetrock (includes plaster coating)	Yes	Hallways 205, 254; Room 288	B13, B14, B15	No	

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
FM2 Black mastic	No	Below FT2	B19, B20, B21	Yes	995 sf	
FM3 Black mastic	No	Below FT3	B22, B23, B24	Yes	320 sf	
FM12 Black mastic	No	Below FT12	B115, B116, B117	Yes	4,041 sf	
FT2 12" x 12" beige floor tile with white and red streaks	No	Hallways 264, 265, 280, 290-292, 298, 299, 2101-2103; Room 295	B19, B20, B21	No		
FT3 12" x 12" white floor tile with brown streaks	No	Hallways 253-255, 2100	B22, B23, B24	No		
FT12 12" x 12" white floor tile with brown blotches	No	Hallways 232, 233, 242-244; Rooms 228, 230, 231, 234-240, 245, 247, 248	B115, B116, B117	No		
SK2 Black sink undercoating	No	Rooms 241, 256, 289	B16, B17, B18	No		
VB2 Vinyl baseboard	No	Hallway 206; Rooms 252, 288	B10, B11, B12	No		
ACBMs From Baker's Survey Located by SaLUT						
M020 12 x 12 floor tile Olive	No	Hallways 2105, 2108, 2109; Room 229	See Baker's report	Yes	189 sf	
M025 Flooring adhesive Black	No	Hallways 232, 233, 242-244, 2105, 2108, 2109; Rooms 228-231, 236-240, 245-247	See Baker's report	Yes	3,554 sf	
M026 12 x 12 floor tile Beige	No	Hallways 205-207, 216, 217, 2104, 2106, 2107; Rooms 200-204, 209-214, 218-221	See Baker's report	Yes	3,920 sf	
M027 Flooring adhesive Black	No	Below M026	See Baker's report	Yes	3,920 sf	
M046 12 x 12 floor tile Rust	No	Rooms 249-252, 257-263, 266-269	See Baker's report	Yes	3,437 sf	
M048 12 x 12 floor tile Light brown	No	Rooms 276-279, 282-285, 287, 288, 293, 294, 296	See Baker's report	Yes	3,065 sf	
M057 Cement wall panel Transite panel	No	Over exterior doors and windows	See Baker's report	Yes	605 sf	
Third Floor						
BM1 Brown baseboard mastic	No	Below VB1	B4, B5, B6	No		
CK3 Window caulking	No	Outside Rooms 309, 359, 383	B97, B98, B99	No		
DW2 Sheetrock (includes plaster coating) (same as Baker's M033)	Yes	Ceilings and walls throughout Third Floor	B31, B32, B33	No		
FM1 Black mastic	No	Below FT1	B1, B2, B3	Yes	1,465 sf	
FM4 Black mastic	No	Below FT4	B28, B29, B30	Yes	1,237 sf	

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
FT1	12" x 12" white floor tile with brown specks	No	Hallways 342, 3109; Rooms 332-334, 336, 337, 340, 342-345	B1, B2, B3	No	
FT4	12" x 12" White with brown streaks	No	Hallways 353-355, 364, 365, 380, 381, 390-392, 398, 399, 3100-3103	B28, B29, B30	No	
PW1	White pipe wrap	No	Joints of HVAC line in Hallways 342, 390, 399	B37, B38, B39	No	
SK1	Black sink undercoating	No	Rooms 341, 356, 389	B7, B8, B9	No	
VB1	Black/brown vinyl base-board	No	Rooms 340, 362, 396	B4, B5, B6	No	
ACBMs From Baker's Survey Located by SaLUT						
M029	12 x 12 floor tile Olive	No	Rooms 330, 331, 335, 339, 347, 348	See Baker's report	Yes	1,463 sf
M040	12 x 12 floor tile Light brown	No	Rooms 376-379, 384-387, 393-397	See Baker's report	Yes	2,763 sf
M041	Flooring adhesive Black	No	Hallways 391, 392; Rooms 376-379, 382-388, 393-397	See Baker's report	Yes	3,016 sf
M042	12 x 12 floor tile Rust	No	Rooms 350-352, 357-360, 362, 363, 366-369	See Baker's report	Yes	2,869 sf
M043	Flooring adhesive Black	No	Hallways 353, 365; Rooms 350-352, 357-363, 366-369	See Baker's report	Yes	3,289 sf
M044	12 x 12 floor tile Beige	No	Hallways 305-307, 316, 317; Rooms 300-304, 309-315, 318-321	See Baker's report	Yes	4,090 sf
M058	Cement wall panel Transite panel	No	Over exterior doors and windows	See Baker's report	Yes	605 sf
Roof						
AR1	Asphalt roofing tar	No	Roof	B82, B83, B84	No	
AR2	Asphalt roofing material	No	HVAC system compressors	B100, B101, B102	No	
CK1	Asphalt patching caulk	No	Roof	B85, B86, B87	Yes	20 lf

Surfacing Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
First Floor						
PL3	Plaster coating from interior building structure (same as Baker's S005)	No	Throughout First Floor	B43, B44, B45	No	
PL6	Plaster coating from exterior building structure (same as Baker's S006)	No	Exterior	B109, B110, B111	No	

Surfacing Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>Second Floor</b>						
PL1	Plaster coating from interior building structure (same as Baker's S023)	No	Ceilings and beams in Hallways	B25, B26, B27	No	
PL4	Plaster coating from exterior building structure (same as Baker's S024)	No	Balconies	B91, B92, B93	No	
<b>Third Floor</b>						
PL2	Plaster coating from interior building structure (same as Baker's S034)	No	Beams in Hallways	B34, B35, B36	No	
PL5	Plaster coating from exterior building structure (same as Baker's S035)	No	Balconies	B94, B95, B96	No	
<b>Roof</b>						
No suspect materials observed						

Thermal System Insulation Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>First Floor</b>						
PI1	Mudded pipe insulation	No	Below PW2	B49, B50, B51	Yes	400 lf
TK1	Mudded tank insulation (included plaster-like cover)	Yes	Room 122	B76, B77, B78	No	
<b>ACBMs From Baker's Survey Located by SaLUT</b>						
T125	Light gray pipe insulation with green coloring	Yes	Mechanical Room 147	See Baker's report	Yes	11 lf
<b>Second Floor</b>						
No suspect materials observed.						
<b>Third Floor</b>						
PI2	Black rubber pipe insulation (junction with PW1 on pipe joints)	No	Hallways 342, 390, 399	B37, B38, B39	Yes	4 lf
<b>Roof</b>						
No suspect materials observed						

FIGURE 1: BUILDING DRAWINGS  
 SCHOFIELD BARRACKS  
 BUILDING 551  
 FIRST FLOOR

BUILDING DRAWING LEGEND

ASBESTOS CONTAINING MATERIALS AND QUANTITIES	
DA Duct Sealant	DA*
FT/ FM Floor Tile and/ or Mastic	
T** Baker's ACM	T***
PI Pipe Insulation	PI*
PW Pipe Wrap	PW*

ACCESSIBILITY	
LCA LIMITED ACCESS BENEATH CARPET	LCA
NA NO ACCESS TO THIS SPACE	NA
NAC NO ACCESS ABOVE CEILING	NAC

SYMBOLS	
100	SPACE NUMBER
B25	POSITIVE BULK SAMPLE LOCATION
B35	NEGATIVE BULK SAMPLE LOCATION
B45	NOT ANALYZED BULK SAMPLE LOCATION

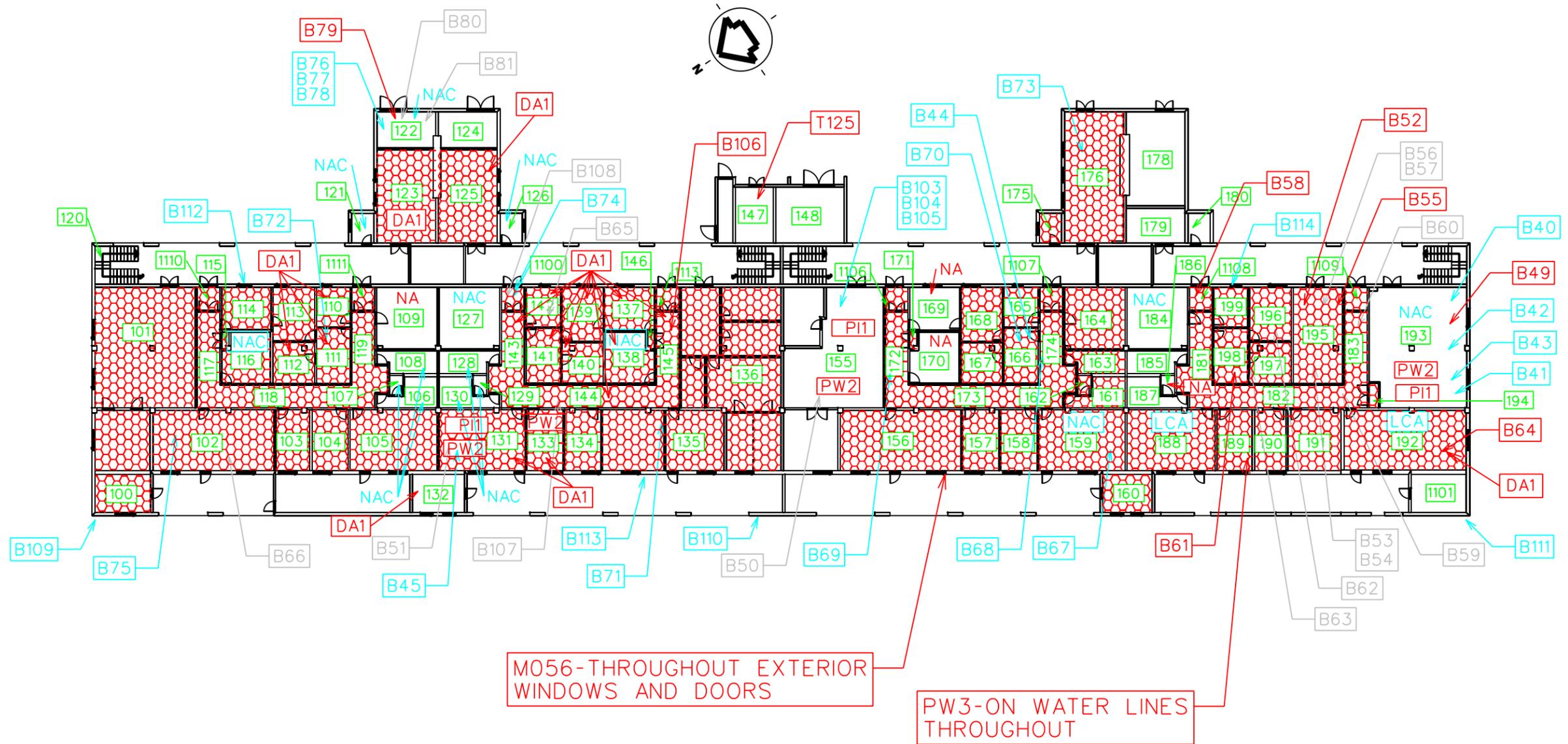


FIGURE 1: BUILDING DRAWINGS  
 SCHOFIELD BARRACKS  
 BUILDING 551  
 SECOND FLOOR

BUILDING DRAWING LEGEND

ASBESTOS CONTAINING MATERIALS AND QUANTITIES	
FT/ Floor Tile and/ FM or Mastic	
M** Baker's ACM	
ACCESSIBILITY	
NA	NO ACCESS TO THIS SPACE
NAC	NO ACCESS ABOVE CEILING
SYMBOLS	
	SPACE NUMBER
	POSITIVE BULK SAMPLE LOCATION
	NEGATIVE BULK SAMPLE LOCATION
	NOT ANALYZED BULK SAMPLE LOCATION

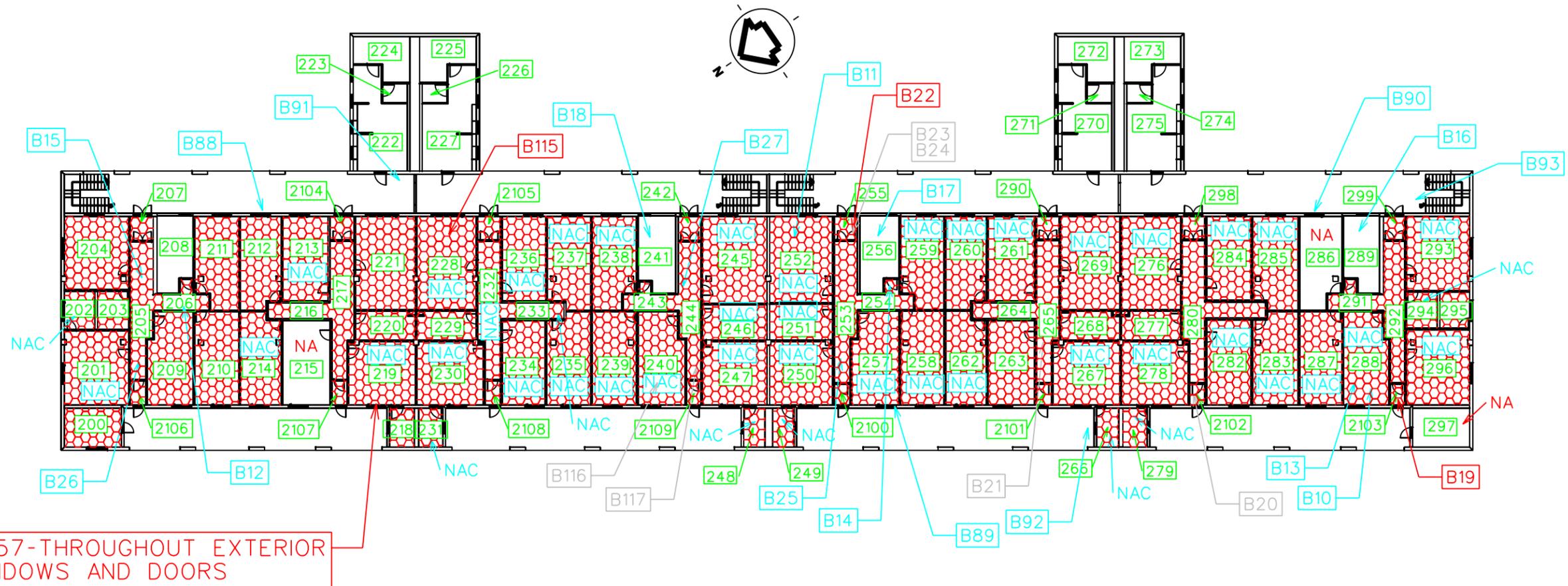


FIGURE 1: BUILDING DRAWINGS  
 SCHOFIELD BARRACKS  
 BUILDING 551  
 THIRD FLOOR

BUILDING DRAWING LEGEND

ASBESTOS CONTAINING MATERIALS AND QUANTITIES	
FT/ Floor Tile and/ FM or Mastic	
M** Baker's ACM	
PI Pipe Insulation	
ACCESSIBILITY	
NA	NO ACCESS TO THIS SPACE
NAC	NO ACCESS ABOVE CEILING
SYMBOLS	
	SPACE NUMBER
	POSITIVE BULK SAMPLE LOCATION
	NEGATIVE BULK SAMPLE LOCATION
	NOT ANALYZED BULK SAMPLE LOCATION

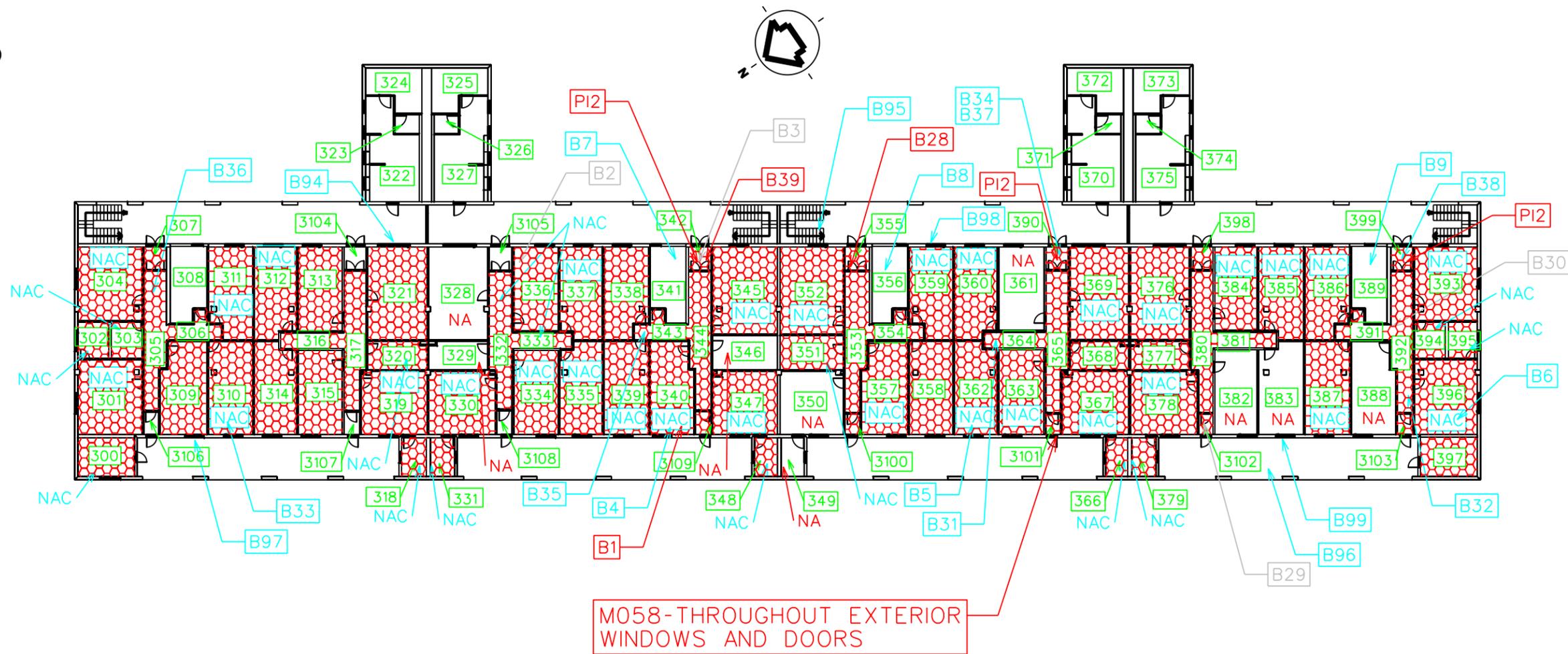
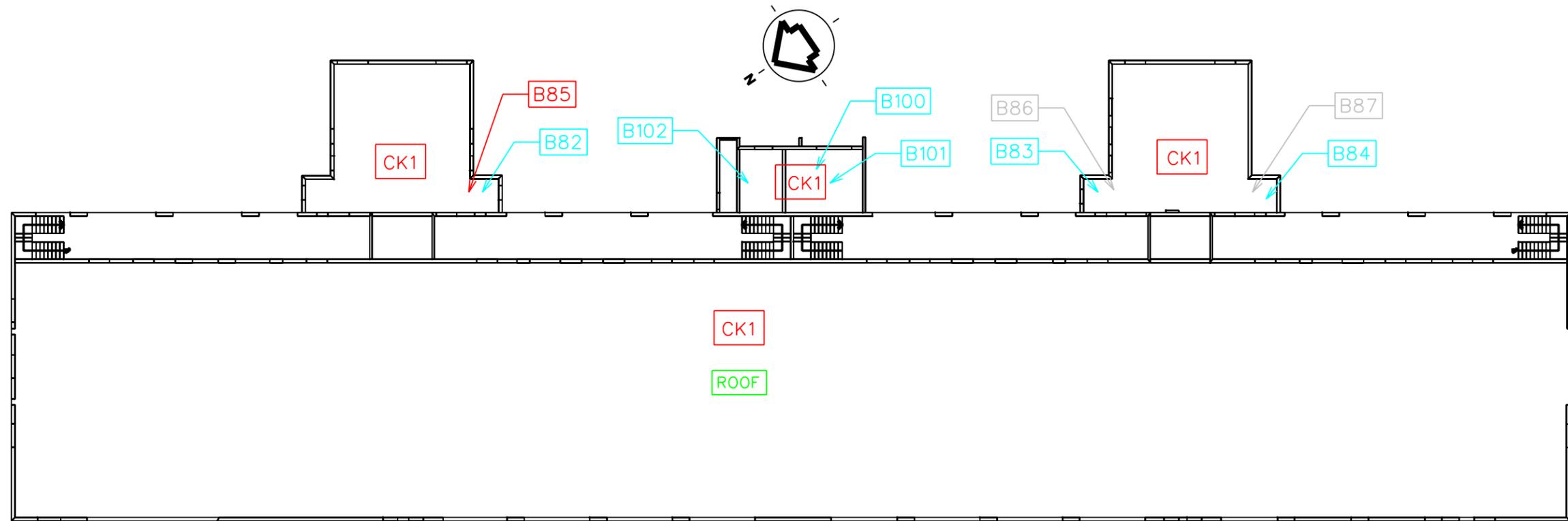


FIGURE 1: BUILDING DRAWINGS  
 SCHOFIELD BARRACKS  
 BUILDING 551  
 ROOF

BUILDING DRAWING LEGEND

ASBESTOS CONTAINING MATERIALS AND QUANTITIES	
CK Caulking	CK*
SYMBOLS	
100	SPACE NUMBER
B25	POSITIVE BULK SAMPLE LOCATION
B35	NEGATIVE BULK SAMPLE LOCATION
B45	NOT ANALYZED BULK SAMPLE LOCATION



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## 4 Recommendations

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Each friable ACBM was assessed and placed in the appropriate AHERA category as specified in 40 CFR, Part 763.88. In addition to the seven AHERA assessment categories, SaLUT added an eighth category for all non-friable ACBM.

SaLUT also categorized the condition of each ACBM at the time of the survey, as follows:

- Good** No damage observed
- Fair** The area of distributed damage was less than 10 percent and greater than 2 percent. The area of localized damage was less than 25 percent and greater than 2 percent.
- Poor** The area of distributed damage was greater than 10 percent and the localized damage was greater than 25 percent.

Based on the AHERA assessment category and SaLUT's condition assessment, SaLUT recommends on or more of the following response actions for each ACBM:

- O&M** Maintain the ACBM. Perform operations and maintenance procedures in a manner that does not damage the material. These procedures are specified in 29 CFR 1926.1101 and HAR 11-502-10. Repair of damaged material must be performed in accordance with 29 CFR 1926.1101 and as specified in the management plan for the installation unless otherwise authorized, all repairs should be handled by State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101.
- Repair** Damaged areas should be repaired. Repair of damaged material must be performed in accordance with 29 CFR 1926.1101 and as specified in the management plan for the installation unless otherwise authorized, all repairs should be handled by State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101.  
  
Undamaged and repaired materials are subject to the O&M response action.
- Remove** The material should be removed. Removal must be performed by a State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101. Removal must follow the most stringent guidelines provided by either the State of Hawai'i or Federal regulations.

If the building is demolished or renovation will impact any ACBMs, those materials must be removed by a State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101. Removal must follow the most stringent guidelines provided by either the State of Hawai'i or Federal regulations.

Table 2 provides the AHERA assessment category, SaLUT's condition assessment, and SaLUT's recommended response action for each ACBM.

**Table 2. Summary of Asbestos-Containing Materials.**

Material Description	Location	Quantity	Friable	Cond. Assess.	AHERA Assess. Cat.	Recommended Response Action	Photo Ref.
<b>First Floor</b>							
DA1 White duct adhesive on top of fiberglass insulation on ducts	Rooms 110-112, 123, 125, 131-133, 137-145	2,481 sf	No	Good	8	O&M	4
FM6 Black mastic	Below FT6 (Room 193)	1,947 sf	No	Good	8	O&M	8
FM7 Black mastic	Below FT7 (Hallways 181-184, 1108, 1109; Rooms 189, 190-192, 194, 195)	329 sf	No	Good	8	O&M	9
FM8 Black mastic	Below FT8 (Room 195)	200 sf	No	Good	8	O&M	10
FM9 Black mastic	Below FT9	863 sf	No	Good	8	O&M	13
FM26 Black mastic	Second layer of mastic below FT25 (Hallways 143-145, 1100, 1113; Room 142)	692 sf	No	Good	8	O&M	12
FT9 12" x 12" light brown floor tile	Rooms 188, 196-199	863 sf	No	Good	8	O&M	13
PI1 Mudded pipe insulation	Below PW2	400 lf	No	Good	8	O&M	14
PW2 White pipe wrap covering PI1	HVAC line (Rooms 131, 155, 193)	200 lf	No	Good	8	O&M	14
PW3 White pipe wrap covering fiberglass insulation	Water lines	200 lf	No	Good	8	O&M	15
M002 12 x 12 floor tile Rust	Hallways 172-174, 1106, 1107; Rooms 156-168, 171, 175, 176	3,444 sf	No	Good	8	O&M	16
M003 Flooring adhesive Black	Below M002	3,444 sf	No	Good	8	O&M	16
M009 12 x 12 floor tile Olive	Hallway 146; Rooms 131, 133-135, 137-141	1,902 sf	No	Good	8	O&M	None
M010 Flooring adhesive Black	Hallways 143-146; Rooms 131, 133-135, 137-142	2,524 sf	No	Good	8	O&M	None
M012 Flooring adhesive Black	Below M011 in Room 101	1,058 sf	No	Good	8	O&M	None

Material Description	Location	Quantity	Friable	Cond. Assess.	AHERA Assess. Cat.	Recommended Response Action	Photo Ref.
M013 12 x 12 floor tile Beige	Hallways 117-119, 1110, 1111; Rooms 100, 102-105, 110-116, 123	3,243 sf	No	Good	8	O&M	None
M014 Flooring adhesive Black	Below M013	3,243 sf	No	Good	8	O&M	None
M016 Flooring adhesive Black	Below M015 in Room 125	378 sf	No	Good	8	O&M	None
M018 Flooring adhesive Black	Below M017 in Room 101	1,058 sf	No	Good	8	O&M	None
M050 12 x 12 floor tile Dark brown	Room 136	1,076 sf	No	Good	8	O&M	None
M051 Flooring adhesive Black	Below M050	1,076 sf	No	Good	8	O&M	None
M056 Cement wall panel Transite panel	Over exterior doors and windows	415 sf	No	Good	8	O&M	None
T125 Light gray pipe insula- tion with green color- ing	Mechanical Room	11 lf	Yes	Good	7	O&M	None
<b>Second Floor</b>							
FM2 Black mastic	Below FT2 (Hallways 264, 265, 280, 290, 298, 299, 2101-2103; Rooms 291, 292, 295)	995 sf	No	Good	8	O&M	6
FM3 Black mastic	Below FT3 (Hallways 253-255, 2100)	320 sf	No	Good	8	O&M	None
FM12 Black mastic	Below FT12 (Hall- ways 232, 233, 242- 244; Rooms 228, 230, 231, 234-240, 245, 247, 248)	4,041 sf	No	Good	8	O&M	11
M020 12 x 12 floor tile Olive	Hallways 2105, 2108, 2109; Room 229	189 sf	No	Good	8	O&M	None
M025 Flooring adhesive Black	Hallways 232, 233, 242-244, 2105, 2108, 2109; Rooms 228-231, 236-240, 245-247	3,554 sf	No	Good	8	O&M	None
M026 12 x 12 floor tile Beige	Hallways 205-207, 216, 217, 2104, 2106, 2107; Rooms 200-204, 209-215, 218-221	3,920 sf	No	Good	8	O&M	None
M027 Flooring adhesive Black	Below M026	3,920 sf	No	Good	8	O&M	None
M046 12 x 12 floor tile Rust	Rooms 249-252, 257- 263, 266-269	3,437 sf	No	Good	8	O&M	None
M048 12 x 12 floor tile Light brown	Rooms 276-279, 282- 288, 293, 294, 296	3,065 sf	No	Good	8	O&M	19

Material Description	Location	Quantity	Friable	Cond. Assess.	AHERA Assess. Cat.	Recommended Response Action	Photo Ref.
M057 Cement wall panel Transite panel	Over exterior doors and windows	605 sf	No	Good	8	O&M	None
<b>Third Floor</b>							
FM1 Black mastic	Below FT1 (Hallways 342, 3109; Rooms 332- 334, 336, 337, 340, 342-345)	1,465 sf	No	Good	8	O&M	5
FM4 Black mastic	Below FT4 (Hallways 353-355, 364, 365, 380, 381, 390-392, 398, 399, 3100-3103)	1,237 sf	No	Good	8	O&M	7
PI2 Black rubber pipe insu- lation (junction with PW1 on pipe joints)	Hallways 342, 390, 399	4 lf	No	Good	8	O&M	None
M029 12 x 12 floor tile Olive	Rooms 328-331, 335, 338, 339, 346-349	1,463 sf	No	Good	8	O&M	None
M040 12 x 12 floor tile Light brown	Rooms 376-379, 382- 388, 393-397	2,763 sf	No	Good	8	O&M	17
M041 Flooring adhesive Black	Hallways 391, 392; Rooms 376-379, 382- 388, 393-397	3,016 sf	No	Good	8	O&M	17
M042 12 x 12 floor tile Rust	Rooms 350-352, 357- 363, 366-369	2,869 sf	No	Good	8	O&M	18
M043 Flooring adhesive Black	Hallways 353, 365; Rooms 350-352, 357- 363, 366-369	3,289 sf	No	Good	8	O&M	18
M044 12 x 12 floor tile Beige	Hallways 305-307, 316, 317; Rooms 300- 304, 309-315, 318-321	4,090 sf	No	Good	8	O&M	None
M058 Cement wall panel Transite panel	Over exterior doors and windows	605 sf	No	Good	8	O&M	None
<b>Roof</b>							
CK1 Asphalt patching caulk	Roof	20 lf	No	Good	8	O&M	None

Table 3 provides SaLUT's cost estimate for abating (i.e., removing) each ACBM identified in the building. These estimates are conceptual cost estimates based on standard unit rates for different types of ACBM except for very small abatement projects, where the minimum cost is \$1,200. Contractor mobilization/demobilization, transportation, disposal, and other miscellaneous costs are included in the unit. Operations and maintenance (O&M) costs are not provided as part of the recommended response cost.

**Table 3. Asbestos Abatement Cost Estimates.**

Material Type		Location	Quantity	Unit Cost (\$)	Total Removal Cost
<b>First Floor</b>					
DA1	White duct adhesive on top of fiberglass insulation on ducts	Rooms 110-112, 123, 125, 131-133, 137-145	2,481 sf	3	\$7,443
FM6	Black mastic	Below FT6 (Room 193)	1,947 sf	3	5,841
FM7	Black mastic	Below FT7 (Hallways 181-184, 1108, 1109; Rooms 189, 190-192, 194, 195)	329 sf	3	987
FM8	Black mastic	Below FT8 (Room 195)	200 sf	3	600
FM9	Black mastic	Below FT9	863 sf	3	2,589
FM26	Black mastic	Second layer of mastic below FT25 (Hallways 143-145, 1100, 1113; Room 142)	692 sf	3	2,076
FT9	12" x 12" light brown floor tile	Rooms 188, 196-199	863 sf	5	4,315
PI1	Mudded pipe insulation	Below PW2	400 lf	20	8,000
PW2	White pipe wrap covering PI1	HVAC line (Rooms 131, 155, 193)	200 lf	20	4,000
PW3	White pipe wrap covering fiberglass insulation	Water lines	200 lf	20	4,000
M002	12 x 12 floor tile Rust	Hallways 172-174, 1106, 1107; Rooms 156-168, 171, 175, 176	3,444 sf	5	17,220
M003	Flooring adhesive Black	Below M002	3,444 sf	3	10,332
M009	12 x 12 floor tile Olive	Hallway 146; Rooms 131, 133-135, 137-141	1,902 sf	5	9,510
M010	Flooring adhesive Black	Hallways 143-146; Rooms 131, 133-135, 137-142	2,524 sf	3	7,572
M012	Flooring adhesive Black	Below M011 in Room 101	1,058 sf	3	3,174
M013	12 x 12 floor tile Beige	Hallways 117-119, 1110, 1111; Rooms 100, 102-105, 110-116, 123	3,243 sf	5	16,215
M014	Flooring adhesive Black	Below M013	3,243 sf	3	9,729
M016	Flooring adhesive Black	Below M015 in Room 125	378 sf	3	1,134
M018	Flooring adhesive Black	Below M017 in Room 101	1,058 sf	3	3,174
M050	12 x 12 floor tile Dark brown	Room 136	1,076 sf	5	5,380
M051	Flooring adhesive Black	Below M050	1,076 sf	3	3,228
M056	Cement wall panel Transite panel	Over exterior doors and windows	415 sf	5	2,075
T125	Light gray pipe insulation with green coloring	Mechanical Room	11 lf	20	220

Material Type		Location	Quantity	Unit Cost (\$)	Total Removal Cost
<b>Second Floor</b>					
FM2	Black mastic	Below FT2 (Hallways 264, 265, 280, 290, 298, 299, 2101-2103; Rooms 291, 292, 295)	995 sf	3	2,985
FM3	Black mastic	Below FT3 (Hallways 253-255, 2100)	320 sf	3	960
FM12	Black mastic	Below FT12 (Hallways 232, 233, 242-244; Rooms 228, 230, 231, 234-240, 245, 247, 248)	4,041 sf	3	12,123
M020	12 x 12 floor tile Olive	Hallways 2105, 2108, 2109; Room 229	189 sf	5	945
M025	Flooring adhesive Black	Hallways 232, 233, 242-244, 2105, 2108, 2109; Rooms 228-231, 236-240, 245-247	3,554 sf	3	10,662
M026	12 x 12 floor tile Beige	Hallways 205-207, 216, 217, 2104, 2106, 2107; Rooms 200-204, 209-215, 218-221	3,920 sf	5	19,600
M027	Flooring adhesive Black	Below M026	3,920 sf	3	11,760
M046	12 x 12 floor tile Rust	Rooms 249-252, 257-263, 266-269	3,437 sf	5	17,185
M048	12 x 12 floor tile Light brown	Rooms 276-279, 282-288, 293, 294, 296	3,065 sf	5	15,325
M057	Cement wall panel Transite panel	Over exterior doors and windows	605 sf	5	3,025
<b>Third Floor</b>					
FM1	Black mastic	Below FT1 (Hallways 342, 3109; Rooms 332-334, 336, 337, 340, 342-345)	1,465 sf	3	4,395
FM4	Black mastic	Below FT4 (Hallways 353-355, 364, 365, 380, 381, 390-392, 398, 399, 3100-3103)	1,237 sf	3	3,711
PI2	Black rubber pipe insulation (junction with PW1 on pipe joints)	Hallways 342, 390, 399	4 lf	20	80
M029	12 x 12 floor tile Olive	Rooms 328-331, 335, 338, 339, 346-349	1,463 sf	5	7,315
M040	12 x 12 floor tile Light brown	Rooms 376-379, 382-388, 393-397	2,763 sf	5	13,815
M041	Flooring adhesive Black	Hallways 391, 392; Rooms 376-379, 382-388, 393-397	3,016 sf	3	9,048
M042	12 x 12 floor tile Rust	Rooms 350-352, 357-363, 366-369	2,869 sf	5	14,345
M043	Flooring adhesive Black	Hallways 353, 365; Rooms 350-352, 357-363, 366-369	3,289 sf	3	10,767
M044	12 x 12 floor tile Beige	Hallways 305-307, 316, 317; Rooms 300-304, 309-315, 318-321	4,090 sf	5	20,450
M058	Cement wall panel Transite panel	Over exterior doors and windows	605 sf	5	3,025
<b>Roof</b>					
CK1	Asphalt patching caulk	Roof	20 lf	3	60
Total abatement cost					\$310,395



## Bulk Asbestos Analysis

### EPA Method 600/R-93-116, Visual Area Estimation

**Customer Name:** SaLUT  
**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

**Sampled By:** Client  
**Received By:** W. Bradley  
**TAT:** 5 Days  
**Report No:** 230  
**Date Printed:** 3/8/2002  
**Analyst:** M. Lee

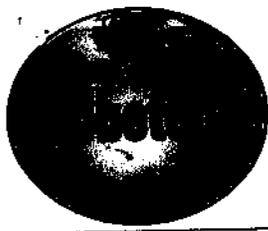
**Total # of Sample(s):** 66      **Total # of Layer(s):** 86

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-551-JSW-B4	030402-291	3/7/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 3rd Flr, Rm 340		<b>Materials:</b> Rubbery Material
<b>Other Fibrous Materials:</b> None Detected				<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite		

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-551-JSW-B4	030402-291	3/7/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 3rd Flr, Rm 340		<b>Materials:</b> Adhesive
<b>Other Fibrous Materials:</b> None Detected				<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite		

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-551-JSW-B5	030402-292	3/7/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 3rd Flr, Rm 362		<b>Materials:</b> Rubbery Material
<b>Other Fibrous Materials:</b> None Detected				<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite		

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-551-JSW-B5	030402-292	3/7/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 3rd Flr, Rm 362		<b>Materials:</b> Adhesive
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Adhesive/Binder, Calcite				

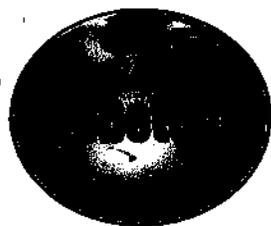
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-551-JSW-B6	030402-293	3/7/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 3rd Flr, Rm 396		<b>Materials:</b> Rubbery Material
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Rubber/Binder, Calcite				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-551-JSW-B6	030402-293	3/7/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 3rd Flr, Rm 396		<b>Materials:</b> Adhesive
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Adhesive/Binder				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-551-JSW-B7	030402-294	3/7/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 3rd Flr, Rm 341		<b>Materials:</b> Black Asphaltic Mastic
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Asphalt/Binder, Calcite				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-551-JSW-B8	030402-295	3/7/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 3rd Flr, Rm 356		<b>Materials:</b> Asphaltic Material
<b>Other Fibrous Materials:</b>		None Detected				
<b>Non-Fibrous Materials:</b>		Asphalt/Binder, Calcite				

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-551-JSW-B9	030402-296	3/7/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Rm 389 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B19	030402-297	3/7/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 2103 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B19	030402-297	3/7/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 2103 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B20	030402-298	3/7/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 2102 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B20	030402-298	3/7/2002	2 of 2	N/A	N/A	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> Mastic Not Analyzed <b>Materials:</b> N/A						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B21	030402-299	3/7/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 265 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B21	030402-299	3/7/2002	2 of 2	N/A	N/A	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> Mastic Not Analyzed <b>Materials:</b> N/A						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B22	030402-300	3/7/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 255 <b>Materials:</b> Vinyl						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B22	030402-300	3/7/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 255 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B23	030402-301	3/7/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 255 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B23	030402-301	3/7/2002	2 of 2	N/A	N/A	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> Mastic Not Analyzed <b>Materials:</b> N/A						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

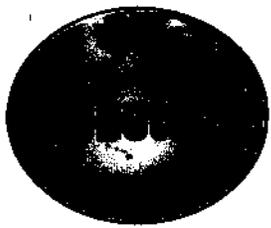
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B24	030402-302	3/7/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 255 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B24	030402-302	3/7/2002	2 of 2	N/A	N/A	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> Mastic Not Analyzed <b>Materials:</b> N/A						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B28	030402-303	3/7/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Hw 355 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B28	030402-303	3/7/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Hw 355 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B29	030402-304	3/7/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Hw 3102 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

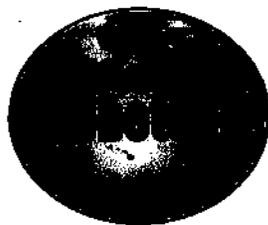
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B29	030402-304	3/7/2002	2 of 2	N/A	N/A	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> Mastic Not Analyzed <b>Materials:</b> N/A						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B30	030402-305	3/7/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Hw 392 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B30	030402-305	3/7/2002	2 of 2	N/A	N/A	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> Mastic Not Analyzed <b>Materials:</b> N/A						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B43	030402-306	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 193 <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B44	030402-307	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 166 <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B45	030402-308	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 131 <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B55	030402-309	3/7/2002	1 of 2	None Detected	Pink	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 195 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B55	030402-309	3/7/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 195 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Gypsum						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B56	030402-310	3/7/2002	1 of 2	None Detected	Pink	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 195 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B56	030402-310	3/7/2002	2 of 2	N/A	N/A	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> Mastic Not Analyzed <b>Materials:</b> N/A						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

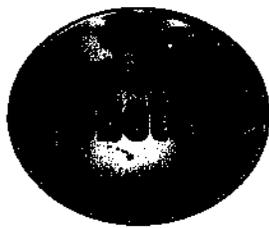
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B57	030402-311	3/7/2002	1 of 2	None Detected	Pink	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 195 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B57	030402-311	3/7/2002	2 of 2	N/A	N/A	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> Mastic Not Analyzed <b>Materials:</b> N/A						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B58	030402-312	3/7/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 1108 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B58	030402-312	3/7/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 1108 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B59	030402-313	3/7/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 182 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B59	030402-313	3/7/2002	2 of 2	N/A	N/A	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> Mastic Not Analyzed <b>Materials:</b> N/A						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B60	030402-314	3/7/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 183 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B60	030402-314	3/7/2002	2 of 2	N/A	N/A	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> Mastic Not Analyzed <b>Materials:</b> N/A						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B64	030402-315	3/7/2002	1 of 1	Chrysotile	White	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 192 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Glue/Binder, Paint, Metal Foil						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B70	030402-318	3/7/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 166 <b>Materials:</b> Chalky Material w/Paper						
<b>Other Fibrous Materials:</b> Cellulose 3-5% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica						

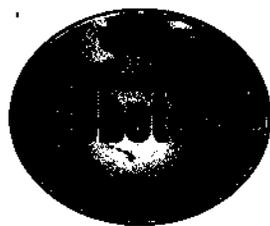
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B71	030402-319	3/7/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 135 <b>Materials:</b> Muddy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Paint, Calcite, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B71	030402-319	3/7/2002	2 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 135 <b>Materials:</b> Chalky Material w/Paper						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B72	030402-320	3/7/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 111 <b>Materials:</b> Granular Material/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B72	030402-320	3/7/2002	2 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 111 <b>Materials:</b> Chalky Material w/Paper						
<b>Other Fibrous Materials:</b> Cellulose 3-5% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B73	030402-321	3/7/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 176 <b>Materials:</b> Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

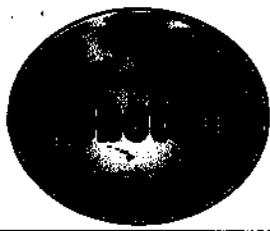
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B73	030402-321	3/7/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 176 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> Wollastonite 1-3%						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B74	030402-322	3/7/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 1100 <b>Materials:</b> Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B74	030402-322	3/7/2002	2 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 1100 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B75	030402-323	3/7/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 102 <b>Materials:</b> Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B75	030402-323	3/7/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 102 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B76	030402-324	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 122 <b>Materials:</b> Gray Crumbly Material						
<b>Other Fibrous Materials:</b> Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B77	030402-325	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 122 <b>Materials:</b> Gray Crumbly Material						
<b>Other Fibrous Materials:</b> Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B78	030402-326	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 122 <b>Materials:</b> Gray Crumbly Material						
<b>Other Fibrous Materials:</b> Mineral Wool 10-20%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B79	030402-327	3/7/2002	1 of 1	Chrysotile	White	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 122 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 5-10%						
<b>Non-Fibrous Materials:</b> Glue/Binder, Paint, Metal Foil						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B82	030402-330	3/7/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> Roof, Rm 128		<b>Materials:</b> Multi-layered Black Asphaltic Material
<b>Other Fibrous Materials:</b> Cellulose 5-10%, Fibrous Glass 20-30%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite, Mica						

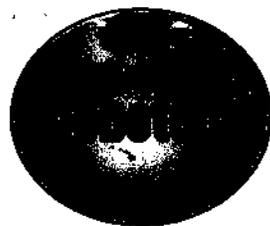
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B83	030402-331	3/7/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> Roof, Rm 175		<b>Materials:</b> Multi-layered Black Asphaltic Material
<b>Other Fibrous Materials:</b> Cellulose 3-5%, Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B84	030402-332	3/7/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> Roof, Rm 180		<b>Materials:</b> Multi-layered Black Asphaltic Material
<b>Other Fibrous Materials:</b> Cellulose 3-5%, Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B85	030402-333	3/7/2002	1 of 1	Chrysotile	Gray	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> Roof, Rm 128		<b>Materials:</b> Gray Gummy Material
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Asphalt/Binder, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B88	030402-336	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 2nd Flr, Outside Rm 212		<b>Materials:</b> Gray Gummy Material
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Calcite, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B89	030402-337	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Outside Rm 258 <b>Materials:</b> Gray Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B90	030402-338	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Outside Rm 286 <b>Materials:</b> Gray Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B91	030402-339	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Lanai-East <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B92	030402-340	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Rear Lanai-Center <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B93	030402-341	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Lanai-West <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B94	030402-342	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Lanai-East <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

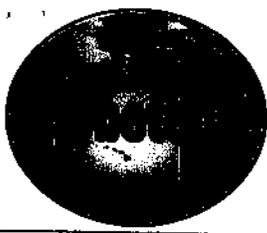
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B95	030402-343	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Lanai-Center <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B96	030402-344	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Rear Lanai-West <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B97	030402-345	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Outside Rm 309 <b>Materials:</b> Gray Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B98	030402-346	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Outside Rm 359 <b>Materials:</b> Gray Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B99	030402-347	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Outside Rm 383 <b>Materials:</b> Gray Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B100	030402-348	3/7/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> Roof, Rm 148 <b>Materials:</b> Black Asphaltic Material						
<b>Other Fibrous Materials:</b> Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B101	030402-349	3/7/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> Roof, Rm 148 <b>Materials:</b> Black Asphaltic Material						
<b>Other Fibrous Materials:</b> Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B102	030402-350	3/7/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> Roof, Rm 147 <b>Materials:</b> Black Asphaltic Material						
<b>Other Fibrous Materials:</b> Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B103	030402-351	3/7/2002	1 of 1	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 155 *No Mastic <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B104	030402-352	3/7/2002	1 of 1	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 155 *No Mastic <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B105	030402-353	3/7/2002	1 of 1	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 155 *No Mastic <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B106	030402-354	3/7/2002	1 of 3	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 145 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B106	030402-354	3/7/2002	2 of 3	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 145 <b>Materials:</b> Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B106	030402-354	3/7/2002	3 of 3	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 145 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B107	030402-355	3/7/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 144 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B107	030402-355	3/7/2002	2 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 144 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B108	030402-356	3/7/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 1100 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B108	030402-356	3/7/2002	2 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 1100 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B109	030402-357	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, East Rear Corner <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B110	030402-358	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 1st Flr, Rear Center		<b>Materials:</b> Gray Granular Material w/ Paint
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B111	030402-359	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 1st Flr, West Rear Corner		<b>Materials:</b> Gray Granular Material
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B112	030402-360	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 1st Flr, Outside Rm 114		<b>Materials:</b> Gray Gummy Material
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B113	030402-361	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 1st Flr, Outside Rm 135		<b>Materials:</b> Gray Gummy Material
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B114	030402-362	3/7/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 1st Flr, Outside Rm 199		<b>Materials:</b> Gray Gummy Material
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

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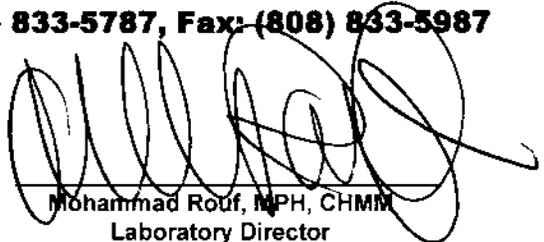


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Analyst: \_\_\_\_\_



Mohammad Rouf, MPH, CHMM  
Laboratory Director

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## Bulk Asbestos Analysis EPA Method 600/R-93-116, Visual Area Estimation

**Customer Name:** SaLUT  
**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

**Sampled By:** Client  
**Received By:** W. Liu  
**TAT:** 5 Days  
**Report No:** 235  
**Date Printed:** 3/13/2002  
**Analyst:** M. Lee

**Total # of Sample(s):** 38      **Total # of Layer(s):** 57

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-551-JSW-B1	030602-365	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Rm 340 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-551-JSW-B1	030602-365	3/12/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Rm 340 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-551-JSW-B2	030602-366	3/12/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Rm 336 *Mastic Not Analyzed <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B3	030602-367	3/12/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Hw 342 *Mastic Not Analyzed <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B10	030602-368	3/12/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Rm 288 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B10	030602-368	3/12/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Rm 288 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B11	030602-369	3/12/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Rm 252 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B11	030602-369	3/12/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Rm 252 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B12	030602-370	3/12/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 206 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B12	030602-370	3/12/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 206 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B13	030602-371	3/12/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Rm 288 <b>Materials:</b> Chalky Material w/Paint						
<b>Other Fibrous Materials:</b> Cellulose 20-30% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B14	030602-372	3/12/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 254 <b>Materials:</b> White Composite Dry Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B15	030602-373	3/12/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 205 <b>Materials:</b> White Composite Dry Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B16	030602-374	3/12/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Rm 289 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B17	030602-375	3/12/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Rm 256 <b>Materials:</b> Black Asphaltic Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B18	030602-376	3/12/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Rm 241 <b>Materials:</b> Black Asphaltic Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B25	030602-377	3/12/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 253 <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B26	030602-378	3/12/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 205 <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B27	030602-379	3/12/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 244 <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B31	030602-380	3/12/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Rm 364 <b>Materials:</b> Chalky Material w/Paper						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B32	030602-381	3/12/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Hw 392 <b>Materials:</b> Chalky Material w/Paint						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B33	030602-382	3/12/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Rm 310 <b>Materials:</b> White Composite Dry Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 3-5% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012402-551-JSW-B34	030602-383	3/12/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Hw 390 <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B35	030602-384	3/12/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Hw 343 <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

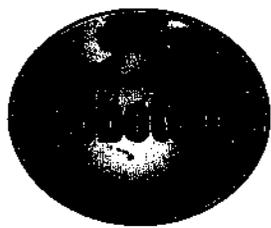
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B36	030602-385	3/12/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Hw 305 <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B37	030602-386	3/12/2002	1 of 3	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Hw 390 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B37	030602-386	3/12/2002	2 of 3	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Hw 390 <b>Materials:</b> Foamy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Sythetic Foam						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B37	030602-386	3/12/2002	3 of 3	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 3rd Flr, Hw 390 <b>Materials:</b> Yellow Insulation						
<b>Other Fibrous Materials:</b> Mineral Wool 80-90%						
<b>Non-Fibrous Materials:</b> Glue/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B38	030602-387	3/12/2002	1 of 3	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 3rd Flr, Hw 399		<b>Materials:</b> White Wrapping Material
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 5-10%				<b>Non-Fibrous Materials:</b> Paint, Metal Foil		

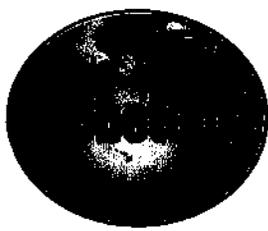
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B38	030602-387	3/12/2002	2 of 3	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 3rd Flr, Hw 399		<b>Materials:</b> Foamy Material
<b>Other Fibrous Materials:</b> None Detected				<b>Non-Fibrous Materials:</b> Synthetic Foam		

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B38	030602-387	3/12/2002	3 of 3	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 3rd Flr, Hw 399		<b>Materials:</b> Yellow Insulation
<b>Other Fibrous Materials:</b> Mineral Wool 80-90%				<b>Non-Fibrous Materials:</b> Glue/Binder		

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B39	030602-388	3/12/2002	1 of 2	Chrysotile	Black	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 3rd Flr, Hw 342		<b>Materials:</b> Black Asphaltic Mastic
<b>Other Fibrous Materials:</b> None Detected				<b>Non-Fibrous Materials:</b> Asphalt/Binder		

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B39	030602-388	3/12/2002	2 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E				<b>Location:</b> 3rd Flr, Hw 342		<b>Materials:</b> White Wrapping Material
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 5-10%				<b>Non-Fibrous Materials:</b> Paint, Metal Foil		

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B40	030602-389	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 193 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

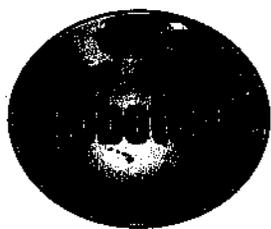
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B40	030602-389	3/12/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 193 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B41	030602-390	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 193 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B41	030602-390	3/12/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 193 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B42	030602-391	3/12/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 193 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B42	030602-391	3/12/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 193 <b>Materials:</b> Adhesive w/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B49	030602-392	3/12/2002	1 of 3	Chrysotile	White	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 193 <b>Materials:</b> White Wrapping Material						
<b>Other Fibrous Materials:</b> Cellulose 3-5%, Fibrous Glass 3-5%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B49	030602-392	3/12/2002	2 of 3	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 193 <b>Materials:</b> Yellow Insulation						
<b>Other Fibrous Materials:</b> Mineral Wool 80-90%						
<b>Non-Fibrous Materials:</b> Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B49	030602-392	3/12/2002	3 of 3	Amosite	Tan	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 193 <b>Materials:</b> Muddy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Clay, Glass Beads						

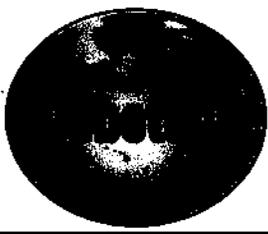
Client ID	Lab ID	Date	Layer	Asbestos	Color	Percent
012502-551-JSW-B52	030602-395				Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detec						
<b>Non-Fibrous Materials:</b> Calcareous						

*B49 layer 2 - don't need to worry about B50 ; B52 - fiber glass.*

*for main office*

The result quantitations reported are an estimation based on the sample(s) received and analyzed by GLOBETECK. Sampling techniques and/or sample handling may affect laboratory results. Samples not destroyed by testing are retained for re-analysis by point count or Transmission Electron Microscopy (TEM) for materials that require product endorsement by NVLAP or any agency of the U.S. G

a semi-quantitative technique. This report is based on the material from which the samples were analyzed by the Laboratory and hence the outcome of the report cannot be used by the client to claim liability without the written consent of GLOBETECK.



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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B52	030602-395	3/12/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 195 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B53	030602-396	3/12/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 195 *Mastic Not Analyzed <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B54	030602-397	3/12/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 195 *Mastic Not Analyzed <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B61	030602-398	3/12/2002	1 of 2	Chrysotile	Brown	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 198 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B61	030602-398	3/12/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 198 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B67	030602-401	3/12/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 159 *Not Enough Mastic For Analysis <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B68	030602-402	3/12/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 174 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B68	030602-402	3/12/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 174 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B69	030602-403	3/12/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 172 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030402-551-JSW-B69	030602-403	3/12/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Hw 172 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

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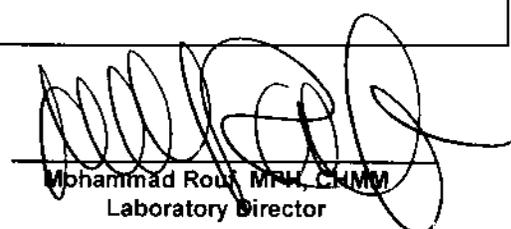
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030502-551-JSW-B115	030602-404	3/12/2002	1 of 2	None Detected	Light Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Rm 228 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030502-551-JSW-B115	030602-404	3/12/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Rm 228 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030502-551-JSW-B116	030602-405	3/12/2002	1 of 1	None Detected	Light Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Rm 240 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
030502-551-JSW-B117	030602-406	3/12/2002	1 of 1	None Detected	Light Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 2nd Flr, Hw 244 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Analyst: \_\_\_\_\_



Mohammad Rouf, MPH, CHMM  
Laboratory Director

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## Bulk Asbestos Analysis

### EPA Method 600/R-93-116, Visual Area Estimation

**Customer Name:** SaLUT  
**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

**Sampled By:** Client  
**Received By:** W. Bradley  
**TAT:** Rush  
**Report No:** 265  
**Date Printed:** 3/28/2002  
**Analyst:** M. Lee

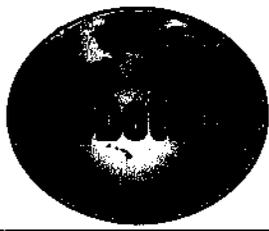
**Total # of Sample(s):** 4      **Total # of Layer(s):** 4

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B103	032702-1	3/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 155* Yellow Mastic <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B104	032702-2	3/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 155* Yellow Mastic <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022802-551-JSW-B105	032702-3	3/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E <b>Location:</b> 1st Flr, Rm 155* Yellow Mastic <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

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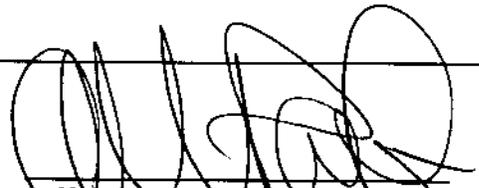


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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012502-551-JSW-B67	032702-4	3/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 551, Quad E						
<b>Location:</b> 1st Flr, Rm 159* Yellow Mastic						
<b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						



Mohammad Rouf, MPH, CHMM  
Laboratory Director

Analyst: \_\_\_\_\_

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### CHAIN OF CUSTODY

Project Name: <u>Schrofield Barneys, BLDG 551 - Ground</u>		ANALYSIS REQUESTED						
Client: <u>SALUT</u>		Asbestos PLN/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project # <u>01-290</u>								
Sampled by: <u>JSW</u>								
Sample Date: <u>01/24 + 01/25/02</u>								
Turn Around Time: <u>5 DAY</u>								
<u>030402 -</u>								
SAMPLE ID	LOCATION							
<u>291</u>	<u>3<sup>rd</sup> FLR, Rm 340</u>							
<u>012402-551-JSW-B4</u>								
<u>292</u>	<u>Rm 362</u>							
<u>293</u>	<u>Rm 396</u>							
<u>294</u>	<u>Rm 341</u>							
<u>295</u>	<u>Rm 356</u>							
<u>296</u>	<u>Rm 389</u>							
<u>297</u>	<u>2<sup>nd</sup> FLR, HW 2103</u>							
<u>012502-551-JSW-B19</u>								
<u>298</u>	<u>HW 2102</u>							
<u>299</u>	<u>HW 265</u>							
<u>300</u>	<u>HW 255</u>							
Relinquished by: <u>PAUL WATSON</u>		Relinquished by:						
Signature: <u>[Signature]</u>		Signature:						
Time/Date: <u>1/26 3/1/02</u>		Time/Date: <u>1/21 3/1/02</u>						

01208



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**CHAIN OF CUSTODY**

Project Name: <b>SB, BLDG 551 - Queue</b>		ANALYSIS REQUESTED						
Client:		Asbestos (PLM/PCM)	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date:	<b>01/25, 02/28/02</b>							
Turn Around Time:								
SAMPLE ID	LOCATION							
301 012502-551-SSW-B23	2 <sup>nd</sup> FLR, Hw 355							
302 B24	↓							
303 B28	3 <sup>rd</sup> FLR, Hw 355							
304 B29	Hw 3102							
305 B30	Hw 392							
306 B43	1 <sup>st</sup> FLR, Rm 193							
307 B44	Rm 166							
308 022802-551-SSW-B45	Rm 131							
309 012502-551-SSW-B55	Rm 195							
310 B56	↓							
Relinquished by:		Relinquished by:						
Signature:		Signature:						
Time/Date:		Time/Date:						

012502-551-SSW-B23

022802-551-SSW-B45

012502-551-SSW-B55

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**CHAIN OF CUSTODY**

Project Name: SB, BLDG 551 - Quake

Client: \_\_\_\_\_

Project #: \_\_\_\_\_

Sampled by: \_\_\_\_\_

Sample Date: 01/25 02/28/02

Turn Around Time: \_\_\_\_\_

SAMPLE ID	LOCATION	ANALYSIS REQUESTED						
		Abestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
012502 311-351-357	1 <sup>st</sup> FLR, Rm 195	✓						✓
312	HW 1168	✓						✓
313	HW 182	✓						✓
314	HW 183	✓						✓
315	Rm 192	⊕						⊕
022802 314-351-355	Rm 142							Not A
317	Rm 102							Not A
012502 318-351-356	Rm 1166							✓
022802 319-351-358	Rm 135							✓
320	Rm 111							✓

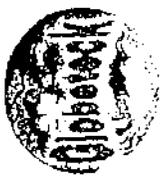
Relinquished by: \_\_\_\_\_ Received by: \_\_\_\_\_

Signature: \_\_\_\_\_ Signature: \_\_\_\_\_

Time/Date: \_\_\_\_\_ Time/Date: \_\_\_\_\_



pg 5 of 8



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CHAIN OF CUSTODY

Project Name: SB, BUDG 551 - QUAD E		ANALYSIS REQUESTED					
Location:		Asbestos PLM/PSM	Lead Air/Wipe	Lead Paint/Sol	TEP 8 Metals	Environmental Samples	TEP 8 Metals
Sample #	LOCATION						
33355W - 883	Roof, Rm 175						
3332	Rm 180						
3333	Rm 128						
3334	Rm 175						Net A
3335	Rm 180						Net A
3336	2nd FLR, outside Rm 212						
3337	Rm 258						
3338	Rm 286						
3339	Lanai - East						
3340	Front Lanai - Center						
Retinquired by:		Retinquired by:					
Signature		Signature					
Time/Date:		Time/Date:					

07 6098



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CHAIN OF CUSTODY

Project Name: <b>SB, BLDG 551 - Queue</b>		ANALYSIS REQUESTED					
Client:		Asbestos PL/MSM	Lead Air/Wipe	Lead Paint/Sol	TEEP & Metals	Asbestos Samples	TEEP & Metals
Project #:							
Sampled by:							
Sample Date:	<b>02/28/02</b>						
Time/Date:							
SAMPLE #	LOCATION						
346 02802-551-55W-093	2 <sup>nd</sup> FLR, Lanai - West						✓
347	3 <sup>rd</sup> FLR, - East						✓
348	- Center						✓
349	Rear Lanai - West						✓
345	Outside Rm 309						✓
346	Rm 359						✓
347	Rm 383						✓
348	Roof, Rm 147						✓
349							✓
350	Rm 147						✓
Relinquished by:		Relinquished by:					
Signature:		Signature:					
Time/Date:		Time/Date:					



pg 1 of 5



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### CHAIN OF CUSTODY

Project Name: <u>Scheffield Barracks, Bldg 551 - Bundle</u>		ANALYSIS REQUESTED						
Client: <u>Salut</u>		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project # <u>01-290</u>								
Sampled by: <u>JSW</u>								
Sample Date: <u>01/24 01/25 03/04/02</u>								
Turn Around Time: <u>5 DAY</u>								
<u>030602</u>								
SAMPLE ID	LOCATION							
<u>365</u> 012402-551-JSW-B1	<u>3rd FUR Rm 340</u>							
<u>366</u> 030402-551-JSW-B2	<u>Rm 336</u>							
<u>367</u> 030402-551-JSW-B3	<u>Hw 342</u>							
<u>368</u> 012502-551-JSW-B10	<u>2nd FUR, Rm 288</u>							
<u>369</u> 030402-551-JSW-B11	<u>Rm 252</u>							
<u>370</u> 012502-551-JSW-B12	<u>Hw 206</u>							
<u>371</u> 012502-551-JSW-B13	<u>Rm 288</u>							
<u>372</u> 030402-551-JSW-B14	<u>Hw 254</u>							
<u>373</u> 030402-551-JSW-B15	<u>Hw 205</u>							
<u>374</u> 012502-551-JSW-B16	<u>Rm 259</u>							
Relinquished by: <u>John Willard</u>		Received by: <u>P. G. Liu</u>						
Signature: <u>[Signature]</u>		Signature: <u>[Signature]</u>						
Time/Date: <u>03/06/02 1240</u>		Time/Date: <u>1250 3/6/02</u>						

Samples B1-

pg 2 of 5



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**CHAIN OF CUSTODY**

Project Name: SB, BLDG 551 - Quarndt  
 Client: \_\_\_\_\_  
 Project #: \_\_\_\_\_  
 Sampled by: \_\_\_\_\_  
 Sample Date: 01/24, 01/25, 02/04/02  
 Turn Around Time: \_\_\_\_\_

SAMPLE ID	LOCATION	ANALYSIS REQUESTED						
		Asbestos (PLM/PCM)	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
012502-575	551-SSW-017 2 <sup>nd</sup> FLR, Rm 256	✓						
030402-576	551-SSW-018 Rm 241	✓						
012502-577	551-SSW-025 HW 253	✓						
030402-578	551-SSW-026 HW 205	✓						
012502-379	027 HW 244	✓						
012502-380	551-SSW-031 3 <sup>rd</sup> FLR, Rm 364	✓						
030402-381	032 HW 392	✓						
030402-382	551-SSW-033 Rm 310	✓						
012402-383	551-SSW-034 HW 390	✓						
030402-384	551-SSW-035 HW 343	✓						

Relinquished by: \_\_\_\_\_ Received by: \_\_\_\_\_  
 Signature: \_\_\_\_\_ Signature: \_\_\_\_\_  
 Time/Date: \_\_\_\_\_ Time/Date: \_\_\_\_\_

3 of 5



**Globeteck Group, Inc**  
 544 Ohohia Street, Suite #4  
 Honolulu, Hawaii 96819  
 Phone (808) 833-5787 Fax (808) 833-5987

**CHAIN OF CUSTODY**

Project Name: SB, BU96 551 - Quidale		ANALYSIS REQUESTED						
Client:		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date:	01/25, 01/28, 02/04/02							
Turn Around Time:								
SAMPLE ID	LOCATION	Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
030402-385	3rd FLP, Hw 305	✓						
012502-386	↓							
012502-387	Hw 390							
030402-388	↓							
030402-389	Hw 399							
012502-390	↓							
012502-391	Hw 342							
030402-392	1st FLP, Rm 193							
012502-393	↓							
012502-394	↓							
012502-395	↓							
022802-396	Rm 193							
030402-397	↓							
030402-398	Rm 155							Not Analy
030402-399	↓							Not Analy
030402-400	Rm 131							

Relinquished by: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Time/Date: \_\_\_\_\_

Received by: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Time/Date: \_\_\_\_\_



**Globeteck Group, Inc**  
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 Phone (808) 833-5787 Fax (808) 833-5987

**CHAIN OF CUSTODY**

Project Name: <u>SB BLDG 551 - 2nd E</u>		ANALYSIS REQUESTED							
Client:		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals	
Project #									
Sampled by:									
Sample Date:	<u>01/25 03/04, 03/05/02</u>								
Turn Around Time:									
SAMPLE ID	LOCATION	Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals	
012502-395 551-35W-B52	1 <sup>st</sup> FLR, Rm 195	✓							
030402-396 551-35W-B53		✓							
012502-397 551-35W-B54		✓							
030402-398 551-35W-B61	Rm 198								
012502-399 551-35W-B62	Rm 196								
030402-400 551-35W-B63	Rm 197							Not Anal	
012502-401 551-35W-B67	Rm 159							Not Anal	
030402-402 551-35W-B68	Hw 174								
012502-403 551-35W-B69	Hw 172								
030502-404 551-35W-B115	2 <sup>nd</sup> FLR, Rm 208	✓							
Relinquished by:		Received by:						Relinquished by:	
Signature:		Signature:						Signature:	
Time/Date:		Time/Date:						Time/Date:	





Globeteck Group, Inc  
 544 Kaohia Street, Suite #4  
 Honolulu, Hawaii 96819  
 Phone (808) 833-5787 / Fax (808) 833-5987

CHAIN OF CUSTODY

Project Name: Bldg 551 Quad E		ANALYSIS REQUESTED					
Client: SALUT		Asbestos P.M.P.M.	Lead Air/Wipe	Lead Paint/Soil	TCAP & Metals	Trace Samples	TCAP & Metals
Project #: 01-290 Shoreline Barracks							
Sampled by: JSW							
Sample Date: 02-25/28/02							
Turn In Date:							
032702 - Rush							
SAMPLE ID	LOCATION						
022602-551							
-J5W - B103	1st Floor Rm 155 / yellow mastic layer 2 of 2						
2	↓						
-B104	↓						
3	↓						
-B105	↓						
4							
012502-551							
-J5W - B67	1st Fl - Rm 159 / yellow mastic layer 2 of 2						
Relinquished by: John Willard		Relinquished by:					
Signature: [Signature]		Signature:					
Time/Date: 03/27 1300		Time/Date: 3/27/2002					



**Client:** SaLUT, Inc.  
**Address:** 11609 Edmonston Road  
 Beltsville, Maryland 20705

**CERTIFICATE OF ANALYSIS**

**Job Name:** Schofield Barracks, Bldg 551-Quad E  
**Job Location:** Not Provided  
**Job Number:** 01-290  
**P.O. Number:** Not Provided

**Chain Of Custody:** 92207  
**Date Analyzed:** 04/02/2002  
**Person Submitting:** Ken Reynolds

**Attention:** Tina Perry

**Summary of Polarized Light Microscopy**

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Analyst ID	Comments
0238501	012402-551- JSW-B1	NAD	--	--	--	--	--	--	--	--	--	100	Off-White	JC	
0238502	012402-551- JSW-B61	TR	TR	--	--	--	--	--	--	--	--	100	Beige	JC	
0238503	012402-551- JSW-B41	NAD	--	--	--	--	--	--	--	--	--	100	Beige	JC	

The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

Analysis Method - EPA/600/R-93/116 dated July 1993

NAD = "No Asbestos Detected" TR = "Trace equals less than 1% of this component"

*John Contreras*  
 John Contreras

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of the material or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.



**Client:** SaLLT, Inc.  
**Address:** 11609 Edmonston Road  
 Beltsville, Maryland 20705

**CERTIFICATE OF ANALYSIS**

**Job Name:** Schofield Barracks, Bldg 551-Quad E  
**Job Location:** Not Provided  
**Job Number:** 01-290  
**P.O. Number:** Not Provided

**Chain Of Custody:** 92208  
**Date Analyzed:** 04/02/2002  
**Person Submitting:** Tina Perry-Finau

**Attention:** Tina Perry

**Summary of Polarized Light Microscopy**

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Analyst ID	Comments
0238504	012502-551- JSW-B21	NAD	--	--	--	--	--	--	--	--	--	100	Gray	JC	
0238505	012502-551- JSW-B81	2	2	--	--	--	50	--	20	--	--	28	Multi	JC	
0238506	012502-551- JSW-B101	NAD	--	--	--	--	--	--	--	TR	--	100	Black	JC	

The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

Analysis Method - EPA/600/R-93/116 dated July 1993

NAD = "No Asbestos Detected" TR = "Trace equals less than 1% of this component"

*John Contreras*  
 John Contreras

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

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**Bulk Sample Analysis for Asbestos**

WEC Project #: H02-159  
Client Project#: 01-290

Report #: 11331  
Report Date: 2/4/02

Client: **Soll and Land Use Technology, Inc.**  
3375 Koapaka Street Suite B286  
Honolulu, HI 96819

Collection Date: 1/29/02  
Collection By: Client  
TAT: One week (or more)  
Analysis By: S. Wells  
Analysis Date: 1/3/02  
Received By: S.Santos  
Received Date: 2/4/02

# Samples: 1      # Layers: 2

Project Name/Location: Schofield Barracks - Quad E Bldg. 552

Client ID#	WEC ID#	Location	Layer			
012902-552-KWR-B41	HB02-0459-A	Room 218	1 of 2			
<b>Asbestos</b>		<b>Friable/Non</b>	<b>Fibrous?</b>	<b>Homo- genous</b>	<b>Material</b>	<b>Color</b>
None Detected		Non Friable	Yes	No	Tile	Beige
<b>Other Fibrous Materials</b>		<i>% Asbestos: None</i>				
<i>Type</i>		<i>% Other Fibrous Materials: Trace</i>				
Cellulose	Trace	<i>% Non Fibrous Materials: 100%</i>				
Sample Comments:						

Client ID#	WEC ID#	Location	Layer			
012902-552-KWR-B41	HB02-0459-B	Room 218	2 of 2			
<b>Asbestos</b>		<b>Friable/Non</b>	<b>Fibrous?</b>	<b>Homo- genous</b>	<b>Material</b>	<b>Color</b>
None Detected		Non Friable	Yes	No	Mastic	Brown/Black
<b>Other Fibrous Materials</b>		<i>% Asbestos: None</i>				
<i>Type</i>		<i>% Other Fibrous Materials: 10%</i>				
Cellulose	10%	<i>% Non Fibrous Materials: 90%</i>				
Sample Comments: Not enough mastic on tile for accurate analysis.						

**Bulk Sample Analysis for Asbestos**

WEC Project #: H02-159  
Client Project#: 01-290

Report #: 11331  
Report Date: 2/4/02

Comments:

Analyst *Scott D. White* Date *2/03/02*  
QC *[Signature]* Date *2/01/02*

Analysis performed by EPA Method 600/R-93/116 with dispersion staining microscopy. All quantities reported are based on visual estimation by PLM, unless point-counting method is requested and noted for the sample. Test report relates only to items tested and must not be used by client to claim product endorsement by NVLAP or any agency of the U.S. Government. Test reports must not be reproduced without the approval of WEC Inc., and are subject to WEC Inc. General Terms and Conditions (see reverse). White Environmental Consultants, Inc. is an NVLAP accredited laboratory for bulk asbestos analysis. (Lab# 200350-0)

**Bulk Sample Analysis for Asbestos**

WEC Project #: H02-159  
Client Project#: 01-290

Report #: 11330  
Report Date: 2/4/02

Client: **Soil and Land Use Technology, Inc.**  
3375 Koapaka Street Suite B286  
Honolulu, HI 96819

# Samples: 2      # Layers: 4

Collection Date: 1/28/02  
Collection By: Client  
TAT: One week (or more)  
Analysis By: S. Wells  
Analysis Date: 2/3/02  
Received By: S.Santos  
Received Date: 1/30/02

Project Name/Location: Schofield Barracks - Quad E Bldg. 552

Client ID#	WEC ID#	Location		Layer
012802-552-KWR-B1	HB02-0457-A	Room 388		1 of 2
<b>Asbestos</b>		<b>Friable/Non</b>	<b>Fibrous?</b>	<b>Homo- genous</b>
None Detected		Non Friable	Yes	No
				<b>Material</b>
				Covebase
				<b>Color</b>
				Black/Brown
<i>% Asbestos: None</i>				
<b>Other Fibrous Materials</b>				
<i>% Other Fibrous Materials: Trace</i>				
<b>% Non Fibrous Materials: 100%</b>				

Sample Comments:

Client ID#	WEC ID#	Location		Layer
012802-552-KWR-B1	HB02-0457-B	Room 388		2 of 2
<b>Asbestos</b>		<b>Friable/Non</b>	<b>Fibrous?</b>	<b>Homo- genous</b>
None Detected		Non Friable	Yes	No
				<b>Material</b>
				Mastic
				<b>Color</b>
				Brown
<i>% Asbestos: None</i>				
<b>Other Fibrous Materials</b>				
<i>% Other Fibrous Materials: Trace</i>				
<b>% Non Fibrous Materials: 99%</b>				

Sample Comments:

**Bulk Sample Analysis for Asbestos**

WEC Project #: H02-159  
Client Project#: 01-290

Report #: 11330  
Report Date: 2/4/02

<b>Client ID#</b> 012802-552-KWR-B21	<b>WEC ID#</b> HB02-0458-A	<b>Location</b> Room 291					<b>Layer</b> 1 of 2
<b>Asbestos</b>		<b>Friable/Non</b>	<b>Fibrous?</b>	<b>Homo- genous</b>	<b>Material</b>	<b>Color</b>	
None Detected		Non Friable	No	No	Tile	Blue/White	
<b>Other Fibrous Materials</b>							
None Detected		<b>% Non Fibrous Materials: 100%</b>					
Sample Comments:							

<b>Client ID#</b> 012802-552-KWR-B21	<b>WEC ID#</b> HB02-0458-B	<b>Location</b> Room 291					<b>Layer</b> 2 of 2
<b>Asbestos</b>		<b>Friable/Non</b>	<b>Fibrous?</b>	<b>Homo- genous</b>	<b>Material</b>	<b>Color</b>	
None Detected		Non Friable	Yes	Yes	Mastic	Off-White	
<b>Other Fibrous Materials</b>		<b>% Asbestos: None</b>					
		<b>% Other Fibrous Materials: 2%</b>					
		<b>% Non Fibrous Materials: 98%</b>					
Sample Comments:							

Comments:

Analyst     *And WMB*     Date     2/03/02      
QC     *[Signature]*     Date     2/4/02    

Analysis performed by EPA Method 600/R-93/116 with dispersion staining microscopy. All quantities reported are based on visual estimation by PLM, unless point-counting method is requested and noted for the sample. Test report relates only to items tested and must not be used by client to claim product endorsement by NVLAP or any agency of the U.S. Government. Test reports must not be reproduced without the approval of WEC Inc., and are subject to WEC Inc. General Terms and Conditions (see reverse). White Environmental Consultants, Inc. is an NVLAP accredited laboratory for bulk asbestos analysis. (Lab# 200350-0)









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# Schofield Barracks



## Building 552



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## Executive Summary

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Soil and Land Use Technology, Inc. (SaLUT) performed an asbestos identification and assessment reinspection of Building 552 located at Schofield Barracks, Hawaii. The results of the original survey conducted in 1993 (*Asbestos Survey and Management Plan Report for Building 552 of Quad E at the Schofield Barracks Military Reservation, Hawaii*, Baker Environmental, Inc. for the Corps of Engineers, Fort Shafter), and one survey of limited scope conducted in 1996 (*Asbestos and Lead-Based Paint Survey for Design of FY96 OMA PKG A-71, Repair Barracks Latrines, Building Nos. 549, 550, 551 & 552, Schofield Barracks, Oahu, Hawaii*, R. M. Towill Corporation) were included to the extent that the suspect materials found in those surveys could be identified. The survey was conducted by SaLUT in accordance with the U.S. Army Corps of Engineers Honolulu Engineer District Scope of Work dated September 18, 2001. The survey was conducted on January 28, 2002 through February 22, 2002.

All accessible areas of the building were inspected for suspect asbestos-containing building materials (ACBMs). One hundred and twenty-six samples of suspect asbestos containing material were collected. Analytical results confirmed that asbestos is present as asphalt roofing material, adhesive, duct adhesive, floor tile, floor tile mastic, pipe wrap, and pipe insulation. A summary of the ACBMs encountered is provided on the next page. This report provides a detailed description of the ACBM locations, quantities, and hazard assessments based on conditions existing at the time of the inspection. No areas were found to contain ACBM causing high or imminent exposure potential.



*Photograph 1. Front of Building 552.*



*Photograph 2. Rear of Building 552.*

**BUILDING SUMMARY**

**Facility** Schofield Barracks  
**Building** 552  
**Inspector(s)** John Willard, Kenneth Reynolds  
**Inspection Date(s)** January 28, 2002 through February 22, 2002  
**Building Area** 120,000 sf

**Inaccessible areas (overview)**

None

**Areas with limited access (overview)**

None

**Areas with no access (overview)**

Above ceilings with no access (“NAC” on building drawings)  
 Rooms that were sealed (“NA” on building drawings)

Types of ACBMs Encountered		Approximate Quantity
<b>Thermal System Insulation</b>	Pipe insulation	400 lf
<b>Surfacing</b>	None	
<b>Miscellaneous</b>	Adhesive	62 sf
	Asphalt roofing material	20 lf
	Duct adhesive	696 sf
	Floor tile	30,199 sf
	Floor tile mastic	44,274 sf
	Pipe wrap	432 lf
<b>Functional Areas with High to Imminent Exposure Potential</b>	None	



*Photograph 3. Side of Building 552.*

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# 1 Introduction

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SaLUT performed an inspection of Building 552 to identify and assess all accessible ACBMs. This was a reinspection conducted between January 28, 2002 and February 22, 2002, in accordance with the requirements outlined in the Scope of Work dated September 18, 2001. The results of the original survey conducted in July and August 1993 (*Asbestos Survey and Management Plan Report for Building 552 of Quad E at the Schofield Barracks Military Reservation, Hawai'i*, Baker Environmental, Inc. for the Corps of Engineers, Fort Shafter) and one survey of limited scope conducted in 1996 (*Asbestos and Lead-Based Paint Survey for Design of FY96 OMA PKG A-71, Repair Barracks Latrines, Building Nos. 549, 550, 551 & 552, Schofield Barracks, Oahu, Hawaii*, R. M. Towill Corporation) were included.

The following is a description of the building:

<b>Function</b>	Barracks
<b>Size</b>	120,000 square feet; three floors
<b>Foundation</b>	Concrete
<b>Exterior walls</b>	Brick with plaster coat
<b>Roof</b>	Asphalt roofing tar with silver top coat
<b>Mechanical systems</b>	Mechanical room containing furnace and boiler on First Floor; pipes are insulated with fiberglass or suspect insulation; covered with wraps
<b>Climate control</b>	Series of air conditioning units, each feeding multiple rooms; ducts are insulated with fiberglass; covered with sealant
<b>Interior walls</b>	Drywall, plaster
<b>Floors</b>	Floor tile, ceramic tile, concrete
<b>Ceilings</b>	Fixed ceilings, ceiling tile

Survey and assessment protocols were based on those adopted by the U.S. Environmental Protection Agency (EPA) as detailed in the Asbestos Hazard Emergency Response Act (AHERA; 40 CFR 763, Subpart E), and those of the Hawaii Department of Health in Hawaii Administrative Rule (HAR) 11-502 *Asbestos-Containing Materials in Schools*. In addition to identifying materials considered suspect by AHERA survey protocols, accessible roofing and other exterior materials were also addressed. SaLUT's inspectors identified and sampled all materials considered to be suspect under the regulations and other documents listed in Section 2 *Applicable Documents*, as well as those materials that have been found through other available literature and inspectors' experience (e.g., leveling paper and silver exterior paint) to potentially contain asbestos. This report does not address those suspect materials that would be expected in the building (e.g., sink undercoating in bathrooms of a residence) but were not encountered; the reader should assume that, if a suspect material is not mentioned in Section 3 *Findings*, the material was not found in the building.

For the following reasons, SaLUT's survey differed from a normal reinspection, wherein the locations and conditions of previously identified ACBMs are verified, and the impacts of building renovations are determined:

- 
- ❑ **Inability to identify the Baker survey’s homogeneous materials with certainty.** Photographs of the positive materials were not included in the Baker inspection report available at the Directorate of Public Works (DPW). Many of the types of floor tile in the original survey were described by their predominant color only. Other types of floor tile appear to have received more than one description (possibly due to having been described by different inspectors).
  - ❑ **Multiple layers of floor tile.** Many rooms had multiple layers of floor tile. Numerous instances were identified where floor tile located in the 1993 survey had been covered by other types of tile. This made it impractical to carry out the following tasks with completed accuracy:
    - Verify all locations of floor tiles identified in the original survey
    - Quantify types of floor tile
    - Identify all types of floor tile in the building (it was assumed that all types of floor tile were visible in at least one location)

To deal with these issues, under the direction of SaLUT’s Project Manager and Principal Investigator, the inspectors modified the survey protocol as follows:

- ❑ **Floor tile.** Where a floor tile type could be sampled by SaLUT’s inspectors without causing unacceptable damage, the original inspection was ignored, the floor tile was given a SaLUT homogeneous material identification, and the floor tile was sampled in accordance with the SAP. If the material could be equated to a type of Baker floor tile, this was noted. Where older types of floor tile were noted below SaLUT’s samples, but the older materials could not be sampled, the floor tile and associated mastic were identified from the material locations in Baker’s report.
- ❑ **Other materials identified in previous inspections.** For all other materials (including those that were determined to not contain asbestos) that had been identified in the previous inspections, SaLUT’s inspectors attempted to locate the materials. In a number of cases, the materials had been abated during various renovation projects. Where a material was identified, the SaLUT’s lead inspector determined whether additional sampling was warranted.

The Towill inspectors generally took only a single sample of each material from each floor; this does not meet the current Hawai’i requirement that three samples be taken from each floor. Because the Towill samples were non-asbestos containing, the results of this survey were disregarded.

- ❑ **Other materials not identified in previous inspection.** SaLUT’s inspectors identified and sampled a number of suspect materials that were not identified previously.

All samples were collected in accordance with the Sampling and Analysis Plan (SAP) for the task except as noted above. Where applicable, corners of wall-to-wall carpeting were lifted to examine flooring materials under the carpet. Metal roofs that would not support the inspector’s weight were examined visually; if suspect materials were identified they were presumed to contain asbestos unless they could be sampled from an accessible edge of the roof. These situations,

as well as other special situations, are discussed in the SAP located in Appendix A of this volume.

On-site inspection and assessments were conducted by John Willard and Kenneth Reynolds, EPA and State of Hawai'i accredited Asbestos Inspectors. Quality control review was conducted by Dr. David M. Heisler (Principal Investigator).



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## 2 Applicable Documents

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The following are the regulations, standards, and other documents applicable to the survey:

### U.S. Army Publications

AR 200-1	Environmental Protection and Enhancement
AR 385-40	Accident Reporting and Records
EM 385-1-1	USACE, Safety and Health Requirements Manual, 3 Sep 96
AR-420-70	Building and Structures
TB 420-70-8	Asbestos Survey and Abatement

### Title 29 Code of Federal Regulations, U.S. Department of Labor, Occupational Safety and Health Administration Standards

Part 1910.20	Access to Employee Exposure and Medical Records
Part 1910.95	Occupational Noise Exposure
Part 1910.134	Respiratory Protection
Part 1910.1000	Air Contaminants – Permissible Exposure Limits
Part 1910.1001	Asbestos
Part 1910.1200	Hazard Communication
Part 1926.59	Hazard Communication Construction
Part 1926.1101	Asbestos in Construction

### Title 40 Code of Federal Regulations, Environmental Protection Agency Standards

Part 61 Subpart A	National Emission Standards for Hazardous Air Pollutants
Part 763	Asbestos Hazard Emergency Response Act

### American National Standards Institute Standards

Z9.2-1979	Fundamentals Governing the Design and Operation of Local Exhaust Systems
Z88.20-1988	Practices for Respiratory Protection

### U.S. Environmental Protection Agency Guidelines

EPA/600/R-93/116	Method of the Determination of Asbestos in Bulk Building Materials
EPA/5605-85-024	Guidance for Controlling Asbestos Containing Building Materials

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### **Underwriters Laboratories, Inc. Publications**

586-77 (R-1982) Test Performance of High Efficiency Particulate Air Filter Units

### **State of Hawai'i Occupational Safety and Health Standards**

HIOSH 12-145 Asbestos in Construction

### **Hawai'i Administrative Rules**

Chapter 11-501 Asbestos Requirements  
 Chapter 11-502 Asbestos Containing Materials in Schools  
 Chapter 11-503 Fees for Asbestos Removal and Certification  
 Chapter 11-504 Asbestos Abatement Certification Program

### **USAED, Honolulu Contractual Documents**

Contract DACA83-01-D-0017 Indefinite-Delivery Indefinite-Quantity (IDIQ) Services Contract for Asbestos/Lead Survey and Abatement Services for Honolulu Engineer District (HED) Area of Responsibility, 14 September 2001

Contract DACA83-01-D-0017 Asbestos Survey for Various Buildings at Schofield Barracks, Wheeler Army Airfield, Fort Shafter, Tripler Army Medical Center, Waianae Recreational Center, Pohakuloa Training Area and Kiluea Military Reservation, Hawaii

Task Order 0001  
 Scope of Work

### **Previous Asbestos Surveys**

*Asbestos Survey and Management Plan Report for Building 552 of Quad E at the Schofield Barracks Military Reservation, Hawaii, Baker Environmental, Inc. for the Corps of Engineers, Fort Shafter*

*Asbestos and Lead-Based Paint Survey for Design of FY96 OMA PKG A-71, Repair Barracks Latrines, Building Nos. 549, 550, 551 & 552, Schofield Barracks, Oahu, Hawaii, R. M. Towill Corporation, 1996*

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## 3 Findings

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Sixty-one homogeneous materials suspected of potentially containing asbestos were identified and sampled by SaLUT. SaLUT also identified, but did not sample, an additional 13 types of floor tile and 14 types of floor tile mastic that were found to be ACBM by Baker. SaLUT collected 126 bulk asbestos samples that were analyzed by Globetec Group, Inc. at their National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory in Honolulu using polarized light microscopy/dispersion staining (PLM/DS) techniques. For some homogeneous materials, the laboratory used a *stop on positive* procedure whereby if one sample was confirmed as ACBM, the remaining samples were not analyzed. Composite samples of floor tile and floor tile mastic were split and the two components were analyzed individually as required by AHERA regulations. Therefore, the number of samples collected differs from the number of analyses. SaLUT submitted duplicates of three of the samples analyzed by Globetec to White Environmental Consulting, a second NVLAP laboratory in Honolulu, for quality control analysis. SaLUT submitted an additional four samples to AMA Analytical, Inc., a NVLAP-certified laboratory in Lanham, Maryland, for quality control analysis. For samples B41 (floor tile mastic) and B121 (asphalt roofing material), initial analysis by Globetec indicated that the materials contained asbestos. White found sample B41 to be non-asbestos-containing. AMA found sample B121 to be non-asbestos-containing. Because one laboratory determined that the samples contained asbestos, the corresponding materials were considered to be ACBM.

As a result of these laboratory analyses, 18 homogeneous materials (two types of floor tile, seven types of floor tile mastic, two types of duct sealant, four types of pipe wrap, one type of pipe insulation, one type of asphalt roofing material, and one type of adhesive) were confirmed as ACBM by sample analysis, in addition to the thirteen types of asbestos-containing floor tile and fourteen types of floor tile mastic identified by Baker and remaining in the building. The condition of the encountered positive materials was good, although some floor tiles were broken. Photographs 4 through 18 illustrate the ACBMs sampled by SaLUT. Photographs 19 through 25 illustrate materials previously identified by Baker whose presence was confirmed by SaLUT inspectors. SaLUT was unable to photograph all floor tile and mastics identified by Baker because some are located below floor tile sampled by SaLUT and were only revealed in the small areas where SaLUT's samples were taken.

All identified homogeneous materials considered to be potentially asbestos containing ("suspect") are listed on the *Homogeneous Materials Listing* (Table 1). These materials are grouped according to class (i.e., miscellaneous, surfacing, and thermal system insulation) and floor of the building. For each suspect material, the friability, general locations in the building, and sample numbers are indicated, as well as whether the material was determined to be ACBM or not. Red sample numbers indicate those samples that contained asbestos. Gray sample numbers indicate samples that were not analyzed because another sample of the same material contained asbestos. Suspect materials identified as ACBM by quality control analysis are identified by an asterisk (\*) following the appropriate sample number. The ACBMs identified by Baker and not sampled by SaLUT are listed following SaLUT's homogeneous materials.

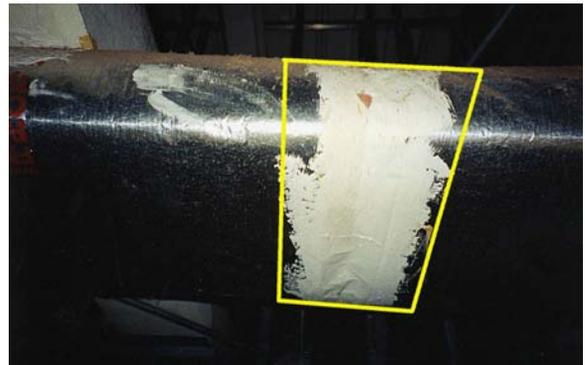
Sample collection sites for identified suspect ACBMs, as well as locations of identified ACBMs, are indicated on the building drawings (Figure 2).

Table 2, *Summary of Asbestos-Containing Materials*, provides a summary of the encountered ACBMs in the building. Each material is listed with information regarding the type, location, and condition of the ACBM, along with the recommended response action for the material.

Laboratory analysis sheets for all samples collected by SaLUT, including the quality control analyses, are located at the end of this report. Due to laboratory error, a number of samples were not included in the initial analysis but were analyzed later. These results follow behind the other laboratory analysis sheets and before the quality control analyses. Laboratory analysis sheets for samples collected during the previous surveys are found in those reports.



*Photograph 4. AD1. Asphalt roofing adhesive (AD1) located on the Roof contains asbestos.*



*Photograph 5. DA1. White duct adhesive (DA1) on fiberglass insulation contains asbestos.*



*Photograph 6. DA2. White duct adhesive (DA2) on fiberglass insulation contains asbestos.*



*Photograph 7. FM2. The mastic (FM2) below this floor tile (FT2) contains asbestos. The floor tile does not.*



*Photograph 8. FM3. The mastic (FM3) below this floor tile (FT3) contains asbestos. The floor tile does not.*



*Photograph 9. FM5. The mastic (FM5) below this floor tile (FT5) contains asbestos. The floor tile does not.*



*Photograph 10. FM6. The mastic (FM6) below this floor tile (FT6) contains asbestos. The floor tile does not.*



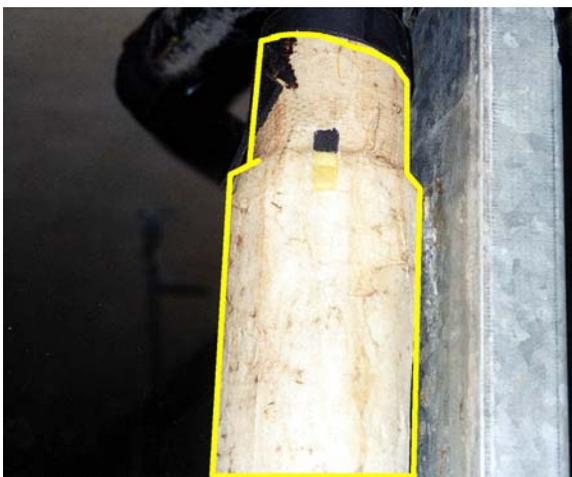
*Photograph 11. FM4 and FT4. This floor tile (FT4) and its underlying mastic (FM4) contain asbestos.*



*Photograph 12. FM13 and FT15. The mastic (FM13) below this floor tile (FT13) contains asbestos. The floor tile does not. FT13 covers a second layer of floor tile (FT15), which does contain asbestos.*



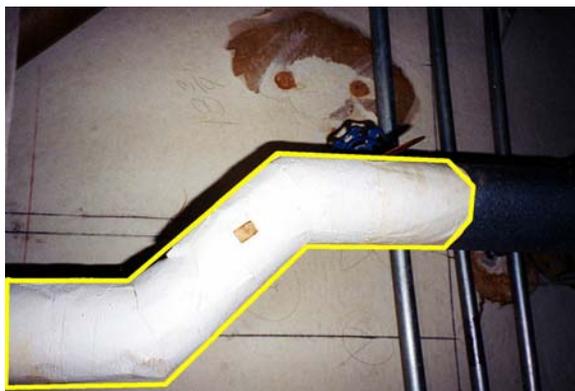
*Photograph 13. P1 and PW4. The white wrap (PW4) and the mudded insulation (PI1) on this pipe contain asbestos.*



*Photograph 14. PW1. The white wrap (PW1) that covers fiberglass insulation contains asbestos.*



*Photograph 15. PW2. The white wrap (PW2) that covers fiberglass insulation contains asbestos.*



*Photograph 16. PW3. The white wrap (PW3) that covers fiberglass insulation contains asbestos.*



*Photograph 17. M019 and M020. This floor tile (M019) and its underlying mastic (M020) contain asbestos.*



*Photograph 18. M029 and M030. This floor tile (M029) and its underlying mastic (M030) contain asbestos.*



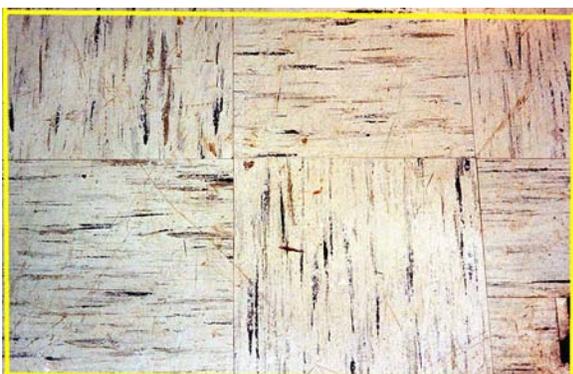
*Photograph 19. M044 and M045. This floor tile (M044) and its underlying mastic (M045) contain asbestos. The mastic is still present in areas where the floor tile has been removed.*



*Photograph 20. M046 and M047. This floor tile (M046) and its underlying mastic (M047) contain asbestos.*



*Photograph 21. M049. The mastic (M049) below this floor tile (M048) contains asbestos. The floor tile does not.*



*Photograph 22. M050 and M051. This floor tile (M050) and its underlying mastic (M051) contain asbestos.*



*Photograph 23. M052 and M053. This floor tile (M052) and its underlying mastic (M053) contain asbestos.*

**Table 1. Homogeneous Materials Listing. Descriptions of asbestos-containing materials from Baker's survey are taken from Baker's report.**

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>First Floor</b>						
BM3	Brown mastic	No	Below VB3	B64, B65, B66	No	
CK3	Window caulking	No	Outside rooms 105, 156, 196	B79, B80, B81	No	
DA3	White/brown duct sealant on top of fiberglass duct insulation	No	Throughout First Floor	B70, B71, B72	No	
DW3	Sheetrock	Yes	Rooms 103-105, 111-114, 128-130, 137-142, 156-158, 162, 165-170, 180, 186, 189, 190, 195-199	B76, B77, B78	No	
FM7	Black mastic	No	Below FT7	B67, B68, B69	Yes	178 sf
FM8	Yellow mastic	No	Below FT8	B82, B83, B84	No	
FM9	Yellow mastic	No	Below FT9	B94, B95, B96	No	
FM10	Yellow mastic	No	Below FT10	B103, B104, B105	No	
FM11	Yellow mastic	No	Below FT11	B106, B107, B108	No	
FM12	Yellow mastic (same as Baker's M013)	No	Below FT12	B109, B110, B111	No	
FM13	Yellow/black mastic	No	Below FT13	B112, B113, B114	Yes	2,581 sf
FM14	Yellow mastic	No	Below FT14	B115, B116, B117	No	
FT7	12" x 12" cream floor tile with red streaks	No	Hallway 119	B67, B68, B69	No	
FT8	12" x 12" light blue floor tile with blue specks	No	Room 101	B82, B83, B84	No	
FT9	12" x 12" blue mottle	No	Rooms A, 123, 136	B94, B95, B96	No	
FT10	12" x 12" blue floor tile with white specks	No	Room 125	B103, B104, B105	No	
FT11	12" x 12" white floor tile with gray specks	No	Rooms A, 136	B106, B107, B108	No	
FT12	12" x 12" white floor tile (same as Baker's M012)	No	Room 136	B109, B110, B111	No	
FT13	12" x 12" white and gray mottle floor tile	No	Hallways 143-146; Rooms 131, 133-135, 137-142, 1112, 1113	B112, B113, B114	No	
FT14	12" x 12" white floor tile with black streaks	No	Rooms 155, 193	B115, B116, B117	No	

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
FT15 12" x 12" green floor tile	No	Below FM13 and FT13	B112, B113, B114	Yes	2,581 sf	
PW3 Pipe wrap	No	Water lines	B100, B101, B102	Yes	200 sf	
PW4 White pipe wrap	No	Covering of PI1	B85, B86, B87	Yes	200 sf	
VB3 Brown vinyl baseboard	No	Rooms 118, 156, 193	B64, B65, B66	No		
ACBMs From Baker's Survey Located by SaLUT						
M001 12 x 12 floor tile Olive	No	Rooms 127, 131 (bottom layer), 132, 133 (bottom layer)	See Baker's report	Yes	909 sf	
M002 Flooring adhesive Black	No	Hallways 143-145; Rooms 137-142, 1112, 1113	See Baker's report	Yes	1,402 sf	
M009 12 x 12 floor tile Rust	No	Hallways 171-174; Rooms 156-159, 165-170, 176	See Baker's report	Yes	2,848 sf	
M010 Flooring adhesive Black	No	Hallways 118, 119, 171-174; Rooms 156-159, 165-170, 176	See Baker's report	Yes	2,848 sf	
M014 12 x 12 floor tile Beige	No	Hallways 115, 117, 118, 119; Rooms 102-105, 109-114	See Baker's report	Yes	2,445 sf	
M015 Flooring adhesive Black	No	Below M014	See Baker's report	Yes	2,445 sf	
M017 Flooring adhesive Black	No	Hallway 119 (below M016)	See Baker's report	Yes	176 sf	
M038 12 x 12 floor tile Light brown	No	Hallways 181-183, 1106-1111; Rooms 188-190, 192, 194, 196-199	See Baker's report	Yes	2,435 sf	
M039 Flooring adhesive Black	No	Below M038	See Baker's report	Yes	2,435 sf	
Second Floor						
BM2 Brown mastic	No	Below VB2	B13, B14, B15	No		
CK2 Window caulking	No	Outside of rooms on Second Floor	B61, B62, B63	No		
DA2 White duct adhesive	No	Hallways 205, 253, 292	B49, B50, B51	Yes	356 sf	
DW2 Sheetrock	Yes	Throughout Second Floor	B22, B23, B24	No		
FM1 Tan mastic	No	Below FT1	B19, B20, B21	No		
FM2 Black mastic	No	Below FT2	B31, B32, B33	Yes	2,183 sf	
FM4 Black mastic	No	Below FT4	B37, B38, B39	Yes	1,730 sf	
FM5 Black mastic	No	Below FT5	B40, B41, B42	Yes	61 sf	
FT1 12" x 12" blue floor tile with white streaks	No	Hallway 291	B19, B20, B21	No		

Miscellaneous Materials						
	Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity
FT2	12" x 12" white floor tile with brown specks	No	Hallways 205-207, 232, 233, 2106; Rooms 201-204, 209-212, 231	B31, B32, B33	No	
FT4	12" x 12" beige floor tile with red and white streaks	No	Hallways 216, 217, 2104, 2107; Rooms 213-215, 219, 221	B37, B38, B39	Yes	1,730 sf
FT5	12" x 12" cream floor tile with brown and white streaks	No	Room 218	B40, B41, B42	No	
PW1	White pipe wrap overtop fiberglass insulation	No	Pipes in Hallways 205, 207, 242, 255, 290, 296, 299; Rooms 204, 262	B28, B29, B30	Yes	16 lf
SK2	Sink undercoating	No	Rooms 208, 256, 289	B16, B17, B18	No	
VB2	Brown vinyl baseboard	No	Rooms 204, 258, 293	B13, B14, B15	No	
ACBMs From Baker's Survey Located by SaLUT						
M019	12 x 12 floor tile Olive	No	Hallways 232, 233, 242-244, 2108, 2109; Rooms 228, 230, 231, 234-240, 245, 247, 248, 2105	See Baker's report	Yes	3,596 sf
M020	Flooring adhesive Black	No	Below M019	See Baker's report	Yes	3,739 sf
M025	12 x 12 floor tile Cream	No	Hallway 233; Room 2105	See Baker's report	Yes	102 sf
M026	Flooring adhesive Black	No	Below M025	See Baker's report	Yes	102 sf
M027	12 x 12 floor tile Beige	No	Hallways 205, 206, 216, 217; Rooms 200, 213	See Baker's report	Yes	507 sf
M028	Flooring adhesive Black	No	Hallways 205-207, 216, 217, 2106, 2107; Rooms 200-204, 209-215, 218, 219, 221, 2104	See Baker's report	Yes	4,061 sf
M049	Flooring adhesive Black	No	Below M048 in Hallways 253-255, 264, 265, 290, 2100, 2101; Rooms 249-252, 257, 258, 260, 262, 268, 269	See Baker's report	Yes	3,166 sf
M050	12 x 12 floor tile White with black	No	Room 261	See Baker's report	Yes	100 sf
M051	Flooring adhesive Black	No	Below M050	See Baker's report	Yes	100 sf
M052	12 x 12 floor tile Light brown	No	Hallways 280, 291, 292, 298, 299, 2102, 2103; Rooms 276-279, 282-284, 287, 288, 293-297	See Baker's report	Yes	3,612 sf
M053	Flooring adhesive	No	Below M052	See Baker's report	Yes	3,612 sf

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>Third Floor</b>						
BM1	Brown mastic	No	Below VB1	B1, B2, B3	No	
CK1	Window caulking	No	Outside rooms 308, 340, 389	B58, B59, B60	No	
DA1	White duct sealant	No	Throughout Third Floor	B46, B47, B48	Yes	340 sf
DW1	Sheetrock	Yes	Throughout Third Floor	B7, B8, B9	No	
FM3	Black mastic	No	Below FT3	B34, B35, B36	Yes	3,550 sf
FM6	Black mastic	No	Below FT6	B43, B44, B45	Yes	391 sf
FT3	12" x 12" white floor tile with brown specks	No	Hallways 305-307, 316, 317, 3106, 3107; Rooms 300-304, 309-311, 313-315, 318, 319, 329	B34, B35, B36	No	
FT6	12" x 12" cream floor tile with white specks	No	Room 345	B43, B44, B45	No	
PW2	White pipe wrap overtop fiberglass insulation	No	Hallways 307, 342, 355, 390, 398, 399, 3104, 3105	B91, B92, B93	Yes	16 lf
SK1	Sink undercoating	No	Rooms 308, 356, 389	B4, B5, B6	No	
VB1	Brown vinyl baseboard	No	Rooms 329, 352, 388	B1, B2, B3	No	
<b>ACBMs From Baker's Survey Located by SaLUT</b>						
M029	12 x 12 floor tile Light brown	No	Hallways 380, 381, 391, 392, 398, 399, 3102, 3103; Rooms 377-379, 382, 383, 385, 387, 388, 393-397	See Baker's report	Yes	2,993 sf
M030	Flooring adhesive Black	No	Below M029	See Baker's report	Yes	2,993 sf
M042	12 x 12 floor tile Beige	No	Rooms 3104, 3107	See Baker's report	Yes	65 sf
M044	12 x 12 floor tile Olive	No	Hallways 332, 333, 342-344, 3105, 3109; Rooms 320, 328-331, 334-337, 340, 346, 347	See Baker's report	Yes	2,905 sf
M045	Flooring adhesive Black	No	Hallways 332, 333, 342-344, 3105, 3109; Rooms 320, 328-331, 334-337, 340, 345-347	See Baker's report	Yes	3,293 sf
M046	12 x 12 floor tile Rust	No	Hallways 353-355, 364, 365, 3100; Rooms 349-352, 357-359, 361, 363, 366, 367, 369	See Baker's report	Yes	3,371 sf
M047	Flooring adhesive Black	No	Below M046	See Baker's report	Yes	3,371 sf
<b>Roof</b>						
AD1	Asphalt roofing sealant	No	Roof	B118, B119, B120	Yes	62 sf

Miscellaneous Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
AR1 Asphalt roofing material (includes silver top coat)	No	Roof	B121, B122, B123	Yes	20 lf	
AR2 Asphalt roofing material	No	HVAC system on roof	B124, B125, B126	No		

Surfacing Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>First Floor</b>						
PL5 Interior plaster coating on building structure	No	Hallways 119, 172, 181; Rooms 155, 161, 163, 164, 184	B73, B74, B75	No		
PL6 Exterior plaster coating from building structure	No	Exterior	B88, B89, B90	No		
PL7 Wall plaster overtop cinder-block wall	No	Hallways 118, 144, 173	B97, B98, B99	No		
<b>Second Floor</b>						
PL2 Interior plaster coating on building structure (white skim coat with gray paint)	No	Hallways 205, 244, 280; Room 277	B25, B26, B27	No		
PL3 Exterior plaster coating from building structure	No	Exterior	B52, B53, B54	No		
<b>Third Floor</b>						
PL1 Interior plaster coating from building structure	No	Ceiling in Room 320; interior beams in Hallways	B10, B11, B12	No		
PL4 Exterior plaster coating from the building structure	No	Balconies	B55, B56, B57	No		
<b>Roof</b>						
No suspect materials observed						

Thermal System Insulation Materials						
Material Description	Friable? (Yes/No)	Location	Sample Numbers	ACBM?	Est. Quantity	
<b>First Floor</b>						
PI1 Mudded pipe insulation below PW4	No	Rooms 101, 136, 193	B85, B86, B87	Yes	400 lf	
<b>Second Floor</b>						
No suspect materials observed						
<b>Third Floor</b>						
No suspect materials observed						
<b>Roof</b>						
No suspect materials observed						



FIGURE 1: BUILDING DRAWINGS  
 SCHOFIELD BARRACKS  
 BUILDING 552  
 FIRST FLOOR

BUILDING DRAWING LEGEND

ASBESTOS CONTAINING MATERIALS AND QUANTITIES	
FT/ Floor Tile and/ FM or Mastic	
PW Pipe Wrap	
ACCESSIBILITY	
NA NO ACCESS TO THIS SPACE	
NAC NO ACCESS ABOVE CEILING	
SYMBOLS	
 SPACE NUMBER	
 POSITIVE BULK SAMPLE LOCATION	
 NEGATIVE BULK SAMPLE LOCATION	
 NOT ANALYZED BULK SAMPLE LOCATION	

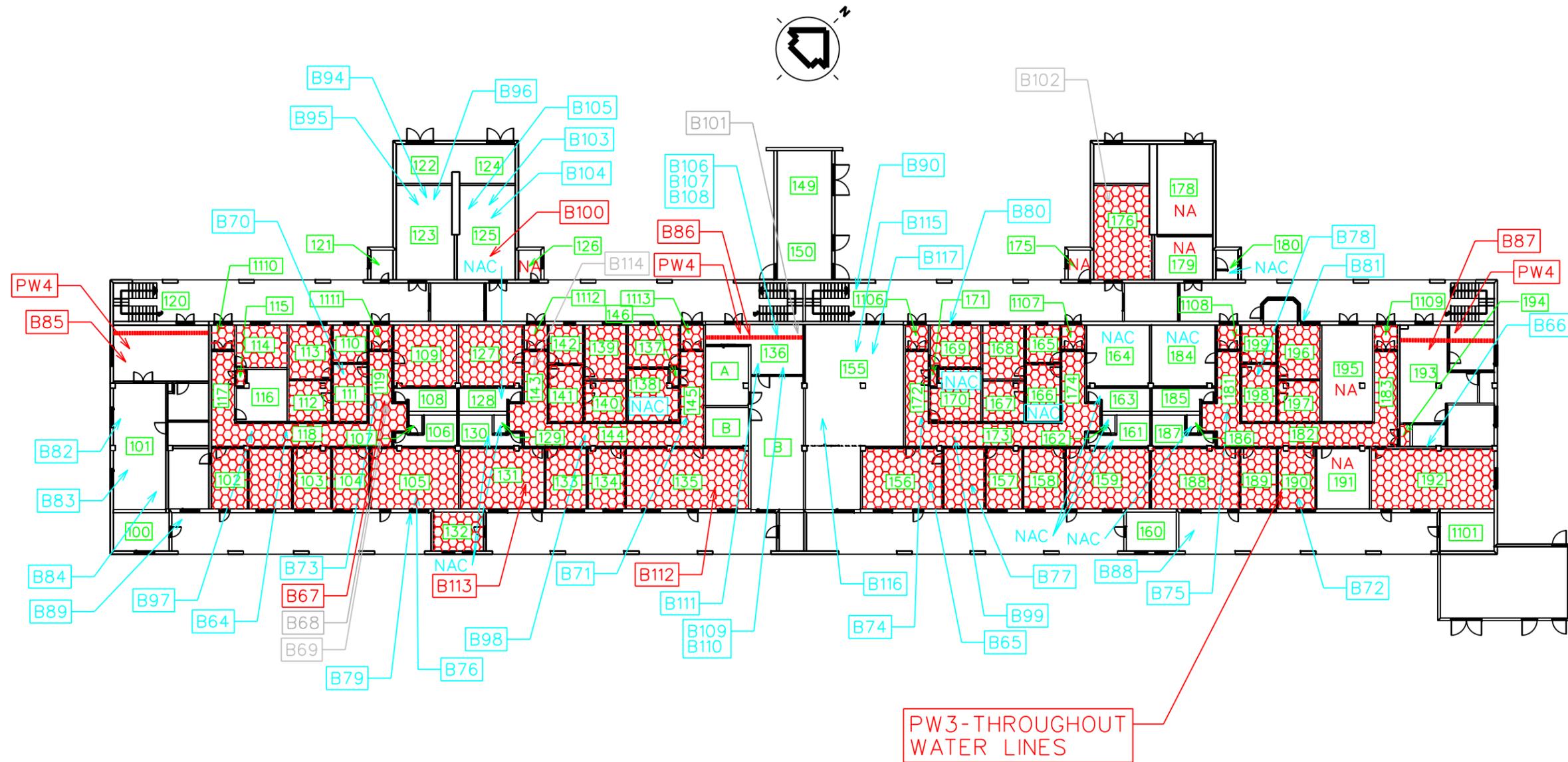


FIGURE 1: BUILDING DRAWINGS  
 SCHOFIELD BARRACKS  
 BUILDING 552  
 SECOND FLOOR

BUILDING DRAWING LEGEND

ASBESTOS CONTAINING MATERIALS AND QUANTITIES	
DA Duct Sealant	DA*
FT/ Floor Tile and/ FM or Mastic	
PW Pipe Wrap	PW*
ACCESSIBILITY	
NA NO ACCESS TO THIS SPACE	
NAC NO ACCESS ABOVE CEILING	
SYMBOLS	
100 SPACE NUMBER	
B25 POSITIVE BULK SAMPLE LOCATION	
B35 NEGATIVE BULK SAMPLE LOCATION	
B45 NOT ANALYZED BULK SAMPLE LOCATION	

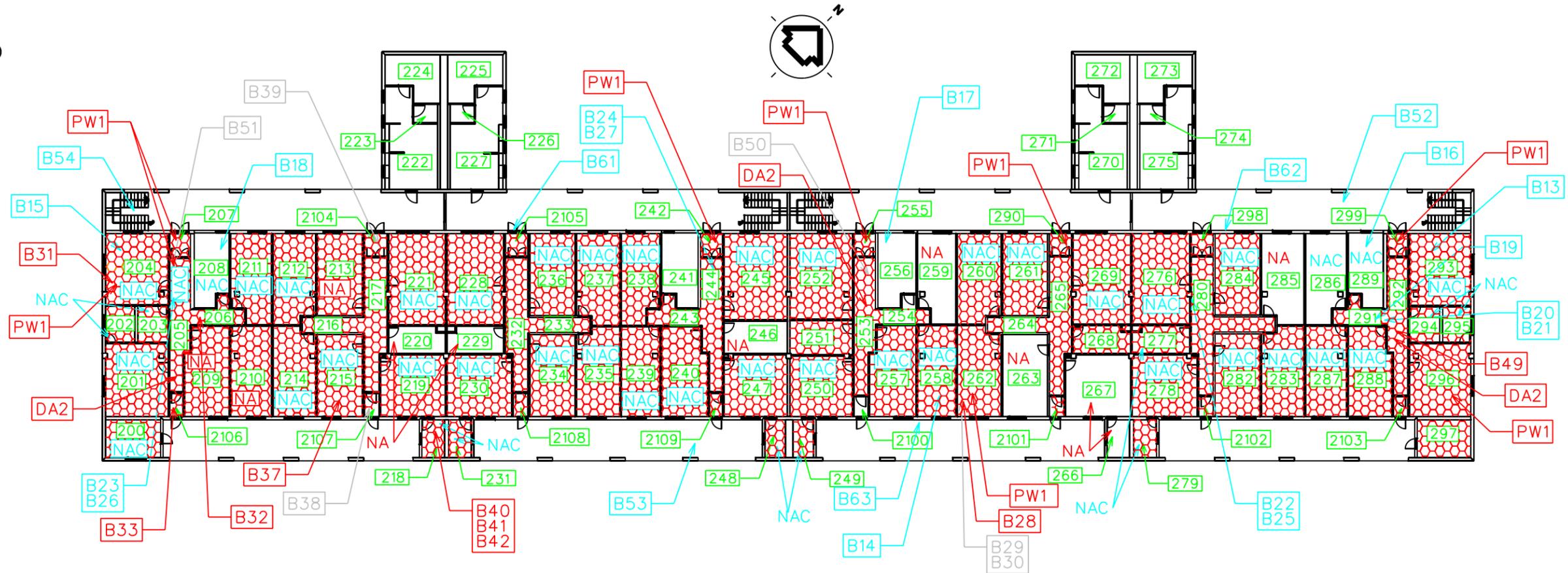


FIGURE 1: BUILDING DRAWINGS  
 SCHOFIELD BARRACKS  
 BUILDING 552  
 THIRD FLOOR

BUILDING DRAWING LEGEND

ASBESTOS CONTAINING MATERIALS AND QUANTITIES	
DA Duct Sealant	DA*
FT/ Floor Tile and/ or Mastic	
PW Pipe Wrap	PW*
ACCESSIBILITY	
NA NO ACCESS TO THIS SPACE	
NAC NO ACCESS ABOVE CEILING	
SYMBOLS	
100 SPACE NUMBER	
B25 POSITIVE BULK SAMPLE LOCATION	
B35 NEGATIVE BULK SAMPLE LOCATION	
B45 NOT ANALYZED BULK SAMPLE LOCATION	

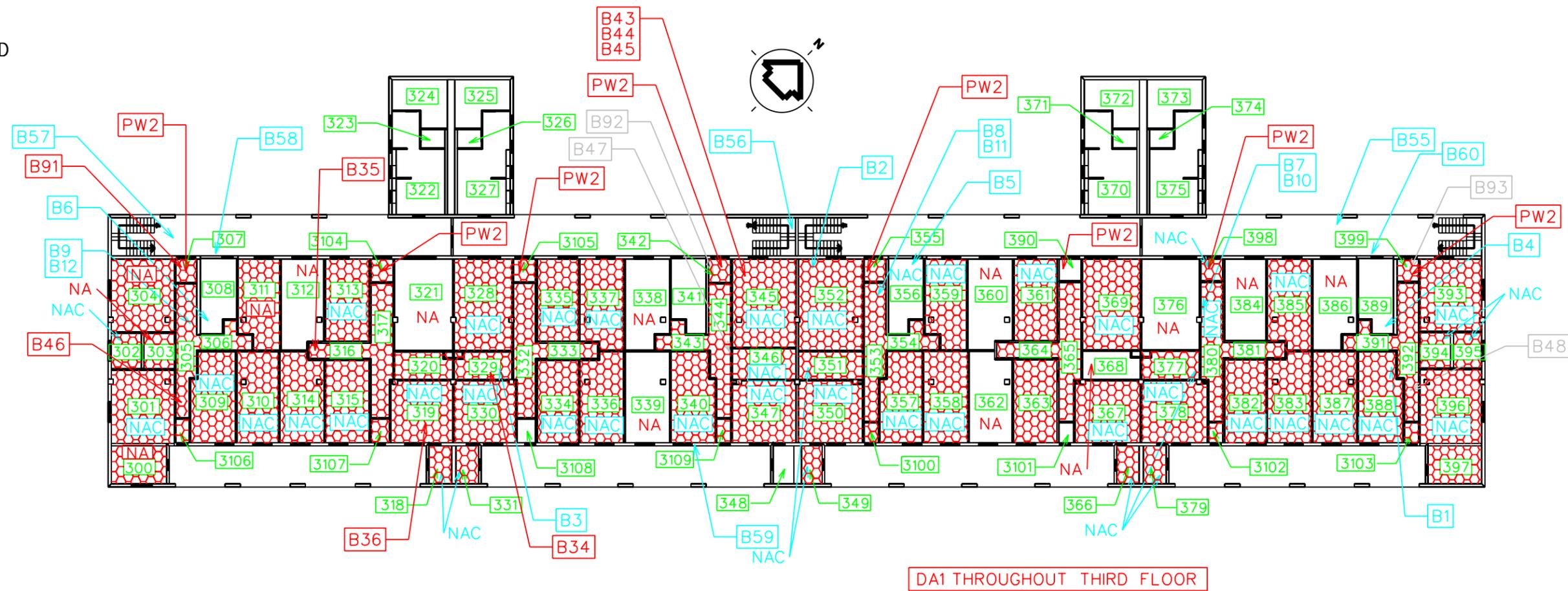
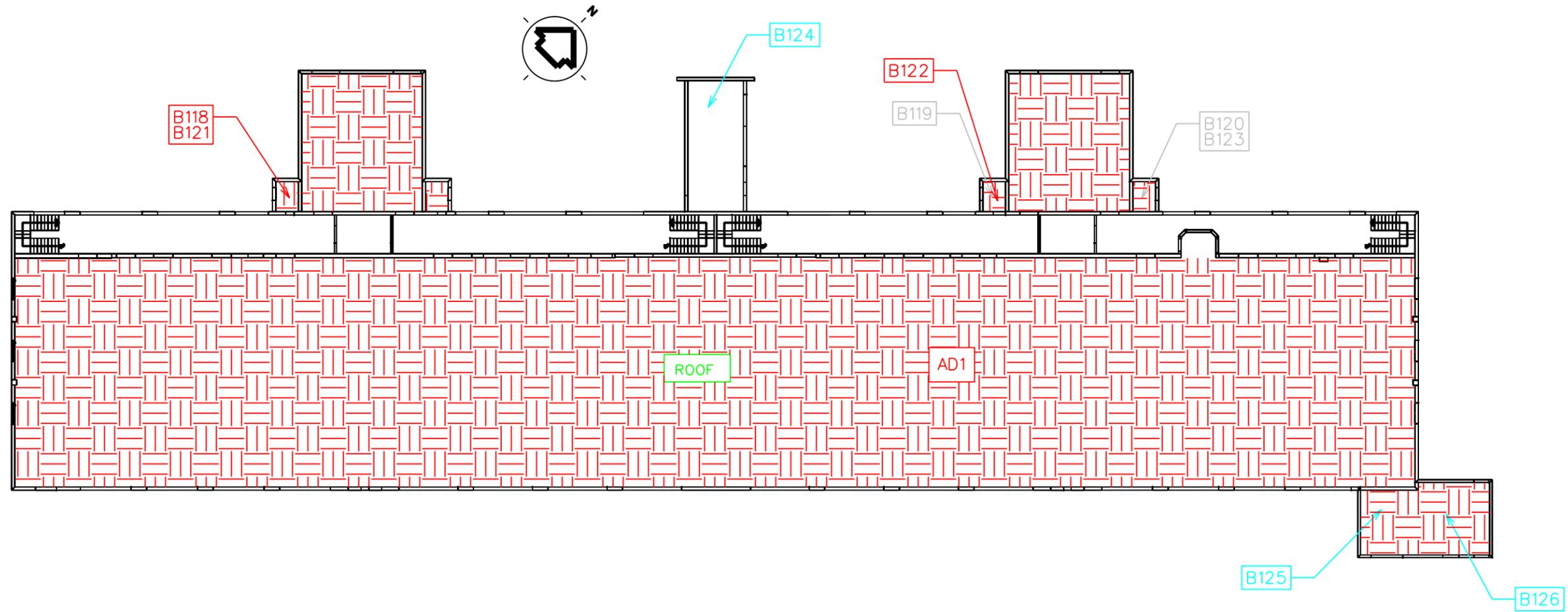


FIGURE 1: BUILDING DRAWINGS  
 SCHOFIELD BARRACKS  
 BUILDING 552  
 ROOF

BUILDING DRAWING LEGEND

ASBESTOS CONTAINING MATERIALS AND QUANTITIES	
AD Asphalt Roofing Sealant	AD*
AR Asphalt Roofing Tar	AR
SYMBOLS	
100	SPACE NUMBER
B25	POSITIVE BULK SAMPLE LOCATION
B35	NEGATIVE BULK SAMPLE LOCATION
B45	NOT ANALYZED BULK SAMPLE LOCATION



## 4 Recommendations

Each friable ACBM was assessed and placed in the appropriate AHERA category as specified in 40 CFR, Part 763.88. In addition to the seven AHERA assessment categories, SaLUT added an eighth category for all non-friable ACBM.

SaLUT also categorized the condition of each ACBM at the time of the survey, as follows:

- Good** No damage observed
- Fair** The area of distributed damage was less than 10 percent and greater than 2 percent. The area of localized damage was less than 25 percent and greater than 2 percent.
- Poor** The area of distributed damage was greater than 10 percent and the localized damage was greater than 25 percent.

Based on the AHERA assessment category and SaLUT's condition assessment, SaLUT recommends on or more of the following response actions for each ACBM:

- O&M** Maintain the ACBM. Perform operations and maintenance procedures in a manner that does not damage the material. These procedures are specified in 29 CFR 1926.1101 and HAR 11-502-10. Repair of damaged material must be performed in accordance with 29 CFR 1926.1101 and as specified in the management plan for the installation unless otherwise authorized, all repairs should be handled by State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101.
- Repair** Damaged areas should be repaired. Repair of damaged material must be performed in accordance with 29 CFR 1926.1101 and as specified in the management plan for the installation unless otherwise authorized, all repairs should be handled by State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101.  
Undamaged and repaired materials are subject to the O&M response action.
- Remove** The material should be removed. Removal must be performed by a State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101. Removal must follow the most stringent guidelines provided by either the State of Hawai'i or Federal regulations.

If the building is demolished or renovation will impact any ACBMs, those materials must be removed by a State of Hawai'i-licensed contractor in accordance with 29 CFR 1926.1101. Removal must follow the most stringent guidelines provided by either the State of Hawai'i or Federal regulations.

Table 2 provides the AHERA assessment category, SaLUT's condition assessment, and SaLUT's recommended response action for each ACBM.

**Table 2. Summary of Asbestos-Containing Materials.**

Material Description	Location	Quantity	Friable	Cond. Assess.	AHERA Assess. Cat.	Recommended Response Action	Photo Ref.
<b>First Floor</b>							
FM7 Black mastic	Below FT7 (Hallway 119)	178 sf	No	Good	8	O&M	None
FM13 Yellow/black mastic	Below FT13 (Hallways 143-146; Rooms 131, 133-135, 137-142, 1112, 1113)	2,581 sf	No	Good	8	O&M	12
FT15 12" x 12" green floor tile	Below FM13 and FT13 (Hallways 143-146; Rooms 131, 133-135, 137-142, 1112, 1113)	2,581 sf	No	Good	8	O&M	12
PI1 Mudded pipe insulation below PW4	Rooms 101, 136, 193	400 lf	No	Good	8	O&M	13
PW3 Pipe wrap	Water lines	200 lf	No	Good	8	O&M	16
PW4 White pipe wrap	Covering of PI1	200 lf	No	Good	8	O&M	13
M001 12 x 12 floor tile Olive	Rooms 127, 131 (bottom layer), 132, 133 (bottom layer)	909 sf	No	Good	8	O&M	None
M002 Flooring adhesive Black	Hallways 143-145; Rooms 137-142, 1112, 1113	1,402 sf	No	Good	8	O&M	None
M009 12 x 12 floor tile Rust	Hallways 171-174; Rooms 156-159, 165-170, 176	2,848 sf	No	Good	8	O&M	None
M010 Flooring adhesive Black	Hallways 118, 119, 171-174; Rooms 125, 156-159, 165-170, 176	2,848 sf	No	Good	8	O&M	None
M014 12 x 12 floor tile Beige	Hallways 115, 117, 118, 119; Rooms 102-105, 109-114	2,445 sf	No	Good	8	O&M	None
M015 Flooring adhesive Black	Below M014	2,445 sf	No	Good	8	O&M	None
M017 Flooring adhesive Black	Hallway 119 (below M016)	176 sf	No	Good	8	O&M	None
M038 12 x 12 floor tile Light brown	Hallways 181-183, 1106-1111; Rooms 188-190, 192, 194-199	2,435 sf	No	Good	8	O&M	None
M039 Flooring adhesive Black	Below M038	2,435 sf	No	Good	8	O&M	None

Material Description	Location	Quantity	Friable	Cond. Assess.	AHERA Assess. Cat.	Recommended Response Action	Photo Ref.
<b>Second Floor</b>							
DA2 White duct adhesive	Hallways 205, 253, 292	356 sf	No	Good	8	O&M	6
FM2 Black mastic	Below FT2 (Hallways 206, 232, 233, 2106; Rooms 201-207, 209-212, 231)	2,183 sf	No	Good	8	O&M	7
FM4 Black mastic	Below FT4	1,730 sf	No	Good	8	O&M	11
FM5 Black mastic	Below FT5 (Room 218)	61 sf	No	Good	8	O&M	9
FT4 12" x 12" beige floor tile with red and white streaks	Hallways 216, 217, 2104, 2107; Rooms 213-215, 219, 221	1,730 sf	No	Good	8	O&M	11
PW1 White pipe wrap over-top fiberglass insulation	Pipes in Hallways 204, 205, 207, 242, 255, 290, 296, 299; Room 262	16 lf	No	Good	8	O&M	14
M019 12 x 12 floor tile Olive	Hallways 232, 233, 242-244, 2108, 2109; Rooms 228, 230, 231, 234-240, 245-248, 2105	3,596 sf	No	Good	8	O&M	17
M020 Flooring adhesive Black	Below M019	3,739 sf	No	Good	8	O&M	17
M025 12 x 12 floor tile Cream	Hallway 233; Room 2105	102 sf	No	Good	8	O&M	None
M026 Flooring adhesive Black	Below M025	102 sf	No	Good	8	O&M	None
M027 12 x 12 floor tile Beige	Hallways 205, 206, 216, 217; Rooms 200, 213, 220	507 sf	No	Good	8	O&M	None
M028 Flooring adhesive Black	Hallways 205-207, 216, 217, 2106, 2107; Rooms 200-204, 209-215, 218-221, 2104	4,061 sf	No	Good	8	O&M	None
M049 Flooring adhesive Black	Below M048 in Hallways 253-255, 2100; Rooms 249-252, 257-260, 262-269, 290, 2101	3,166 sf	No	Good	8	O&M	21
M050 12 x 12 floor tile White with black	Room 261	100 sf	No	Good	8	O&M	22
M051 Flooring adhesive Black	Below M050	100 sf	No	Good	8	O&M	22

Material Description	Location	Quantity	Friable	Cond. Assess.	AHERA Assess. Cat.	Recommended Response Action	Photo Ref.
M052 12 x 12 floor tile Light brown	Hallways 280, 291, 292, 298, 299, 2102, 2103; Rooms 276-279, 282-285, 287, 288, 293-297	3,612 sf	No	Good	8	O&M	23
M053 Flooring adhesive	Below M052	3,612 sf	No	Good	8	O&M	23
<b>Third Floor</b>							
DA1 White duct sealant	Hallways 305, 344, 392	340 sf	No	Good	8	O&M	5
FM3 Black mastic	Below FT3 (Hallways 305-307, 316, 317, 3106, 3107; Rooms 300-304, 309-311, 313-315, 318, 319)	3,550 sf	No	Good	8	O&M	8
FM6 Black mastic	Below FT6 (Room 345)	391 sf	No	Good	8	O&M	10
PW2 White pipe wrap over-top fiberglass insulation	Pipes in Hallways 204, 205, 207, 242, 255, 290, 296, 299; Room 262	16 lf	No	Good	8	O&M	15
M029 12 x 12 floor tile Light brown	Hallways 380, 381, 391, 392, 398, 399, 3102, 3103; Rooms 377-379, 382-388, 393-397	2,993 sf	No	Good	8	O&M	18
M030 Flooring adhesive Black	Below M029	2,993 sf	No	Good	8	O&M	18
M042 12 x 12 floor tile Beige	Rooms 312, 321, 3104, 3107	65 sf	No	Good	8	O&M	None
M044 12 x 12 floor tile Olive	Hallways 332, 333, 342-344, 3109; Rooms 320, 328-331, 334-340, 346, 347, 3105, 3108	2,905 sf	No	Good	8	O&M	19
M045 Flooring adhesive Black	Hallways 332, 333, 342-344, 3109; Rooms 320, 328-331, 334-340, 345-347, 3105, 3108	3,293 sf	No	Good	8	O&M	19
M046 12 x 12 floor tile Rust	Hallways 353-355, 364, 365, 3100; Rooms 349-352, 357-363, 366-369	3,371 sf	No	Good	8	O&M	20
M047 Flooring adhesive Black	Below M046	3,371 sf	No	Good	8	O&M	20
<b>Roof</b>							
AD1 Asphalt roofing adhesive	Roof	62 sf	No	Good	8	O&M	4

Material Description	Location	Quantity	Friable	Cond. Assess.	AHERA Assess. Cat.	Recommended Response Action	Photo Ref.
AR1 Asphalt roofing material (includes silver top coat)	Roof	20 lf	No	Good	8	O&M	None

Table 3 provides SaLUT's cost estimate for abating (i.e., removing) each ACBM identified in the building. These estimates are conceptual cost estimates based on standard unit rates for different types of ACBM except for very small abatement projects, where the minimum cost is \$1,200. Contractor mobilization/demobilization, transportation, disposal, and other miscellaneous costs are included in the unit. Operations and maintenance (O&M) costs are not provided as part of the recommended response cost.

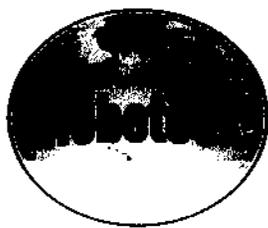
**Table 3. Asbestos Abatement Cost Estimates.**

Material Type	Location	Quantity	Unit Cost (\$)	Total Removal Cost	
<b>First Floor</b>					
FM7	Black mastic	Below FT7 (Hallway 119)	178 sf	3	\$534
FM13	Yellow/black mastic	Below FT13 (Hallways 143-146; Rooms 131, 133-135, 137-142, 1112, 1113)	2,581 sf	3	7,743
FT15	12" x 12" green floor tile	Below FM13 and FT13 (Hallways 143-146; Rooms 131, 133-135, 137-142, 1112, 1113)	2,581 sf	5	12,905
PI1	Mudded pipe insulation below PW4	Rooms 101, 136, 193	400 lf	20	8,000
PW3	Pipe wrap	Water lines	200 lf	20	4,000
PW4	White pipe wrap	Covering of PI1	200 lf	20	4,000
M001	12 x 12 floor tile Olive	Rooms 127, 131 (bottom layer), 132, 133 (bottom layer)	909 sf	5	4,545
M002	Flooring adhesive Black	Hallways 143-145; Rooms 137-142, 1112, 1113	1,402 sf	3	7,206
M009	12 x 12 floor tile Rust	Hallways 171-174; Rooms 156-159, 165-170, 176	2,848 sf	5	14,240
M010	Flooring adhesive Black	Hallways 118, 119, 171-174; Rooms 125, 156-159, 165-170, 176	2,848 sf	3	8,544
M014	12 x 12 floor tile Beige	Hallways 115, 117, 118, 119; Rooms 102-105, 109-114	2,445 sf	5	12,225
M015	Flooring adhesive Black	Below M014	2,445 sf	3	7,335
M017	Flooring adhesive Black	Hallway 119 (below M016)	176 sf	3	528
M038	12 x 12 floor tile Light brown	Hallways 181-183, 1106-1111; Rooms 188-190, 192, 194-199	2,435 sf	5	12,175
M039	Flooring adhesive Black	Below M038	2,435 sf	3	7,305
<b>Second Floor</b>					
DA2	White duct adhesive	Hallways 205, 253, 292	356 sf	3	1,068
FM2	Black mastic	Below FT2 (Hallways 206, 232, 233, 2106; Rooms 201-207, 209-212, 231)	2,183 sf	3	6,549

Material Type		Location	Quantity	Unit Cost (\$)	Total Removal Cost
FM4	Black mastic	Below FT4	1,730 sf	3	5,190
FM5	Black mastic	Below FT5 (Room 218)	61 sf	3	183
FT4	12" x 12" beige floor tile with red and white streaks	Hallways 216, 217, 2104, 2107; Rooms 213-215, 219, 221	1,730 sf	5	8,650
PW1	White pipe wrap overtop fiberglass insulation	Pipes in Hallways 204, 205, 207, 242, 255, 290, 296, 299; Room 262	16 lf	20	320
M019	12 x 12 floor tile Olive	Hallways 232, 233, 242-244, 2108, 2109; Rooms 228, 230, 231, 234-240, 245-248, 2105	3,596 sf	5	17,980
M020	Flooring adhesive Black	Below M019	3,739 sf	3	11,217
M025	12 x 12 floor tile Cream	Hallway 233; Room 2105	102 sf	5	510
M026	Flooring adhesive Black	Below M025	102 sf	3	306
M027	12 x 12 floor tile Beige	Hallways 205, 206, 216, 217; Rooms 200, 213, 220	507 sf	5	2,535
M028	Flooring adhesive Black	Hallways 205-207, 216, 217, 2106, 2107; Rooms 200-204, 209-215, 218-221, 2104	4,061 sf	3	12,183
M049	Flooring adhesive Black	Below M048 in Hallways 253-255, 2100; Rooms 249-252, 257-260, 262-269, 290, 2101	3,166 sf	3	9,498
M050	12 x 12 floor tile White with black	Room 261	100 sf	5	500
M051	Flooring adhesive Black	Below M050	100 sf	3	300
M052	12 x 12 floor tile Light brown	Hallways 280, 291, 292, 298, 299, 2102, 2103; Rooms 276-279, 282-285, 287, 288, 293-297	3,612 sf	5	18,060
M053	Flooring adhesive	Below M052	3,612 sf	3	10,836
<b>Third Floor</b>					
DA1	White duct sealant	Hallways 305, 344, 392	340 sf	3	1,020
FM3	Black mastic	Below FT3 (Hallways 305-307, 316, 317, 3106, 3107; Rooms 300-304, 309-311, 313-315, 318, 319)	3,550 sf	3	10,650
FM6	Black mastic	Below FT6 (Room 345)	391 sf	3	1,173
PW2	White pipe wrap overtop fiberglass insulation	Pipes in Hallways 204, 205, 207, 242, 255, 290, 296, 299; Room 262	16 lf	20	320
M029	12 x 12 floor tile Light brown	Hallways 380, 381, 391, 392, 398, 399, 3102, 3103; Rooms 377-379, 382-388, 393-397	2,993 sf	5	14,965
M030	Flooring adhesive Black	Below M029	2,993 sf	3	8,979
M042	12 x 12 floor tile Beige	Rooms 312, 321, 3104, 3107	65 sf	5	325
M044	12 x 12 floor tile Olive	Hallways 332, 333, 342-344, 3109; Rooms 320, 328-331, 334-340, 346, 347, 3105, 3108	2,905 sf	5	14,525
M045	Flooring adhesive Black	Hallways 332, 333, 342-344, 3109; Rooms 320, 328-331, 334-340, 345-347, 3105, 3108	3,293 sf	3	9,879

<b>Material Type</b>		<b>Location</b>	<b>Quantity</b>	<b>Unit Cost (\$)</b>	<b>Total Removal Cost</b>
M046	12 x 12 floor tile Rust	Hallways 353-355, 364, 365, 3100; Rooms 349-352, 357-363, 366-369	3,371 sf	5	16,855
M047	Flooring adhesive Black	Below M046	3,371 sf	3	10,113
<b>Roof</b>					
AD1	Asphalt roofing adhesive	Roof	62 sf	3	96
AR1	Asphalt roofing material (includes silver top coat)	Roof	20 lf	20	400
Total abatement cost					\$306,470





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## Bulk Asbestos Analysis EPA Method 600/R-93-116, Visual Area Estimation

**Customer Name:** SaLUT  
**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

**Sampled By:** Client  
**Received By:** M. Rouf  
**TAT:** 5 Days  
**Report No:** 130  
**Date Printed:** 2/4/2002  
**Analyst:** M. Lee

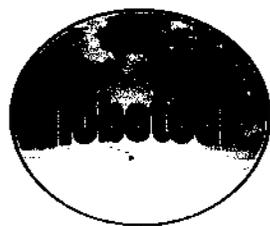
**Total # of Sample(s):** 41      **Total # of Layer(s):** 63

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B1	013102-43	1/31/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Rm 388 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B1	013102-43	1/31/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Rm 388 <b>Materials:</b> Brown Mastic						
<b>Other Fibrous Materials:</b> Cellulose < 1%						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B2	013102-44	1/31/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Rm 352 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

The result quantitations reported are an estimation based on the methods of visual microscopic estimation which is considered only a semi-quantitative technique. This report applies only to the sample(s) received and analyzed by GLOBETECK. Results do not necessarily reflect the makeup of the entire span of the material from which the samples were derived. Sampling techniques and/or sample handling may affect the integrity of the sample/s before submission to GLOBETECK Laboratory and hence the outcome of the laboratory results. Samples not destroyed by testing are retained a minimum of thirty days. GLOBETECK Laboratory, recommends re-analysis by point count or Transmission Electron Microscopy (TEM) for materials that are found to contain less than ten percent (<10%) asbestos by PLM. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of GLOBETECK.



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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B2	013102-44	1/31/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Rm 352 <b>Materials:</b> Brown Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B3	013102-45	1/31/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Rm 329 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B3	013102-45	1/31/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Rm 329 <b>Materials:</b> Brown Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B4	013102-46	1/31/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Rm 389 <b>Materials:</b> Black Asphaltic Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B5	013102-47	1/31/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Rm 356 <b>Materials:</b> Black Asphaltic Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B6	013102-48	1/31/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Rm 308 <b>Materials:</b> Black Asphaltic Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B7	013102-49	1/31/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Hallway 380 <b>Materials:</b> White Composite Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B8	013102-50	1/31/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Hallway 353 <b>Materials:</b> White Composite Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 1-3% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B9	013102-51	1/31/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Hallway 305 <b>Materials:</b> White Composite Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 3-5% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B10	013102-52	1/31/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Hallway 380 <b>Materials:</b> Gray Granular Material W/ Yellow Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Calcite, Paint						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B11	013102-53	1/31/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Hallway 352 <b>Materials:</b> Gray Granular Material W/ Yellow Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Calcite, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B12	013102-54	1/31/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Hallway 305 <b>Materials:</b> Gray Granular Material W/ Yellow Paint						
<b>Other Fibrous Materials:</b> Cellulose < 1%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Calcite, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B13	013102-55	1/31/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 293 <b>Materials:</b> Black Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B13	013102-55	1/31/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 293 <b>Materials:</b> Brown Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B14	013102-56	1/31/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 258 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B14	013102-56	1/31/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 258 <b>Materials:</b> Brown Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B15	013102-57	1/31/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 204 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B15	013102-57	1/31/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 204 <b>Materials:</b> Brown Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B16	013102-58	1/31/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 289 <b>Materials:</b> Black Asphaltic Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B17	013102-59	1/31/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 256 <b>Materials:</b> Black Asphaltic Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B18	013102-60	1/31/2002	1 of 1	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 208 <b>Materials:</b> Black Asphaltic Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

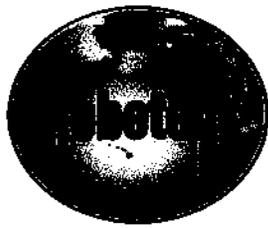
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B19	013102-61	1/31/2002	1 of 2	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 291 <b>Materials:</b> Blue Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B19	013102-61	1/31/2002	2 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 291 <b>Materials:</b> Tan Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcite, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B20	013102-62	1/31/2002	1 of 2	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 291 <b>Materials:</b> Blue Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B20	013102-62	1/31/2002	2 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 291 <b>Materials:</b> Tan Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcite, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B21	013102-63	1/31/2002	1 of 2	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 291 <b>Materials:</b> Blue Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B21	013102-63	1/31/2002	2 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 291 <b>Materials:</b> Tan Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcite, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B22	013102-64	1/31/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Hallway 280 <b>Materials:</b> Composite White Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B23	013102-65	1/31/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Hallway 205 <b>Materials:</b> Composite White Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 30-40%, Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B24	013102-66	1/31/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Hallway 244 <b>Materials:</b> Composite White Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B25	013102-67	1/31/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Hallway 280 <b>Materials:</b> Gray Granular Material W/ Yellow Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mica, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B26	013102-68	1/31/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Hallway 205 <b>Materials:</b> White Slim Coat W/ Green Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B26	013102-68	1/31/2002	2 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Hallway 205 <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> Cellulose < 1%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B28	013102-70	1/31/2002	1 of 1	Chrysotile	White	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 262 <b>Materials:</b> White Wrapping Material W/ Black Foam						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Mineral Wool 5-10%						
<b>Non-Fibrous Materials:</b> Metal Foil, Glue/Binder, Paint, Synthetic Foam						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B31	013102-73	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 204 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B31	013102-73	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 204 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B32	013102-74	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Hallway 206 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B32	013102-74	1/31/2002	2 of 2	Chrysotile	Black	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Hallway 206 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B33	013102-75	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Hallway 206 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B33	013102-75	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Hallway 206 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B34	013102-76	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Room 329 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B34	013102-76	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Room 329 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B35	013102-77	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Hallway 316 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B35	013102-77	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Hallway 316 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B36	013102-78	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Room 319 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B36	013102-78	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Room 319 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B40	013102-82	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Room 218 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B40	013102-82	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Room 218 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B41	013102-83	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 218 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B41	013102-83	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 218 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B42	013102-84	1/31/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 218 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B42	013102-84	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Room 218 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B43	013102-85	1/31/2002	1 of 2	None Detected	Beige	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Room 345 <b>Materials:</b> Beige Floor Tile						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B43	013102-85	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Room 345 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B44	013102-86	1/31/2002	1 of 2	None Detected	Beige	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Room 345 <b>Materials:</b> Beige Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B44	013102-86	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Room 345 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

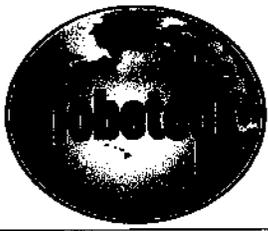
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B45	013102-87	1/31/2002	1 of 2	None Detected	Beige	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Room 345 <b>Materials:</b> Beige Floor Tile						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B45	013102-87	1/31/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Room 345 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B46	013102-88	1/31/2002	1 of 1	Chrysotile	White	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Hallway 305 <b>Materials:</b> White Paper, Metal Foil						
<b>Other Fibrous Materials:</b> Cellulose 20-30%						
<b>Non-Fibrous Materials:</b> Metal Foil, Paint, Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012802-552-KWR-B49	013102-91	1/31/2002	1 of 1	Chrysotile	White	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Hallway 292 <b>Materials:</b> White Paper, Metal Foil						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Mineral Wool 5-10%						
<b>Non-Fibrous Materials:</b> Metal Foil, Paint, Glue/Binder						

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Analyst: \_\_\_\_\_

in Mohammad Rouf, MPH, CHMM  
Laboratory Director

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## Bulk Asbestos Analysis EPA Method 600/R-93-116, Visual Area Estimation

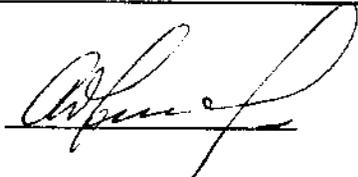
**Customer Name:** SaLUT  
**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

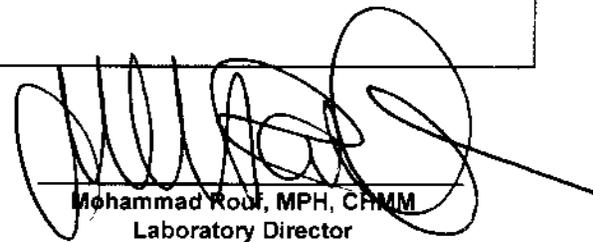
**Sampled By:** Client  
**Received By:** W. Bradley  
**TAT:** Rush  
**Report No:** 181  
**Date Printed:** 2/22/2002  
**Analyst:** M. Lee

**Total # of Sample(s):** 1      **Total # of Layer(s):** 2

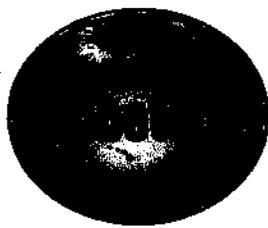
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012902-552-KWR-B37	022202-01	2/22/2002	1 of 2	Chrysotile	Beige	3-5%
<b>Project Name:</b> Schofield Barracks		<b>Location:</b> Bldg 552, Quad E		<b>Materials:</b> Beige w/ Brown Stripe Floor Tile		
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012902-552-KWR-B37	022202-01	2/22/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks		<b>Location:</b> Bldg 552, Quad E		<b>Materials:</b> Black Asphaltic Mastic		
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

**Analyst:** 

  
**Mohammad Roof, MPH, CFMM**  
Laboratory Director

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## Bulk Asbestos Analysis

### EPA Method 600/R-93-116, Visual Area Estimation

**Customer Name:** SaLUT  
**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

**Sampled By:** Client  
**Received By:** W. Bradley  
**TAT:** 5 Days  
**Report No:** 193  
**Date Printed:** 2/28/2002  
**Analyst:** M. Lee

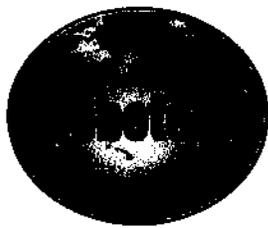
**Total # of Sample(s):** 68      **Total # of Layer(s):** 94

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-552-JSW-B52	022502-01	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Ext. Lanai-North <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-552-JSW-B53	022502-02	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Ext. Rear Lanai-Center <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-552-JSW-B54	022502-03	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Ext. Stairwell South <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-552-JSW-B55	022502-04	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Ext. Lanai-North <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

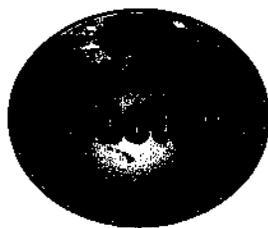
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-552-JSW-B56	022502-05	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Ext. Rear Lanai-Center <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
020102-552-JSW-B57	022502-06	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Ext. Rear Lanai-East <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B58	022502-07	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Outside Rm 308 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B59	022502-08	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Outside Rm 340 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B60	022502-09	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Outside Rm 389 <b>Materials:</b> Gray Soft Gummy Material w/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B61	022502-10	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Outside Rm 236 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B62	022502-11	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Outside Rm 284 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B63	022502-12	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 2nd Flr, Outside Rm 258 <b>Materials:</b> Gray Soft Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B64	022502-13	2/27/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 118 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B64	022502-13	2/27/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 118 <b>Materials:</b> Brown adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B65	022502-14	2/27/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 156 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B65	022502-14	2/27/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 156 <b>Materials:</b> Brown adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B66	022502-15	2/27/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 193 <b>Materials:</b> Brown Rubbery Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B66	022502-15	2/27/2002	2 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 193 <b>Materials:</b> Brown adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B67	022502-16	2/27/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Hw 119 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

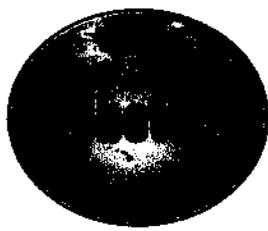
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B67	022502-16	2/27/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Hw 119 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> Cellulose 1-3%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B68	022502-17	2/27/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Hw 119 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B68	022502-17	2/27/2002	Not Analy	N/A	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Hw 119 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B69	022502-18	2/27/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Hw 119 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B69	022502-18	2/27/2002	Not Analy	N/A	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Hw 119 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

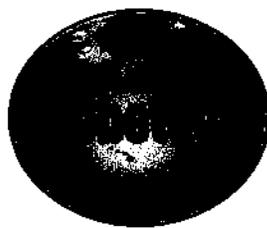
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B70	022502-19	2/27/2002	1 of 1	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 111 <b>Materials:</b> Paper w/ Metal Foil						
<b>Other Fibrous Materials:</b> Cellulose 20-30% Fibrous Glass 5-10%						
<b>Non-Fibrous Materials:</b> Glue/Binder, Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B71	022502-20	2/27/2002	1 of 1	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 145 <b>Materials:</b> Paper w/ Metal Foil & White Paint						
<b>Other Fibrous Materials:</b> Cellulose 20-30% Fibrous Glass 5-10%						
<b>Non-Fibrous Materials:</b> Glue/Binder, Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B72	022502-21	2/27/2002	1 of 2	None Detected	Brown	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 190 <b>Materials:</b> Paper w/ Metal Foil & White Paint						
<b>Other Fibrous Materials:</b> Cellulose 20-30% Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B72	022502-21	2/27/2002	2 of 2	None Detected	Pink	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 190 <b>Materials:</b> Fibrous Material						
<b>Other Fibrous Materials:</b> Cellulose 80-90%						
<b>Non-Fibrous Materials:</b> Glue/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B73	022502-22	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Hw 119 <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B74	022502-23	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Hw 172 <b>Materials:</b> Gray Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B75	022502-24	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Hw 181 <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B76	022502-25	2/27/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 105 <b>Materials:</b> White Composite Dry Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B77	022502-26	2/27/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 156 <b>Materials:</b> White Composite Dry Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 20-30% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica, Mineral Grains						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B78	022502-27	2/27/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 198 <b>Materials:</b> White Composite Dry Wall Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B79	022502-28	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Outside Rm 105 <b>Materials:</b> Gray Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B80	022502-29	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Outside Rm 169 <b>Materials:</b> Gray Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B81	022502-30	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Outside Rm 196 <b>Materials:</b> Gray Gummy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Rubber/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B82	022502-31	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 101 <b>Materials:</b> Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B83	022502-32	2/27/2002	1 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 101 <b>Materials:</b> Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B83	022502-32	2/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 101 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B84	022502-33	2/27/2002	1 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 101 <b>Materials:</b> Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B84	022502-33	2/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 101 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B85	022502-34	2/27/2002	1 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 101 <b>Materials:</b> White Lumpy Material						
<b>Other Fibrous Materials:</b> Cellulose 10-20% Fibrous Glass 3-5%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B85	022502-34	2/27/2002	2 of 2	Amosite	White	5-10%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 101 <b>Materials:</b> White Muddy Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Clay, Glass Beads						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B86	022502-35	2/27/2002	1 of 2	Chrysotile	White	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Paper w/ Metal Foil & White Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Metal Foil, Paint, Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B86	022502-35	2/27/2002	2 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> White Chalky Material						
<b>Other Fibrous Materials:</b> Fibrous Glass 1-3%, Synthetic Fibers 1-3%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B87	022502-36	2/27/2002	1 of 2	Chrysotile	White	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 193 <b>Materials:</b> Paper w/ Metal Foil & White Paint						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 1-3%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B87	022502-36	2/27/2002	2 of 2	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 193 <b>Materials:</b> White Chalky Material						
<b>Other Fibrous Materials:</b> Mineral Wool 5-10%						
<b>Non-Fibrous Materials:</b> Gypsum/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B88	022502-37	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rear Lanai-East <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B89	022502-38	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rear Corner-West <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B90	022502-39	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Front Lanai-Center <b>Materials:</b> Gray Granular Material w/ Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder,Paint,Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B91	022502-40	2/27/2002	1 of 1	Chrysotile	White	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 3rd Flr, Hw 307 <b>Materials:</b> White Muddy Material						
<b>Other Fibrous Materials:</b> Cellulose 3-5%, Fibrous Glass 5-10%						
<b>Non-Fibrous Materials:</b> Paint, Metal Foil, Glue/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B94	022502-43	2/27/2002	1 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 123 <b>Materials:</b> Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B94	022502-43	2/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 123 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B95	022502-44	2/27/2002	1 of 2	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 123 <b>Materials:</b> Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B95	022502-44	2/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 123 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B96	022502-45	2/27/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 123 <b>Materials:</b> Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B96	022502-45	2/27/2002	No Mastic	N/A	N/A	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 123 <b>Materials:</b> N/A						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B97	022502-46	2/27/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Hw 118 <b>Materials:</b> Granular Material/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B98	022502-47	2/27/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Hw 144 <b>Materials:</b> Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B99	022502-48	2/27/2002	1 of 1	None Detected	White	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Hw 173 <b>Materials:</b> Granular Material						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Mica, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B100	022502-49	2/27/2002	1 of 1	Chrysotile	Tan	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 125 <b>Materials:</b> Tan Wrapping Material W/Metal Foil						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 3-5%						
<b>Non-Fibrous Materials:</b> Glue/Binder, Paint, Metal Foil						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B103	022502-52	2/27/2002	1 of 2	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 125 <b>Materials:</b> Blue Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B103	022502-52	2/27/2002	2 of 2	None Detected	Beige	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 125 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

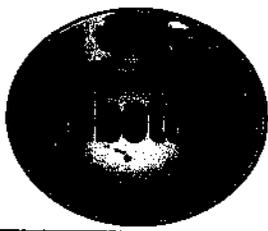
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B104	022502-53	2/27/2002	1 of 1	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 125 <b>Materials:</b> Blue Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B104	022502-53	2/27/2002	No Mastic	N/A	N/A	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 125 <b>Materials:</b> N/A						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B105	022502-54	2/27/2002	1 of 2	None Detected	Blue	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 125 <b>Materials:</b> Blue Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B105	022502-54	2/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 125 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B106	022502-55	2/27/2002	1 of 2	None Detected	Light Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Light Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B106	022502-55	2/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B107	022502-56	2/27/2002	1 of 2	None Detected	Light Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Light Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B107	022502-56	2/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Adhesive w/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B108	022502-57	2/27/2002	1 of 2	None Detected	Light Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Light Gray Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B108	022502-57	2/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Adhesive w/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Paint						

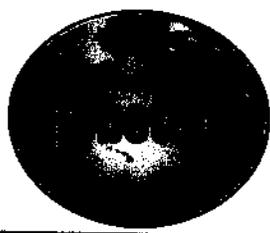
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B109	022502-58	2/27/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B109	022502-58	2/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Adhesive w/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B110	022502-59	2/27/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B110	022502-59	2/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Adhesive w/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Paint						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B111	022502-60	2/27/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B111	022502-60	2/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 136 <b>Materials:</b> Adhesive w/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B112	022502-61	2/27/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 135 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B112	022502-61	2/27/2002	2 of 2	Chrysotile	Black/Yellow	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 135 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Adhesive/Binder						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B113	022502-62	2/27/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 131 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B113	022502-62	2/27/2002	2 of 2	Chrysotile	Gray/Green	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 131 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B114	022502-63	2/27/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Hw 143 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B114	022502-63	2/27/2002	Not Analy	N/A	Gray/Green	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Hw 143 <b>Materials:</b> Floor Tile						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B115	022502-64	2/27/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 155 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B115	022502-64	2/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 155 <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B116	022502-65	2/27/2002	1 of 1	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 155 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B116	022502-65	2/27/2002	No Mastic	N/A	N/A	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 155 <b>Materials:</b> N/A						
<b>Other Fibrous Materials:</b> N/A						
<b>Non-Fibrous Materials:</b> N/A						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B117	022502-66	2/27/2002	1 of 2	None Detected	Tan	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 155 <b>Materials:</b> Tan Floor Tile						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B117	022502-66	2/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 155 <b>Materials:</b> Adhesive w/Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Paint						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022202-552-JSW-B118	022502-67	2/27/2002	1 of 1	Chrysotile	Black	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> Roof, Rm 121 <b>Materials:</b> Black Asphaltic Mastic						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022202-552-JSW-B121	022502-70	2/27/2002	1 of 2	Chrysotile	Silver	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> Roof, Rm 121 <b>Materials:</b> Paint						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Paint, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022202-552-JSW-B121	022502-70	2/27/2002	2 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> Roof, Rm 121 <b>Materials:</b> Multi-layered Black Asphaltic Material						
<b>Other Fibrous Materials:</b> Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022202-552-JSW-B122	022502-71	2/27/2002	1 of 1	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> Roof, Rm 175 <b>Materials:</b> Multi-layered Black Asphaltic Material						
<b>Other Fibrous Materials:</b> Cellulose 5-10% Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022202-552-JSW-B124	022502-73	2/27/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> Roof, Rm 149 <b>Materials:</b> Black asphaltic material w/gravel						
<b>Other Fibrous Materials:</b> Synthetic Fibers 10-20%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022202-552-JSW-B124	022502-73	2/27/2002	2 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> Roof, Rm 149 <b>Materials:</b> Black Asphaltic Material						
<b>Other Fibrous Materials:</b> Fibrous Glass 10-20%						
<b>Non-Fibrous Materials:</b> Asphalt/Binder, Calcite						

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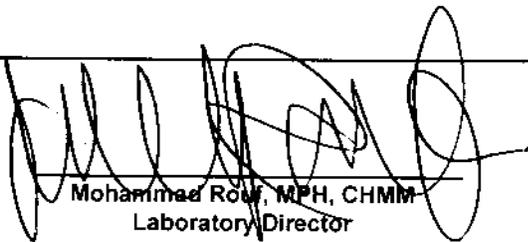
Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022202-552-JSW-B125	022502-74	2/27/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E		<b>Location:</b> Roof, Rear-North		<b>Materials:</b> Black asphaltic material w/gravel		
<b>Other Fibrous Materials:</b>		Fibrous Glass 5-10%				
<b>Non-Fibrous Materials:</b>		Asphalt/Binder, Calcite				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022202-552-JSW-B125	022502-74	2/27/2002	2 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E		<b>Location:</b> Roof, Rear-North		<b>Materials:</b> Black Asphaltic Material		
<b>Other Fibrous Materials:</b>		Fibrous Glass 5-10%, Synthetic Fibers 5-10%				
<b>Non-Fibrous Materials:</b>		Asphalt/Binder, Mica				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022202-552-JSW-B126	022502-75	2/27/2002	1 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E		<b>Location:</b> Roof, Rear-North		<b>Materials:</b> Black asphaltic material w/gravel		
<b>Other Fibrous Materials:</b>		Fibrous Glass 5-10%				
<b>Non-Fibrous Materials:</b>		Asphalt/Binder, Calcite				

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022202-552-JSW-B126	022502-75	2/27/2002	2 of 2	None Detected	Black	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E		<b>Location:</b> Roof, Rear-North		<b>Materials:</b> Black Asphaltic Material		
<b>Other Fibrous Materials:</b>		Fibrous Glass 5-10%, Synthetic Fibers 5-10%				
<b>Non-Fibrous Materials:</b>		Asphalt/Binder, Mica				

Analyst: \_\_\_\_\_



Mohammed Row, MPH, CHMM  
Laboratory Director

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## Bulk Asbestos Analysis

### EPA Method 600/R-93-116, Visual Area Estimation

**Customer Name:** SaLUT  
**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

**Sampled By:** Client  
**Received By:** W. Bradley  
**TAT:** Rush  
**Report No:** 130 (243)  
**Date Printed:** 3/18/2002  
**Analyst:** M. Lee

**Total # of Sample(s):** 2      **Total # of Layer(s):** 3

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012902-552-KWR-B27	013102-69	3/14/2002	1 of 1	None Detected	Gray	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad F		<b>Location:</b> Hw 244		<b>Materials:</b> Gray Granular Material w/ Paint		
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Gypsum/Binder, Paint, Mineral Grains						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012902-552-KWR-B37	013102-79	3/14/2002	1 of 2	Chrysotile	Beige	3-5%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad F		<b>Location:</b> 2nd Flr, Rm 215		<b>Materials:</b> Floor Tile		
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Calcareous Matrix, Mica						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
012902-552-KWR-B37	013102-79	3/14/2002	2 of 2	Chrysotile	Black	1-3%
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad F		<b>Location:</b> 2nd Flr, Rm 215		<b>Materials:</b> Black Asphaltic Mastic		
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Asphalt/Binder						

The result quantitations reported are an estimation based on the methods of visual microscopic estimation which is considered only a semi-quantitative technique. This report applies to the sample(s) received and analyzed by GLOBETECK. Results do not necessarily reflect the makeup of the entire span of the material from which the samples were derived. Sampling techniques and/or sample handling may affect the integrity of the sample(s) before submission to GLOBETECK Laboratory and hence the outcome of the laboratory results. Samples not destroyed by testing are retained a minimum of thirty days. GLOBETECK Laboratory, recommends re-analysis by point count or Transmission Electron Microscopy (TEM) for materials that are found to contain less than ten percent (<10%) asbestos by PLM. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of GLOBETECK.

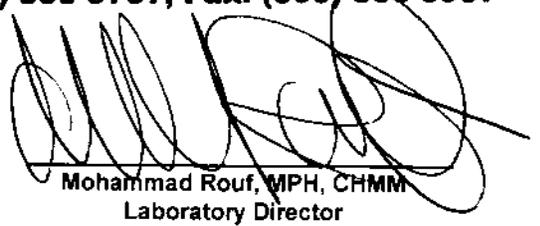


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Analyst: \_\_\_\_\_



Mohammad Rouf, MPH, CHMM  
Laboratory Director

The result quantitations reported are an estimation based on the methods of visual microscopic estimation which is considered only a semi-quantitative technique. This report applies only to the sample(s) received and analyzed by GLOBETECK. Results do not necessarily reflect the makeup of the entire span of the material from which the samples were derived. Sampling techniques and/or sample handling may affect the integrity of the sample/s before submission to GLOBETECK. Laboratory and hence the outcome of the laboratory results. Samples not destroyed by testing are retained a minimum of thirty days. GLOBETECK Laboratory, recommends re-analysis by point count or Transmission Electron Microscopy (TEM) for materials that are found to contain less than ten percent (<10%) asbestos by PLM. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of GLOBETECK.



## Bulk Asbestos Analysis

### EPA Method 600/R-93-116, Visual Area Estimation

**Customer Name:** SaLUT  
**Customer Address:** 3375 Koapaka Street,  
Honolulu, HI 96819

**Sampled By:** Client  
**Received By:** W. Bradley  
**TAT:** Rush  
**Report No:** 264  
**Date Printed:** 3/28/2002  
**Analyst:** M. Lee

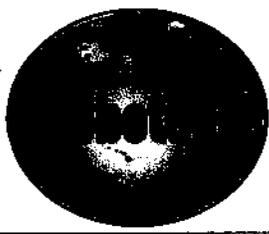
**Total # of Sample(s):** 4      **Total # of Layer(s):** 4

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B116	032702-5	3/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 155* Yellow Mastic <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B104	032702-6	3/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 125* Yellow Mastic <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
022102-552-JSW-B96	032702-7	3/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E <b>Location:</b> 1st Flr, Rm 123* Yellow Mastic <b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						

The result quantitations reported are an estimation based on the methods of visual microscopic estimation which is considered only a semi-quantitative technique. This report applies only to the sample(s) received and analyzed by GLOBETECK. Results do not necessarily reflect the makeup of the entire span of the material from which the samples were derived. Sampling techniques and/or sample handling may affect the integrity of the sample/s before submission to GLOBETECK Laboratory and hence the outcome of the laboratory results. Samples not destroyed by testing are retained a minimum of thirty days. GLOBETECK Laboratory, recommends re-analysis by point count or Transmission Electron Microscopy (TEM) for materials that are found to contain less than ten percent (<10%) asbestos by PLM. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of GLOBETECK.

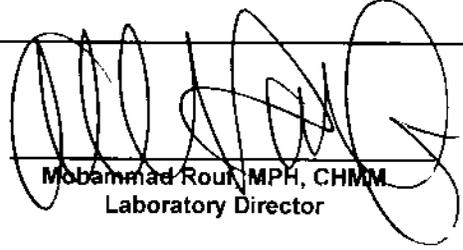


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Client ID	Lab ID	Date Analyzed	Layer	Asbestos Type	Color	Percent
021202-552-JSW-B82	032702-8	3/27/2002	2 of 2	None Detected	Yellow	N/A
<b>Project Name:</b> Schofield Barracks, Bldg 552, Quad E						
<b>Location:</b> 1st Flr, Rm 101* Yellow Mastic						
<b>Materials:</b> Adhesive						
<b>Other Fibrous Materials:</b> None Detected						
<b>Non-Fibrous Materials:</b> Adhesive/Binder, Calcite						



Mohammad Rouk, MPH, CHMM  
Laboratory Director

Analyst: \_\_\_\_\_

The result quantitations reported are an estimation based on the methods of visual microscopic estimation which is considered only a semi-quantitative technique. This report applies only to the sample(s) received and analyzed by GLOBETECK. Results do not necessarily reflect the makeup of the entire span of the material from which the samples were derived. Sampling techniques and/or sample handling may affect the integrity of the sample/s before submission to GLOBETECK Laboratory and hence the outcome of the laboratory results. Samples not destroyed by testing are retained a minimum of thirty days. GLOBETECK Laboratory, recommends re-analysis by point count or Transmission Electron Microscopy (TEM) for materials that are found to contain less than ten percent (<10%) asbestos by PLM. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of GLOBETECK.

01/28/02



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### CHAIN OF CUSTODY

Project Name: <u>Schofield Barracks, Bldg 552 - Ground</u>		ANALYSIS REQUESTED						
Client: <u>Salut</u>		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project # <u>01-2910</u>								
Sampled by: <u>KWR</u>								
Sample Date <u>01/28/02</u>								
Turn Around Time: <u>5 DAY</u>								
SAMPLE ID	LOCATION							
018102-43								
012507-552-KWR-B1	3 <sup>rd</sup> FLR, Rm 388							
44	Rm 352							
45	Rm 329							
46	Rm 389							
47	Rm 356							
48	Rm 308							
49	Hw 380							
50	Hw 353							
51	Hw 305							
52	Hw 380							
Relinquished by: <u>Kem Reynolds</u>		Relinquished by:						
Signature: <u>Kem Reynolds</u>		Signature:						
Time/Date: <u>30 January 1635</u>		Time/Date: <u>1-30-02, 1635</u>						

Received by: KEM REYNOLDS  
Signature: [Signature]  
Time/Date: 1-30-02, 1635

Hw. Hallway

018102-53



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### CHAIN OF CUSTODY

Project Name: <u>SB, BLDG 552 - Edward E</u>		ANALYSIS REQUESTED						
Client:		Asbestos (LM/PCM)	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date:	<u>01/28/02</u>							
Turn Around Time:								
SAMPLE ID	LOCATION							
018102-53								
012802-552-KMR-B11	<u>3<sup>rd</sup> FLR, HW 352</u>	✓						
54	<u>B12 HW 305</u>	✓						
55	<u>B13 2<sup>nd</sup> FLR, Rm 293</u>	✓						
56	<u>B14 Rm 258</u>	✓						
67	<u>B15 Rm 204</u>	✓						
58	<u>B16 Rm 289</u>	✓						
59	<u>B17 Rm 256</u>	✓						
60	<u>B18 Rm 208</u>	✓						
61	<u>B19 Rm 291</u>	✓						
62	<u>B20 "</u>	✓						
Relinquished by:		Received by:		Signature:		Signature:		Time/Date:
Signature:		Signature:		Time/Date:		Time/Date:		
Time/Date:		Time/Date:						

By 3066



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### CHAIN OF CUSTODY

Project Name: <u>SP BUDG 552 - GWADE</u>		ANALYSIS REQUESTED						
Client:		Asbestos (PLM/PCM)	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date:	<u>01/28 01/29/02</u>							
Turn Around Time								
SAMPLE ID	LOCATION							
01502-63								
012807-552-KWZ-B21	<u>2nd FRR, Rm 291</u>							
64	<u>B22</u>							V
65	<u>B23</u>							V
012902-552-KWZ-B24	<u>HW 280</u>							V
67	<u>B25</u>							V
68	<u>B26</u>							V
012909-552-KWZ-B27	<u>HW 205</u>							V
012908-552-KWZ-B28	<u>HW 244</u>							V
71	<u>B29</u>							Not A
72	<u>B30</u>							Not A
Relinquished by:		Relinquished by:						
Signature:		Signature:						
Time/Date:		Time/Date:						



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CHAIN OF CUSTODY

Project Name: <u>SB, BUDG552 - GUNDE</u>		ANALYSIS REQUESTED						
Client:		Asbestos (PLM/PCM)	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date:	<u>01/28 01/29/02</u>							
Turn Around Time:								
SAMPLE ID	LOCATION							
613102-73								
012807-552	<u>2nd FLR, Rm 204</u>							
74	<u>B32</u>							
75	<u>B33</u>							
76	<u>3rd FLR, Rm 329</u>							
77	<u>B35</u>							
78	<u>B36</u>							
012407-552	<u>2nd FLR, Rm 215</u>							
80	<u>B38</u>							
81	<u>B39</u>							
82	<u>B40</u>							
Relinquished by:		Relinquished by:						
Signature:		Signature:						
Time/Date:		Time/Date:						

8506



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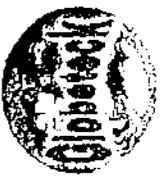
### CHAIN OF CUSTODY

Project Name: <u>SB Bldg 552 - Quad E</u>		ANALYSIS REQUESTED						
Client		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by:								
Sample Date: <u>01/29/02</u>								
Turn Around Time:								
SAMPLE ID	LOCATION							
013102-83 012902- 84	<u>552-KW2-B41 2nd FUR, Rm 218</u>							
85	<u>" " "</u>							
86	<u>3rd FUR, Rm 345</u>							
87	<u>" " "</u>							
88	<u>" " "</u>							
89	<u>Hw 305</u>							
90	<u>Hw 344</u>							<u>Not A</u>
91	<u>Hw 592</u>							<u>Not A</u>
92	<u>2nd FUR, Hw 292</u>							
	<u>Hw 253</u>							<u>Not A</u>
Relinquished by:		Received by:						
Signature:		Signature:						
Time/Date:		Time/Date:						





of 1 of 8



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CHAIN OF CUSTODY

022502

Project Name: <u>Schoolfield Baywalks, RDS557 - Quade</u>		ANALYSIS REQUESTED						
Client: <u>Sulist</u>		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project # <u>01-240</u>								
Sampled by: <u>JSW</u>								
Sample Date: <u>02/01, 02/12/02</u>								
Turn Around Time: <u>5 DAY</u>								
SAMPLE ID	LOCATION							
020102-BS2-JSW-BS2	2 <sup>nd</sup> FLR, EXT. Lanai North							
BS3	Ext. Rear Lanai Center							
BS4	Ext. Stairwell South							
BS5	3 <sup>rd</sup> FLR, EXT. Lanai North							
BS6	Ext. Rear Lanai Center							
BS7	Ext. Rear Lanai East							
021202-BS2-JSW-BS8	Outside Rm 308							
BS9	340							
BS0	389							
BS1	2 <sup>nd</sup> FLR							
BS2	236							
Relinquished by: <u>MIKE AMOS</u>		Relinquished by:						
Signature: <u>[Signature]</u>		Signature: <u>W. Bradley</u>						
Time/Date: <u>2/22/02</u>		Time/Date: <u>4pm 2/22/02</u>						



Pg 3 of 8



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### CHAIN OF CUSTODY

012502

Project Name: SB BLDG 552 - Quad E		ANALYSIS REQUESTED						
Client		Asbestos P.M./PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by								
Sample Date	02/12, 02/21/02							
Turn Around Time								
SAMPLE ID	LOCATION							
022102-552-JSW-B72	1 <sup>st</sup> FLR, Rm 190							
022102-552-JSW-B73	Hw 119							
022102-552-JSW-B74	Hw 172							
↓	Hw 181							
022102-552-JSW-B76	Rm 105							
022102-552-JSW-B77	Rm 156							
↓	Rm 148							
022102-552-JSW-B79	Outside Rm 105							
022102-552-JSW-B80	↓ Rm 109							
↓	Rm 146							
022102-552-JSW-B81								
Relinquished by:	Received by:							
Signature	Signature							
Time/Date:	Time/Date:							

pg 4 of 8



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CHAIN OF CUSTODY

022502-

Project Name: SB, Bldg 552 - Queue		ANALYSIS REQUESTED						
Client		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
Project #								
Sampled by								
Sample Date: 02/12, 02/21/02								
Turn Around Time								
SAMPLE ID	LOCATION							
021202-552-35W - B82	1 <sup>st</sup> FLR, Rm 101	✓						
32	B83	✓						
33	B84	✓						
34	B85	✓						
022102-552-35W - B86	Rm 136	✓						
36	B87	✓						
021202-552-35W - B88	Rear Lantai - East	✓						
38	B89	✓						
39	B90	✓						
021202-552-35W - B91	3 <sup>rd</sup> FLR, HW 307	✓						
40		✓						
Relinquished by:		Relinquished by:					Signature:	
Signature:		Signature:					Time/Date:	
Time/Date:		Time/Date:					Time/Date:	

pg 5 of 8



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022502

CHAIN OF CUSTODY

Project Name: SB BUDG 552 - Grande  
 Client: \_\_\_\_\_  
 Project #: \_\_\_\_\_  
 Sampled by: \_\_\_\_\_  
 Sample Date: 02/12, 02/21/02  
 Turn Around Time: \_\_\_\_\_

SAMPLE ID	LOCATION	ANALYSIS REQUESTED						
		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
02-12-02-41	552 - SW - 892 3rd FLR, Rm 342							
42	893 → Rm 399							Not A
43	552 - SW - 894 1st FLR, Rm 123							Not A
44	895							✓
45	896							✓
46	897 Hw 118							✓
47	898 Hw 144							✓
48	899 Hw 173							✓
49	B100 Rm 125							✓
50	B101 Rm 126							Not A

Relinquished by: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Time/Date: \_\_\_\_\_

Received by: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Time/Date: \_\_\_\_\_

6048



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CHAIN OF CUSTODY

022102

Project Name: SB B06552 - Quede

Client:

Project #

Sampled by:

Sample Date: 02/21/02

Turn Around Time:

SAMPLE ID	LOCATION	ANALYSIS REQUESTED						
		Asbestos PLM/PCM	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
52 552-360-B102	1 <sup>st</sup> FLR, Rm 176	✓						
53 B103	Rm 125							
54 B104								
55 B105								
56 B106	Rm 136							
57 B107								
58 B108								
59 B109								
60 B110								
61 B111								

Not A

Relinquished by:	Received by:
Signature:	Signature:
Time/Date:	Time/Date:



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**CHAIN OF CUSTODY**

022502

Project Name: SB BLDG 552 - QUAD E

Client: \_\_\_\_\_

Project # \_\_\_\_\_

Sampled by: \_\_\_\_\_

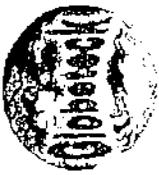
Sample Date: 02/21, 02/22/02

Turn Around Time: \_\_\_\_\_

SAMPLE ID	LOCATION	ANALYSIS REQUESTED						
		Asbestos (PLM/PCM)	Lead Air/Wipe	Lead Paint/Soil	TCLP Pb	TCLP 8 Metals	Arsenic Samples	Total RCRA 8 Metals
022102-552-55W-0112	1 <sup>st</sup> FLR, Rm 135	✓						
62	B113 Rm 131	✓						
63	B114 HW 143	✓						
64	B115 Rm 155	✓						
65	B116	✓						
66	B117	✓						
022202-552-55W-0118	Roof, Rm 121	✓						Not A
68	B119 Rm 175	✓						Not A
69	B120 Rm 180	✓						Not A
70	B121 Rm 121	✓						

Received by: _____	Relinquished by: _____
Signature: _____	Signature: _____
Time/Date: _____	Time/Date: _____





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CHAIN OF CUSTODY

		ANALYSIS REQUESTED					
		Asbestos (P.M./GSM)	Lead Air/Wipe	Lead Paint/Soil	TCDF Metals	TCDF 8 Metals	TCDF 15 Metals
		LOCATION					
SAMPLE ID	LOCATION						
Project Name: Bldg 552, Guard R							
Client: SaLUT							
Project #: 01-290 Subfield Barracks							
Sampled by: JJSW							
Sample Date: 02-21-02							
Time/Date: 1:00							
032702 - Rush							
5	022102-552 JJSW-B116 1st Floor - Rm 155 / yellow Mastic layer 2 of 2	/					
6	↓ -B104 1st Floor - Rm 125 / yellow Mastic layer 2 of 2	/					
7	↓ -B96 1st Floor - Rm 123 / yellow Mastic layer 2 of 2	/					
8	021202-552 JJSW-B382 1st Floor Rm 101 / yellow Mastic layer 2 of 2	/					
Relinquished by: <i>John W. Ward</i>		Relinquished by:					
Signature: <i>[Signature]</i>		Signature: <i>[Signature]</i>					
Time/Date: 03/27 1300		Time/Date: 3/28/2002					



**Client:** SaLUT, Inc.  
**Address:** 11609 Edmonston Road  
Beltsville, Maryland 20705

**Job Name:** Schofield Barracks  
**Job Location:** Building 552 - Quad E  
**Job Number:** 01-290  
**P.O. Number:** Not Provided

**Chain Of Custody:** 92203  
**Date Analyzed:** 03/06/2002  
**Person Submitting:** Tina Perry-Finau

**Attention:** Tina Perry-Finau

**Summary of Polarized Light Microscopy**

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Analyst ID	Comments
0233235	021202-552- JSW-B61	NAD	--	--	--	--	--	--	--	--	--	100	Brown	RRW	
0233236	021202-552- JSW-B81	NAD	--	--	--	--	--	--	--	--	--	100	Gray	RRW	
0233237	021202-552- JSW-B101	2	2	--	--	--	10	30	--	--	--	58	Beige	RRW	
0233238	021202-552- JSW-B121	NAD	--	--	--	--	5	--	--	--	--	95	Black	RRW	

The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

Analysis Method - EPA/600/R-93/116 dated July 1993

NAD = "No Asbestos Detected" TR = "Trace equals less than 1% of this component"

Robert Workman

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ATTACHMENT 13

UST, PCB BALLAST & MERCURY  
LIGHT SWITCH INSPECTION

**UST, PCB BALLAST, & MERCURY LIGHT  
SWITCH INSPECTION FOR  
QUAD B, D, E, AND BUILDING 3004  
SCHOFIELD BARRACKS, OAHU, HAWAII  
DACA83-02-P-0026**

**MNA Job No. 10140**

**March 2003**



**Environmental Research and Consulting Services**

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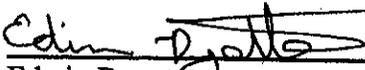
This investigation report is prepared for:

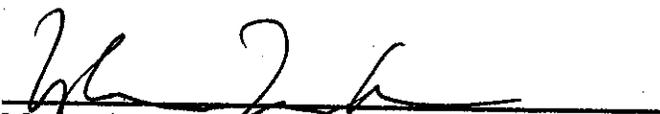
U.S. Army Honolulu Engineer District  
Attn: CEPOH-ED-EH, Bldg. 252  
Fort Shafter, HI 96858-5440

**UNDERGROUND STORAGE TANK, PCB BALLAST,  
AND MERCURY LIGHT SWITCH INSPECTION  
FOR BUILDINGS 155, 156, 157, & 158 (QUAD B), 449,  
450, 451, & 452 (QUAD D), 549, 550, 551, & 552 (QUAD E),  
AND BUILDING 3004  
SCHOFIELD BARRACKS, OAHU, HAWAII**

MNA Job No. 10140

March 11, 2003

  
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## EXECUTIVE SUMMARY

Myounghee Noh & Associates, L.L.C. (MNA), under contractual agreement with the U.S. Army Honolulu Engineer District (HED), conducted a building inspection for hazardous materials at Quad B, D, E, and Building 3004, Schofield Barracks, Island of Oahu, Hawaii. The project is being completed for the HED under the Contract No. DACA83-02-P-0026 and is titled, "Underground Storage Tank (UST), PCB Ballast and Mercury Light Switch Inspection for buildings 155, 156, 157, & 158 (Quad B), 449, 450, 451, & 452 (Quad D), 549, 550, 551, & 552 (Quad E), and Building 3004, Schofield Barracks, Oahu, Hawaii."

The structures were built prior to and during World War II and are planned for renovation as part of the Whole Barracks Renewal Brigade Complex, Phase 3A. The purpose of the survey was to identify the existence of hazardous substances, such as polychlorinated biphenyls (PCBs) and mercury, and heating oil tanks with associated piping, which may be disrupted during the renovation.

Myounghee Noh served as the project manager, and Edwin Boyette led a field inspection team during the survey. Miriam Koyanagi of HED provided the project oversight as the Government Technical Manager. Based on the survey conducted during October 2002 - January 2003, MNA provides the following summary and recommendations:

### **Light ballasts**

No PCB-containing light ballasts are present in the subject buildings. No further assessment is required.

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### **Fluorescent light tubes**

A total of 15,524 fluorescent light tubes were counted from the subject buildings, and the estimated total number of light tubes is 15,764. MNA recommends recycling of the light tubes. Currently, there are no recycling facilities in Hawaii; therefore, the light tubes must be packaged and labeled as "Universal Waste" prior to shipping to a mainland U.S. facility.

### **Light switches**

No mercury-containing "silent switches" were found during the survey. No further assessment is required.

### **USTs**

No fuel oil USTs currently in use were found in the Quad B, D, E buildings; however, a 10,000-gallon UST was in use at Building 3004. Based on the review of 15 UST closure reports of Quad B and 13 closure reports of Quad E, Hawaii Department of Health UST records, and locations of the piping and boiler rooms, there may be over 50 USTs remaining in the vicinity of the subject buildings. Further investigations may be considered to confirm the presence, or absence, of the "suspect" tanks.

## 1.0 INTRODUCTION

Myounghee Noh & Associates, L.L.C. (MNA), under contractual agreement with the U.S. Army Honolulu Engineer District (HED), conducted a building inspection for hazardous materials at 155, 156, 157, & 158 (Quad B), 449, 450, 451, & 452 (Quad D), 549, 550, 551, & 552 (Quad E), and Building 3004, Schofield Barracks, Island of Oahu, Hawaii. The survey of underground storage tanks (UST), polychlorinated biphenyl (PCB)-containing light ballasts, and mercury lamps & light switches is being completed for the HED under the Contract No. DACA83-02-P-0026.

The structures were built prior to World War II and are planned for renovation as part of the Whole Barracks Renewal Brigade Complex, Phase 3A. The purpose of the survey was to identify the existence of the hazardous substances, such as PCBs, mercury, and heating oil tanks with associated piping which may be disrupted during the renovation.

## 2.0 BUILDING INSPECTION

Prior to the initiation of the fieldwork, floor plans were obtained from the Army Directorate of Public Works (DPW) and reviewed for planning. Each floor was split into sections based on the locations of the interior firewalls or other dividing points. The sequence of inspection was as follows:

- Upon entering each section, the Inspector and Inspector Technician surveyed the area for evident health and safety concerns such as broken fluorescent bulbs, exposed wiring, leaking dielectric fluid from ballasts, slips, trips, and/or falls hazards, and other general safety issues.
- Inventoried the fluorescent light fixtures and light tubes in individual rooms and common areas for PCB and mercury content.
- Randomly selected fluorescent fixtures for inspection.
- Checked light switches for mercury content.
- Inspected boiler room and its vicinity for evidence of fuel supply piping, vent lines, and fuel tanks.

Included in this section is a description of the field methodology employed in the survey.

### 2.1 PCB Ballast Inspection

The number of fluorescent light fixtures in the rooms and common areas was recorded, and the fixtures to be inspected were selected. A minimum of 10% of the fixtures per floor section was targeted for inspection. Inaccessible rooms were noted on the floor plan. The inspectors

confirmed that the light switch was off, the light fixture was opened, ballast cover plate removed, then the ballast was inspected for a "No PCBs" label. Ballasts that were not labeled "No PCBs" were assumed to contain PCBs. The location of the inspected fixtures with the make and type of ballast was noted on the sketch. The fixture was reassembled following inspection.

A second walk-through of the accessible areas was conducted following compilation of the data set into figures and tables as a quality control (QC) to confirm the accuracy of the field data.

## 2.2 *Mercury-containing Fluorescent Light Tube Inspection*

The manufacturer and trade name of the fluorescent tubes were noted during the PCB ballast inspection. Based on review of manufacturer's product information, all fluorescent lamps were assumed to contain mercury. During a subsequent walk-through, concurrently with the PCB ballast inspection, a QC review was conducted to confirm the number of fluorescent bulbs per floor section.

## 2.3 *Mercury-containing Light Switches*

Review of the manufacturer and historical information regarding the types of light switches indicated that mercury-containing switches are referred as "silent switches." All accessible switches were inspected and the results noted on the floor plan. Each accessible switch was activated, and if an audible "click" or mechanical contact noise was noted, it was labeled as a contact switch. If the switch activation did not produce an audible contact noise, the cover plate was removed and the switch surface was surveyed for the word "top" which would indicate that mercury was used in the mechanism. The cover plates were reinstalled following inspection.

## 2.4 *UST Inspection*

A visual inspection of each boiler room and its vicinity was conducted to identify existing fuel storage tank, fuel supply piping, vent pipes, and possible indications of tank removals. The Hawaii Department of Health listed 12 entries in the State UST database. Boiler tanks were exempt from the UST system upgrade requirements of 40 CFR 280 and were typically considered to be unregulated. Twenty-five (25) UST closure reports, made available by DPW, were reviewed for information regarding removed and potentially existing heating oil tanks.

# 3.0 FINDINGS

## 3.1 *Ballasts*

A total of 8,142 light fixtures were inventoried, and 1,282 light ballasts (over 15%) were opened up for inspection; however, MNA was not able to access 73 units due to unavailability of keys. All suspect fixtures found were confirmed as "PCB-free" by directly contacting the manufacturer. Most buildings appeared to have modern fixtures, and many were marked with

Rainbow Electric labels indicating the original fixtures or ballasts were replaced in the 1990s. The total numbers of light fixtures and ballasts inspected are summarized in Table 1.

**Table 1. Summary of Light Fixtures and Ballasts Inspected**

Quad	Building No.	Light Fixtures Inventoried	Light Ballasts Inspected*
B	155	537	80
	156	579	93
	157	598	61
	158	521	57
	<b>Total</b>	<b>2,235</b>	<b>291</b>
D	449	600	106
	450	861	160
	451	774	98
	452	755	152
	<b>Total</b>	<b>2,990</b>	<b>516</b>
E	549	497	84
	550	730	114
	551	597	128
	552	594	112
	<b>Total</b>	<b>2,418</b>	<b>443</b>
---	<b>3004</b>	<b>499</b>	<b>37</b>
<b>Grand Total</b>		<b>8,142</b>	<b>1,282 (15%)</b>

\*None were found to be PCB-containing ballasts.

### 3.2 Fluorescent Light Tubes

A total of 15,584 fluorescent light tubes were counted from 2,464 units. Approximately 3% (73 rooms) of the total units were inaccessible; therefore, MNA estimated the number of light tubes in those inaccessible units. Total number of light tubes actually inventoried was 15,584, and the estimated total number of light tubes is 15,824. A summary of rooms and light tubes is presented in Table 2, and the compilation of the field data is provided in Appendix A.

### 3.3 Light Switches

All accessible light switches were tested by turning the switches on and off. The mercury light switches operate on the principal of liquid mercury in a metal encased glass button that completes the electrical circuit when the switch is lifted up, submerging an electrical contact point. These switches are often referred to as "silent switches" and do not make the audible "click" sound when activated. No light switches suspected of containing mercury were found (Table 2).

**Table 2. Summary of Rooms Surveyed, Fluorescent Light Tubes, and Switches**

	Quad B	Quad D	Quad E	Bldg 3004	Total
Total no. rooms	515	920	835	182	2,452
No. of inaccessible rooms	12	23	16	22	73
Percent rooms completed	97%	97%	98%	87%	97%
Fluorescent tubes counted	4,021	5,610	4,933	960	15,524
Fluorescent tubes estimated for inaccessible rooms	48	72	40	80	240
Total fluorescent tubes estimated	4,069	5,682	4,973	1,040	15,764
Mercury-suspect light switches	0	0	0	0	0

### 3.4 USTs

The area and piping around the boiler rooms were surveyed for indications of existing or former heating oil tanks. No active connections of fuel oil supply and return piping in the boiler rooms were observed in the buildings in Quad B, D, and E; however, a 10,000-gallon UST was in use at Building 3004. The boilers in Quad B, D, and E previously used the fuel oil and have been converted to propane. Review of plans obtained from DPW indicated that some tanks were removed in 1994 and 1995 in Quad B and Quad E; however, no closure reports were available for Quad D and Building 3004. A summary of the UST findings is presented in Table 3.

Fifteen UST closure reports of Quad B and 13 closure reports of Quad E were made available for review. Based on the review of the closure reports and the presence of piping and boiler rooms, there may be over 50 USTs in the subject area (possibly 13 in Quad B, 26 in Quad D, 13 in Quad E, and one in Building 3004) (Table 3). A few representative photographs of heating oil tank locations are included in Appendix C with sketches indicating probable locations of "suspect" USTs.

### 4.0 LIMITATIONS

Every reasonable effort was made to identify suspect PCB- and mercury-containing materials and USTs during the survey of the subject buildings. However, this does not imply a guarantee that all possible sources of hazardous substance were identified by this assessment, because certain building materials and/or surfaces may be hidden by walls, flooring, partitions, etc. When suspect materials previously hidden by building components are uncovered, additional survey may be required prior to renovation or abatement.

**Table 3. Summary of UST Information**

Tank No.	Capacity (gallon)	Closure Report Produced by	Removed / Closed in Place
<b>Quad B</b>			
155-1	550	M & E Pacific Inc., Dec. 1996	Closed in place
155-2	550	Morrison Knudsen Corporation, 1994	Removed
156-1	550	M & E Pacific Inc., 1994	Closed in place
156-2	550	M & E Pacific Inc., 1994	Closed in place
156-3	550 (Est.)	No documentation available	Indicators exist* 1
156-4	550	Morrison Knudsen Corporation, 1994	Removed
156-5	550 (Est.)	No documentation available	Indicators exist* 2
156-6	550 (Est.)	No documentation available	Indicators exist* 3
156-7	550	Morrison Knudsen Corporation, 1994	Removed
156-8	550 (Est.)	No documentation available	Indicators exist* 4
157-1	550	M & E Pacific Inc., 1996	Removed
157-2	550	M & E Pacific Inc., 1996	Removed
157-3	550 (Est.)	No documentation available	Indicators exist* 5
157-4	550	Morrison Knudsen Corporation, 1994	Removed
157-5	550 (Est.)	No documentation available	Indicators exist* 6
157-6	550 (Est.)	No documentation available	Indicators exist* 7
157-7	550 (Est.)	No documentation available	Indicators exist* 8
157-8	550 (Est.)	No documentation available	Indicators exist* 9
158-?	750	BHP Env. Tech. Int. Inc., 1991	Removed
158-?	1,000	Environmental Chem. Corp., 2000	Closed in place
158-1	500	M & E Pacific Inc., 1996	Removed
158-2	500	M & E Pacific Inc., 1996	Removed
158-3	550 (Est.)	No documentation available	Indicators exist* 10
158-4	550	Morrison Knudsen Corporation, 1994	Removed
158-5	550 (Est.)	No documentation available	Indicators exist* 11
158-6	550	Morrison Knudsen Corporation, 1994	Removed
158-7	550 (Est.)	No documentation available	Indicators exist* 12
158-8	550 (Est.)	No documentation available	Indicators exist* 13
<b>Quad D</b>			
449-1	550 (Est.)	No documentation available	Indicators exist* 1
449-2	550 (Est.)	No documentation available	Indicators exist* 2
450-1	550 (Est.)	No documentation available	Indicators exist* 3
450-2	550 (Est.)	No documentation available	Indicators exist* 4
450-3	550 (Est.)	No documentation available	Indicators exist* 5
450-4	550 (Est.)	No documentation available	Indicators exist* 6
450-5	550 (Est.)	No documentation available	Indicators exist* 7
450-6	550 (Est.)	No documentation available	Indicators exist* 8
450-7	550 (Est.)	No documentation available	Indicators exist* 9
450-8	550 (Est.)	No documentation available	Indicators exist* 10
451-1	550 (Est.)	No documentation available	Indicators exist* 11
451-2	550 (Est.)	No documentation available	Indicators exist* 12
451-3	550 (Est.)	No documentation available	Indicators exist* 13
451-4	550 (Est.)	No documentation available	Indicators exist* 14
451-5	550 (Est.)	No documentation available	Indicators exist* 15

Tank No.	Capacity (gallon)	Closure Report Produced by	Removed / Closed in Place
451-6	550 (Est.)	No documentation available	Indicators exist* 16
451-7	550 (Est.)	No documentation available	Indicators exist* 17
451-8	550 (Est.)	No documentation available	Indicators exist* 18
452-1	550 (Est.)	No documentation available	Indicators exist* 19
452-2	550 (Est.)	No documentation available	Indicators exist* 20
452-3	550 (Est.)	No documentation available	Indicators exist* 21
452-4	550 (Est.)	No documentation available	Indicators exist* 22
452-5	550 (Est.)	No documentation available	Indicators exist* 23
452-6	550 (Est.)	No documentation available	Indicators exist* 24
452-7	550 (Est.)	No documentation available	Indicators exist* 25
452-8	550 (Est.)	No documentation available	Indicators exist* 26
<b>Quad E</b>			
549-1	550	M & E Pacific Inc., 1994	Closed in Place
549-2	550 (Est.)	No documentation available	Indicators exist* 1
550-1	1,000	Western Engineers Corporation, 1995	Removed
550-2	1,000	Western Engineers Corporation, 1995	Removed
550-3	550 (Est.)	No documentation available	Indicators exist* 2
550-4	550	Morrison Knudsen Corporation, 1994	Removed
550-5	550 (Est.)	No documentation available	Indicators exist* 3
550-6	550	Western Engineers Corporation, 1995	Removed
551-1	550	M & E Pacific Inc., 1996	Removed
551-2	550	Morrison Knudsen Corporation, 1994	Removed
551-3	550	Morrison Knudsen Corporation, 1994	Removed
551-4	550 (Est.)	No documentation available	Indicators exist* 4
551-5	550 (Est.)	No documentation available	Indicators exist* 5
551-6	550 (Est.)	No documentation available	Indicators exist* 6
551-7	550 (Est.)	No documentation available	Indicators exist* 7
551-8	550 (Est.)	No documentation available	Indicators exist* 8
552-1	550	M & E Pacific Inc., 1995	Removed
552-2	550	Western Engineers Corporation, 1995	Removed
552-3	550	Morrison Knudsen Corporation, 1994	Removed
552-4	550 (Est.)	No documentation available	Indicators exist* 9
552-5	550 (Est.)	No documentation available	Indicators exist* 10
552-6	550 (Est.)	No documentation available	Indicators exist* 11
552-7	550 (Est.)	No documentation available	Indicators exist* 12
552-8	550 (Est.)	No documentation available	Indicators exist* 13
<b>Building 3004</b>			
3004-1	10,000	Currently existing	---
3004-?	10,000 (Est.)	No documentation available	Indicators exist* 1

\*Diagrams from other closure reports, piping, patches, and/or modification to structures serve as potential indicators for a former UST.

## 5.0 SUMMARY AND RECOMMENDATIONS

### Light ballasts

Based on the survey results, no PCB-containing light ballasts are present in the subject buildings. No further assessment is required.

### Fluorescent light tubes

A total of 15,524 fluorescent light tubes were counted from the subject buildings, and the estimated total number of light tubes is 15,764. MNA recommends recycling of the light tubes. Currently, there are no recycling facilities in Hawaii; therefore, the light tubes must be packaged and labeled as "Universal Waste" prior to shipping to a mainland U.S. facility.

### Light switches

No mercury-containing "silent switches" were found during the survey. No further assessment is required.

### USTs

No fuel oil USTs currently in use were found in the Quad B, D, E buildings; however, a 10,000-gallon UST was in use at Building 3004. Based on the review of 15 UST closure reports of Quad B and 13 closure reports of Quad E, Hawaii Department of Health UST records, and locations of the piping and boiler rooms, there may be over 50 USTs remaining in the vicinity of the subject buildings. Further investigations may be considered to confirm the presence, or absence, of the "suspect" tanks.

**APPENDIX A**

**Field Survey Data Compiled**

Building #	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	# of Flourescent Light Tubes
155	537	80	983
156	579	93	1042
157	598	61	1074
158	521	57	922
<b>Total</b>	<b>2235</b>	<b>291</b>	<b>4021</b>

Schofield Barracks Quad B Inspection  
 DACA83-02-P-0026

Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
155	109	155-1-1	10		INV	20
155	107	155-1-1	2		INV	4
155	108	155-1-1	8	3	NO PCBs	16
155	Hall	155-1-1	4		INV	8
155	106	155-1-1	3		INV	6
155	105	155-1-1	3		INV	6
155	111	155-1-1	9		INV	18
155	110	155-1-1			No Access	
155	104	155-1-1	19	4	NO PCBs	38
155	103	155-1-1	2		INV	4
155	102	155-1-1	14	5	NO PCBs	28
155	114	155-1-1	6		INV	12
155	112	155-1-1			No Access	
155	113	155-1-1			No Access	
155	101	155-1-1	6		INV	12
155	Gen. Rm.	155-1-2	0		INV	0
155	118	155-1-2			No Access	
155	117	155-1-2	9	6	NO PCBs	18
155	123	155-1-2			No Access	
155	122	155-1-2	3		INV	6
155	124	155-1-2	6		INV	12
155	124 A	155-1-2			No Access	
155	Open Walkway	155-1-2	4		INV	8
155	Bath A	155-1-3	1		INV	2
155	133	155-1-3	2		INV	4
155	131	155-1-3	4		INV	8
155	132	155-1-3	4		INV	8
155	Bath B	155-1-3	2		INV	4
155	134	155-1-3	4		INV	8
155	Hall A	155-1-3	4	2	NO PCBs	8
155	141	155-1-3	2		INV	4
155	140	155-1-3	1		INV	2
155	130	155-1-3	1		INV	2
155	137	155-1-3	1		INV	2
155	119	155-1-3	3	1	NO PCBs	6

Schofield Barracks Quad B Inspection  
 DACA83-02-P-0026

Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
155	135	155-1-3	2		INV	4
155	136	155-1-3	4	4	NO PCBS	8
155	143	155-1-3	16		INV	32
155	142	155-1-3	5		INV	10
155	Hall B	155-1-3	3		INV	6
155	150	155-1-4	2		INV	4
155	151	155-1-4	8		INV	16
155	149	155-1-4			No Access	
155	148	155-1-4	15	3	NO PCBS	30
155	146	155-1-4	3		INV	6
155	147	155-1-4	9	7	NO PCBS	18
155	259	144-2-1	10	4	NO PCBS	20
155	265	155-2-1	4	1	NO PCBS	8
155	263	155-2-1	6	4	NO PCBS	12
155	258	155-2-1	2		INV	4
155	Hall A	155-2-1	2	2	NO PCBS	4
155	261	155-2-1	2		INV	4
155	254	155-2-1	2		INV	4
155	251	155-2-1	18		INV	36
155	262	155-2-1	2		INV	4
155	Hall B	155-2-1	2		INV	4
155	244	155-2-1	2		INV	4
155	243	155-2-1	6		INV	12
155	252	155-2-1	2		INV	4
155	253	155-2-1	1		INV	2
155	223	155-2-2	6	2	NO PCBS	12
155	221	155-2-2	2	1	NO PCBS	4
155	Hall	155-2-2	4		INV	8
155	225	155-2-2	4		INV	8
155	222	155-2-2	2		INV	4
155	224	155-2-2	2		INV	4
155	227	155-2-2	4	2	NO PCBS	8
155	226	155-2-2	4	2	NO PCBS	8
155	237	155-2-3	2		INV	4
155	227	155-2-3	2	1	NO PCBS	4

Schofield Barracks Quad B Inspection  
 DACA83-02-P-0026

Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
155	230	155-2-3	2	1	NO PCBs	4
155	Hall	155-2-3	4	1	NO PCBs	8
155	231	155-2-3	2	1	NO PCBs	4
155	Bath	155-2-3	19		INV	19
155	233	155-2-3	2	1	NO PCBs	8
155	234	155-2-3	4	3	NO PCBs	8
155	245	155-2-4	2		INV	6
155	Bath	155-2-4	16		INV	16
155	247	155-2-4	6	2	NO PCBs	12
155	Hall	155-2-4	4		INV	8
155	248	155-2-4	0		INV	0
155	249	155-2-4	2		INV	6
155	328	155-3-1	6		INV	12
155	351	155-3-1	3	1	NO PCBs	6
155	330	155-3-1	3	1	NO PCBs	6
155	Hall A	155-3-1	3		INV	6
155	327	155-3-1	6	2	NO PCBs	12
155	Hall B	155-3-1	3		INV	6
155	329	155-3-1	2	1	NO PCBs	4
155	331	155-3-1	4	1	NO PCBs	8
155	326	155-3-1	4		INV	8
155	332	155-3-1	2		INV	4
155	334	155-3-1	4	1	NO PCBs	8
155	333	155-3-1	4	2	NO PCBs	8
155	Hall C	155-3-1	3		INV	6
155	335	155-3-2	4		INV	8
155	336	155-3-2	2		INV	4
155	Bath	155-3-2	25		INV	25
155	337	155-3-2	11		INV	22
155	245	155-3-3	2		INV	4
155	Hall A	155-3-3	3		INV	6
155	Bath	155-3-3	18		INV	18
155	247	155-3-3	6	2	NO PCBs	12
155	Elec. Rm.	155-3-3			No Access	
155	249	155-3-3	2		INV	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
155	Hall B	155-3-3	3		INV	6
155	304	155-3-4	4		INV	8
155	308	155-3-4	21		INV	21
155	303	155-3-4	4	1	NO PCBs	8
155	Hall	155-3-4	5		INV	10
155	302	155-3-4	4	2	NO PCBs	8
155	309	155-3-4	2		INV	4
155	311	155-3-4	4	3	NO PCBs	8
155	301	155-3-4	2		INV	4
155	312	155-3-4	2		INV	4
155	313	155-3-4	3		INV	6
155	314	155-3-4	3		INV	6
155		Total	537	80		983
156	153	156-1-1	16		INV	28
156	151	156-1-1	10		INV	20
156	148	156-1-1	2		INV	4
156	149	156-1-1	1		INV	2
156	150	156-1-1	4	2	NO PCBs	8
156	147	156-1-1	2		INV	4
156	Hall	156-1-1	3		INV	6
156	143	156-1-1	6	4	NO PCBs	12
156	144	156-1-1	1	1	NO PCBs	2
156	145	156-1-1	8		INV	16
156	156	156-1-1	1		INV	2
156	172	156-1-1	5	3	NO PCBs	10
156	142	156-1-2	6		INV	12
156	141	156-1-2	2		INV	4
156	140	156-1-2	8		INV	16
156	157	156-1-2	1		INV	2
156	158	156-1-2	6		INV	12
156	138	156-1-2	1		INV	2
156	139	156-1-2			No Access	
156	137	156-1-2	8		INV	16
156	130	156-1-2	1		INV	2
156	134	156-1-2	4		INV	8

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - inventoried)	# Flourescent Light Tubes
156	131	156-1-2	4		INV	8
156	133	156-1-2	4		INV	8
156	173	156-1-2	12		INV	24
156	132	156-1-2	2		INV	4
156	129	156-1-3	1		INV	2
156	127	156-1-3	7	4	NO PCBs	14
156	128	156-1-3	2		INV	4
156	122	156-1-3	2		INV	4
156	123	156-1-3	10	2	NO PCBs	20
156	125	156-1-3	4		INV	8
156	124	156-1-3	4		INV	8
156	120	156-1-3	1	1	NO PCBs	2
156	Hall	156-1-3	4		NO PCBs	8
156	119	156-1-3	6	1	NO PCBs	12
156	118	156-1-3	1	2	NO PCBs	2
156	121	156-1-3	8		No Access	
156	117	156-1-3	1		INV	16
156	Bath	156-1-3	6		INV	2
156	114	156-1-4	2		INV	12
156	115	156-1-4	1		INV	4
156	116	156-1-4	1		No Access	
156	Bath	156-1-4	6		INV	2
156	166	156-1-4	1		INV	12
156	113	156-1-4	4		INV	2
156	Hall A	156-1-4	1		INV	8
156	105	156-1-4	4		INV	2
156	104	156-1-4	4		INV	8
156	103	156-1-4	6	2	NO PCBs	12
156	106	156-1-4	6	3	NO PCBs	12
156	102	156-1-4	2		INV	4
156	Hall B	156-1-4	3		INV	6
156	225	156-2-1	4	2	NO PCBs	8
156	224	156-2-1	4	1	NO PCBs	8
156	250	156-2-1	16		INV	16
156	227	156-2-1	4	2	NO PCBs	8

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
156	226	156-2-1	4		INV	8
156	Hall	156-2-1	4		INV	8
156	228	156-2-1	2		INV	4
156	229	156-2-1	4	2	NO PCBs	8
156	231	156-2-1	4	1	NO PCBs	8
156	230	156-2-1	4		INV	8
156	217	156-2-2	4		INV	8
156	218	156-2-2	4	1	NO PCBs	8
156	219	156-2-2	4	2	NO PCBs	8
156	220	156-2-2	4	2	NO PCBs	8
156	221	156-2-2	4	3	NO PCBs	8
156	Hall A	156-2-2	1		INV	2
156	Hall B	156-2-2	3		INV	6
156	222	156-2-2	2		INV	4
156	223	156-2-2	2	1	NO PCBs	4
156	224	156-2-2	2		INV	4
156	244	156-2-2	2		INV	4
156	256	156-2-2	2		INV	4
156	209	156-2-3	2	1	NO PCBs	4
156	210	156-2-3	2	2	NO PCBs	4
156	Bath	156-2-3	16		INV	16
156	211	156-2-3	4	1	NO PCBs	8
156	Hall	156-2-3	4		INV	8
156	213	156-2-3	4	1	NO PCBs	8
156	214	156-2-3	4	2	NO PCBs	8
156	215	156-2-3	4	1	NO PCBs	8
156	216	156-2-3	4	1	NO PCBs	8
156	201	156-2-4	4	3	NO PCBs	8
156	202	156-2-4	4	1	NO PCBs	8
156	246	156-2-4	2		INV	4
156	203	156-2-4	4		INV	8
156	Hall A	156-2-4	1		INV	2
156	204	156-2-4	2	1	NO PCBs	4
156	Hall B	156-2-4	3		INV	6
156	205	156-2-4	4	1	NO PCBs	8

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
156	206	156-2-4	4		INV	8
156	207	156-2-4	4	1	NO PCBs	8
156	208	156-2-4	4	1	NO PCBs	8
156	247	156-2-4	16		INV	16
156	302	156-3-1	4	1	NO PCBs	8
156	301	156-3-1	4	1	NO PCBs	8
156	304	156-3-1	4	1	NO PCBs	8
156	Hall	156-3-1	3		INV	6
156	303	156-3-1	2		INV	4
156	306	156-3-1	4	1	NO PCBs	8
156	305	156-3-1	4	1	NO PCBs	8
156	308	156-3-1	4	1	NO PCBs	8
156	307	156-3-1	4		INV	8
156	348	156-3-1	16		INV	16
156	354	156-3-1	2		INV	4
156	310	156-3-2	4	1	NO PCBs	8
156	312	156-3-2	4	4	NO PCBs	8
156	311	156-3-2	2		INV	4
156	313	156-3-2	4	2	NO PCBs	8
156	314	156-3-2	4		INV	8
156	315	156-3-2	4	2	NO PCBs	8
156	316	156-3-2	4	1	NO PCBs	8
156	Hall	156-3-2	3		INV	6
156	Latrine	156-3-2	16		INV	16
156	317	156-3-3	4	1	NO PCBs	8
156	318	156-3-3	4	2	NO PCBs	8
156	319	156-3-3	4	2	NO PCBs	8
156	320	156-3-3	4	2	NO PCBs	8
156	321	156-3-3	2		INV	4
156	Hall A	156-3-3	3		INV	6
156	Hall B	156-3-3	1		INV	2
156	322	156-3-3	2		INV	4
156	323	156-3-3	4	1	NO PCBs	8
156	324	156-3-3	2		INV	4
156	346	156-3-3	16		INV	16

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
156	323	156-3-4			No Access	
156	324	156-3-4	4	1	NO PCBs	8
156	Latrine	156-3-4	16		INV	16
156	327	156-3-4	4	1	NO PCBs	8
156	Hall A	156-3-4	3		INV	6
156	326	156-3-4	4	1	NO PCBs	8
156	328	156-3-4	2	1	NO PCBs	4
156	329	156-3-4	4	1	NO PCBs	8
156	Hall B	156-3-4	1		INV	2
156	331	156-3-4	4	2	NO PCBs	8
156	330	156-3-4	4	3	NO PCBs	8
156	Total		579	93		1042
157	150	157-1-1	14		INV	28
157	146	157-1-1	3		INV	6
157	145	157-1-1	3		INV	6
157	151	157-1-1	26	9	NO PCBs	52
157	157	157-1-1	3		INV	6
157	134	157-1-2	2		INV	4
157	133	157-1-2	2		INV	4
157	132	157-1-2	7		INV	14
157	135	157-1-2	3		INV	6
157	148	157-1-2	25	11	NO PCBs	50
157	140	157-1-2	4		INV	8
157	136	157-1-2	2		INV	4
157	142	157-1-2	5		INV	10
157	115	157-1-3	22		INV	44
157	125	157-1-3	4		INV	8
157	116	157-1-3	2		INV	6
157	106	157-1-3	2		INV	4
157	126	157-1-3	2		INV	4
157	107	157-1-3	8		INV	16
157	108	157-1-3	8	2	NO PCBs	16
157	110	157-1-3	8	2	NO PCBs	16
157	109	157-1-3	6		INV	12
157	128	157-1-3	2		INV	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - inventoried)	# Flourescent Light Tubes
157	127	157-1-3	1		INV	2
157	101	157-1-4	2		INV	4
157	102	157-1-4	3		INV	6
157	103	157-1-4	2		INV	4
157	112	157-1-4	3		INV	6
157	114	157-1-4	4		INV	8
157	122	157-1-4	3	3	NO PCBs	6
157	121	157-1-4	5		INV	10
157	120	157-1-4	4		INV	8
157	105	157-1-4	7		INV	14
157	104	157-1-4	1		INV	2
157	119	157-1-4	4		INV	8
157	216	157-2-1	4		INV	8
157	217	157-2-1	4		INV	8
157	215	157-2-1	4	1	NO PCBs	8
157	Hall	157-2-1	4		INV	8
157	218	157-2-1	4		INV	8
157	214	157-2-1	4	2	NO PCBs	8
157	219	157-2-1	4		INV	8
157	213	157-2-1	4		INV	8
157	220	157-2-1	4		INV	8
157	Latrine	157-2-1	16		INV	16
157	212	157-2-2	4		INV	8
157	221	157-2-2	2		INV	8
157	Latrine	157-2-2	16		INV	16
157	211	157-2-2	4	2	NO PCBs	8
157	Hall	157-2-2	4		INV	8
157	223	157-2-2	4		INV	8
157	210	157-2-2	4	1	NO PCBs	8
157	209	157-2-2	4		INV	8
157	224	157-2-2	4		INV	8
157	205	157-2-3	4		INV	8
157	228	157-2-3	4		INV	8
157	206	157-2-3	4		INV	8
157	227	157-2-3	4		INV	8

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
157	Hall	157-2-3	4	4	NO PCBs	8
157	207	157-2-3	4		INV	8
157	208	157-2-3	4		INV	8
157	225	157-2-3	4		INV	8
157	Latrine	157-2-3	16		INV	16
157	201	157-2-4	4		INV	8
157	232	157-2-4	4		INV	8
157	Latrine	157-2-4	16		INV	16
157	202	157-2-4	4		INV	8
157	Hall A	157-2-4	1	1	NO PCBs	2
157	231	157-2-4	4		INV	8
157	Hall B	157-2-4	3	3	NO PCBs	6
157	203	157-2-4	4		INV	8
157	230	157-2-4	4		INV	8
157	204	157-2-4	4		INV	8
157	229	157-2-4	4		INV	8
157	316	157-3-1	4		INV	8
157	317	157-3-1	4		INV	8
157	315	157-3-1	4		INV	8
157	318	157-3-1	4		INV	8
157	314	157-3-1	4		INV	8
157	Hall	157-3-1	4	2	NO PCBs	8
157	319	157-3-1	4		INV	8
157	313	157-3-1	4		INV	8
157	320	157-3-1	4		INV	8
157	Latrine	157-3-1	16		INV	16
157	310	157-3-2	4		INV	8
157	311	157-3-2	4		INV	8
157	Latrine	157-3-2	16		INV	16
157	312	157-3-2	4		INV	8
157	314	157-3-2	4		INV	8
157	Hall	157-3-2	4	2	NO PCBs	8
157	313	157-3-2	4		INV	8
157	315	157-3-2	4		INV	8
157	316	157-3-2	4		INV	8

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
157	324	157-3-2	4		INV	8
157	318	157-3-3	4		INV	8
157	319	157-3-3	4		INV	8
157	321	157-3-3	4	2	NO PCBs	8
157	320	157-3-3	4	1	NO PCBs	8
157	322	157-3-3	4	2	NO PCBs	8
157	Hall	157-3-3	4		INV	8
157	323	157-3-3	2		INV	4
157	324	157-3-3	2	2	NO PCBs	4
157	Latrine	157-3-3	16		INV	16
157	325	157-3-4	4	2	NO PCBs	8
157	327	157-3-4	4	1	NO PCBs	8
157	Latrine	157-3-4	16		INV	16
157	330	157-3-4	4	1	NO PCBs	8
157	328	157-3-4	4		INV	8
157	331	157-3-4	4	1	NO PCBs	8
157	329	157-3-4	2	1	NO PCBs	4
157	Hall	157-3-4	4		INV	8
157	332	157-3-4	4	2	NO PCBs	8
157	333	157-3-4	4	1	NO PCBs	8
157	Total		598	61		1074
158	155	158-1-1	4		INV	8
158	144	158-1-1	2		INV	4
158	152	158-1-1	8	4	NO PCBs	16
158	154	158-1-1	2		INV	4
158	151	158-1-1	9		INV	18
158	150	158-1-1	1		INV	2
158	149	158-1-1	4		INV	8
158	148	158-1-1	2		INV	4
158	147	158-1-1	2		INV	6
158	145	158-1-1	2		INV	4
158	Hall	158-1-1	5		INV	10
158	144	158-1-1	6		INV	12
158	143	158-1-1	2		INV	6
158	142	158-1-1	2		INV	6

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - inventoried)	# Flourescent Light Tubes
158	Bath	158-1-1	1		INV	2
158	165	158-1-1	2		INV	4
158	164	158-1-1	2		INV	4
158	141	158-1-2	6		INV	12
158	139	158-1-2	3		INV	6
158	138	158-1-2	4		INV	8
158	159	158-1-2	0		INV	0
158	162	158-1-2	2		INV	4
158	161	158-1-2	2		INV	4
158	140	158-1-2	1		INV	2
158	Hall	158-1-2	3	3	NO PCBs	6
158	136	158-1-2	8		INV	16
158	135	158-1-2	2		INV	6
158	134	158-1-2	9		INV	18
158	133	158-1-2	4	1	NO PCBs	8
158	131	158-1-2	2	1	NO PCBs	4
158	130	158-1-2	12	6	NO PCBs	24
158	129	158-1-3	4		INV	8
158	126	158-1-3	6		INV	12
158	128	158-1-3	2	2	NO PCBs	6
158	120	158-1-3	8		INV	16
158	125	158-1-3	6		INV	12
158	123	158-1-3	1		INV	2
158	122	158-1-3	4		INV	8
158	119	158-1-3	1		INV	2
158	Hall	158-1-3	5	2	NO PCBs	10
158	118	158-1-3	6		INV	12
158	117	158-1-3	2		INV	6
158	116	158-1-3	4		INV	8
158	Bath	158-1-3	1		INV	2
158	175	158-1-3	0		INV	0
158	115	158-1-4	6		INV	12
158	113	158-1-4	2		INV	4
158	112	158-1-4	8		INV	16
158	Bath	158-1-4	1		INV	2

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
158	174	158-1-4	4		INV	8
158	114	158-1-4	1		INV	2
158	Hall	158-1-4	4		INV	8
158	107	158-1-4	8		INV	16
158	110	158-1-4	0		INV	0
158	109	158-1-4	4		INV	8
158	108	158-1-4	4		INV	8
158	106	158-1-4	3	2	NO PCBs	6
158	105	158-1-4	4	1	NO PCBs	8
158	104	158-1-4	17	3	NO PCBs	34
158	103	158-1-4	5		INV	10
158	216	158-2-1	2		INV	4
158	217	158-2-1	2		INV	4
158	Hall A	158-2-1	1	1	NO PCBs	2
158	215	158-2-1	2		INV	4
158	218	158-2-1	2		INV	4
158	214	158-2-1	2		INV	4
158	Hall B	158-2-1	3	3	NO PCBs	6
158	219	158-2-1	2		INV	4
158	213	158-2-1	2		INV	4
158	220	158-2-1	2		INV	4
158	Latrine	158-2-1	16		INV	16
158	212	158-2-2	2		INV	4
158	221	158-2-2	2		INV	4
158	Latrine	158-2-2	16		INV	16
158	211	158-2-2	2		INV	4
158	Hall A	158-2-2	3	3	NO PCBs	6
158	222	158-2-2	2		INV	4
158	Hall B	158-2-2	1	1	NO PCBs	2
158	210	158-2-2	2		INV	4
158	223	158-2-2	2		INV	4
158	209	158-2-2	2		INV	4
158	224	158-2-2	2		INV	4
158	208	158-2-3	2		INV	4
158	225	158-2-3	2		INV	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
158	207	158-2-3	2		INV	4
158	Hall A	158-2-3	3	3	NO PCBs	6
158	226	158-2-3	2		INV	4
158	206	158-2-3	2		INV	4
158	Hall B	158-2-3	1	1	NO PCBs	2
158	205	158-2-3	2		INV	4
158	227	158-2-3	2		INV	4
158	Latrine	158-2-3	16		INV	16
158	204	158-2-4	2		INV	4
158	229	158-2-4	2		INV	4
158	Latrine	158-2-4	16		INV	16
158	203	158-2-4	2		INV	4
158	Hall A	158-2-4	3	3	NO PCBs	6
158	230	158-2-4	2		INV	4
158	202	158-2-4	2		INV	4
158	231	158-2-4	2		INV	4
158	Hall B	158-2-4	1	1	NO PCBs	2
158	201	158-2-4	2		INV	4
158	232	158-2-4	2		INV	4
158	316	158-3-1	2		INV	4
158	317	158-3-1	2		INV	4
158	315	158-3-1	2		INV	4
158	Hall A	158-3-1	1	1	NO PCBs	2
158	318	158-3-1	2		INV	4
158	314	158-3-1	2		INV	4
158	Hall B	158-3-1	3	3	NO PCBs	6
158	319	158-3-1	2		INV	4
158	313	158-3-1	2		INV	4
158	320	158-3-1	2		INV	4
158	Bath	158-3-1	16		INV	16
158	309	158-3-2	2		INV	4
158	310	158-3-2	2		INV	4
158	311	158-3-2	2		INV	4
158	312	158-3-2	2		INV	4
158	321	158-3-2	2		INV	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
158	322	158-3-2	2		INV	4
158	323	158-3-2	2		INV	4
158	324	158-3-2	2		INV	4
158	Latrine	158-3-2	16		INV	16
158	Hall A	158-3-2	3	3	NO PCBs	6
158	Hall B	158-3-2	1	1	NO PCBs	2
158	308	158-3-3	2		INV	4
158	325	158-3-3	2		INV	4
158	307	158-3-3	2		INV	4
158	326	158-3-3	2		INV	4
158	306	158-3-3	2		INV	4
158	Hall A	158-3-3	3	3	NO PCBs	6
158	Hall B	158-3-3	1	1	NO PCBs	2
158	327	158-3-3	2		INV	4
158	305	158-3-3	2		INV	4
158	328	158-3-3	2		INV	4
158	Latrine	158-3-3	16		INV	16
158	304	158-3-4	2		INV	4
158	329	158-3-4	2		INV	4
158	Latrine	158-3-4	16		INV	16
158	303	158-3-4	2		INV	4
158	330	158-3-4	2		INV	4
158	Hall A	158-3-4	3	3	NO PCBs	6
158	302	158-3-4	2		INV	4
158	331	158-3-4	2		INV	4
158	Hall B	158-3-4	1	1	INV	2
158	301	158-3-4	2		INV	4
158	332	158-3-4	2		INV	4
158	Total		521	57		922

Building #	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	# of Flourescent Light Tubes
449	600	106	1164
450	861	160	1564
451	774	98	1484
452	755	152	1398
<b>Total</b>	<b>2990</b>	<b>516</b>	<b>5610</b>

Schofield Barracks Lead D Inspection  
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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
449	1011	449-1-1	2		INV	4
449	1009	449-1-1	2	2	NO PCBS	6
449	1008	449-1-1	2		INV	4
449	1007	449-1-1	4	3	NO PCBS	8
449	1012	449-1-1	4		INV	8
449	1010	449-1-1	2		INV	4
449	1022	449-1-1	4	1	NO PCBS	8
449	Hall A	449-1-1	4		INV	8
449	1013	449-1-1	2		INV	4
449	Hall B	449-1-1	2		INV	6
449	1017	449-1-1	2	1	NO PCBS	4
449	1018	449-1-1			No Access	
449	1014	449-1-1	2	1	NO PCBS	4
449	1019	449-1-1	6		INV	12
449	1015	449-1-1	2		INV	4
449	1016	449-1-1	2		INV	4
449	Hall C	449-1-1	3		INV	6
449	1032	449-1-2	4		INV	8
449	1026	449-1-2	4		INV	8
449	1024	449-1-2	6	2	NO PCBS	12
449	1044	449-1-2	7	1	NO PCBS	14
449	1046	449-1-2			No Access	2
449	1035	449-1-2			No Access	
449	1030	449-1-2	6	2	NO PCBS	12
449	1033	449-1-2	2	1	NO PCBS	4
449	Bath A	449-1-2	1		INV	2
449	Bath B	449-1-2	1		INV	2
449	1037	449-1-2	1		INV	2
449	1031	449-1-2	2		INV	4
449	1034	449-1-2	1		INV	2
449	1040	449-1-2			No Access	
449	1041	449-1-2	10	1	NO PCBS	20
449	1029	449-1-2	1		INV	2
449	1039	449-1-2	2		INV	4
449	1043	449-1-2	2		INV	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
449	1028	449-1-2	1		INV	2
449	1044	449-1-2	7	1	NO PCBs	14
449	1045	449-1-3	2		INV	4
449	1046	449-1-3	7		INV	14
449	1047	449-1-3	4		INV	8
449	1049	449-1-3	2		INV	4
449	1048	449-1-3	4	4	NO PCBs	8
449	1050	449-1-3	2		INV	4
449	1051	449-1-3	4		INV	8
449	1052	449-1-3	1		INV	2
449	1053	449-1-3	1		INV	2
449	1054	449-1-3	3		INV	6
449	1055	449-1-3	2		INV	4
449	1056	449-1-3	4		INV	8
449	1057	449-1-3	4		INV	8
449	1058	449-1-3	1		INV	2
449	1059	449-1-3	2		INV	4
449	1060	449-1-3	2		INV	4
449	1061	449-1-3	4		INV	8
449	1062	449-1-3	2		INV	4
449	1063	449-1-3	2		INV	4
449	1064	449-1-3	4		INV	8
449	Hall A	449-1-3	7	6	NO PCBs	14
449	Hall B	449-1-3	1		INV	2
449	Hall C	449-1-3	3		INV	6
449	1071	449-1-4	6	2	NO PCBs	12
449	1072	449-1-4	4	3	NO PCBs	8
449	1073	449-1-4	4		INV	8
449	1074	449-1-4	2		INV	4
449	1074 A	449-1-4	0		INV	0
449	1075	449-1-4	2		INV	4
449	1076	449-1-4	0		INV	0
449	1077	449-1-4	4		INV	8
449	1078	449-1-4	2		INV	4
449	1079	449-1-4	6		INV	12

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
449	1080	449-1-4	9	4	NO PCBS	18
449	1081	449-1-4	2	1	NO PCBS	4
449	1082	449-1-4	3		INV	6
449	1083	449-1-4	2		INV	4
449	1084	449-1-4	2		INV	4
449	1085	449-1-4	2		INV	4
449	1086	449-1-4	2		INV	4
449	1087	449-1-4	2		INV	4
449	1088	449-1-4	2		INV	4
449	1089	449-1-4	2		INV	4
449	1090	449-1-4	3		INV	6
449	Hall A	449-1-4	6	2	NO PCBS	12
449	Hall B	449-1-4	3		INV	6
449	248	449-2-1	4		INV	8
449	247	449-2-1	5		INV	10
449	251	449-2-1	2		INV	4
449	252	449-2-1	1		INV	2
449	253	449-2-1	3	2	NO PCBS	6
449	254	449-2-1	3	1	NO PCBS	6
449	255	449-2-1	3		INV	6
449	257	449-2-1	5		INV	10
449	258	449-2-1	2	1	NO PCBS	4
449	259	449-2-1	2		INV	4
449	260	449-2-1	2		INV	4
449	261	449-2-1	6		INV	12
449	262	449-2-1			No Access	
449	263	449-2-1	8		INV	16
449	265	449-2-1	2		INV	4
449	266	449-2-1	2		INV	4
449	267	449-2-1	5	1	NO PCBS	10
449	268	449-2-1	2		INV	4
449	269	449-2-1	2		INV	4
449	270	449-2-1	3		INV	6
449	Hall A	449-2-1	3		INV	6
449	Hall B	449-2-1	3		INV	6

Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - inventoried)	# Flourescent Light Tubes
449	Hall C	449-2-1	13		INV	26
449	Hall D	449-2-1	4	2	NO PCBs	8
449	214	449-2-2	2		INV	8
449	215	449-2-2	2		INV	8
449	216	449-2-2	2		INV	8
449	217	449-2-2	5	2	NO PCBs	10
449	218	449-2-2	4		INV	8
449	223	449-2-2	2		INV	4
449	224	449-2-2	3		INV	6
449	225	449-2-2			No Access	
449	226	449-2-2			No Access	
449	227	449-2-2			No Access	
449	228	449-2-2	19		INV	19
449	229	449-2-2			No Access	
449	Storage	449-2-2	0		INV	0
449	Hall	449-2-2	3		INV	6
449	255	449-2-3			No Access	
449	257	449-2-3	2		INV	4
449	Bath	449-2-3	15		INV	15
449	262	449-2-3	2		INV	4
449	263	449-2-3	2		INV	4
449	264	449-2-3	4		INV	8
449	265	449-2-3			No Access	
449	266	449-2-3	2		INV	4
449	267	449-2-3	2		INV	4
449	Hall A	449-2-3	5	5	NO PCBs	10
449	Hall B	449-2-3	2	1	NO PCBs	4
449	Hall C	449-2-3	4	3	NO PCBs	8
449	255	449-2-4	4		INV	4
449	256	449-2-4	1		INV	4
449	257	449-2-4	10	5	NO PCBs	20
449	258	449-2-4	1		INV	4
449	259	449-2-4	5		INV	10
449	263	449-2-4	5	3	NO PCBs	10
449	264	449-2-4	1		INV	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
449	265	449-2-4	1		INV	4
449	266	449-2-4	12		INV	24
449	267	449-2-4	8		INV	12
449	269	449-2-4	8		INV	16
449	270	449-2-4	2		INV	4
449	271	449-2-4	1		INV	2
449	Bath A	449-2-4	2		INV	4
449	Bath B	449-2-4	2		INV	4
449	Hall A	449-2-4	3	1	NO PCBS	6
449	Hall B	449-2-4	9	7	NO PCBS	18
449	Hall C	449-2-4	2	2	NO PCBS	4
449	Hall D	449-2-4	3	2	NO PCBS	6
449	339	449-3-1	3		INV	6
449	340	449-3-1	2	2	NO PCBS	4
449	337	449-3-1	3	3	NO PCBS	6
449	343	449-3-1	2		INV	4
449	344	449-3-1	2		INV	4
449	353	449-3-1	2	1	INV	4
449	354	449-3-1	2		INV	4
449	Hall A	449-3-1	4		INV	8
449	Hall B	449-3-1	3		INV	6
449	Hall C	449-3-1	3		INV	6
449	Storage	449-3-1	0		INV	0
449	304	449-3-2	2	2	NO PCBS	4
449	305	449-3-2	2		INV	4
449	306	449-3-2	2	2	NO PCBS	4
449	307	449-3-2	2	2	NO PCBS	4
449	308	449-3-2	2		INV	4
449	Bath	449-3-2	20		INV	20
449	321	449-3-2	3	2	NO PCBS	6
449	322	449-3-2	3	3	NO PCBS	6
449	323	449-3-2	3	1	NO PCBS	6
449	324	449-3-2	3		INV	6
449	Hall A	449-3-2	3		INV	6
449	Hall B	449-3-2	3		INV	6

Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Ballast (INV - Inventoried)	# Flourescent Light Tubes
449	Hall C	449-3-2	3		INV	6
449	Storage	449-3-2	0		INV	0
449	326	449-3-3	3		INV	6
449	328	449-3-3			No Access	
449	Hall	449-3-3	3		INV	6
449	Gym	449-3-3	0		INV	0
449	331	449-3-4	2	1	NO PCBS	4
449	332	449-3-4	2	2	NO PCBS	4
449	333	449-3-4	2	1	NO PCBS	4
449	334	449-3-4	2	2	NO PCBS	4
449	335	449-3-4	2		INV	4
449	336	449-3-4	2	1	NO PCBS	4
449	349	449-3-4	2	2	NO PCBS	4
449	350	449-3-4	2	1	NO PCBS	4
449	351	449-3-4	2	2	NO PCBS	4
449	252	449-3-4	2		INV	4
449	Hall A	449-3-4	2		INV	4
449	Hall B	449-3-4	5		INV	10
449	Hall C	449-3-4	2		INV	4
449	Total		600	106		1164
450	174	450-1-1	2		INV	4
450	175	450-1-1	4		INV	8
450	176	450-1-1	2		INV	4
450	177	450-1-1	2		INV	4
450	178	450-1-1	6	4	NO PCBS	12
450	179	450-1-1	3		INV	6
450	181	450-1-1	3	2	NO PCBS	6
450	182	450-1-1	9		INV	18
450	183	450-1-1	6		INV	12
450	183 A	450-1-1	4		INV	8
450	184	450-1-1	3		INV	6
450	185	450-1-1	3		INV	6
450	187	450-1-1	2		INV	4
450	189	450-1-1	4		INV	8
450	190	450-1-1	4		INV	8

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Ballast (INV - Inventoried)	# Flourescent Light Tubes
450	192	450-1-1	3	2	NO PCBS	6
450	195	450-1-1	5		INV	10
450	196	450-1-1	27		INV	54
450	Mail Room	450-1-1	1		INV	2
450	Bath	450-1-1	1		INV	2
450	Hall A	450-1-1	2		INV	4
450	Hall B	450-1-1	2	2	NO PCBS	4
450	Hall C	450-1-1	1		INV	2
450	Hall D	450-1-1	3		INV	6
450	151	450-1-2	3		INV	6
450	152	450-1-2	1		INV	2
450	Bath	450-1-2	2		INV	4
450	154	450-1-2	6	4	NO PCBS	12
450	155	450-1-2	3		INV	6
450	Mech Room	450-1-2	2		INV	4
450	Supply	450-1-2	6		INV	12
450	Class room	450-1-2	9	5	NO PCBS	18
450	160	450-1-2	3		INV	6
450	159	450-1-2	6		INV	12
450	161	450-1-2	3		INV	6
450	164	450-1-2	5		INV	10
450	165	450-1-2	2		INV	4
450	Storage	450-1-2	11		INV	12
450	168	450-1-2	4		INV	8
450	169	450-1-2	8	4	NO PCBS	16
450	170	450-1-2	4		INV	8
450	171	450-1-2	2		INV	4
450	Hall A	450-1-2	3	2	NO PCBS	6
450	Hall B	450-1-2	3		INV	6
450	Hall C	450-1-2	4		INV	8
450	143	450-1-3			No Access	
450	144	450-1-3	2		INV	4
450	Bath A	450-1-3	2		INV	4
450	Bath B	450-1-3	2		INV	4
450	149	450-1-3	2		INV	4

Schofield Barracks Cadet D Inspection  
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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
450	150	450-1-3	4	2	NO PCBS	8
450	152	450-1-3	6	6	NO PCBS	12
450	153	450-1-3	26		INV	26
450	154	450-1-3	3	1	NO PCBS	6
450	146	450-1-3	2		INV	4
450	163	450-1-3			No Access	
450	162	450-1-3	2		INV	4
450	165	450-1-3	3		INV	6
450	178	450-1-3	1		INV	2
450	168	450-1-3	2		INV	4
450	170	450-1-3	2		INV	4
450	169	450-1-3	2		INV	4
450	179	450-1-3	8		INV	12
450	180	450-1-3	2		INV	4
450	Hall	450-1-3	4		INV	8
450	Bath A	450-1-4	2		INV	4
450	Bath B	450-1-4	2		INV	4
450	159	450-1-4	2		INV	4
450	189	450-1-4	6	2	NO PCBS	12
450	168	450-1-4	4	2	NO PCBS	8
450	174	450-1-4	4	3	NO PCBS	8
450	173	450-1-4	2		INV	4
450	151	450-1-4	2		INV	4
450	156	450-1-4	6		INV	12
450	Hall	450-1-4	2		INV	4
450	154	450-1-4	7		INV	14
450	190	450-1-4	1		INV	2
450	163	450-1-4	2		INV	4
450	155	450-1-4	4	2	NO PCBS	8
450	157	450-1-4	24		INV	48
450	152	450-1-4	2		INV	4
450	153	450-1-4	2		INV	4
450	162	450-1-4	6	2	NO PCBS	12
450	164	450-1-4	9	6	NO PCBS	18
450	161	450-1-4			No Access	

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
450	272	450-2-1	2	1	NO PCBS	4
450	273	450-2-1	3	2	NO PCBS	6
450	274	450-2-1	4	2	NO PCBS	8
450	277	450-2-1	2	1	NO PCBS	4
450	278	450-2-1	3	1	NO PCBS	6
450	280	450-2-1	3	1	NO PCBS	6
450	281	450-2-1	3		INV	6
450	282	450-2-1	3	2	NO PCBS	6
450	283	450-2-1	3	1	NO PCBS	6
450	284	450-2-1	2	2	NO PCBS	4
450	287	450-2-1	4	2	NO PCBS	8
450	289	450-2-1	2		INV	4
450	Bath A	450-2-1	0		INV	0
450	Bath B	450-2-1	0		INV	0
450	Bath C	450-2-1	0		INV	0
450	Latrine	450-2-1	16		INV	16
450	Storage	450-2-1	0		INV	0
450	Hall A	450-2-1	7		INV	14
450	Hall B	450-2-1	7		INV	14
450	251	450-2-2	4		INV	8
450	Storage A	450-2-2	0		INV	0
450	Storage B	450-2-2	0		INV	0
450	253	450-2-2	2	1	NO PCBS	4
450	256	450-2-2	0		INV	0
450	257	450-2-2	2		INV	4
450	258	450-2-2	3	2	NO PCBS	6
450	259	450-2-2	3		INV	6
450	260	450-2-2	3	1	NO PCBS	6
450	261	450-2-2	3	2	NO PCBS	6
450	262	450-2-2	2	2	NO PCBS	4
450	263	450-2-2	3	2	NO PCBS	6
450	264	450-2-2	3	1	NO PCBS	6
450	268	450-2-2	4	1	NO PCBS	8
450	269	450-2-2	2	1	NO PCBS	4
450	276	450-2-2	0		INV	0

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
450	Latrine	450-2-2	16		INV	16
450	Hall A	450-2-2	6		INV	12
450	Hall B	450-2-2	1		INV	2
450	Hall C	450-2-2	1		INV	2
450	Hall D	450-2-2	6		INV	12
450	Storage A	450-2-3	0		INV	0
450	Storage B	450-2-3	0		INV	0
450	225	450-2-3	2	1	NO PCBS	4
450	227	450-2-3	4	3	NO PCBS	8
450	230	450-2-3	2	1	NO PCBS	4
450	231	450-2-3	3	2	NO PCBS	6
450	232	450-2-3	3	1	NO PCBS	6
450	233	450-2-3	3	2	NO PCBS	6
450	234	450-2-3	3	2	NO PCBS	6
450	235	450-2-3	2		INV	4
450	236	450-2-3	2		INV	4
450	237	450-2-3	2	2	NO PCBS	4
450	240	450-2-3	4	2	NO PCBS	8
450	242	450-2-3	2		INV	4
450	Latrine	450-2-3	16		INV	16
450	Bath	450-2-3	0		INV	0
450	Hall A	450-2-3	7		INV	14
450	Hall B	450-2-3	7		INV	14
450	205	450-2-4	6	3	NO PCBS	12
450	207	450-2-4	6	2	NO PCBS	12
450	210	450-2-4	2		INV	4
450	211	450-2-4	2	2	NO PCBS	6
450	212	450-2-4	3	1	NO PCBS	6
450	213	450-2-4	2		INV	6
450	214	450-2-4	3	1	NO PCBS	6
450	215	450-2-4	3	2	NO PCBS	6
450	216	450-2-4	3		INV	6
450	217	450-2-4	2	1	NO PCBS	4
450	218	450-2-4	2	1	NO PCBS	4
450	220	450-2-4	4	2	NO PCBS	8

Schofield Barracks Quad D Inspection  
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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
450	Latrine	450-2-4	16		INV	16
450	Storage	450-2-4	2		INV	4
450	Bath A	450-2-4	0		INV	0
450	Bath B	450-2-4	0		INV	0
450	Bath C	450-2-4	0		INV	0
450	Hall A	450-2-4	6		INV	12
450	Hall B	450-2-4	6		INV	12
450	372	450-3-1	2		INV	4
450	374	450-3-1	4	2	NO PCBS	8
450	377	450-3-1	2		INV	4
450	378	450-3-1	3		INV	6
450	379	450-3-1	3		INV	6
450	380	450-3-1	3		INV	6
450	381	450-3-1	3	1	NO PCBS	6
450	382	450-3-1	3	2	NO PCBS	6
450	383	450-3-1	3	1	NO PCBS	6
450	384	450-3-1	2	2	NO PCBS	4
450	387	450-3-1	2	2	NO PCBS	4
450	389	450-3-1	2	1	NO PCBS	4
450	Bath A	450-3-1	0		INV	0
450	Bath B	450-3-1	0		INV	0
450	Bath C	450-3-1	0		INV	0
450	Hall A	450-3-1	6		INV	12
450	Hall B	450-3-1	6		INV	12
450	Storage	450-3-1	0		INV	0
450	Latrine	450-3-1	16		INV	16
450	351	450-3-2	4	2	NO PCBS	8
450	353	450-3-2	2		INV	4
450	357	450-3-2	2	2	NO PCBS	4
450	359	450-3-2	3	2	NO PCBS	6
450	358	450-3-2	3		INV	6
450	360	450-3-2	3	1	NO PCBS	6
450	361	450-3-2	3	1	NO PCBS	6
450	362	450-3-2	2	1	NO PCBS	4
450	363	450-3-2	3	1	NO PCBS	6

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
450	364	450-3-2	3	2	NO PCBS	6
450	367	450-3-2	4	2	NO PCBS	8
450	369	450-3-2	2	1	NO PCBS	4
450	Bath	450-3-2	0		INV	0
450	Storage A	450-3-2	0		INV	0
450	Storage B	450-3-2	0		INV	0
450	Latrine	450-3-2	16		INV	16
450	Hall A	450-3-2	7		INV	14
450	Hall B	450-3-2	7		INV	14
450	325	450-3-3	2		INV	4
450	327	450-3-3	4	2	NO PCBS	8
450	330	450-3-3	2	2	NO PCBS	4
450	332	450-3-3	3		INV	6
450	331	450-3-3	3		INV	6
450	333	450-3-3	3	2	NO PCBS	6
450	334	450-3-3	3	1	NO PCBS	6
450	335	450-3-3	3	1	NO PCBS	6
450	336	450-3-3	3	1	NO PCBS	6
450	337	450-3-3	2	1	NO PCBS	4
450	340	450-3-3	3	1	NO PCBS	6
450	342	450-3-3	2		INV	4
450	Bath	450-3-3	0		INV	0
450	Storage A	450-3-3	0		INV	0
450	Storage B	450-3-3	0		INV	0
450	Latrine	450-3-3	16		INV	16
450	Hall A	450-3-3	7		INV	14
450	Hall B	450-3-3	6		INV	12
450	305	450-3-4	3	2	NO PCBS	6
450	307	450-3-4	2	1	NO PCBS	6
450	310	450-3-4	2	1	NO PCBS	6
450	311	450-3-4	3	2	NO PCBS	6
450	312	450-3-4	3	1	NO PCBS	6
450	313	450-3-4	3	1	NO PCBS	6
450	314	450-3-4	3	1	NO PCBS	6
450	315	450-3-4	3		INV	6

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
450	316	450-3-4	3	1	NO PCBS	6
450	317	450-3-4	2	2	NO PCBS	6
450	320	450-3-4	4	1	NO PCBS	6
450	322	450-3-4	2		INV	6
450	Storage	450-3-4	0		INV	0
450	Hall A	450-3-4	6		INV	12
450	Hall B	450-3-4	6		INV	12
450	Latrine	450-3-4	16		INV	16
450	Bath A	450-3-4	0		INV	0
450	Bath B	450-3-4	0		INV	0
450	Bath C	450-3-4	0		INV	0
450	Total		861	160		1564
451	76	451-1-1	6		INV	12
451	77	451-1-1	2		INV	4
451	78	451-1-1	2		INV	4
451	79	451-1-1	0		INV	0
451	81	451-1-1	2	1	NO PCBS	4
451	82	451-1-1	2		INV	4
451	100	451-1-1	4		INV	8
451	101	451-1-1	4		INV	8
451	103	451-1-1	4	1	NO PCBS	8
451	97	451-1-1	3	1	NO PCBS	6
451	94	451-1-1	2		INV	4
451	96	451-1-1	2		INV	4
451	95	451-1-1	2		INV	4
451	105	451-1-1	2		INV	4
451	107	451-1-1	2		INV	4
451	106	451-1-1	4		INV	8
451	109	451-1-1	6	4	NO PCBS	12
451	110	451-1-1	2		INV	4
451	111	451-1-1	6		INV	12
451	112	451-1-1	6	4	NO PCBS	12
451	92	451-1-1	7	2	NO PCBS	14
451	87	451-1-1	0		INV	0
451	91	451-1-1	2		INV	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
451	Hall A	451-1-1	5	2	NO PCBS	10
451	Hall B	451-1-1	5		INV	10
451	59	451-1-2	4		INV	8
451	60	451-1-2	2		INV	8
451	57	451-1-2	4		INV	8
451	56	451-1-2	6		INV	12
451	62	451-1-2	4		INV	8
451	71	451-1-2	4	2	NO PCBS	8
451	68	451-1-2	5		INV	10
451	63	451-1-2	2		INV	4
451	64	451-1-2	6		INV	12
451	84	451-1-2	0		INV	0
451	72	451-1-2	2		INV	8
451	76	451-1-2	2	1	NO PCBS	8
451	73	451-1-2	2		INV	4
451	80	451-1-2	0		INV	0
451	74	451-1-2	2	1	NO PCBS	4
451	75	451-1-2	8		INV	16
451	85	451-1-2	0		INV	0
451	89	451-1-2	6		INV	12
451	90	451-1-2	0		INV	0
451	86	451-1-2			No Access	
451	55	451-1-2			No Access	
451	54	451-1-2			No Access	
451	53	451-1-2			No Access	
451	Hall A	451-1-2	3		INV	6
451	Hall B	451-1-2	6		INV	12
451	Hall C	451-1-2	3		INV	6
451	13	451-1-3	6		INV	12
451	14	451-1-3	2		INV	8
451	15	451-1-3	2		INV	8
451	16	451-1-3	4		INV	8
451	17	451-1-3	4		INV	8
451	18	451-1-3	4		INV	8
451	20	451-1-3	2		INV	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
451	21	451-1-3	6	2	NO PCBS	12
451	22	451-1-3	6		INV	12
451	23	451-1-3	3		INV	6
451	24	451-1-3	2		INV	4
451	25	451-1-3	2		INV	4
451	26	451-1-3	6	1	NO PCBS	12
451	27	451-1-3			No Access	
451	27 A	451-1-3	0		INV	0
451	Storage A	451-1-3	0		INV	0
451	Storage B	451-1-3	0		INV	0
451	Storage C	451-1-3	0		INV	0
451	Bath A	451-1-3	2		INV	4
451	Bath B	451-1-3	2		INV	4
451	Hall A	451-1-3	4		INV	8
451	Hall B	451-1-3	4		INV	8
451	Hall C	451-1-3	3		INV	6
451	1	451-1-4	6	4	NO PCBS	12
451	2	451-1-4	2		INV	4
451	3	451-1-4	4		INV	8
451	4	451-1-4	1		INV	2
451	5	451-1-4	1		INV	2
451	6	451-1-4	4		INV	8
451	7	451-1-4	1		INV	2
451	7A	451-1-4	1		INV	2
451	8	451-1-4	2		INV	4
451	9	451-1-4	2		INV	4
451	10	451-1-4	2		INV	4
451	27	451-1-4	2		INV	4
451	26	451-1-4	2		INV	4
451	Bath A	451-1-4	2		INV	4
451	BathB	451-1-4	2		INV	4
451	13	451-1-4	1		INV	2
451	14	451-1-4	4		INV	8
451	15	451-1-4	4		INV	8
451	17	451-1-4	3		INV	6

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
451	18	451-1-4	6		INV	12
451	Hall A	451-1-4	3		INV	6
451	Hall B	451-1-4	4		INV	8
451	Hall C	451-1-4	4		INV	8
451	Hall D	451-1-4	2		INV	4
451	Storage A	451-1-4	0		INV	0
451	Storage B	451-1-4	8		INV	16
451	Storage C	451-1-4	0		INV	0
451	33	451-1-4	2		INV	4
451	201	451-2-1	3		INV	6
451	203	451-2-1	2		INV	4
451	204	451-2-1	2		INV	4
451	205	451-2-1	3		INV	6
451	206	451-2-1	3	2	NO PCBS	6
451	207	451-2-1	3		INV	6
451	208	451-2-1	3		INV	6
451	209	451-2-1	3		INV	6
451	210	451-2-1	3		INV	6
451	211	451-2-1	2		INV	4
451	212	451-2-1	3		INV	6
451	213	451-2-1	4	3	NO PCBS	8
451	214	451-2-1	2	1	NO PCBS	4
451	215	451-2-1	2		INV	4
451	Storage A	451-2-1	0		INV	0
451	Storage B	451-2-1	0		INV	0
451	Hall A	451-2-1	6	3	NO PCBS	12
451	Hall B	451-2-1	6		INV	12
451	Hall C	451-2-1	1		INV	2
451	Hall D	451-2-1	1		INV	2
451	Latrine	451-2-1	19		INV	19
451	Bath A	451-2-1	0		INV	0
451	Bath B	451-2-1	0		INV	0
451	216	451-2-2	3	1	NO PCBS	6
451	217	451-2-2	2	1	NO PCBS	4
451	218	451-2-2	2	1	NO PCBS	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
451	219	451-2-2	2	1	NO PCBS	4
451	220	451-2-2	2	1	NO PCBS	4
451	221	451-2-2	2	1	NO PCBS	4
451	222	451-2-2	2		INV	4
451	223	451-2-2	3	2	NO PCBS	6
451	224	451-2-2	2		INV	4
451	225	451-2-2	2		INV	4
451	226	451-2-2	3	2	NO PCBS	6
451	227	451-2-2	2	1	NO PCBS	4
451	Bath A	451-2-2	0		INV	0
451	Bath B	451-2-2	0		INV	0
451	StorageA	451-2-2	2		INV	4
451	StorageB	451-2-2	2		INV	4
451	Latrine	451-2-2	5		INV	10
451	Hall A	451-2-2	5		INV	10
451	Hall B	451-2-2	5		INV	10
451	228	451-2-3	4		INV	8
451	229	451-2-3	2		INV	4
451	230	451-2-3	2		INV	6
451	231	451-2-3	2	1	NO PCBS	4
451	232	451-2-3	2	2	NO PCBS	6
451	233	451-2-3	3		INV	6
451	234	451-2-3	2		INV	6
451	235	451-2-3	2	2	NO PCBS	6
451	236	451-2-3	3		INV	6
451	237	451-2-3	2	1	NO PCBS	4
451	238	451-2-3	2		INV	4
451	239	451-2-3	4		INV	8
451	Hall A	451-2-3	6		INV	12
451	Hall B	451-2-3	6		INV	12
451	Storage A	451-2-3	0		INV	0
451	Storage B	451-2-3	0		INV	0
451	Latrine	451-2-3	16		INV	16
451	251	451-2-4	2		INV	4
451	253	451-2-4	4		INV	8

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
451	257	451-2-4	2	1	NO PCBS	4
451	258	451-2-4	3		INV	6
451	259	451-2-4	2		INV	6
451	260	451-2-4	2	2	NO PCBS	6
451	261	451-2-4	3		INV	6
451	262	451-2-4	2	1	NO PCBS	4
451	263	451-2-4	2	2	NO PCBS	6
451	264	451-2-4	2		INV	6
451	267	451-2-4	4		INV	8
451	269	451-2-4	2		INV	4
451	Storage A	451-2-4	0		INV	0
451	Storage B	451-2-4	0		INV	0
451	Latrine	451-2-4	16		INV	16
451	301	451-3-1	3		INV	9
451	302	451-3-1	2		INV	4
451	303	451-3-1			NO Access	
451	304	451-3-1	3	1	NO PCBS	6
451	305	451-3-1	3		INV	12
451	306	451-3-1	3	2	NO PCBS	12
451	307	451-3-1	3		INV	6
451	308	451-3-1	3		INV	6
451	309	451-3-1	3	2	NO PCBS	6
451	310	451-3-1	3	1	NO PCBS	6
451	311	451-3-1	4	2	NO PCBS	8
451	312	451-3-1			INV	
451	313	451-3-1	4		INV	8
451	Storage A	451-3-1	0		INV	0
451	Storage B	451-3-1	0		INV	0
451	Latrine	451-3-1	16		INV	16
451	Hall A	451-3-1	6	3	NO PCBS	12
451	Hall B	451-3-1	6		INV	12
451	Hall C	451-3-1	1		INV	2
451	322	451-3-2	2		INV	4
451	324	451-3-2	4	3	NO PCBS	8
451	325	451-3-2	2	1	NO PCBS	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
451	326	451-3-2			INV	
451	327	451-3-2	4	1	NO PCBS	8
451	330	451-3-2	3		INV	6
451	331	451-3-2	3		INV	6
451	332	451-3-2	3		INV	6
451	333	451-3-2	3	1	NO PCBS	6
451	334	451-3-2	3		INV	6
451	335	451-3-2	3	2	NO PCBS	6
451	336	451-3-2	3		INV	6
451	337	451-3-2	2	1	NO PCBS	4
451	Bath	451-3-2	0		INV	0
451	Storage A	451-3-2	0		INV	0
451	Storage B	451-3-2	0		INV	0
451	Latrine	451-3-2	16		INV	16
451	Hall A	451-3-2	6		INV	12
451	Hall B	451-3-2	1		INV	2
451	Hall C	451-3-2	6		INV	12
451	Hall D	451-3-2	1		INV	2
451	351	451-3-3	4		INV	8
451	352	451-3-3	2		INV	4
451	353	451-3-3	2		INV	4
451	357	451-3-3	2		INV	4
451	358	451-3-3	3		INV	6
451	359	451-3-3	3	3	NO PCBS	6
451	358	451-3-3	3		INV	6
451	360	451-3-3			No Access	
451	361	451-3-3	3		INV	6
451	362	451-3-3	2	1	NO PCBS	4
451	363	451-3-3	3	3	NO PCBS	6
451	364	451-3-3	3	2	NO PCBS	6
451	367	451-3-3	4		INV	8
451	368	451-3-3	2	1	NO PCBS	4
451	369	451-3-3	2		INV	4
451	Storage A	451-3-3	0		INV	0
451	Storage B	451-3-3	0		INV	0

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
451	Latrine	451-3-3	16		INV	16
451	Hall A	451-3-3	6		INV	12
451	Hall B	451-3-3	1		INV	2
451	Hall C	451-3-3	1		INV	2
451	Hall D	451-3-3	6		INV	12
451	372	451-3-4	2		INV	4
451	373	451-3-4	2		INV	4
451	374	451-3-4	4	3	NO PCBS	8
451	377	451-3-4	3		INV	6
451	378	451-3-4	3		INV	6
451	379	451-3-4	3	2	NO PCBS	6
451	380	451-3-4	2	2	NO PCBS	4
451	381	451-3-4	3	2	NO PCBS	6
451	382	451-3-4	3		INV	6
451	383	451-3-4	3		INV	6
451	384	451-3-4	2	1	NO PCBS	4
451	386	451-3-4	2		INV	4
451	387	451-3-4	3		INV	6
451	Bath A	451-3-4	0		INV	0
451	Bath B	451-3-4	0		INV	0
451	Storage A	451-3-4	0		INV	0
451	Storage B	451-3-4	0		INV	0
451	Latrine	451-3-4	16		INV	16
451	Hall A	451-3-4	6		INV	12
451	Hall B	451-3-4	1		INV	2
451	Hall C	451-3-4	6		INV	12
451	Hall D	451-3-4	1		INV	2
451	Total		774	98		1484
452	101	452-1-1	4		INV	8
452	102	452-1-1	4		INV	8
452	103	452-1-1	2		INV	4
452	104	452-1-1	2	1	NO PCBS	4
452	105	452-1-1	6	4	NO PCBS	12
452	106	452-1-1	1		INV	2
452	107	452-1-1	2		INV	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
452	108	452-1-1	2		INV	4
452	109	452-1-1			No Access	
452	110	452-1-1	5		INV	10
452	111	452-1-1	2		INV	4
452	112	452-1-1	6		INV	12
452	113	452-1-1			No Access	
452	Hall A	452-1-1	3		INV	6
452	Hall B	452-1-1	3		INV	6
452	Hall C	452-1-1	3		INV	6
452	Storage A	452-1-1	2		INV	4
452	Storage B	452-1-1	0		INV	0
452	Bath	452-1-1	2		INV	4
452	114	452-1-2	2	1	NO PCBS	4
452	115	452-1-2	2		INV	4
452	116	452-1-2	2		INV	4
452	117	452-1-2	4		INV	8
452	118	452-1-2	5	1	NO PCBS	10
452	119	452-1-2	3		INV	6
452	120	452-1-2	1		INV	2
452	121	452-1-2	2		INV	4
452	122	452-1-2	2		INV	4
452	123	452-1-2	8	2	NO PCBS	16
452	125	452-1-2	4		INV	8
452	Bath A	452-1-2	2	2	NO PCBS	4
452	Bath B	452-1-2	2	2	NO PCBS	4
452	Storage	452-1-2	0		INV	0
452	Hall A	452-1-2	4		INV	8
452	Hall B	452-1-2	5		INV	10
452	Hall C	452-1-2	4	1	NO PCBS	8
452	126	452-1-3	2		INV	4
452	127	452-1-3	6		INV	12
452	128	452-1-3	6		INV	12
452	Bath A	452-1-3	2		INV	4
452	Bath B	452-1-3	2		INV	4
452	Storage	452-1-3	0		INV	0

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
452	129	452-1-3	2		INV	4
452	130	452-1-3	2		INV	4
452	131	452-1-3	2		INV	4
452	132	452-1-3	2		INV	4
452	133	452-1-3	3	1	NO PCBS	6
452	134	452-1-3	3		INV	6
452	135	452-1-3	3		INV	6
452	136	452-1-3	18		INV	36
452	137	452-1-3	3	1	NO PCBS	6
452	138	452-1-3	2		INV	4
452	139	452-1-3	2		INV	4
452	140	452-1-3	2		INV	4
452	Hall A	452-1-3	4		INV	8
452	Hall B	452-1-3	1		INV	2
452	Hall C	452-1-3	7	3	NO PCBS	14
452	Hall D	452-1-3	5		INV	10
452	141	452-1-4	12	7	NO PCBS	14
452	142	452-1-4	2	1	NO PCBS	4
452	143	452-1-4	2	2	NO PCBS	4
452	144	452-1-4	1		INV	2
452	145	452-1-4	3		INV	6
452	147	452-1-4	6	1	NO PCBS	12
452	146	452-1-4	4	3	NO PCBS	8
452	148	452-1-4	2		INV	4
452	149	452-1-4	6		INV	12
452	150	452-1-4	2		INV	6
452	151	452-1-4	2		INV	6
452	152	452-1-4	8		INV	14
452	153	452-1-4	0		INV	0
452	154	452-1-4	6		INV	12
452	Hall A	452-1-4	4		INV	8
452	Hall B	452-1-4	2		INV	6
452	Hall C	452-1-4	2		INV	6
452	Storage	452-1-4	2		INV	4
452	272	452-2-1	2	2	NO PCBS	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
452	272	452-2-1	4	2	NO PCBS	8
452	274	452-2-1	4	2	NO PCBS	8
452	277	452-2-1	2	2	NO PCBS	4
452	278	452-2-1	3		INV	6
452	279	452-2-1	2	2	NO PCBS	6
452	280	452-2-1	2	2	NO PCBS	6
452	281	452-2-1	2	2	NO PCBS	6
452	282	452-2-1	2		INV	6
452	283	452-2-1	2	1	NO PCBS	4
452	284	452-2-1	2	2	NO PCBS	4
452	287	452-2-1	3		INV	6
452	289	452-2-1	2		INV	4
452	Storage A	452-2-1	0		INV	0
452	Storage B	452-2-1	0		INV	0
452	Storage C	452-2-1	4		INV	8
452	Bath	452-2-1	0		INV	0
452	Latrine	452-2-1	16		INV	16
452	Hall A	452-2-1	7		INV	14
452	Hall B	452-2-1	7		INV	14
452	251	452-2-2	4	2	NO PCBS	8
452	253	452-2-2	2		INV	4
452	257	452-2-2	2	2	NO PCBS	4
452	258	452-2-2	3	1	NO PCBS	6
452	259	452-2-2	3	2	NO PCBS	6
452	260	452-2-2	3	1	NO PCBS	6
452	261	452-2-2	3		INV	6
452	262	452-2-2	2		INV	4
452	263	452-2-2	3	1	NO PCBS	6
452	264	452-2-2	3	1	NO PCBS	6
452	267	452-2-2	4		INV	8
452	269	452-2-2	2	1	NO PCBS	4
452	Storage A	452-2-2	0		INV	0
452	Storage B	452-2-2	0		INV	0
452	Bath A	452-2-2	0		INV	0
452	Bath B	452-2-2	0		INV	0

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
452	Hall A	452-2-2	7		INV	14
452	Hall B	452-2-2	7	2	NO PCBS	14
452	Latrine	452-2-2	16		INV	16
452	232	452-2-3	3	2	NO PCBS	6
452	233	452-2-3	3	2	NO PCBS	6
452	234	452-2-3	3	2	NO PCBS	6
452	235	452-2-3	3		INV	6
452	236	452-2-3	2		INV	4
452	240	452-2-3	0		INV	0
452	241	452-2-3	4	2	NO PCBS	8
452	242	452-2-3	2	2	NO PCBS	4
452	243	452-2-3	3		INV	6
452	244	452-2-3	3		INV	6
452	245	452-2-3	2	2	NO PCBS	4
452	246	452-2-3	4		INV	8
452	247	452-2-3	0		INV	0
452	248	452-2-3	2	1	NO PCBS	4
452	249	452-2-3	0		INV	0
452	250	452-2-3	0		INV	0
452	Latrine	452-2-3	16		INV	16
452	Hall A	452-2-3	7	1	NO PCBS	14
452	Hall B	452-2-3	7		INV	14
452	205	452-2-4	3	3	NO PCBS	6
452	207	452-2-4	2		INV	4
452	210	452-2-4	2		INV	4
452	211	452-2-4	3	3	NO PCBS	6
452	212	452-2-4	2		INV	6
452	213	452-2-4	3		INV	6
452	214	452-2-4	3		INV	6
452	215	452-2-4	3	2	NO PCBS	6
452	216	452-2-4	2		INV	6
452	217	452-2-4	2		INV	6
452	220	452-2-4	4	2	NO PCBS	8
452	222	452-2-4	3		INV	6
452	Latrine	452-2-4	16		INV	16

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
452	Storage A	452-2-4	0		INV	0
452	Storage B	452-2-4	0		INV	0
452	Bath A	452-2-4	0		INV	0
452	Bath B	452-2-4	0		INV	0
452	Hall A	452-2-4	6	2	NO PCBS	12
452	Hall B	452-2-4	6	6	NO PCBS	12
452	372	452-3-1	2		INV	4
452	374	452-3-1	4	2	NO PCBS	8
452	377	452-3-1	2	1	NO PCBS	4
452	378	452-3-1	3	3	NO PCBS	6
452	379	452-3-1	3	1	NO PCBS	6
452	380	452-3-1	3		INV	6
452	381	452-3-1	3		INV	6
452	382	452-3-1	3		INV	6
452	383	452-3-1	3		INV	6
452	384	452-3-1	2		INV	4
452	387	452-3-1	3	1	NO PCBS	6
452	389	452-3-1	2		INV	4
452	Bath A	452-3-1	0		INV	0
452	Bath B	452-3-1	0		INV	0
452	Bath C	452-3-1	0		INV	0
452	Storage A	452-3-1	2		INV	4
452	Storage B	452-3-1	1		INV	2
452	Latrine	452-3-1	16		INV	16
452	Hall A	452-3-1	6		INV	12
452	Hall B	452-3-1	6		INV	12
452	358	452-3-2	2	1	NO PCBS	4
452	359	452-3-2	4		INV	8
452	360	452-3-2	2		INV	4
452	361	452-3-2	3		INV	6
452	362	452-3-2	3	2	NO PCBS	6
452	363	452-3-2	2	2	NO PCBS	6
452	364	452-3-2	2	2	NO PCBS	6
452	365	452-3-2	2		INV	4
452	367	452-3-2	2		INV	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
452	368	452-3-2	3	2	NO PCBS	6
452	369	452-3-2	4	2	NO PCBS	6
452	370	452-3-2	2		INV	4
452	Storage A	452-3-2	0		INV	0
452	Storage B	452-3-2	0		INV	0
452	Storage C	452-3-2	0		INV	0
452	Storage D	452-3-2	0		INV	0
452	Latrine	452-3-2	16		INV	16
452	Hall A	452-3-2	7	3	NO PCBS	13
452	Hall B	452-3-2	7	3	NO PCBS	13
452	351	452-3-3	4	1	NO PCBS	8
452	353	452-3-3	2	1	NO PCBS	4
452	357	452-3-3	2	1	NO PCBS	4
452	358	452-3-3	3	1	NO PCBS	9
452	360	452-3-3	3		INV	9
452	361	452-3-3	3	2	NO PCBS	6
452	362	452-3-3	2	1	NO PCBS	4
452	363	452-3-3	3		INV	6
452	364	452-3-3	3	1	NO PCBS	6
452	367	452-3-3	4	1	NO PCBS	8
452	369	452-3-3	2		INV	4
452	Storage A	452-3-3	0		INV	0
452	Storage B	452-3-3	0		INV	0
452	Storage C	452-3-3	0		INV	0
452	Storage D	452-3-3	0		INV	0
452	Latrine	452-3-3	16		INV	16
452	Hall A	452-3-3	7	3	NO PCBS	14
452	Hall B	452-3-3	7	4	NO PCBS	14
452	304	452-3-4	2		INV	4
452	305	452-3-4	3		INV	6
452	309	452-3-4	3	2	NO PCBS	6
452	310	452-3-4	2	2	NO PCBS	4
452	311	452-3-4	3	2	NO PCBS	6
452	312	452-3-4	3		INV	6
452	313	452-3-4	3		INV	6

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
452	314	452-3-4	3	3	NO PCBS	6
452	316	452-3-4	3	1	NO PCBS	6
452	317	452-3-4	2	1	NO PCBS	4
452	320	452-3-4	4	2	NO PCBS	8
452	322	452-3-4	4		INV	8
452	Storage A	452-3-4	0		INV	
452	Storage B	452-3-4	0		INV	
452	Storage C	452-3-4	4		INV	8
452	Bath A	452-3-4	0		INV	
452	Bath B	452-3-4	0		INV	
452	Hall A	452-3-4	7	3	NO PCBS	14
452	Hall B	452-3-4	7		INV	14
452	Latrine	452-3-4	16		INV	16
<b>452</b>	<b>Total</b>		<b>755</b>	<b>152</b>		<b>1398</b>

Building #	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	# of Flourescent Light Tubes
549	497	84	1067
550	730	114	1450
551	597	128	1199
552	594	112	1217
<b>Total</b>	<b>2418</b>	<b>438</b>	<b>4933</b>

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
549	1051	549-1-1	4		INV	8
549	1052	549-1-1	4		INV	8
549	1053	549-1-1	4		INV	8
549	1056	549-1-1	6		INV	12
549	1057	549-1-1	6		INV	12
549	1058	549-1-1	3		INV	6
549	1061	549-1-1	6	2	NO PCBs	12
549	Bath A	549-1-1	1		INV	2
549	Bath B	549-1-1	1		INV	2
549	Hall	549-1-1	7	7	NO PCBs	14
549	1025	549-1-2	6	3	NO PCBs	12
549	1033	549-1-2	2		INV	4
549	1034	549-1-2	4		INV	8
549	1035	549-1-2	2		INV	4
549	1037	549-1-2	2	3	NO PCBs	4
549	1038	549-1-2	6	4	NO PCBs	12
549	1065	549-1-2	2		INV	4
549	1066	549-1-2	2	2	NO PCBs	4
549	1068	549-1-2	1		INV	2
549	1069	549-1-2	1		INV	2
549	1070	549-1-2	2		INV	4
549	1071	549-1-2			No Access	
549	Hall A	549-1-2	3		INV	6
549	Hall B	549-1-2	3		INV	6
549	Hall C	549-1-2	2		INV	4
549	Storage	549-1-2	0		INV	0
549	1014	549-1-3			No Access	
549	1015	549-1-3	10		INV	20
549	1016	549-1-3	2	2	NO PCBs	4
549	1017	549-1-3	2		INV	4
549	1018	549-1-3	14		INV	28
549	1019	549-1-3	2		INV	4
549	1020	549-1-3	1		INV	2
549	1022	549-1-3	1		INV	2
549	1074	549-1-3	3		INV	6

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
549	1075	549-1-3	2		INV	4
549	1079	549-1-3	1		INV	2
549	1080	549-1-3	2		INV	4
549	1082	549-1-3	2		INV	4
549	1083	549-1-3	3		INV	6
549	1080 A	549-1-3	2		INV	4
549	1083	549-1-3	2		INV	4
549	Hall	549-1-3	8		INV	16
549	1001	549-1-4	2		INV	4
549	1002	549-1-4	2		INV	4
549	1005	549-1-4	2		INV	4
549	1006	549-1-4	2		INV	4
549	1008	549-1-4	4		INV	8
549	1009	549-1-4	2		INV	4
549	1010	549-1-4	2		INV	4
549	1084	549-1-4	2		INV	4
549	1085	549-1-4	2		INV	4
549	1086	549-1-4	2		INV	4
549	1087	549-1-4	2		INV	4
549	1088	549-1-4	2		INV	4
549	1089	549-1-4	4		INV	8
549	1090	549-1-4			No Access	
549	Hall A	549-1-4	5		INV	10
549	Hall B	549-1-4	3		INV	9
549	202	549-2-1	2		INV	4
549	200	549-2-1	2		INV	4
549	203	549-2-1	2		INV	4
549	204	549-2-1	4		INV	8
549	205	549-2-1	3		INV	6
549	205A	549-2-1	4		INV	8
549	206	549-2-1	3		INV	6
549	208	549-2-1	2		INV	8
549	207	549-2-1	5	3	NO PCBS	20
549	Hall A	549-2-1	3	3	NO PCBS	10
549	Hall B	549-2-1	4	4	NO PCBS	16

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
549	Hall C	549-2-1	3	2	NO PCBS	10
549	215	549-2-1	2		INV	4
549	216	549-2-1	2		INV	4
549	217	549-2-1	2		INV	4
549	213	549-2-1	13		INV	52
549	214	549-2-1	2		INV	8
549	212 A	549-2-1	2		INV	8
549	212 B	549-2-1	2		INV	8
549	216	549-2-2	2		INV	4
549	217	549-2-2	2		INV	4
549	218	549-2-2	2		INV	4
549	219	549-2-2	3		INV	6
549	220	549-2-2	2		INV	4
549	221	549-2-2	3		INV	6
549	222	549-2-2	2		INV	4
549	223	549-2-2	2		INV	4
549	224	549-2-2	2		INV	4
549	225	549-2-2	2		INV	4
549	227	549-2-2	2		INV	4
549	228	549-2-2	2		INV	4
549	Bath A	549-2-2	3		INV	6
549	226	549-2-2	3		INV	6
549	Hall	549-2-2	10	10	NO PCBS	20
549	201	549-2-3	2	1	NO PCBS	4
549	203	549-2-3	2	2	NO PCBS	4
549	205	549-2-3	2	2	NO PCBS	4
549	206	549-2-3	2		INV	4
549	207	549-2-3	2	1	NO PCBS	4
549	208	549-2-3	2		INV	4
549	210	549-2-3	2		INV	4
549	211	549-2-3	2		INV	4
549	213	549-2-3	2		INV	4
549	214	549-2-3	2		INV	4
549	2011	549-2-3	3		INV	6
549	2013	549-2-3	3		INV	6

Schofield Barracks Lead E Inspection  
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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
549	2014	549-2-3	5		INV	10
549	2015	549-2-3	3		INV	6
549	2086	549-2-3	3		INV	6
549	2228	549-2-3	3		INV	6
549	Hall A	549-2-3	2	1	NO PCBS	4
549	Hall B	549-2-3	3	3	NO PCBS	6
549	2001	549-2-4	5		INV	10
549	2004	549-2-4	1		INV	2
549	2005	549-2-4	2		INV	4
549	2006	549-2-4	15	10	NO PCBS	30
549	2007	549-2-4	2		INV	6
549	2057	549-2-4	3		INV	6
549	2058	549-2-4	2		INV	4
549	2059	549-2-4	8		INV	16
549	2060	549-2-4	2		INV	4
549	2061	549-2-4	4		INV	8
549	2062	549-2-4	5		INV	10
549	2063	549-2-4	4		INV	8
549	2064	549-2-4	4		INV	8
549	Bath A	549-2-4	2		INV	4
549	Bath B	549-2-4	2		INV	4
549	Hall A	549-2-4	3		INV	6
549	Hall B	549-2-4	6		INV	12
549	Hall C	549-2-4	5	2	NO PCBS	10
549	Staff	549-2-4			No Access	
549	Storage	549-2-4	0		INV	0
549	301	549-3-1	2		INV	4
549	302	549-3-1	2		INV	4
549	303	549-3-1	2		INV	4
549	304	549-3-1	2		INV	4
549	Laundry	549-3-1	1		INV	2
549	Bath A	549-3-1	0		INV	0
549	Bath B	549-3-1	0		INV	0
549	Storage	549-3-1	0		INV	0
549	305	549-3-1	2		INV	4

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
549	306	549-3-1	2		INV	4
549	307	549-3-1	2		INV	4
549	308	549-3-1	2		INV	4
549	309	549-3-1	2		INV	4
549	310	549-3-1	2		INV	4
549	312	549-3-1	2		INV	4
549	313	549-3-1	2		INV	4
549	314	549-3-1	2		INV	4
549	315	549-3-1	2		INV	4
549	Showers	549-2-1	5		INV	10
549	Hall A	549-3-1	2	2	NO PCBS	4
549	Hall B	549-3-1	6	6	NO PCBS	12
549	Hall C	549-3-1	2	2	NO PCBS	4
549	Hall D	549-3-1	5		INV	10
549	316	549-3-2	2		INV	4
549	317	549-3-2	2		INV	4
549	318	549-3-2	2		INV	4
549	319	549-3-2	2		INV	4
549	320	549-3-2	2		INV	4
549	Stor	549-3-2	0		INV	0
549	Bath A	549-3-2	0		INV	0
549	Bath B	549-3-2	0		INV	0
549	Laundry	549-3-2	1		INV	0
549	321	549-3-2	2		INV	2
549	322	549-3-2	2		INV	4
549	323	549-3-2	2		INV	4
549	324	549-3-2	2		INV	4
549	325	549-3-2	2		INV	4
549	326	549-3-2	2		INV	4
549	327	549-3-2	2		INV	4
549	328	549-3-2	2		INV	4
549	329	549-3-2	2		INV	4
549	Showers	549-3-2	5	5	NO PCBS	10
549	Hall A	549-3-2	5		INV	10
549	Hall B	549-3-2	2		INV	4

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
549	Hall C	549-3-2	6	2	NO PCBS	12
549	Hall D	549-3-2	2		INV	4
549		Total	497	84		1067
550	1063	550-1-1	7		INV	14
550	1064	550-1-1	8		INV	16
550	1066	550-1-1	6		INV	12
550	1067	550-1-1	12		INV	24
550	1069	550-1-1	7		INV	14
550	1070	550-1-1	6		INV	12
550	1071	550-1-1	11		INV	22
550	1079	550-1-1	2		INV	4
550	1078	550-1-1	6		INV	12
550	1085	550-1-1	14		INV	28
550	1087	550-1-1	1		INV	2
550	Hall A	550-1-1	4		INV	8
550	Hall B	550-1-1	32		INV	64
550	Hall C	550-1-1	8	8	NO PCBS	16
550	1052	550-1-2	1		INV	2
550	1053	550-1-2	12		INV	24
550	1054	550-1-2	5		INV	10
550	1055	550-1-2	4		INV	8
550	1056	550-1-2	2		INV	4
550	1057	550-1-2	2		INV	4
550	1059	550-1-2	4	2	NO PCBS	8
550	1060	550-1-2	7		INV	14
550	1061	550-1-2	2		INV	4
550	1062	550-1-2	3		INV	6
550	1063	550-1-2	18		INV	36
550	Hall A	550-1-2	6	4	NO PCBS	12
550	1063 A	550-1-2	32		INV	64
550	Hall B	550-1-2	4	3	NO PCBS	8
550	1060 A	550-1-2	10	7	NO PCBS	20
550	Latrine	550-1-2	16		INV	16
550	Storage A	550-1-2	0		INV	0
550	Storage B	550-1-2	0		INV	0

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
550	1029	550-1-3	4		INV	8
550	1030	550-1-3	1		INV	2
550	1032	550-1-3	1		INV	2
550	1033	550-1-3	3		INV	6
550	1035	550-1-3	2		INV	4
550	1036	550-1-3	2		INV	6
550	1039	550-1-3	2		INV	4
550	1040	550-1-3	2		INV	4
550	1043	550-1-3	4		INV	8
550	1048	550-1-3			No Access	
550	1050	550-1-3	5		INV	10
550	1051	550-1-3	6	6	NO PCBS	12
550	1052	550-1-3	6		INV	12
550	1053	550-1-3	3		INV	6
550	1053 A	550-1-3	3		INV	6
550	1054	550-1-3	4		INV	8
550	1055	550-1-3	4		INV	8
550	1056	550-1-3	4		INV	8
550	1057	550-1-3	6		INV	12
550	Hall A	550-1-3	2	2	NO PCBS	4
550	Hall B	550-1-3	3	3	NO PCBS	6
550	Hall C	550-1-3	2	2	NO PCBS	4
550	Storage	550-1-3	0		INV	0
550	1001	550-1-4	12		INV	24
550	1002	550-1-4	2		INV	4
550	1004	550-1-4	1	1	NO PCBS	2
550	1005	550-1-4	2	1	NO PCBS	4
550	1007	550-1-4	2		INV	4
550	1008	550-1-4	2	1	NO PCBS	4
550	Hall A	550-1-4	5	3	NO PCBS	10
550	Hall B	550-1-4	2	3	NO PCBS	6
550	Hall C	550-1-4	2	2	NO PCBS	6
550	1011	550-1-4	4		INV	8
550	1013	550-1-4	2		INV	4
550	1014	550-1-4	7		INV	14

Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
550	1015	550-1-4	4		INV	8
550	1016	550-1-4	4		INV	8
550	1018	550-1-4	4		INV	8
550	1022	550-1-4	4		INV	8
550	1026	550-1-4	9		INV	18
550	1029	550-1-4	4		INV	8
550	1045	550-1-4	7	3	NO PCBs	14
550	1046	550-1-4	4		INV	8
550	Bath A	550-1-4	1		INV	2
550	Bath B	550-1-4	1		INV	2
550	Storage	550-1-4	0		INV	0
550	276	550-2-1	2		INV	4
550	278	550-2-1	2		INV	4
550	282	550-2-1	2		INV	4
550	283	550-2-1	2		INV	4
550	284	550-2-1	2		INV	4
550	285	550-2-1	2		INV	4
550	286	550-2-1	2		INV	4
550	287	550-2-1	2		INV	4
550	288	550-2-1	2		INV	4
550	293	550-2-1	2		INV	4
550	296	550-2-1	2		INV	4
550	Bath	550-2-1	2	2	NO PCBs	4
550	Hall A	550-2-1	6	2	NO PCBs	12
550	Hall B	550-2-1	6	2	NO PCBs	12
550	Latrine	550-2-1	4		INV	8
550	Storage A	550-2-1	0		INV	0
550	Storage B	550-2-1	0		INV	0
550	254	550-2-2	2		INV	4
550	255	550-2-2	2		INV	4
550	256	550-2-2	2		INV	4
550	257	550-2-2	2		INV	4
550	258	550-2-2	2		INV	4
550	259	550-2-2	2		INV	4
550	260	550-2-2	2		INV	4

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
550	261	550-2-2	2		INV	4
550	262	550-2-2	2		INV	4
550	263	550-2-2	2		INV	4
550	267	550-2-2	2		INV	4
550	269	550-2-2	2		INV	4
550	Hall A	550-2-2	6	4	NO PCBS	12
550	Hall B	550-2-2	6	5	NO PCBS	12
550	Latrine	550-2-2	4		INV	8
550	Storage A	550-2-2	2		INV	4
550	Storage B	550-2-2	2		INV	4
550	220	550-2-3	2		INV	4
550	230	550-2-3	2		INV	4
550	234	550-2-3	2		INV	4
550	235	550-2-3	2		INV	4
550	236	550-2-3	2		INV	4
550	237	550-2-3	2		INV	4
550	238	550-2-3	2		INV	4
550	239	550-2-3	2		INV	4
550	240	550-2-3	2		INV	4
550	241	550-2-3	2		INV	4
550	242	550-2-3	2		INV	4
550	Bath	550-2-3	2	2	NO PCBS	4
550	Hall A	550-2-3	6		INV	12
550	Hall B	550-2-3	6	4	NO PCBS	12
550	Latrine	550-2-3	4		INV	8
550	Storage A	550-2-3	0		INV	0
550	Storage B	550-2-3	0		INV	0
550	201	550-2-4	2		INV	4
550	202	550-2-4	2		INV	4
550	208	550-2-4	2		INV	4
550	209	550-2-4	2		INV	4
550	210	550-2-4	2		INV	4
550	211	550-2-4	2		INV	4
550	212	550-2-4	2		INV	4
550	213	550-2-4	2		INV	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
550	214	550-2-4	2		INV	4
550	215	550-2-4	2		INV	4
550	219	550-2-4	2		INV	4
550	221	550-2-4	2		INV	4
550	Latrine	550-2-4	4		INV	8
550	Storage	550-2-4	0		INV	0
550	Bath A	550-2-4	0		INV	0
550	Hall A	550-2-4	6	3	NO PCBs	12
550	Hall B	550-2-4	6	3	NO PCBs	12
550	Bath B	550-2-4	0		INV	0
550	376	550-3-1	2		INV	4
550	378	550-3-1	2		INV	4
550	383	550-3-1	2		INV	4
550	384	550-3-1	2		INV	4
550	385	550-3-1	2		INV	4
550	386	550-3-1	2		INV	4
550	387	550-3-1	2		INV	4
550	393	550-3-1	2		INV	4
550	388	550-3-1	2		INV	4
550	396	550-3-1	2		INV	4
550	Bath A	550-3-1	0		INV	0
550	Bath B	550-3-1	0		INV	0
550	Bath C	550-3-1	2		INV	4
550	Hall A	550-3-1	6	5	NO PCBs	12
550	Hall B	550-3-1	6	5	NO PCBs	12
550	Latrine	550-3-1	4		INV	8
550	Storage	550-3-1	0		INV	0
550	381	550-3-1	2		INV	4
550	350	550-3-2	2		INV	4
550	352	550-3-2	2		INV	4
550	356	550-3-2	2		INV	4
550	357	550-3-2	2		INV	4
550	358	550-3-2	2		INV	4
550	359	550-3-2	2		INV	4
550	360	550-3-2	2		INV	4

Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
550	361	550-3-2	2		INV	4
550	362	550-3-2	2		INV	4
550	363	550-3-2	2		INV	4
550	367	550-3-2	2		INV	4
550	368	550-3-2	2		INV	4
550	Hall A	550-3-2	6	5	NO PCBs	12
550	Hall B	550-3-2	6	6	NO PCBs	12
550	Latrine	550-3-2	4		INV	8
550	Storage A	550-3-2	0		INV	0
550	Storage B	550-3-2	0		INV	0
550	341	550-3-3	2		INV	4
550	328	550-3-3	2		INV	4
550	330	550-3-3	2		INV	4
550	334	550-3-3	2		INV	4
550	335	550-3-3	2		INV	4
550	336	550-3-3	2		INV	4
550	337	550-3-3	2		INV	4
550	338	550-3-3	2		INV	4
550	339	550-3-3	2		INV	4
550	340	550-3-3	2		INV	4
550	345	550-3-3	2		INV	4
550	347	550-3-3	2		INV	4
550	Hall A	550-3-3	6	4	NO PCBs	12
550	Hall B	550-3-3	6	5	NO PCBs	12
550	Latrine	550-3-3	4		INV	8
550	Storage A	550-3-3	0		INV	0
550	Storage B	550-3-3	0		INV	0
550	301	550-3-4	2		INV	4
550	304	550-3-4	2		INV	4
550	308	550-3-4	2		INV	4
550	309	550-3-4	2		INV	4
550	310	550-3-4	2		INV	4
550	311	550-3-4	2		INV	4
550	312	550-3-4	2		INV	4
550	313	550-3-4	2		INV	4

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
550	314	550-3-4	2		INV	4
550	315	550-3-4	2		INV	4
550	319	550-3-4	2		INV	4
550	321	550-3-4	2		INV	4
550	Hall A	550-3-4	6	3	NO PCBS	12
550	Hall B	550-3-4	6	3	NO PCBS	12
550	Latrine	550-3-4	4		INV	8
550	Storage	550-3-4	0		INV	0
550	Bath A	550-3-4	0		INV	0
550	Bath B	550-3-4	0		INV	0
550	Total		730	114	INV	1450
551	Hall A	551-1-1	2		INV	4
551	Hall B	551-1-1	4		INV	8
551	Hall C	551-1-1	3		INV	3
551	101	551-1-1	8		INV	16
551	101 A	551-1-1	0		INV	0
551	102	551-1-1	8		INV	16
551	103	551-1-1	4		INV	8
551	104	551-1-1	4		INV	8
551	105	551-1-1	6	4	NO PCBS	12
551	105 A	551-1-1	4		INV	8
551	106	551-1-1	1		INV	2
551	108	551-1-1	1		INV	2
551	109	551-1-1	4		INV	8
551	110	551-1-1	3		INV	6
551	110 A	551-1-1	3		INV	6
551	110 B	551-1-1	4		INV	8
551	115 A	551-1-1	2		INV	4
551	115 B	551-1-1	2		INV	4
551	116	551-1-1	4		INV	8
551	111	551-1-1	6	4	NO PCBS	12
551	Hall A	551-1-2	3	3	NO PCBS	6
551	Hall B	551-1-2	3	3	NO PCBS	6
551	Hall C	551-1-2	2	2	NO PCBS	4
551	127	551-1-2			No Access	

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
551	128	551-1-2	1		INV	2
551	129	551-1-2	1		INV	2
551	130	551-1-2	6	3	NO PCBs	12
551	130 A	551-1-2	1		INV	2
551	137	551-1-2	6	3	NO PCBs	12
551	138	551-1-2	4		INV	8
551	139	551-1-2	2		INV	4
551	140	551-1-2	4		INV	8
551	141	551-1-2	2		INV	4
551	142	551-1-2	4		INV	8
551	143	551-1-2	4		INV	8
551	144	551-1-2	2		INV	4
551	148	551-1-2	4		INV	8
551	149	551-1-2	4		INV	8
551	150	551-1-2	2		INV	4
551	150 A	551-1-2	1		INV	2
551	150 B	551-1-2	1		INV	2
551	150 C	551-1-2	8	4	NO PCBs	16
551	Storage	551-1-3	0		INV	0
551	153	551-1-3	12		INV	24
551	154	551-1-3	4		INV	8
551	155	551-1-3	4		INV	8
551	156	551-1-3	4		INV	8
551	157	551-1-3	4		INV	8
551	158	551-1-3	6	4	NO PCBs	12
551	159	551-1-3	1		INV	2
551	160	551-1-3	1		INV	2
551	160 A	551-1-3	4		INV	8
551	162	551-1-3	3		INV	6
551	163	551-1-3	3		INV	6
551	164	551-1-3	2		INV	4
551	165	551-1-3	4		INV	8
551	166	551-1-3	3		INV	6
551	167	551-1-3	2		INV	4
551	Hall A	551-1-3	3		INV	6

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
551	Hall B	551-1-3	4		INV	8
551	Hall C	551-1-3	3		INV	6
551	Supply	551-1-3	6	4	NO PCBs	12
551	Electric Room	551-1-3	6	4	NO PCBs	12
551	Electric Room A	551-1-3	2		INV	4
551	180	551-1-4	8	4	NO PCBs	16
551	181	551-1-4	2		INV	4
551	182	551-1-4	4		INV	8
551	183	551-1-4	4		INV	8
551	184	551-1-4	6	4	NO PCBs	12
551	Bath A	551-1-4	1		INV	2
551	Bath B	551-1-4	1		INV	2
551	184 A	551-1-4	2		INV	4
551	185	551-1-4	4		INV	8
551	185 A	551-1-4	2		INV	4
551	186	551-1-4	4		INV	8
551	187	551-1-4	2		INV	4
551	189	551-1-4	6	4	NO PCBs	12
551	189 A	551-1-4	6	4	NO PCBs	12
551	189 B	551-1-4	1		INV	2
551	190	551-1-4			No Access	
551	Hall A	551-1-4	2		INV	4
551	Hall B	551-1-4	3		INV	6
551	Hall C	551-1-4	2		INV	4
551	276	551-2-1	2		INV	4
551	275	551-2-1	2		INV	4
551	282	551-2-1	2		INV	4
551	283	551-2-1	2		INV	4
551	284	551-2-1	2		INV	4
551	285	551-2-1	2		INV	4
551	286	551-2-1	2		INV	4
551	287	551-2-1	2		INV	4
551	288	551-2-1	2		INV	4
551	296	551-2-1	2		INV	4
551	296 A	551-2-1	2		INV	4

Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
551	Bath A	551-2-1	0		INV	0
551	Bath B	551-2-1	0		INV	0
551	Bath C	551-2-1	2	2	NO PCBs	4
551	Hall A	551-2-1	6	4	NO PCBs	12
551	Hall B	551-2-1	6	3	NO PCBs	12
551	Latrine	551-2-1	4		INV	8
551	Storage	551-2-1	0		INV	0
551	250	551-2-2	2		INV	4
551	252	551-2-2	2		INV	4
551	257	551-2-2	2		INV	4
551	258	551-2-2	2		INV	4
551	259	551-2-2	2		INV	4
551	260	551-2-2	2		INV	4
551	261	551-2-2	2		INV	4
551	262	551-2-2	2		INV	4
551	263	551-2-2	2		INV	4
551	267	551-2-2	2		INV	4
551	269	551-2-2	2		INV	4
551	Storage A	551-2-2	0		INV	0
551	Bath	551-2-2	2	2	NO PCBs	4
551	Hall A	551-2-2	6	3	NO PCBs	12
551	Hall B	551-2-2	6	2	NO PCBs	12
551	Latrine	551-2-2	4		INV	8
551	Storage B	551-2-2	2		INV	4
551	234	551-2-3	2		INV	4
551	235	551-2-3	2		INV	4
551	236	551-2-3	2		INV	4
551	237	551-2-3	2		INV	4
551	238	551-2-3	2		INV	4
551	239	551-2-3	2		INV	4
551	245	551-2-3	2		INV	4
551	247	551-2-3	2		INV	4
551	240	551-2-3	2		INV	4
551	233	551-2-3	2		INV	4
551	232	551-2-3	2		INV	4

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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
551	Bath	551-2-3	2		INV	4
551	Hall A	551-2-3	6	4	NO PCBS	12
551	Hall B	551-2-3	6	2	NO PCBS	12
551	Latrine	551-2-3	4		INV	8
551	Storage A	551-2-3	0		INV	0
551	Storage B	551-2-3	0		INV	0
551	204	551-2-4	2		INV	4
551	209	551-2-4	2		INV	4
551	210	551-2-4	2		INV	4
551	211	551-2-4	2		INV	4
551	212	551-2-4	2		INV	4
551	213	551-2-4	2		INV	4
551	216	551-2-4	2		INV	4
551	207	551-2-4	2		INV	4
551	214	551-2-4	2		INV	4
551	215	551-2-4	2		INV	4
551	Hall B	551-2-4	2	4	NO PCBS	12
551	217	551-2-4	2		INV	4
551	Hall A	551-2-4	6	5	NO PCBS	12
551	Bath A	551-2-4	0		INV	0
551	Bath B	551-2-4	0		INV	0
551	Bath C	551-2-4	2	2	NO PCBS	4
551	Latrine	551-2-4	4		INV	8
551	Storage	551-2-4	0		INV	0
551	376	551-3-1	2	1	NO PCBS	4
551	378	551-3-1	2	1	NO PCBS	4
551	382	551-3-1	2	1	NO PCBS	4
551	383	551-3-1	2		INV	4
551	384	551-3-1	2		INV	4
551	385	551-3-1	2		INV	4
551	386	551-3-1	2	2	NO PCBS	4
551	387	551-3-1	2	2	NO PCBS	4
551	388	551-3-1	2	1	NO PCBS	4
551	393	551-3-1	2		INV	4
551	395	551-3-1	2		INV	4

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
551	396	551-3-1	2	1	NO PCBS	4
551	Bath A	551-3-1	0		INV	0
551	Bath B	551-3-1	0		INV	0
551	Bath C	551-3-1	2		INV	4
551	Bath D	551-3-1	0		INV	0
551	Latrine	551-3-1	4		INV	8
551	Hall A	551-3-1	5	3	NO PCBS	10
551	Hall B	551-3-1	5	3	NO PCBS	10
551	Storage	551-3-1	0		INV	0
551	376	551-3-2	2		INV	4
551	382	551-3-2	2		INV	4
551	383	551-3-2	2		INV	4
551	384	551-3-2	2		INV	4
551	385	551-3-2	2		INV	4
551	386	551-3-2	2		INV	4
551	387	551-3-2	2		INV	4
551	388	551-3-2	2		INV	4
551	393	551-3-2	2		INV	4
551	396	551-3-2	2		INV	4
551	378	551-3-2	2		INV	4
551	Hall A	551-3-2	6	4	NO PCBS	12
551	Hall B	551-3-2	6	3	NO PCBS	12
551	Latrine	551-3-2	4		INV	8
551	Storage A	551-3-2	0		INV	0
551	Bath A	551-3-2	0		INV	0
551	Bath B	551-3-2	0		INV	0
551	Bath C	551-3-2	2		INV	4
551	328	551-3-3	2		INV	4
551	335	551-3-3	2		INV	4
551	336	551-3-3	2		INV	4
551	340	551-3-3	2		INV	4
551	345	551-3-3	2		INV	4
551	330	551-3-3	2		INV	4
551	332	551-3-3	2		INV	4
551	334	551-3-3	2		INV	4

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
551	337	551-3-3	2		INV	4
551	338	551-3-3	2		INV	4
551	344	551-3-3	2		INV	4
551	Bath	551-3-3	2	2	NO PCBs	4
551	Hall A	551-3-3	6	4	NO PCBs	12
551	Hall B	551-3-3	6	5	NO PCBs	12
551	Latrine	551-3-3	4		INV	8
551	Storage A	551-3-3	0		INV	0
551	Storage B	551-3-3	0		INV	0
551	304	551-3-4	2		INV	4
551	309	551-3-4	2		INV	4
551	310	551-3-4	2		INV	4
551	311	551-3-4	2		INV	4
551	313	551-3-4	2		INV	4
551	305	551-3-4	2		INV	4
551	312	551-3-4	2		INV	4
551	312 A	551-3-4	2		INV	4
551	314	551-3-4	2		INV	4
551	315	551-3-4	2		INV	4
551	316	551-3-4	2		INV	4
551	Bath	551-3-4	2		INV	4
551	Hall A	551-3-4	6	4	NO PCBs	12
551	Hall B	551-3-4	6	4	NO PCBs	12
551	Latrine	551-3-4	4		INV	8
551	Storage A	551-3-4	0		INV	0
551	Storage B	551-3-4	0		INV	0
551	<b>Total</b>		<b>597</b>	<b>128</b>		<b>1199</b>
552	159	552-1-1	1		INV	2
552	145	552-1-1	9		INV	18
552	150	552-1-1	2		INV	4
552	151	552-1-1	4		INV	8
552	152	552-1-1	4		INV	8
552	153	552-1-1	2		INV	4
552	154	552-1-1	6		INV	12
552	156	552-1-1	1		INV	2

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
552	157	552-1-1	6		INV	12
552	162	552-1-1	2		INV	4
552	163	552-1-1	8	1	NO PCBS	16
552	164	552-1-1	2		INV	4
552	165	552-1-1	2		INV	4
552	166	552-1-1	6		INV	12
552	Hall A	552-1-1	2	1	NO PCBS	4
552	Hall B	552-1-1	5	3	NO PCBS	10
552	Hall C	552-1-1	2	1	NO PCBS	4
552	Latrine	552-1-1	16		INV	16
552	131	552-1-2			No Access	
552	133	552-1-2	2		INV	4
552	134	552-1-2			No Access	
552	136	552-1-2	2		INV	4
552	137	552-1-2	2		INV	4
552	138	552-1-2	2		INV	4
552	139	552-1-2	4		INV	8
552	141	552-1-2			No Access	
552	142	552-1-2	1		INV	2
552	143	552-1-2	1		INV	2
552	144	552-1-2	6		INV	12
552	132	552-1-2	4		INV	8
552	129	552-1-2	6		INV	12
552	128	552-1-2			No Access	
552	135	552-1-2	4		INV	8
552	127	552-1-2	4		INV	8
552	126	552-1-2	2		INV	4
552	130	552-1-2	4		INV	8
552	Hall A	552-1-2	3	1	NO PCBS	6
552	Hall B	552-1-2	3	5	NO PCBS	6
552	Hall C	552-1-2	3	1	NO PCBS	6
552	Latrine	552-1-2	16		INV	16
552	120	552-1-3	2		INV	4
552	121	552-1-3	2	2	NO PCBS	4
552	122	552-1-3	2		INV	4

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
552	123	552-1-3	2		INV	4
552	124	552-1-3	2		INV	4
552	125	552-1-3	2		INV	4
552	127	552-1-3	2		INV	6
552	128	552-1-3	2		INV	6
552	116	552-1-3	2		INV	4
552	117	552-1-3	6		INV	12
552	129	552-1-3	8		INV	16
552	119	552-1-3	6		INV	12
552	118	552-1-3	6		INV	12
552	Bath A	552-1-3	2		INV	6
552	Bath B	552-1-3	2		INV	6
552	Latrine	552-1-3	6		INV	12
552	Hall A	552-1-3	3	3	NO PCBs	6
552	Hall B	552-1-3	3	3	NO PCBs	6
552	Hall C	552-1-3	3	3	NO PCBs	6
552	115	552-1-3	2		INV	6
552	101	552-1-4	12		INV	24
552	103	552-1-4	2		INV	4
552	104	552-1-4	3		INV	4
552	104 A	552-1-4	2		INV	4
552	105	552-1-4	2		INV	4
552	108	552-1-4	2		INV	4
552	109	552-1-4	2		INV	4
552	110	552-1-4	6	6	NO PCBs	12
552	107	552-1-4	2		INV	4
552	106	552-1-4	2		INV	4
552	102	552-1-4	4		INV	4
552	Bath A	552-1-4	1		INV	8
552	Bath B	552-1-4	1		INV	2
552	Latrine	552-1-4	6		INV	2
552	Hall A	552-1-4	3	3	NO PCBs	12
552	Hall B	552-1-4	3	3	NO PCBs	6
552	Hall C	552-1-4	2	2	NO PCBs	6
552	111	552-1-4	2		INV	6

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
552	225	552-2-1	3	1	NO PCBS	6
552	227	552-2-1	2		INV	4
552	228	552-2-1	2		INV	4
552	229	552-2-1	2	1	NO PCBS	4
552	230	552-2-1	2		INV	4
552	231	552-2-1	2		INV	4
552	236	552-2-1	2	1	NO PCBS	4
552	237	552-2-1	2	2	NO PCBS	4
552	239	552-2-1	2	2	NO PCBS	4
552	240	552-2-1	2		INV	4
552	241	552-2-1	2	1	NO PCBS	4
552	242	552-2-1	2	1	NO PCBS	4
552	Bath A	552-2-1	0		INV	0
552	Bath B	552-2-1	0		INV	0
552	Hall A	552-2-1	5	3	NO PCBS	10
552	Hall B	552-2-1	5	1	NO PCBS	10
552	Latrine	552-2-1	4		INV	8
552	Storage	552-2-1	0		INV	0
552	228	552-2-2	2		INV	4
552	229	552-2-2	1		INV	2
552	230	552-2-2	2		INV	4
552	234	552-2-2	2		INV	4
552	235	552-2-2	2		INV	4
552	236	552-2-2	2		INV	4
552	237	552-2-2	2		INV	4
552	238	552-2-2	2		INV	4
552	239	552-2-2	2		INV	4
552	240	552-2-2	2		INV	4
552	241	552-2-2	2		INV	4
552	245	552-2-2	2		INV	4
552	246	552-2-2	2		INV	4
552	247	552-2-2	2		INV	4
552	Hall A	552-2-2	5	3	NO PCBS	10
552	Hall B	552-2-2	5	3	NO PCBS	10
552	Latrine	552-2-2	5		INV	20

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
552	254	552-2-3	2		INV	4
552	255	552-2-3	2		INV	4
552	256	552-2-3	2		INV	4
552	257	552-2-3	2		INV	4
552	258	552-2-3	2		INV	4
552	259	552-2-3	2		INV	4
552	260	552-2-3	2		INV	4
552	261	552-2-3	2		INV	4
552	262	552-2-3	2		INV	4
552	263	552-2-3	2		INV	4
552	265	552-2-3	2		INV	4
552	267	552-2-3	2		INV	4
552	268	552-2-3	2		INV	4
552	269	552-2-3	2		INV	4
552	Hall A	552-2-3	5	3	NO PCBS	10
552	Hall B	552-2-3	5	3	NO PCBS	10
552	Latrine	552-2-3	5	3	NO PCBS	10
552	272	552-2-4	2		INV	4
552	274	552-2-4	2		INV	4
552	273	552-2-4	2	1	NO PCBS	4
552	284	552-2-4	2		INV	4
552	275	552-2-4	2	1	NO PCBS	4
552	276	552-2-4	2		INV	4
552	279	552-2-4	2	1	NO PCBS	4
552	280	552-2-4	2	2	NO PCBS	4
552	281	552-2-4	2		INV	4
552	282	552-2-4	2		INV	4
552	285	552-2-4	2		INV	4
552	283	552-2-4	2		INV	4
552	Bath A	552-2-4	0		INV	0
552	Bath B	552-2-4	0		INV	0
552	Bath C	552-2-4	0		INV	0
552	Bath D	552-2-4	0		INV	0
552	Hall A	552-2-4	5	3	NO PCBS	10
552	Hall B	552-2-4	5	3	NO PCBS	10

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
552	Latrine	552-2-4	5		INV	10
552	383	552-3-1	2		INV	4
552	376	552-3-1	2		INV	4
552	378	552-3-1	2		INV	4
552	382	552-3-1	2	1	NO PCBS	4
552	384	552-3-1	2		INV	4
552	385	552-3-1	2		INV	4
552	386	552-3-1	2		INV	4
552	387	552-3-1	2		INV	4
552	393	552-3-1	2	1	NO PCBS	4
552	395	552-3-1	2		INV	4
552	396	552-3-1	2		INV	45
552	Bath A	552-3-1	0		INV	0
552	Bath B	552-3-1	0		INV	0
552	Bath C	552-3-1	2	2	NO PCBS	2
552	Hall A	552-3-1	6	4	NO PCBS	12
552	Hall B	552-3-1	6	4	NO PCBS	12
552	Latrine	552-3-1	4		INV	8
552	Storage	552-3-1	0		INV	0
552	350	552-3-2	2		INV	4
552	352	552-3-2	2		INV	4
552	357	552-3-2	2		INV	4
552	358	552-3-2	2		INV	4
552	359	552-3-2	2		INV	4
552	360	552-3-2	2		INV	4
552	361	552-3-2	2		INV	4
552	362	552-3-2	2		INV	4
552	363	552-3-2	2		INV	4
552	367	552-3-2	2		INV	4
552	368	552-3-2	2		INV	4
552	Bath	552-3-2	2		INV	4
552	Hall A	552-3-2	6	4	NO PCBS	12
552	Hall B	552-3-2	6	4	NO PCBS	12
552	Latrine	552-3-2	4		INV	8
552	Storage A	552-3-2	0		INV	0

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Building #	Room #	Sketch ID	Fluorescent Light Fixtures Inventoried	Fluorescent Light Switches Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
552	Storage B	552-3-2	0		INV	0
552	370	552-3-3	2		INV	4
552	371	552-3-3	2		INV	4
552	372	552-3-3	2		INV	4
552	373	552-3-3	2		INV	4
552	361	552-3-3	2		INV	4
552	364	552-3-3	2		INV	4
552	365	552-3-3	2		INV	4
552	366	552-3-3	2		INV	4
552	367	552-3-3	2		INV	4
552	368	552-3-3	2		INV	4
552	369	552-3-3	2		INV	4
552	Bath	552-3-3	2	1	NO PCBS	4
552	Hall A	552-3-3	6	4	NO PCBS	12
552	Hall B	552-3-3	6	4	NO PCBS	12
552	Latrine	552-3-3	4		INV	8
552	Storage A	552-3-3	0		INV	0
552	Storage B	552-3-3	0		INV	0
552	301	552-3-4	2		INV	4
552	304	552-3-4	2		INV	4
552	309	552-3-4	2		INV	4
552	310	552-3-4	2		INV	4
552	311	552-3-4	2		INV	4
552	312	552-3-4	2		INV	4
552	313	552-3-4	2		INV	4
552	314	552-3-4	2		INV	4
552	315	552-3-4	2		INV	4
552	319	552-3-4	2		INV	4
552	320	552-3-4	2		INV	4
552	321	552-3-4	2		INV	4
552	Hall A	552-3-4	5	3	NO PCBS	10
552	Hall B	552-3-4	5	3	NO PCBS	10
552	Latrine	552-3-4	4		INV	8
552	Bath	552-3-4	2		INV	4
552	Total		594	112		1217

Building #	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	# of Flourescent Light Tubes
3004	499	37	960
<b>Total</b>	<b>499</b>	<b>37</b>	<b>960</b>

Schofield Barracks 3004 Inspection  
 DACA83-02-P-0026

Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
3004	1017	3004 1-1	10		INV	20
3004	1018	3004 1-1			No Access	
3004	1016	3004 1-1	5		INV	10
3004	1015	3004 1-1	1	1	NO PCBS	2
3004	1014	3004 1-1	1	1	NO PCBS	2
3004	Hall A	3004 1-1	12	9	NO PCBS	24
3004	1012	3004 1-1	13		INV	26
3004	1013	3004 1-1	3		INV	6
3004	1007	3004 1-1	0		INV	0
3004	1011	3004 1-1	2		INV	4
3004	1010	3004 1-1	2		INV	4
3004	1009	3004 1-1	5		INV	10
3004	Hall B	3004 1-1	3		INV	6
3004	1006	3004 1-1	3		INV	6
3004	1005	3004 1-1	1		INV	2
3004	1008	3004 1-1	4		INV	8
3004	1002	3004 1-1			No Access	
3004	1004	3004 1-1	8		INV	16
3004	1003	3004 1-1	1		INV	2
3004	1019	3004 1-2	4		INV	8
3004	1020	3004 1-2	4		INV	8
3004	1078	3004 1-2	2		INV	4
3004	1079	3004 1-2	2		INV	4
3004	1021	3004 1-2	3		INV	6
3004	1022	3004 1-2	4		INV	8
3004	Hall	3004 1-2	5		INV	10
3004	1077	3004 1-2	2		INV	4
3004	1075	3004 1-2	9		INV	18
3004	1023	3004 1-2	1		INV	2
3004	1025	3004 1-2	2		INV	4
3004	1074	3004 1-2	3		INV	6
3004	1073	3004 1-2	2		INV	4
3004	1027	3004 1-2			No Access	
3004	1028	3004 1-2	2		INV	4
3004	1029	3004 1-2	10	5	NO PCBS	20

Schofield Barracks 3004 Inspection  
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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Fluorescent Light Tubes
3004	1072	3004 1-2	10		INV	20
3004	1030	3004 1-3			No Access	
3004	1031	3004 1-3	2		INV	4
3004	1065	3004 1-3	3		INV	6
3004	1066	3004 1-3	2		INV	4
3004	1032	3004 1-3			No Access	
3004	1033	3004 1-3	2		INV	4
3004	Hall A	3004 1-3	4		INV	8
3004	1068	3004 1-3	2		INV	4
3004	Hall B	3004 1-3	10		INV	20
3004	1034	3004 1-3	4		INV	8
3004	1035	3004 1-3			No Access	
3004	1040	3004 1-3	0		INV	0
3004	1036	3004 1-3	5		INV	10
3004	1037	3004 1-3	2		INV	4
3004	1069	3004 1-3	2		INV	4
3004	1038	3004 1-3	2		INV	4
3004	1039	3004 1-3	2		INV	4
3004	1043	3004 1-4	4		INV	8
3004	1044	3004 1-4	4		INV	8
3004	1041	3004 1-4	11		INV	22
3004	1040*	3004 1-4	4		INV	8
3004	1039	3004 1-4	6		INV	12
3004	Hall	3004 1-4	4		INV	8
3004	1063	3004 1-4	1		INV	2
3004	1061	3004 1-4			No Access	
3004	1060	3004 1-4	3		INV	6
3004	1045	3004 1-4	2		INV	4
3004	1059	3004 1-4	2		INV	4
3004	1057	3004 1-4	2		INV	4
3004	1048	3004 1-4	7		INV	14
3004	1058	3004 1-4	1		INV	4
3004	1055	3004 1-4	2		INV	4
3004	1050	3004 1-4	3		INV	6
3004	1052	3004 1-4	2		INV	4

Schofield Barracks 3004 Inspection  
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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
3004	1053	3004 1-4	2		INV	4
3004	1054	3004 1-4	2		INV	4
3004	202	3004 2-1	2		INV	4
3004	201	3004 2-1	2		INV	4
3004	245	3004 2-1	2		INV	4
3004	203	3004 2-1	2		INV	4
3004	Hall	3004 2-1	10		INV	10
3004	244	3004 2-1	2		INV	4
3004	204	3004 2-1	2		INV	4
3004	243	3004 2-1	2		INV	4
3004	205	3004 2-1	2		INV	4
3004	Storage	3004 2-1			No Access	
3004	242	3004 2-1	2		INV	4
3004	206	3004 2-1	2		INV	4
3004	208	3004 2-1	1		INV	2
3004	241	3004 2-1	2		INV	4
3004	207	3004 2-1			No Access	
3004	240	3004 2-1	2		INV	4
3004	207	3004 2-2	2		INV	4
3004	240	3004 2-2	2		INV	4
3004	208	3004 2-2	2		INV	4
3004	239	3004 2-2	2		INV	4
3004	209	3004 2-2	2		INV	4
3004	238	3004 2-2	2		INV	4
3004	210	3004 2-2	2		INV	4
3004	211	3004 2-2	2		INV	4
3004	237	3004 2-2	2		INV	4
3004	212	3004 2-2	2		INV	4
3004	236	3004 2-2	2		INV	4
3004	213	3004 2-2			No Access	
3004	Hall	3004 2-2	8		INV	8
3004	213	3004 2-3	3		INV	6
3004	219	3004 2-3			No Access	
3004	214	3004 2-3	3		INV	6
3004	220	3004 2-3			No Access	

Schofield Barracks 3004 Inspection  
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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
3004	215	3004 2-3	3		INV	6
3004	221	3004 2-3			No Access	
3004	216	3004 2-3	2	2	NO PCBS	4
3004	217	3004 2-3	2		INV	4
3004	218	3004 2-3	2		INV	4
3004	Hall	3004 2-3	7		INV	7
3004	235	3004 2-3	2		INV	4
3004	234	3004 2-3	2		INV	4
3004	233	3004 2-3	2	2	NO PCBS	4
3004	219	3004 2-4	2		INV	4
3004	Laundry	3004 2-4	5		INV	4
3004	220	3004 2-4	2		INV	10
3004	221	3004 2-4	2		INV	4
3004	222	3004 2-4	2		INV	4
3004	223	3004 2-4	2	2	NO PCBS	4
3004	224	3004 2-4	2	2	NO PCBS	4
3004	Hall	3004 2-4	15		INV	15
3004	225	3004 2-4	2	2	NO PCBS	4
3004	232	3004 2-4	2		INV	4
3004	231	3004 2-4	2		INV	4
3004	230	3004 2-4	2		INV	4
3004	229	3004 2-4	2		INV	4
3004	228	3004 2-4	2		INV	4
3004	227	3004 2-4	2		INV	4
3004	226	3004 2-4	2	2	NO PCBS	4
3004	302	3004 3-1	2		INV	4
3004	301	3004 3-1	2		INV	4
3004	341	3004 3-1	2	2	NO PCBS	4
3004	303	3004 3-1	2		INV	4
3004	340	3004 3-1	2		INV	4
3004	304	3004 3-1			No Access	
3004	305	3004 3-1			No Access	
3004	339	3004 3-1	2		INV	4
3004	306	3004 3-1	2		INV	4
3004	338	3004 3-1	2		INV	4

Schofield Barracks 3004 Inspection  
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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
3004	309	3004 3-1			No Access	
3004	308	3004 3-1			No Access	
3004	Hall A	3004 3-1	1		INV	2
3004	Hall B	3004 3-1	10		INV	20
3004	307	3004 3-1	2	1	NO PCBS	4
3004	337	3004 3-1	2		INV	4
3004	308	3004 3-2			No Access	
3004	334	3004 3-2	2		INV	4
3004	309	3004 3-2	2	1	NO PCBS	4
3004	Hall	3004 3-2	8		INV	16
3004	333	3004 3-2			No Access	
3004	310	3004 3-2			No Access	
3004	335	3004 3-2	2	1	NO PCBS	4
3004	312	3004 3-2			No Access	
3004	331	3004 3-2	2		INV	4
3004	311	3004 3-2	2	1	NO PCBS	4
3004	313	3004 3-3	2		INV	4
3004	334	3004 3-3	2		INV	4
3004	314	3004 3-3	2		INV	4
3004	333	3004 3-3	2		INV	4
3004	315	3004 3-3	2		INV	4
3004	316	3004 3-3	2		INV	4
3004	332	3004 3-3	2		INV	4
3004	Hall	3004 3-3	8		INV	4
3004	317	3004 3-3	2	2	NO PCBS	16
3004	318	3004 3-3	2	1	NO PCBS	4
3004	319	3004 3-3	2		INV	4
3004	331	3004 3-3	2		INV	4
3004	Laundry	3004 3-4	4		INV	4
3004	319	3004 3-4			No Access	
3004	330	3004 3-4	2		INV	8
3004	Bath	3004 3-4	4		INV	4
3004	329	3004 3-4	2		INV	8
3004	320	3004 3-4	2		INV	4
3004	321	3004 3-4	2		INV	4

Schofield Barracks 3004 Inspection  
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Building #	Room #	Sketch ID	Flourescent Light Fixtures Inventoried	Flourescent Light Fixtures Inspected	Inspected for PCB-Containing Light Ballast (INV - Inventoried)	# Flourescent Light Tubes
3004	328	3004 3-4	2		INV	4
3004	322	3004 3-4	2		INV	4
3004	Hall	3004 3-4	8		INV	16
3004	324	3004 3-4	2		INV	4
3004	325	3004 3-4	2		INV	4
3004	326	3004 3-4	2		INV	4
3004	327	3004 3-4	2		INV	4
<b>3004</b>		<b>Total</b>	<b>499</b>	<b>37</b>		<b>960</b>

## **APPENDIX B**

### **Field Survey Data Sketched**

## NOTE: REGARDING ROOM NUMBERS

Reconciling room numbers on DPW-provided building plans with posted room number presented several challenges:

1. In numerous instances room numbers listed on building plans were in disagreement with posted room numbers.
2. In some instances numbers were used more than once on doors.
3. In some instances more than one number were posted on doors.

For clarity, each room is given a unique number that is only used once per building in this report. Generally numbers were omitted from latrines and bathrooms, and the rooms were labeled with the floor/section ID and the word "latrine" or "bathroom", to give concrete reference points.

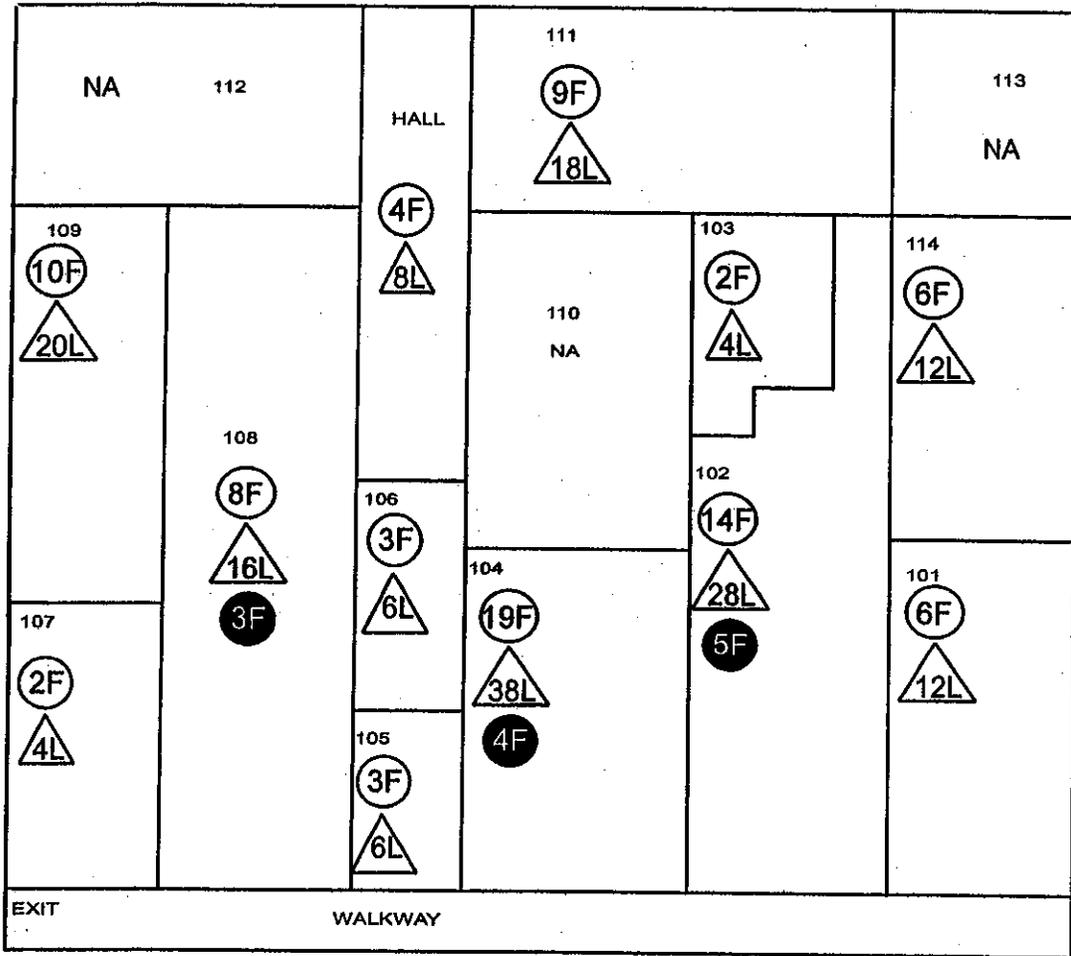
Room numbers in general reflect actual posted numbers.

( )

( )

( )

# QUAD B SCHOFIELD BARRACKS BUILDING 155 1-1



### Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

155 1-1 Building 155/1st fl/section 1

220 Room number

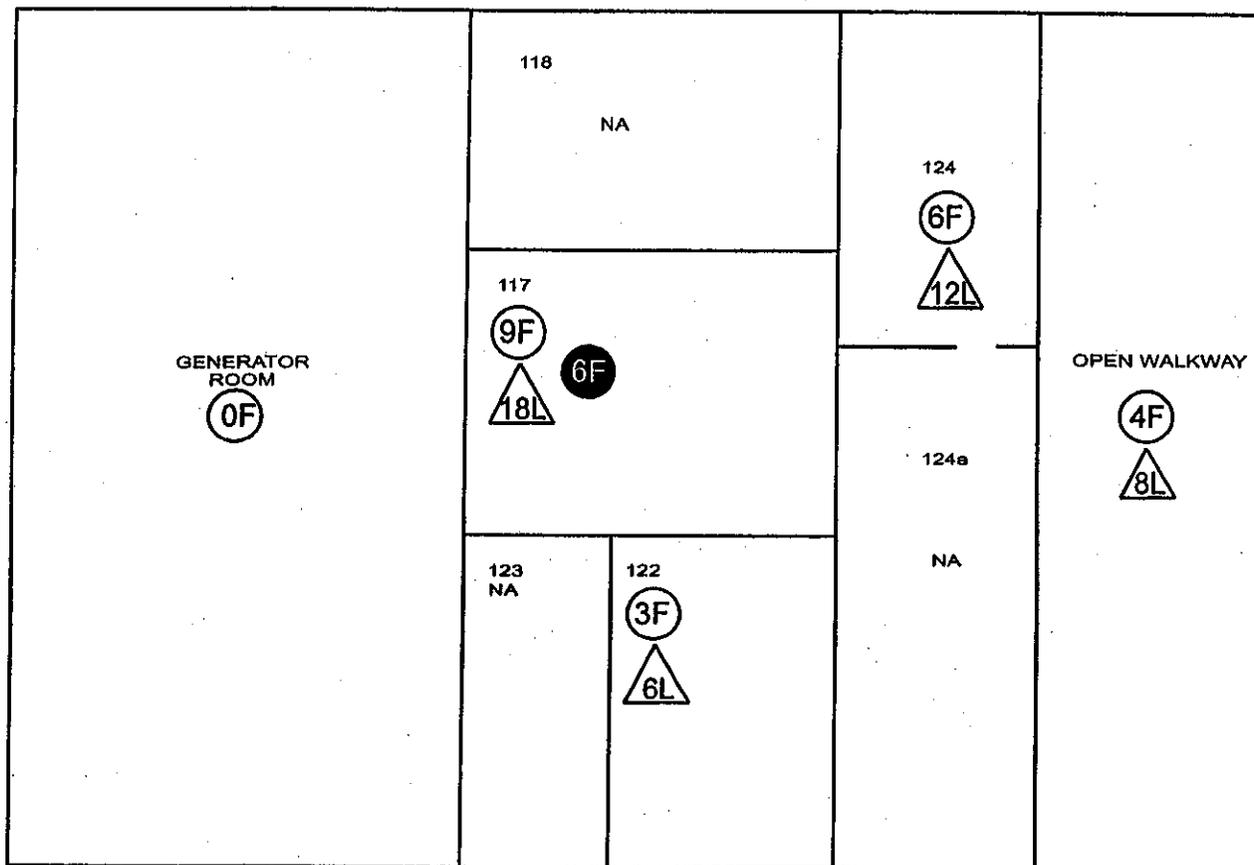
NA No access



North Seeking Arrow



# QUAD B SCHOFIELD BARRACKS BUILDING 155 1-2



### Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

155 1-2 Building 155/1st fl/section 2

220 Room number

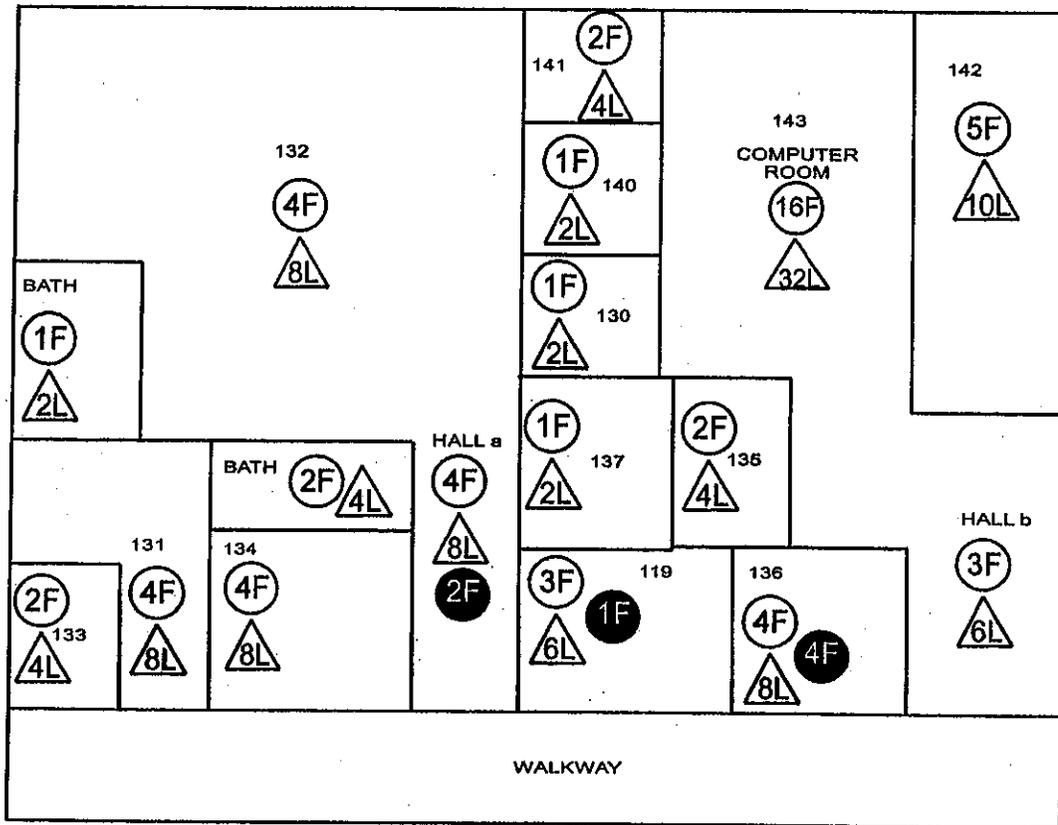
NA No access



North Seeking Arrow



# QUAD B SCHOFIELD BARRACKS BUILDING 155 1-3

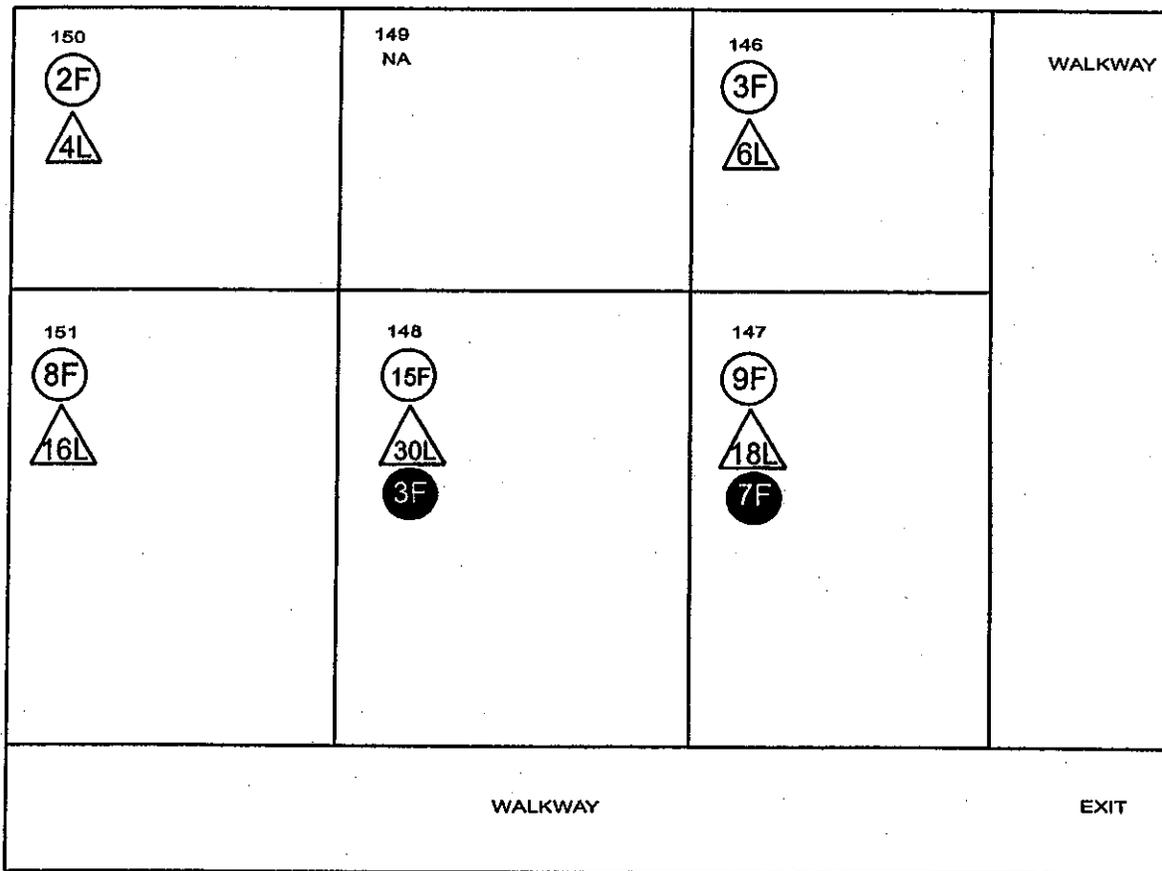


## Legend

- Light fixtures (2)
- Mercury lamps
- Light fixtures investigated (2)
- PCB-containing ballast

- 155-1-3 Building 155/1st fl/section 3
- 220 Room number
- NA No access
- North Seeking Arrow

# QUAD B SCHOFIELD BARRACKS BUILDING 155 1-4

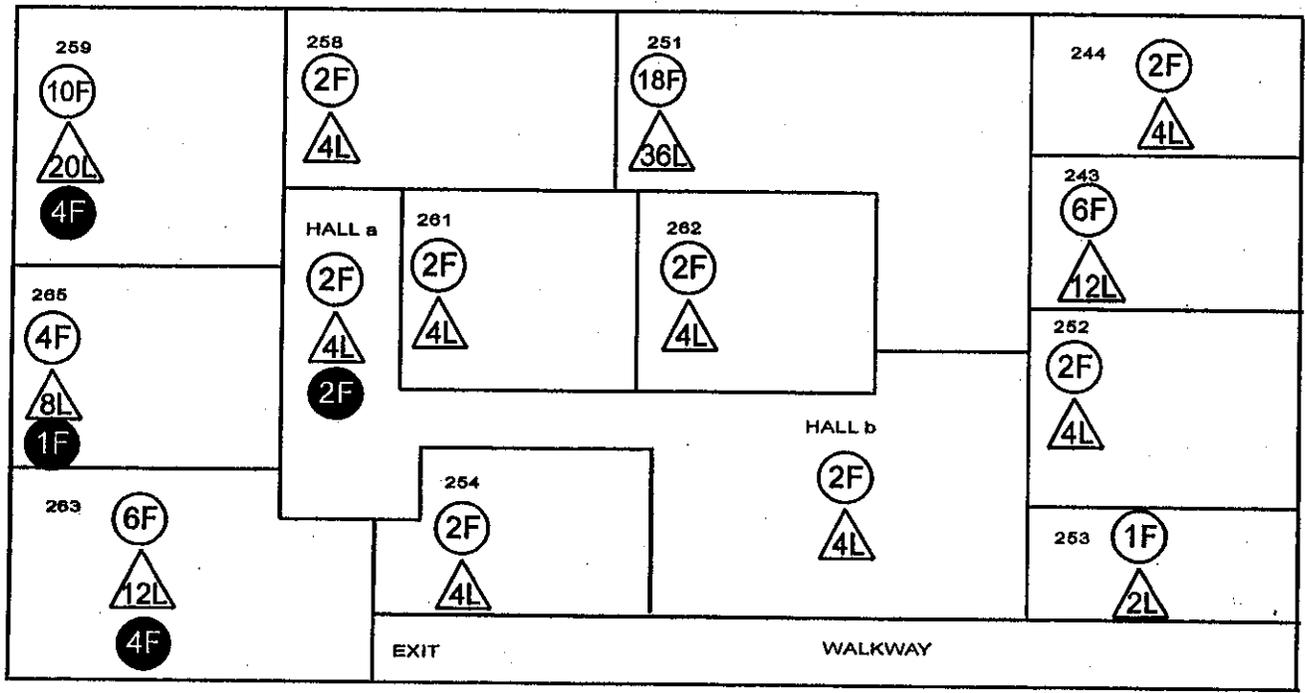


### Legend

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li> Light fixtures (2)</li> <li> Mercury lamps</li> <li> Light fixtures investigated (2)</li> <li> PCB-containing ballast</li> </ul> | <ul style="list-style-type: none"> <li><b>155-1-4</b> Building 155/1st fl/section 4</li> <li><b>220</b> Room number</li> <li><b>NA</b> No access</li> <li> North Seeking Arrow</li> </ul> |
|--|---|



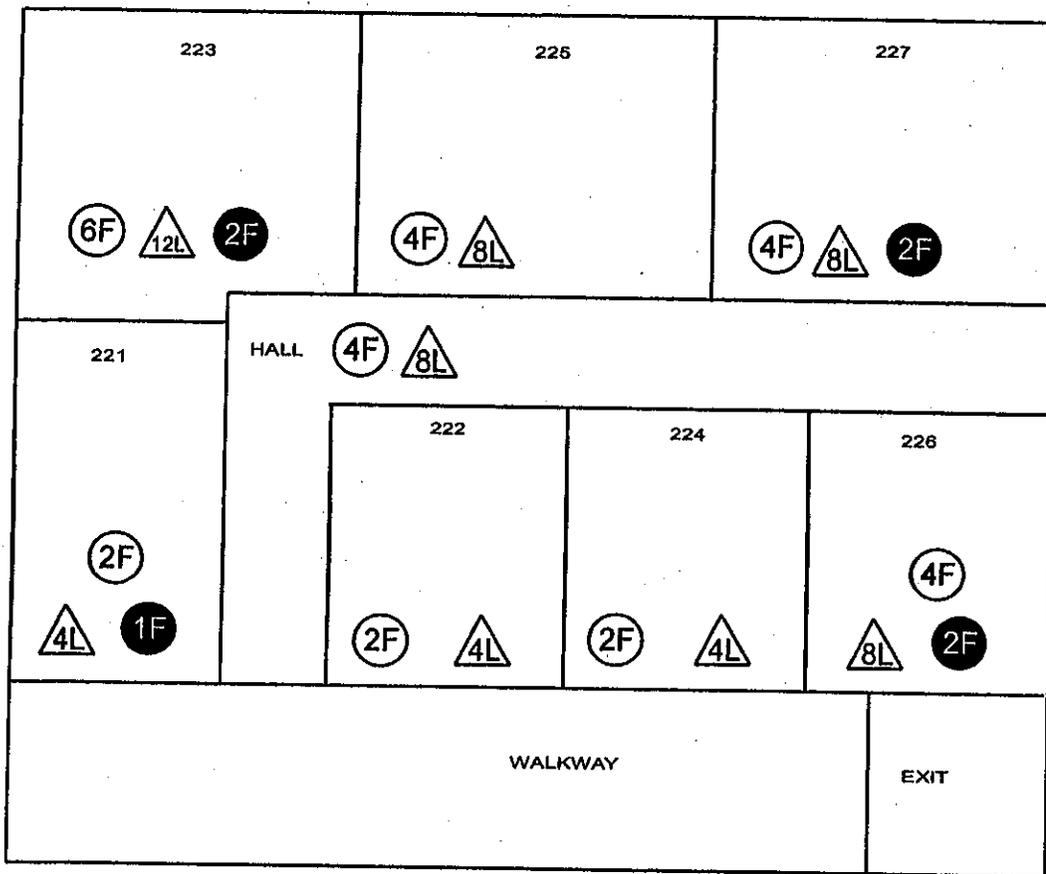
# QUAD B SCHOFIELD BARRACKS BUILDING 155 2-1



### Legend

<ul style="list-style-type: none"> <li><span style="display: inline-block; border: 1px solid black; border-radius: 50%; padding: 2px 5px;">2F</span> Light fixtures (2)</li> <li><span style="display: inline-block; border: 1px solid black; border-radius: 50%; padding: 2px 5px;">6L</span> Mercury lamps</li> <li><span style="display: inline-block; border: 1px solid black; border-radius: 50%; padding: 2px 5px; background-color: black; color: white;">2F</span> Light fixtures investigated (2)</li> <li><span style="display: inline-block; border: 1px solid black; border-radius: 50%; padding: 2px 5px; background-color: black; color: white;">1</span> PCB-containing ballast</li> </ul>	<ul style="list-style-type: none"> <li>155-2-1 Building 155/2nd fl/section 1</li> <li>220 Room number</li> <li>NA No access</li> <li><span style="display: inline-block; border: 1px solid black; border-bottom: 1px solid black; width: 10px; height: 10px; margin-right: 5px;"></span> North Seeking Arrow</li> </ul>	
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# QUAD B SCHOFIELD BARRACKS BUILDING 155 2-2



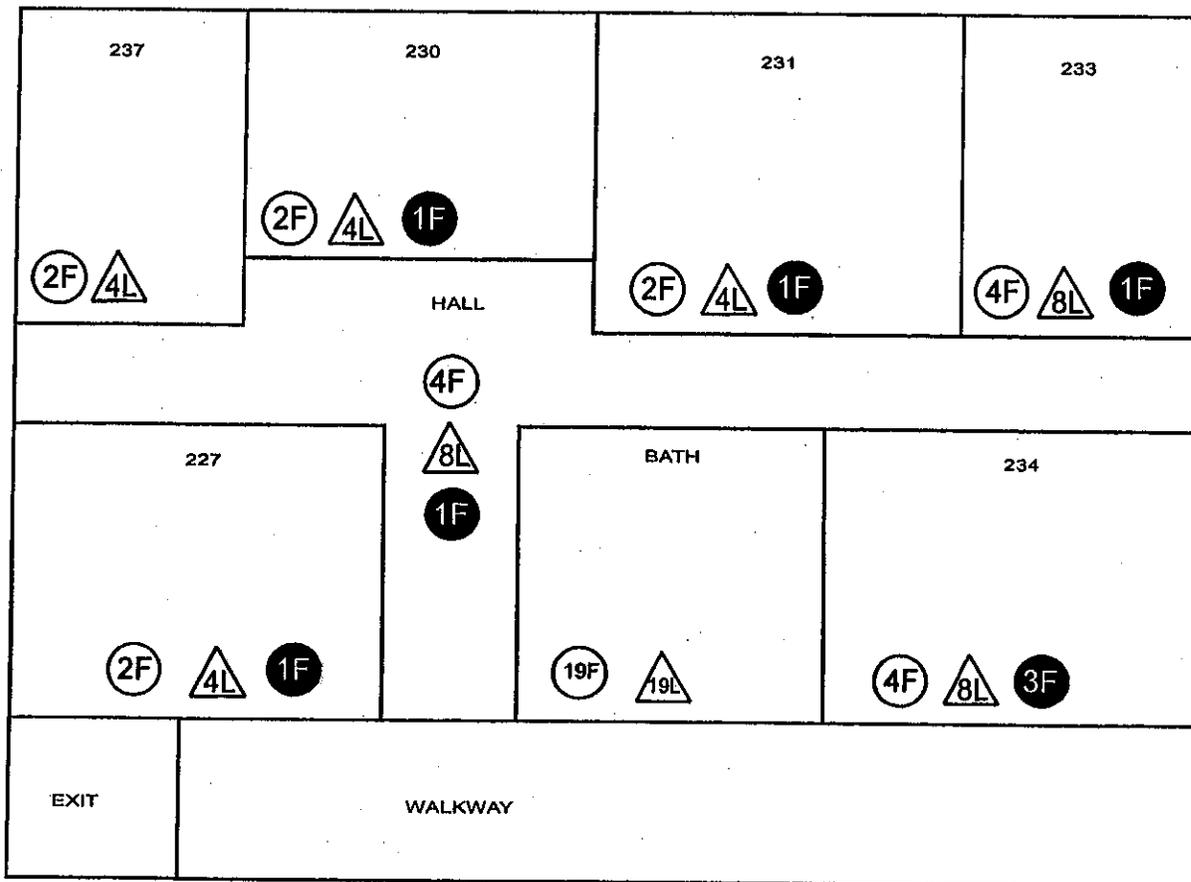
## Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

- 155 2-2 Building 155/2nd fl/section 2
- 220 Room number
- NA No access
-  North Seeking Arrow



# QUAD B SCHOFIELD BARRACKS BUILDING 155 2-3



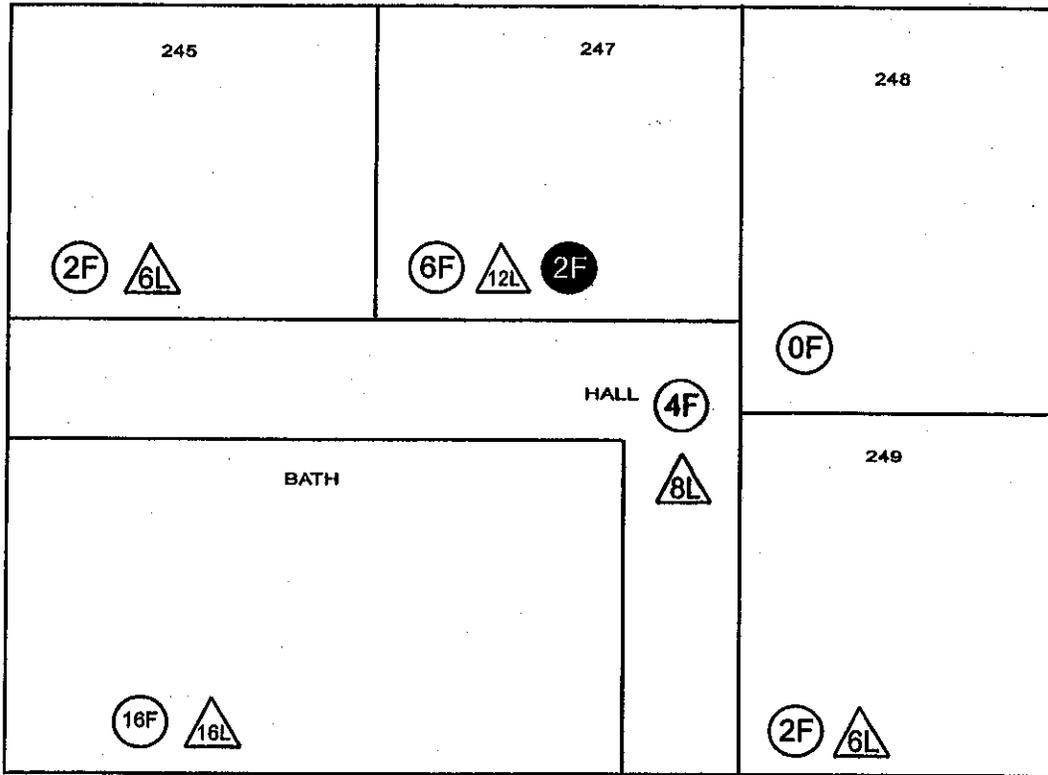
## Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

- 155 2-3 Building 155/2nd fl/section 3
- 220 Room number
- NA No access
-  North Seeking Arrow



QUAD B SCHOFIELD BARRACKS  
BUILDING 155 2-4



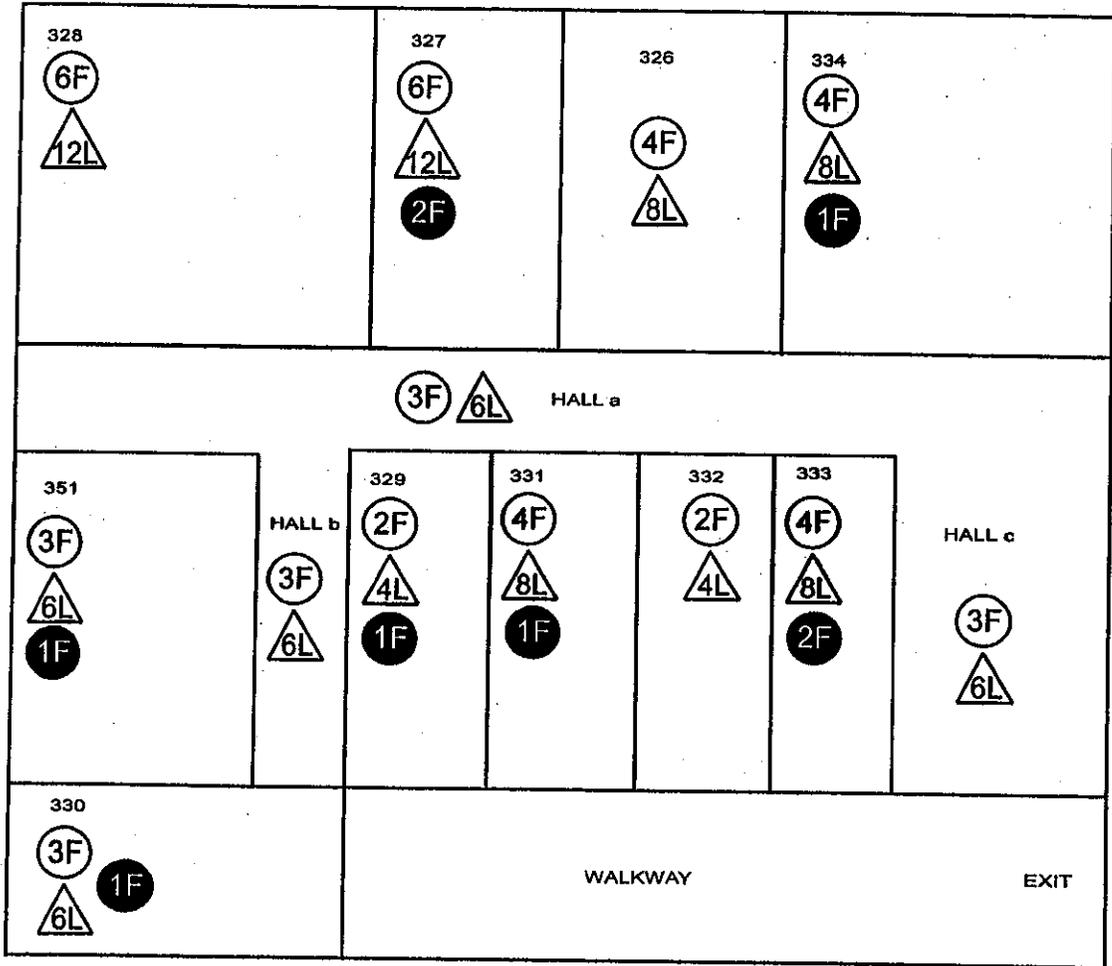
**Legend**

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

- 155 2-4 Building 155/2nd fl/section 4
- 220 Room number
- NA No access
-  North Seeking Arrow



# QUAD B SCHOFIELD BARRACKS BUILDING 155 3-1



### Legend

- Light fixtures (2)
- Mercury lamps
- Light fixtures investigated (2)
- PCB - containing ballast

155-3-1 Building 155/3rd fl/section 1

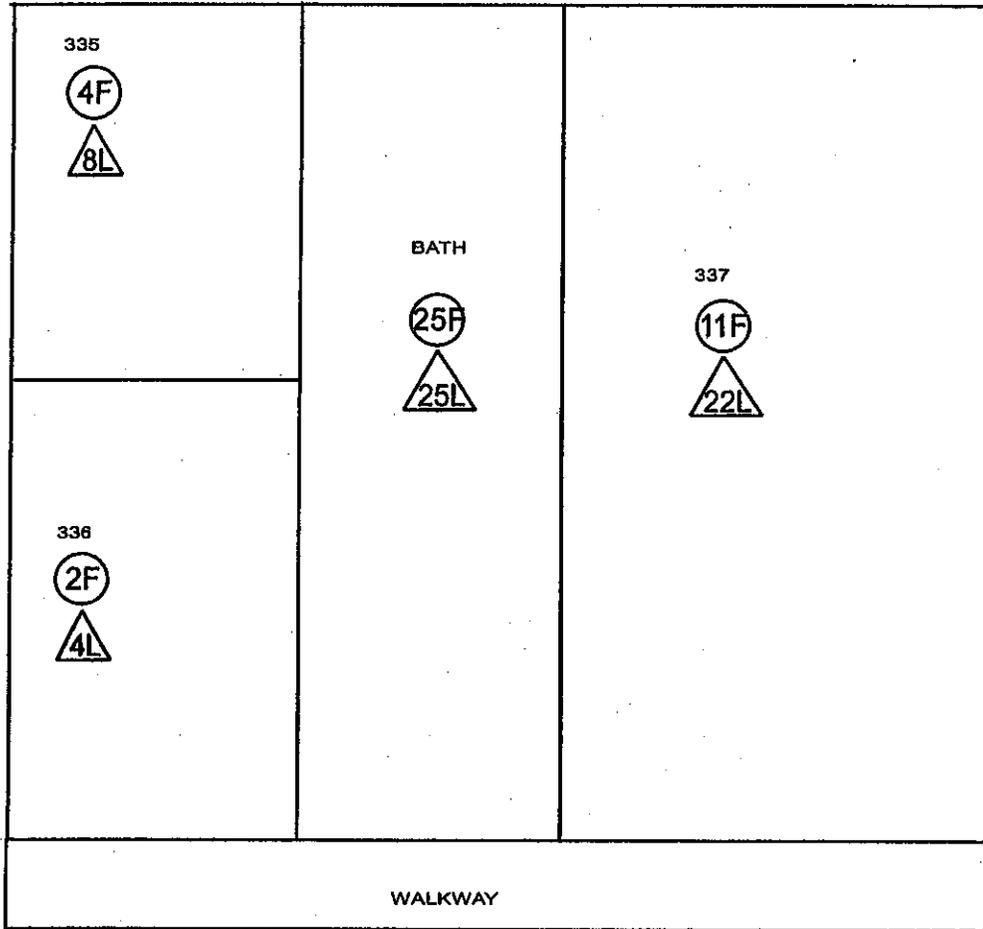
220 Room number

NA No access

North Seeking Arrow



**QUAD B SCHOFIELD BARRACKS  
BUILDING 155 3-2**



**Legend**

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

**155 3-2** Building 156/3rd fl/section 2

220 Room number

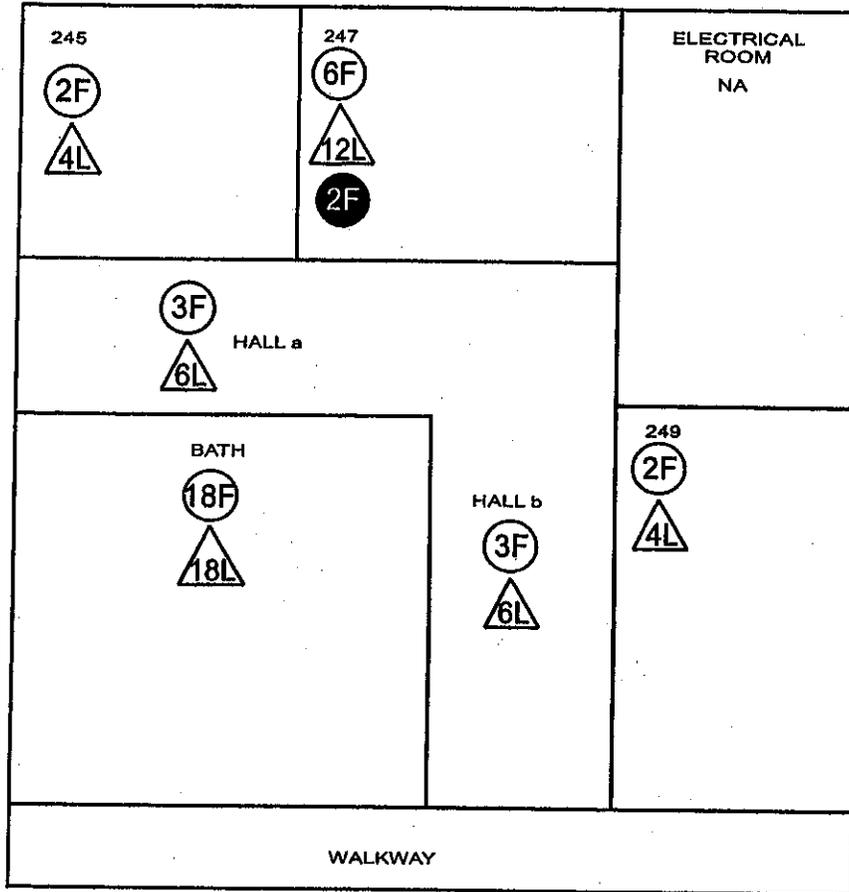
NA No access



North Seeking Arrow



# QUAD B SCHOFIELD BARRACKS BUILDING 155 3-3



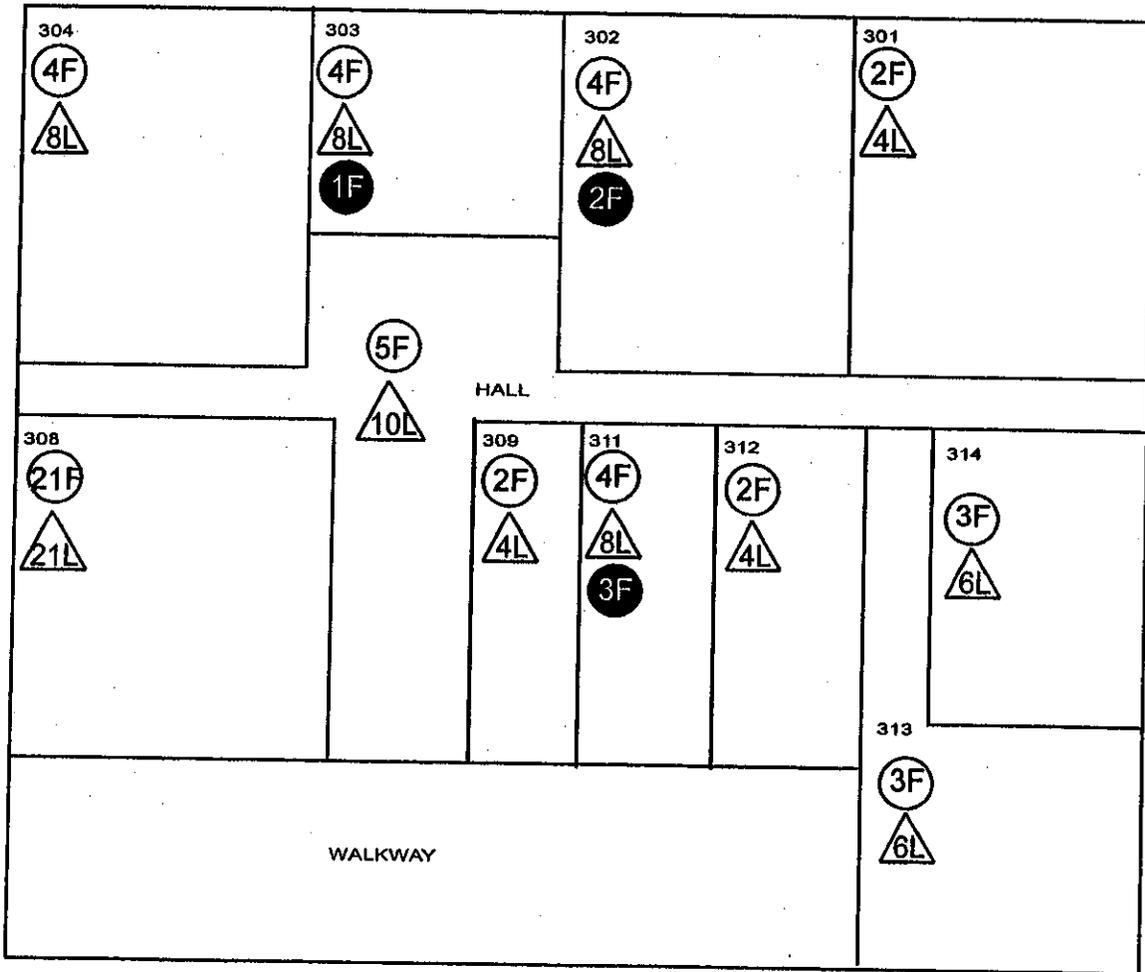
## Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

- 155-3-3** Building 155/3rd fl/section 3
- 220** Room number
- NA** No access
-  North Seeking Arrow



# QUAD B SCHOFIELD BARRACKS BUILDING 155 3-4



## Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

**155 3-4** Building 156/3rd fl/section 4

220 Room number

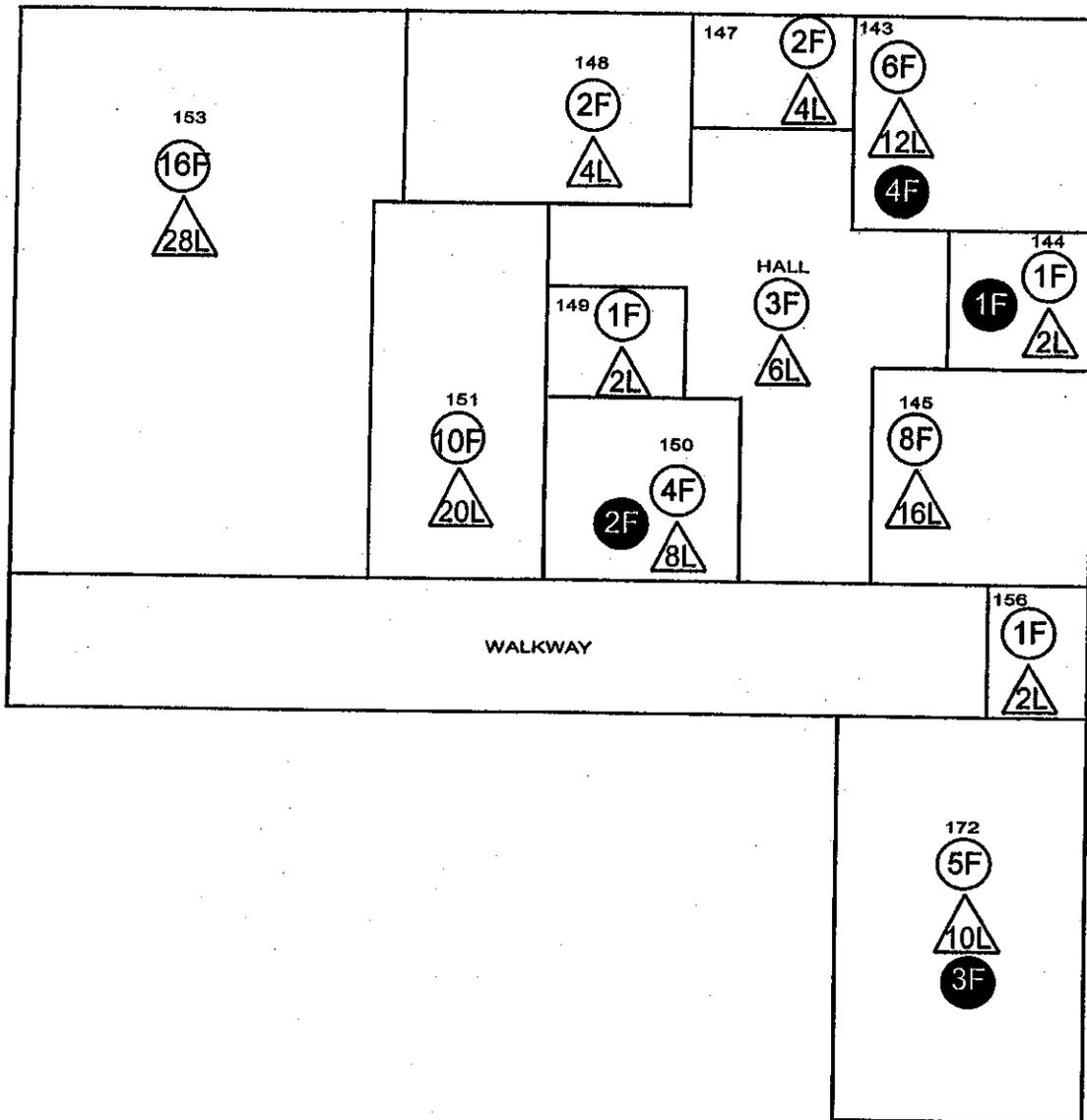
NA No access



North Seeking Arrow



# QUAD B SCHOFIELD BARRACKS BUILDING 156 1-1



## Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

156 1-1 Building 156/1ST fl/section 1

220 Room number

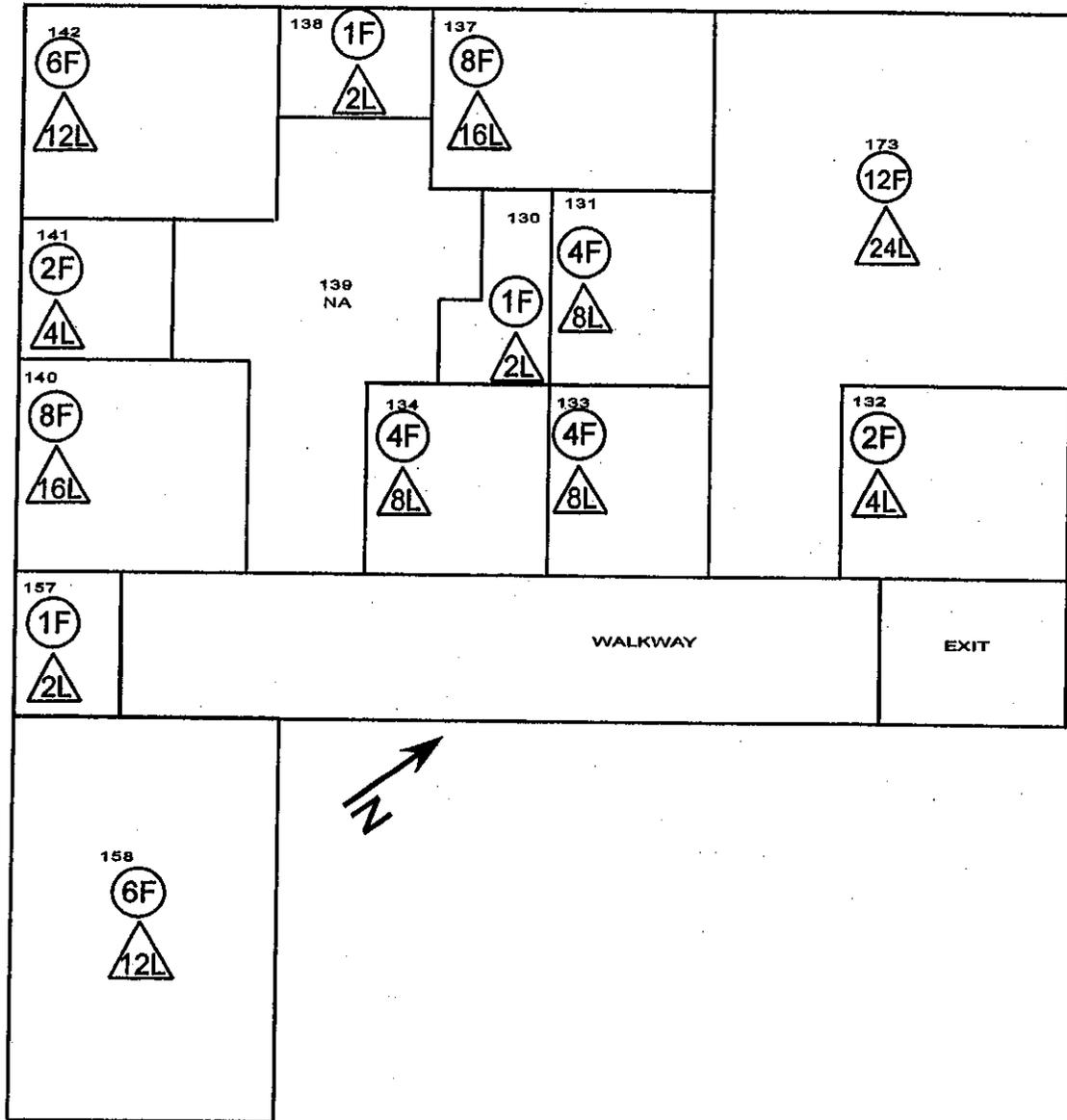
NA No access



North Seeking Arrow



**QUAD B SCHOFIELD BARRACKS  
BUILDING 156 1-2**



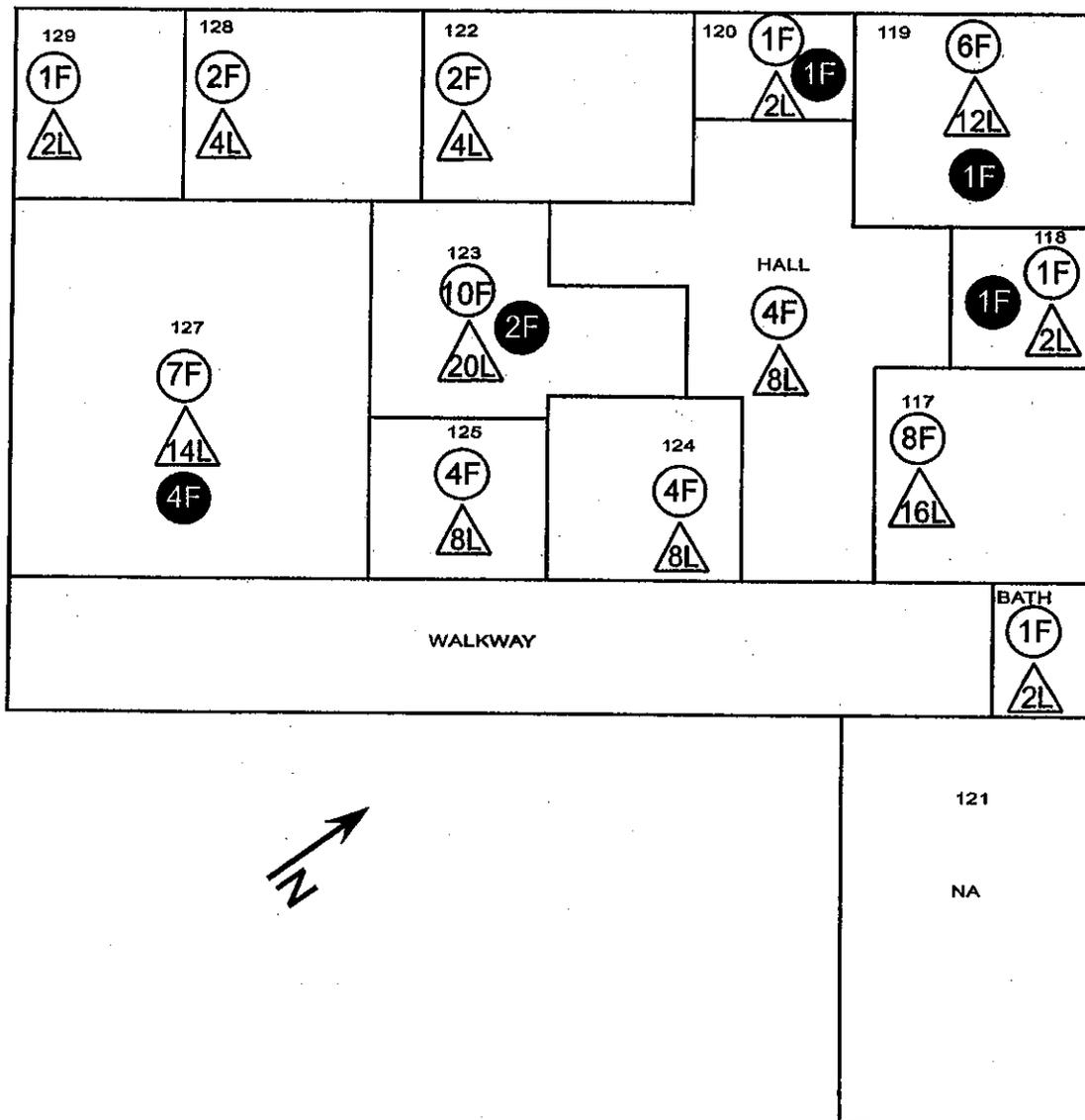
**Legend**

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

- 157 1-2 Building 157/1ST fl/section 2
- 220 Room number
- NA No access
-  North Seeking Arrow

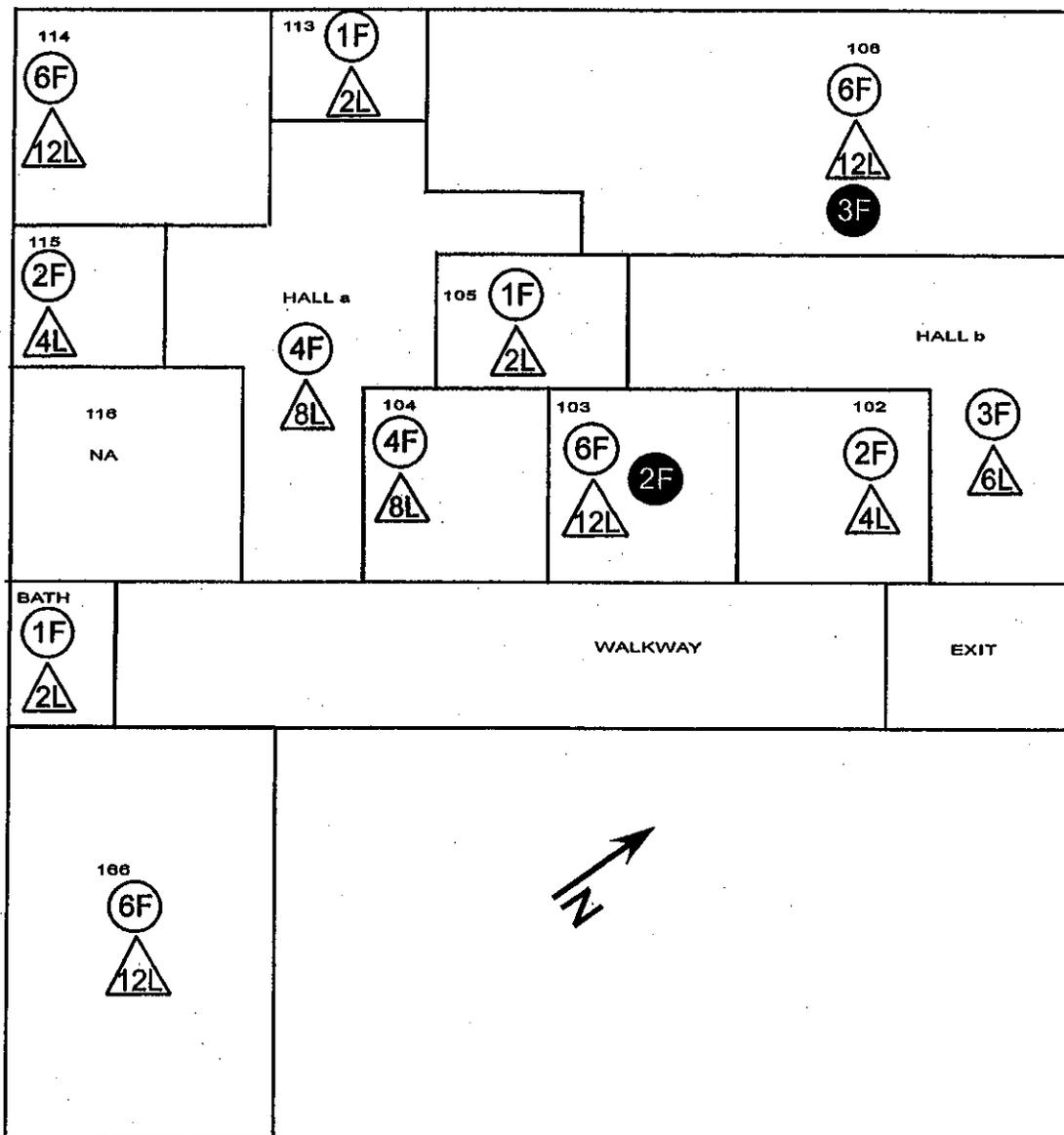


# QUAD B SCHOFIELD BARRACKS BUILDING 156 1-3



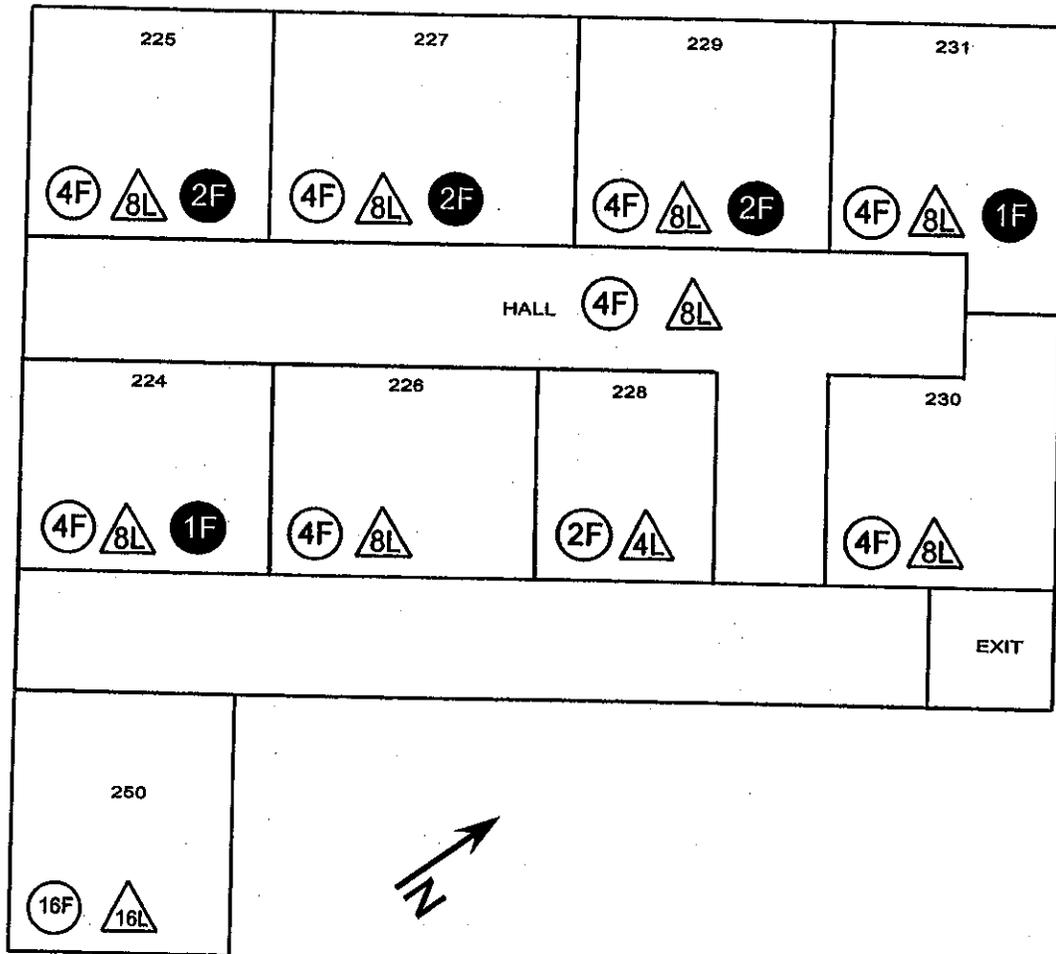
Legend	
Light fixtures (2)	156 1-3 Building 156/1st fl/section 3
Mercury lamps	220 Room number
Light fixtures investigated (2)	NA No access
PCB-containing ballast	North Seeking Arrow

# QUAD B SCHOFIELD BARRACKS BUILDING 156 1-4



Legend	
<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p><b>156 1-4</b> Building 156/1st fl/section 4</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>

# QUAD B SCHOFIELD BARRACKS BUILDING 156 2-1



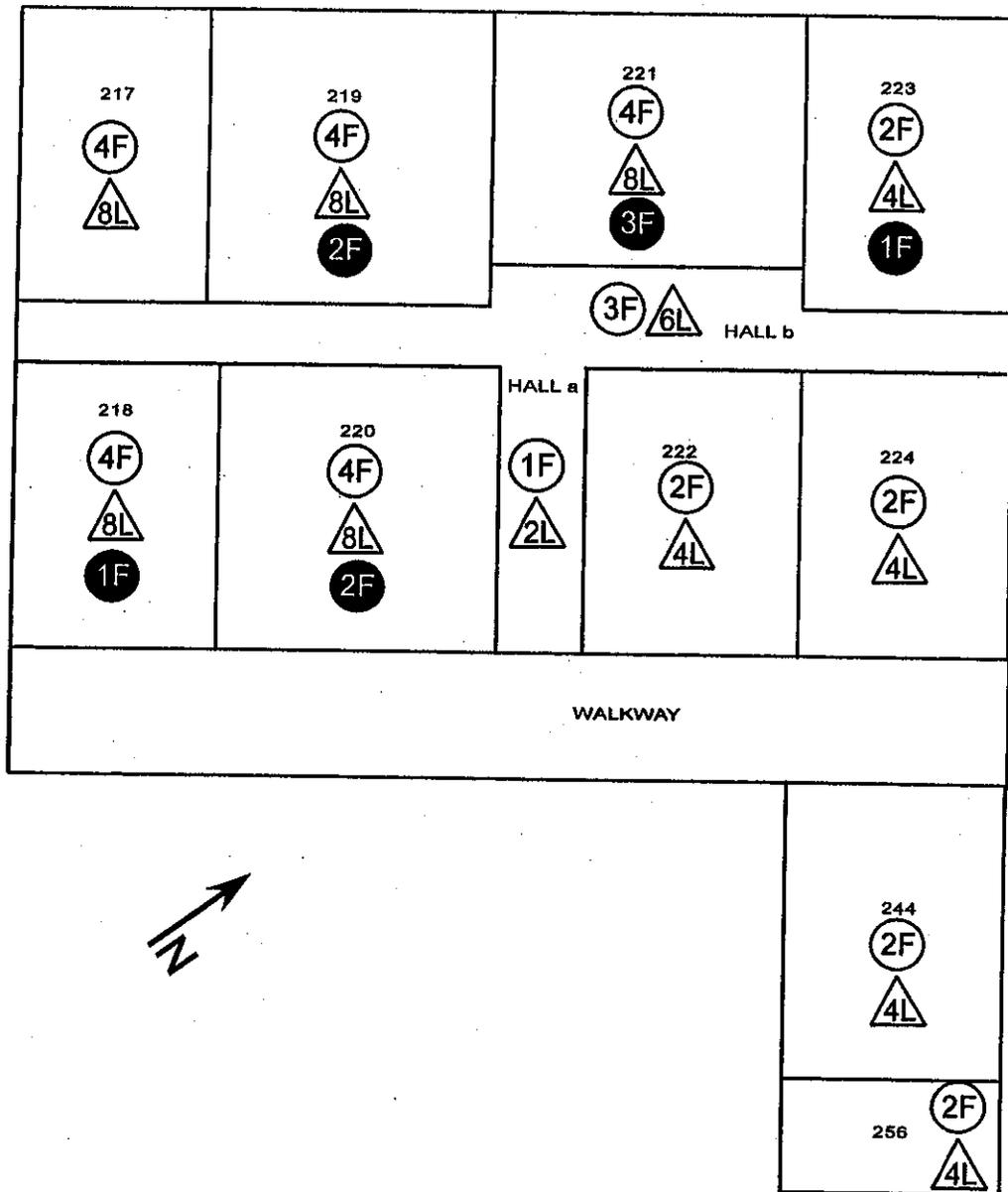
### Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

- 156 2-1** Building 156/2rd fl/section 1
- 220** Room number
- NA** No access
-  North Seeking Arrow



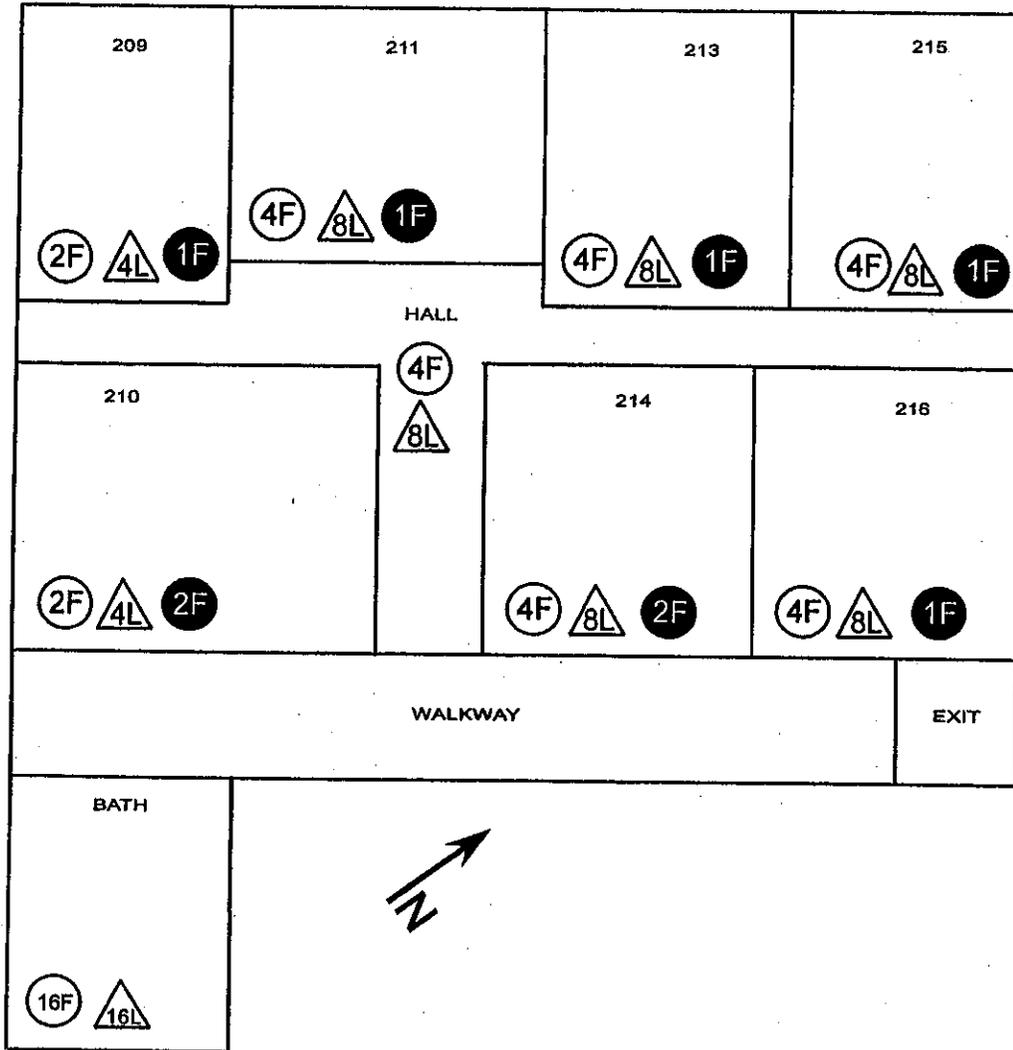
# QUAD B SCHOFIELD BARRACKS BUILDING 156 2-2



### Legend

<ul style="list-style-type: none"> <li> Light fixtures (2)</li> <li> Mercury lamps</li> <li> Light fixtures investigated (2)</li> <li> PCB-containing ballast</li> </ul>	<ul style="list-style-type: none"> <li>156 2-2 Building 156/2nd fl/section 2</li> <li>220 Room number</li> <li>NA No access</li> <li> North Seeking Arrow</li> </ul>
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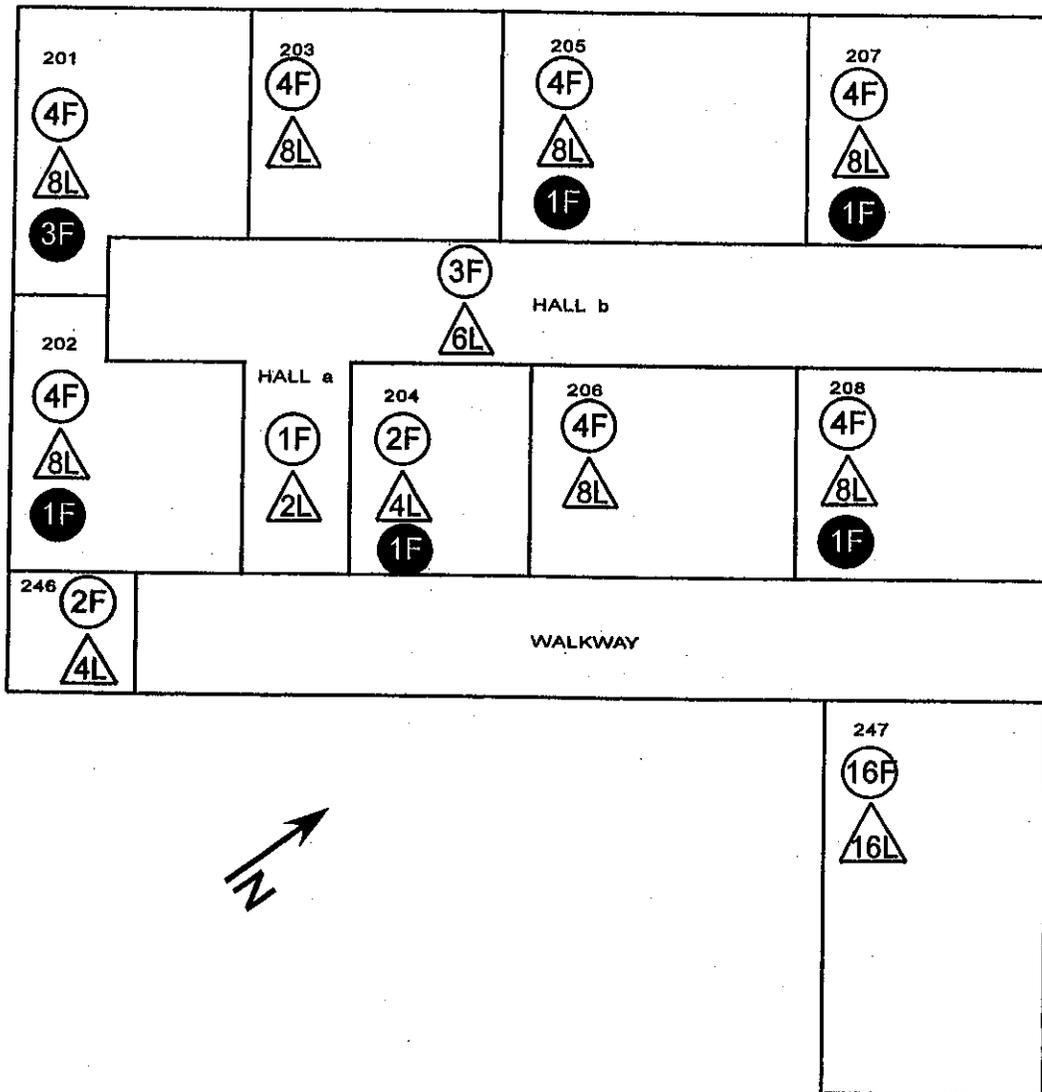
**QUAD B SCHOFIELD BARRACKS  
BUILDING 156 2-3**



Legend	
Light fixtures (2)	156 2-3 Building 156/2nd fl/section 3
Mercury lamps	220 Room number
Light fixtures investigated (2)	NA No access
PCB-containing ballast	North Seeking Arrow



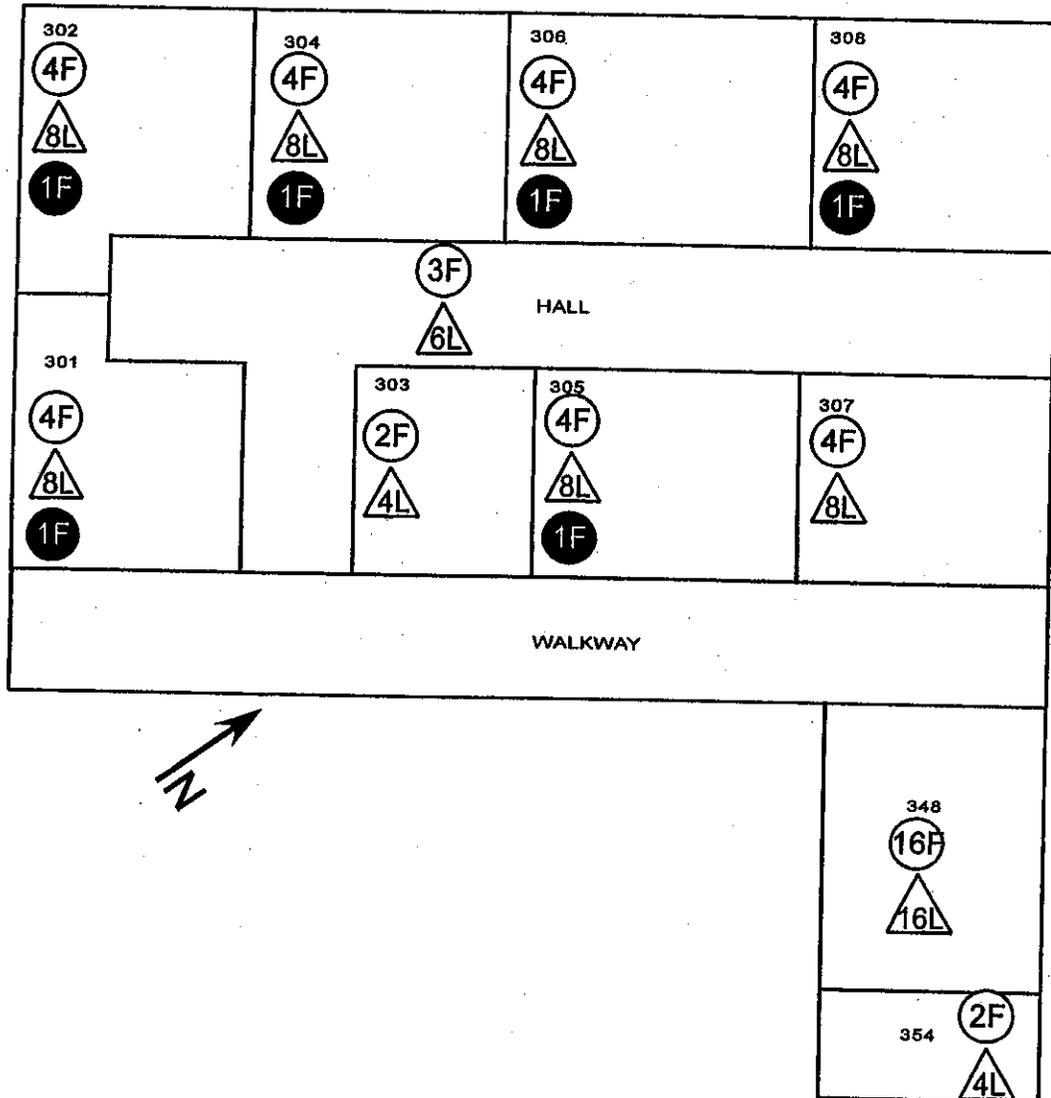
# QUAD B SCHOFIELD BARRACKS BUILDING 156 2-4



Legend	
(2F)	Light fixtures (2)
(Δ8L)	Mercury lamps
(2F)	Light fixtures investigated (2)
■	PCB-containing ballast
156 2-4	Building 156/2nd fl/section 4
220	Room number
NA	No access
↑	North Seeking Arrow



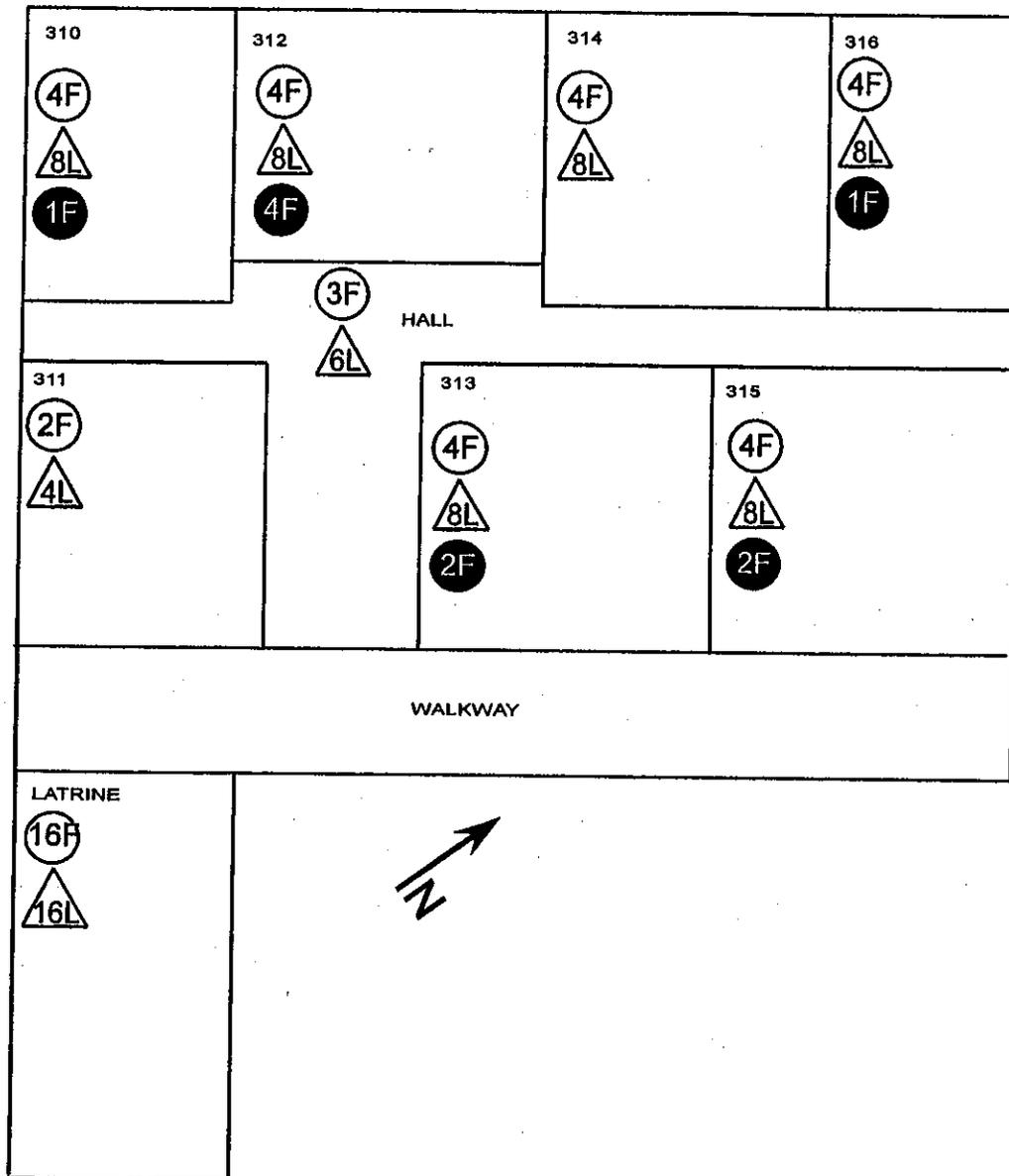
# QUAD B SCHOFIELD BARRACKS BUILDING 156 3-1



Legend	
(2F)	Light fixtures (2)
△(6L)	Mercury lamps
●(2F)	Light fixtures investigated (2)
■(1)	PCB-containing ballast
156 3-1	Building 156/3rd fl/section 1
220	Room number
NA	No access
↑ N	North Seeking Arrow



# QUAD B SCHOFIELD BARRACKS BUILDING 156 3-2



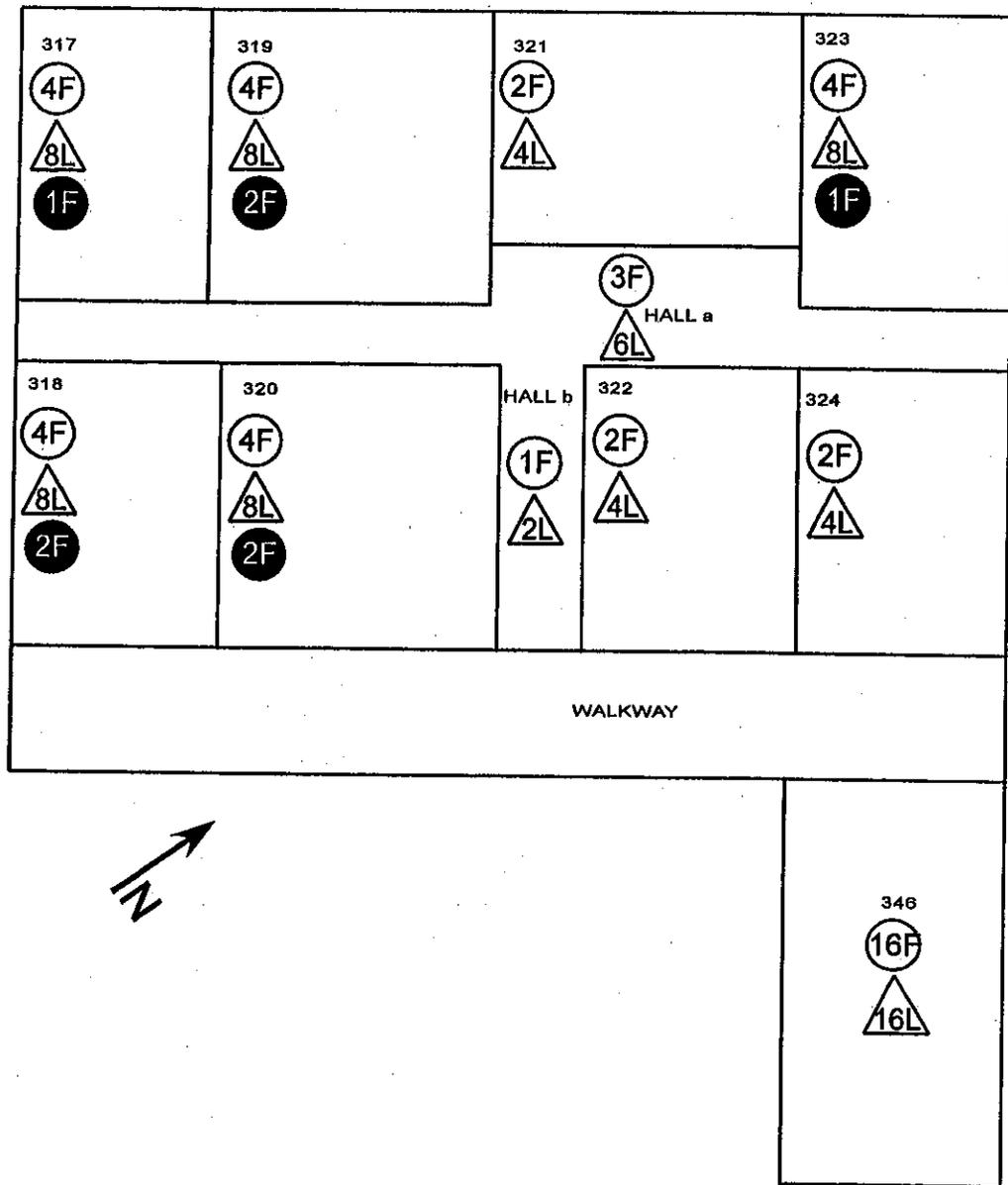
### Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

- 156 3-2** Building 156/3rd fl/section 2
- 220** Room number
- NA** No access
-  North Seeking Arrow



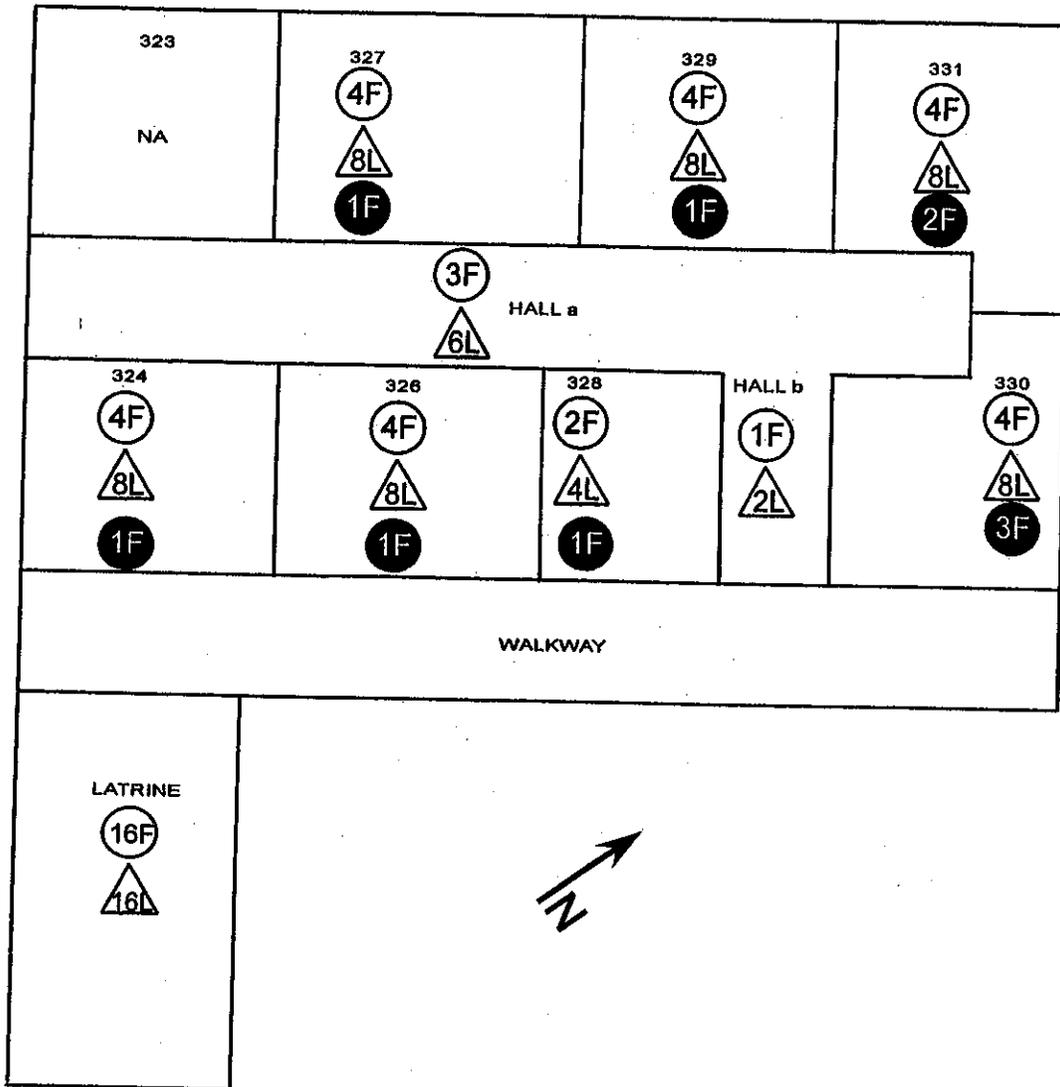
# QUAD B SCHOFIELD BARRACKS BUILDING 156 3-3



### Legend

- |   |   |
|---|---|
|  Light fixtures (2)              | <b>156 3-3</b> Building 156/3rd fl/section 3  |
|  Mercury lamps                   | 220 Room number   |
|  Light fixtures investigated (2) | NA No access  |
|  PCB-containing ballast          |  North Seeking Arrow  |

# QUAD B SCHOFIELD BARRACKS BUILDING 156 3-4



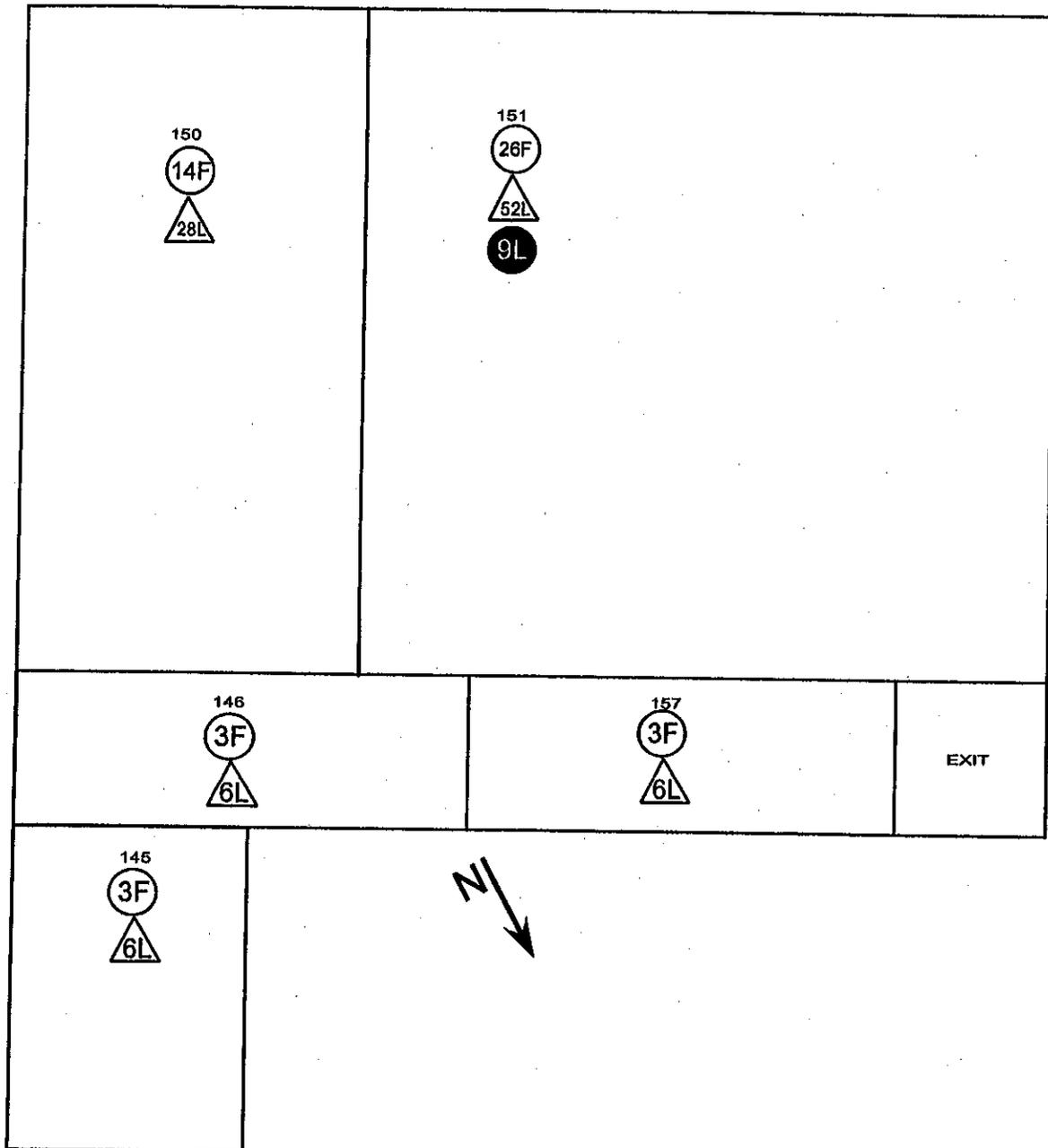
### Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

- 156 3-4** Building 156/3rd fl/section 4
- 220** Room number
- NA** No access
-  North Seeking Arrow



**QUAD B SCHOFIELD BARRACKS  
BUILDING 157 1-1**

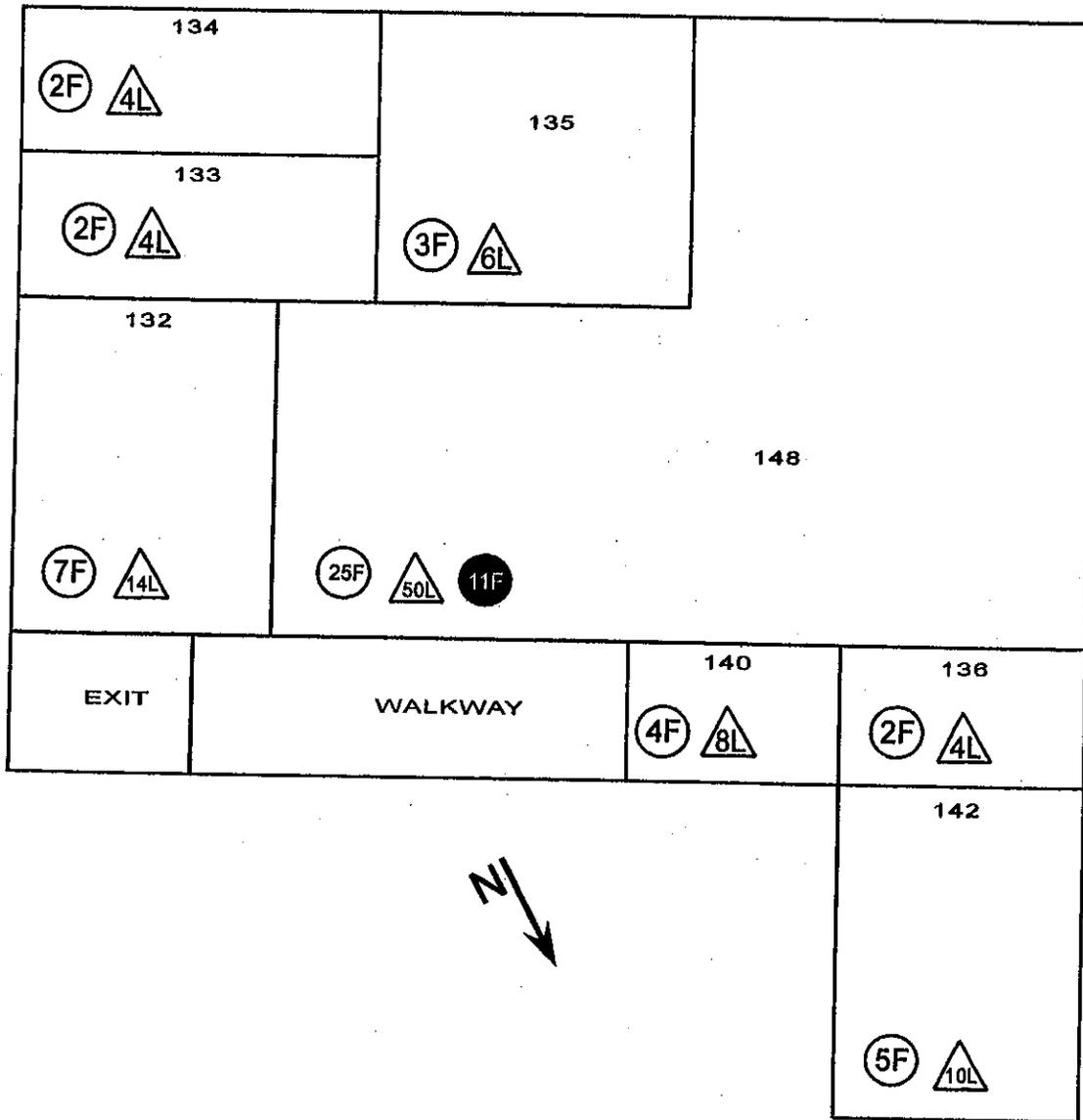


**Legend**

Light fixtures (2)	<b>157 1-1</b> Building 157/1st fl/section 1
Mercury lamps	<b>220</b> Room number
Light fixtures investigated (2)	<b>NA</b> No access
PCB-containing ballast	North Seeking Arrow

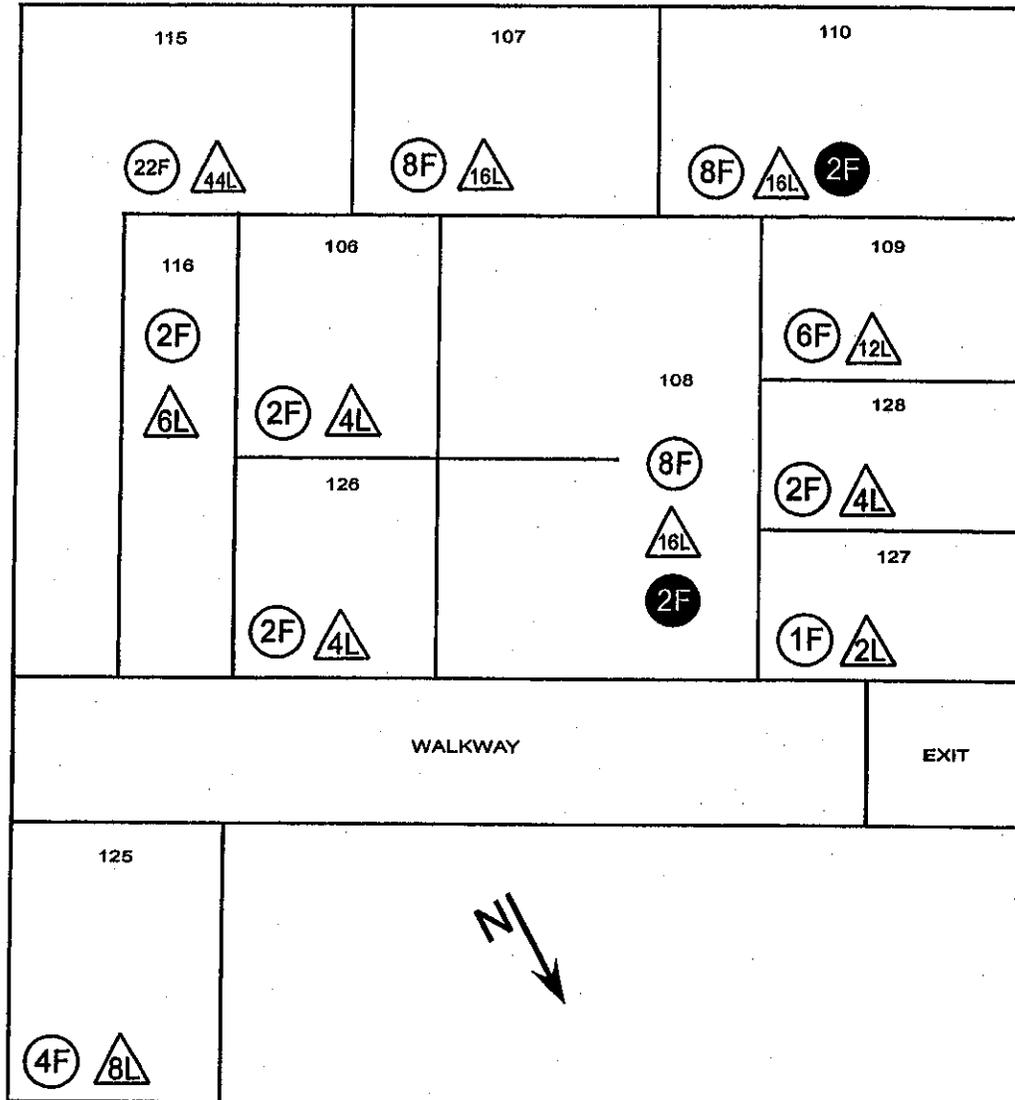


# QUAD B SCHOFIELD BARRACKS BUILDING 157 1-2



Legend	
<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p>157 1-2 Building 157/1st fl/section 2</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>

# QUAD B SCHOFIELD BARRACKS BUILDING 157 1-3



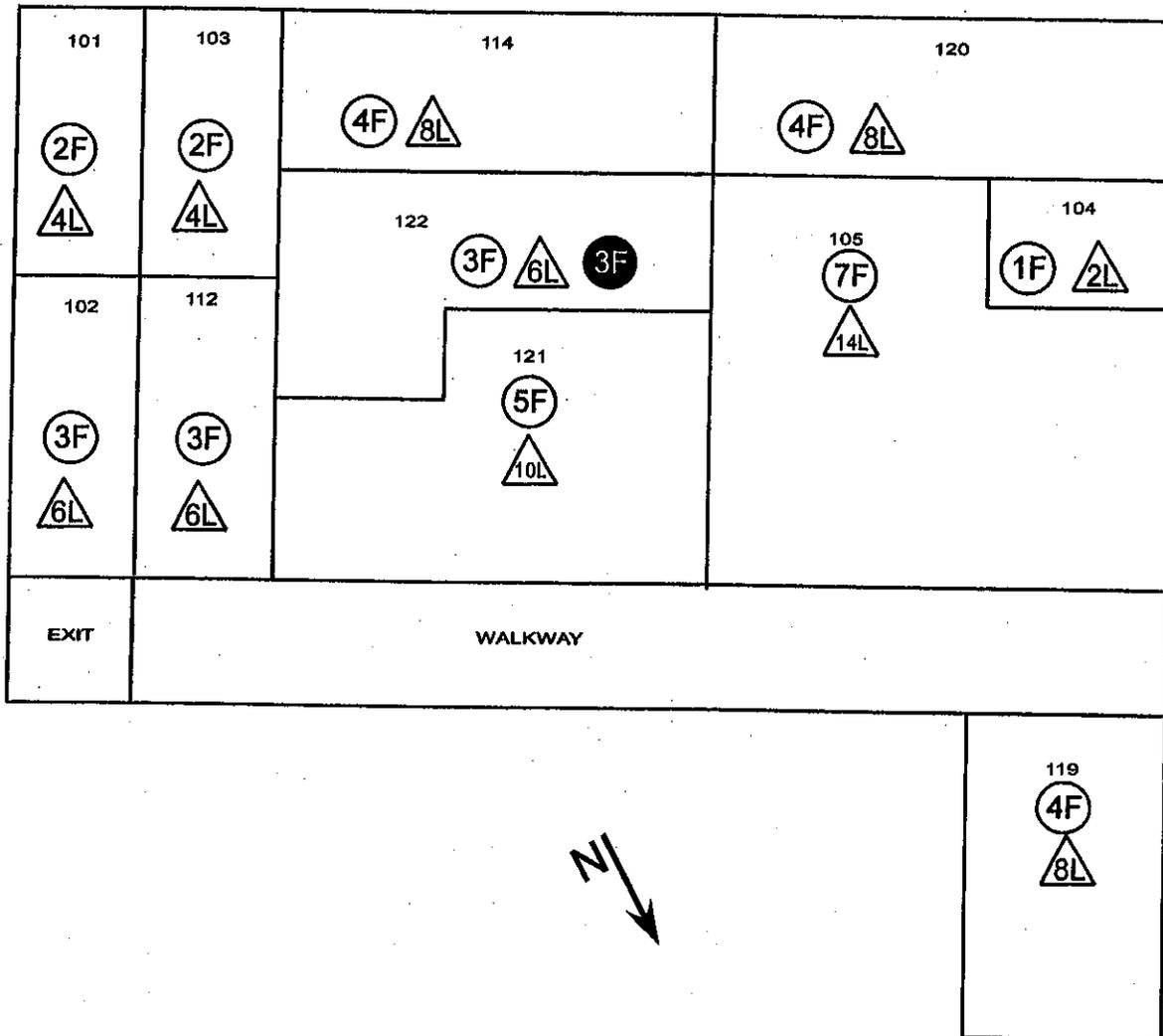
### Legend

- Light fixtures (2)
- Mercury lamps
- Light fixtures investigated (2)
- PCB-containing ballast

- 157-1-3** Building 157/1st fl/section 3
- 220 Room number
- NA No access
- North Seeking Arrow

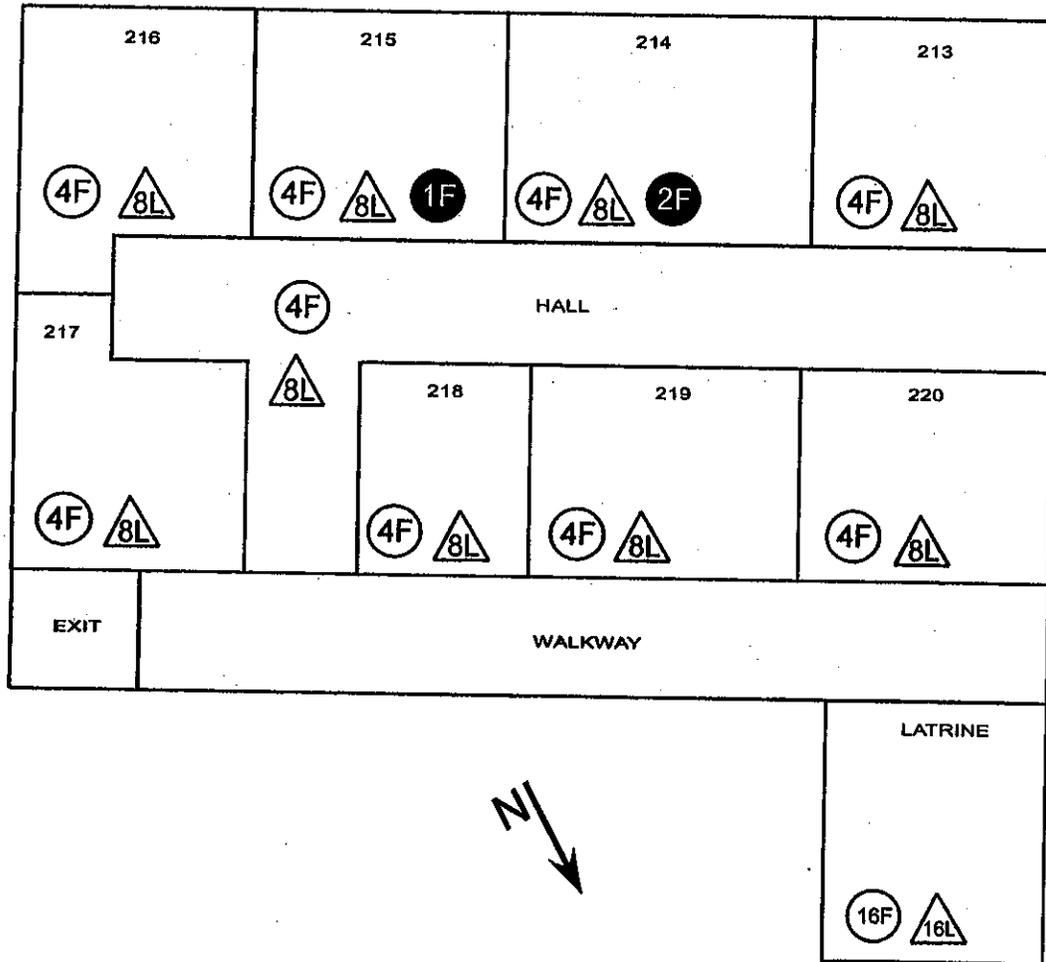


# QUAD B SCHOFIELD BARRACKS BUILDING 157 1-4



Legend	
<ul style="list-style-type: none"> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">2F</span> Light fixtures (2)</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">6L</span> Mercury lamps</li> <li><span style="background-color: black; border: 1px solid black; border-radius: 50%; padding: 2px 5px;">2F</span> Light fixtures investigated (2)</li> <li><span style="background-color: black; border: 1px solid black; padding: 2px 5px;">1</span> PCB-containing ballast</li> </ul>	<ul style="list-style-type: none"> <li><b>157-1-4</b> Building 157/1st fl/section 4</li> <li><b>220</b> Room number</li> <li><b>NA</b> No access</li> <li> North Seeking Arrow</li> </ul>

# QUAD B SCHOFIELD BARRACKS BUILDING 157 2-1

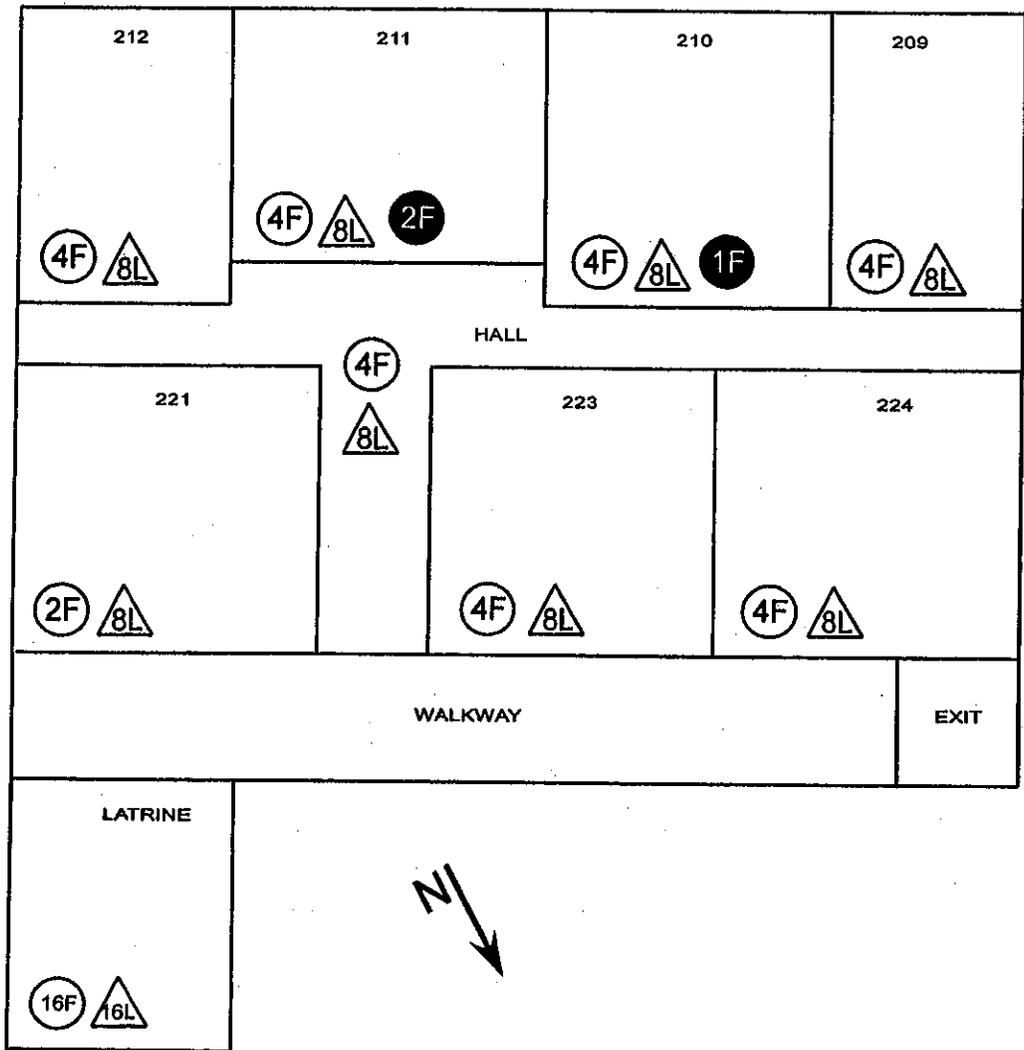


### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p>157 2-1 Building 157/2nd fl/section 1</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>
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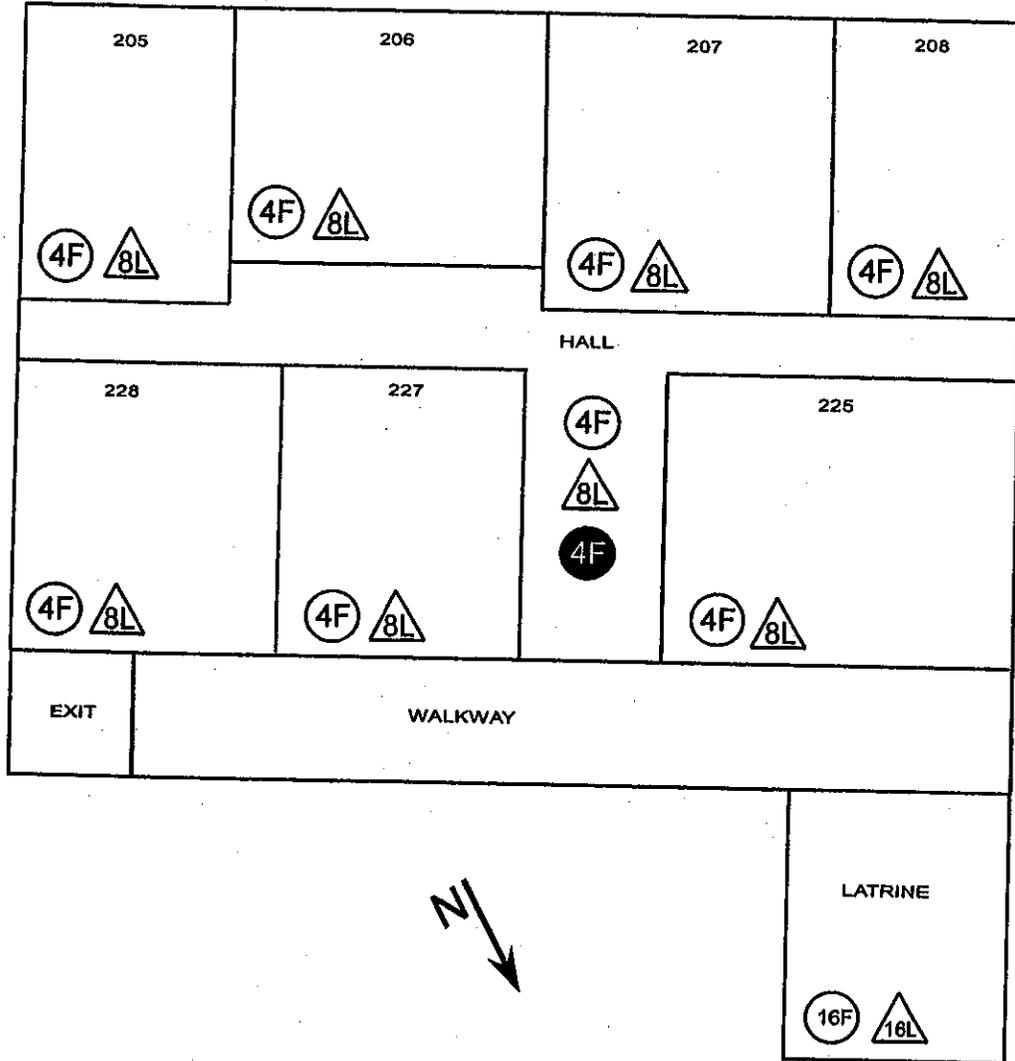


# QUAD B SCHOFIELD BARRACKS BUILDING 157 2-2



Legend	
<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p>157 2-2 Building 157/2nd fl/section 2</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>

**QUAD B SCHOFIELD BARRACKS  
BUILDING 157 2-3**

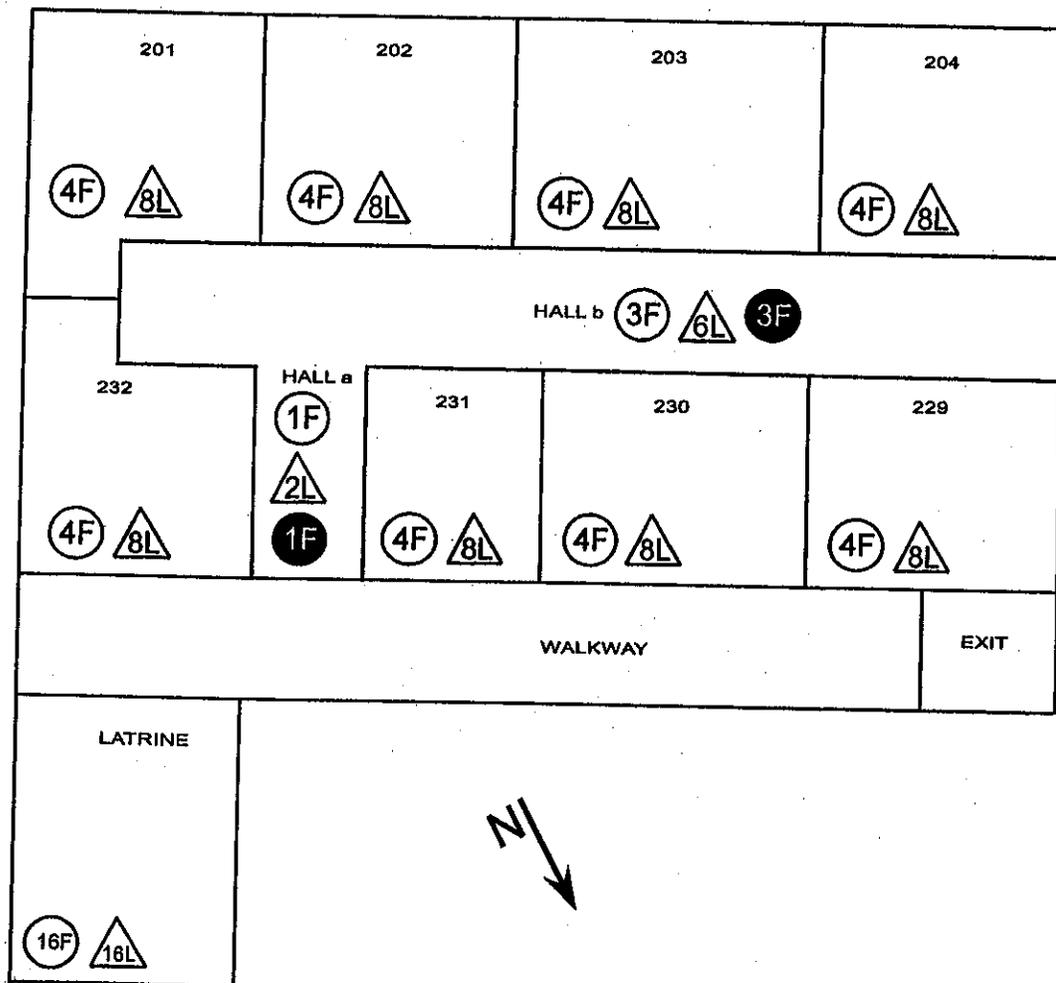


**Legend**

Light fixtures (2)	<b>157 2-3</b> Building 157/2nd fl/section 3
Mercury lamps	<b>220</b> Room number
Light fixtures investigated (2)	<b>NA</b> No access
PCB-containing ballast	North Seeking Arrow



# QUAD B SCHOFIELD BARRACKS BUILDING 157 2-4



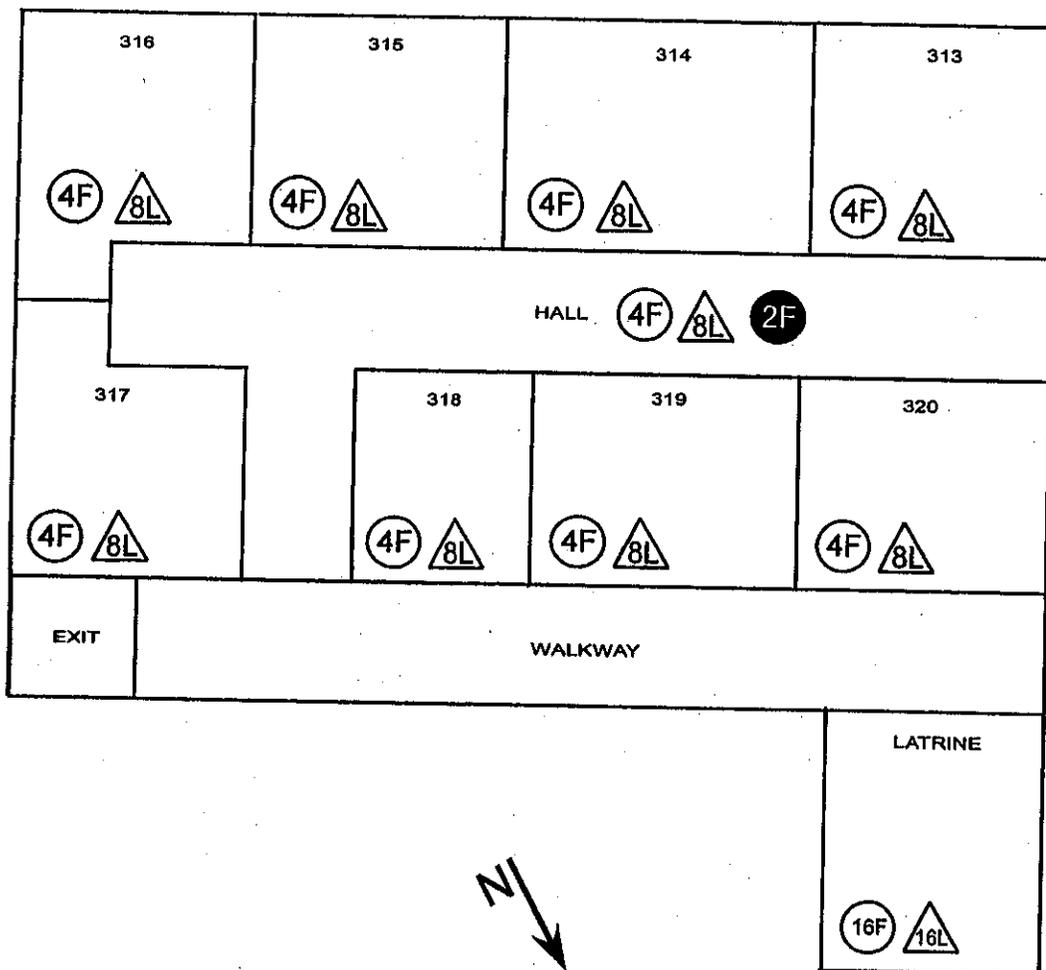
### Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

- 157 2-4 Building 157/2nd fl/section 4
- 220 Room number
- NA No access
-  North Seeking Arrow



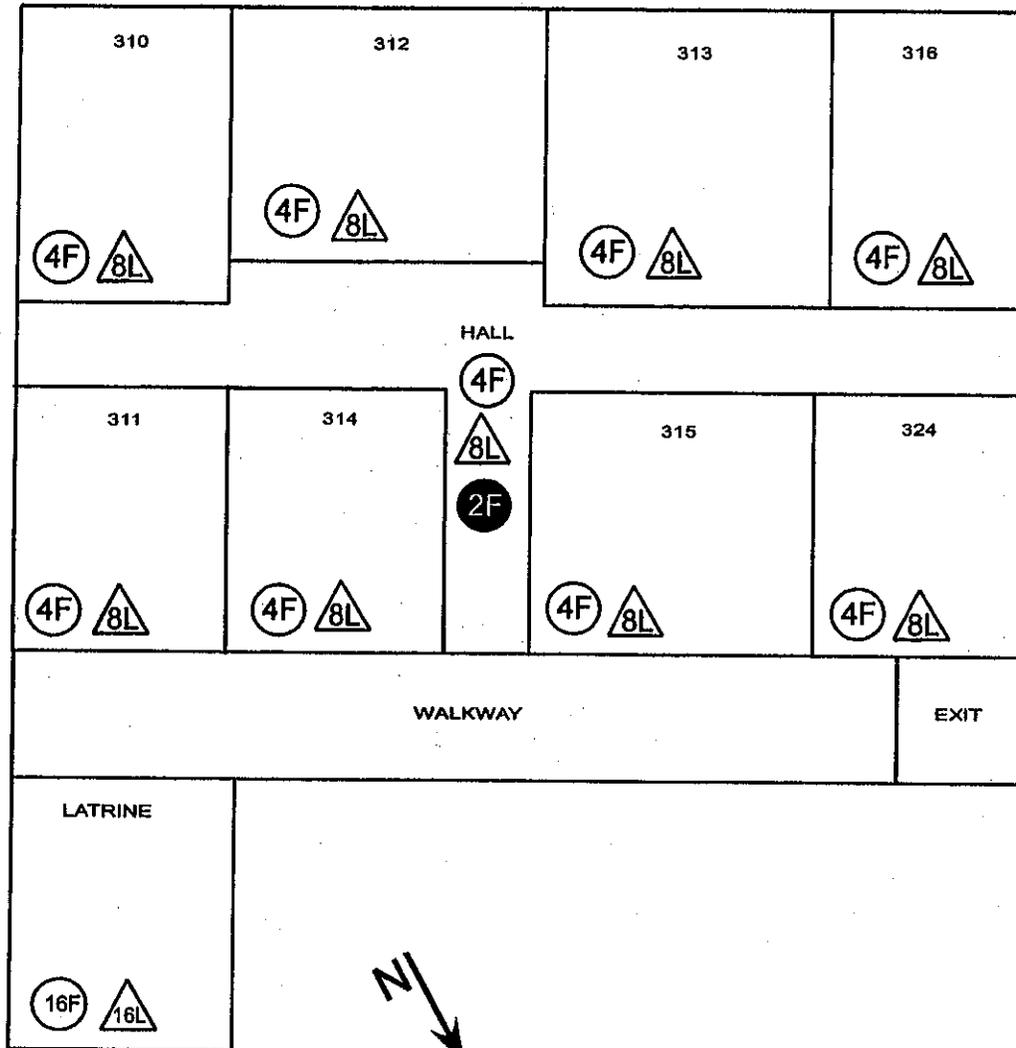
# QUAD B SCHOFIELD BARRACKS BUILDING 157 3-1



Legend	
<p><b>(2F)</b> Light fixtures (2)</p> <p><b>(8L)</b> Mercury lamps</p> <p><b>(2F)</b> Light fixtures investigated (2)</p> <p><b>1</b> PCB-containing ballast</p>	<p><b>157 3-1</b> Building 157/3rd fl/section 1</p> <p><b>220</b> Room number</p> <p><b>NA</b> No access</p> <p><b>↑</b> North Seeking Arrow</p>



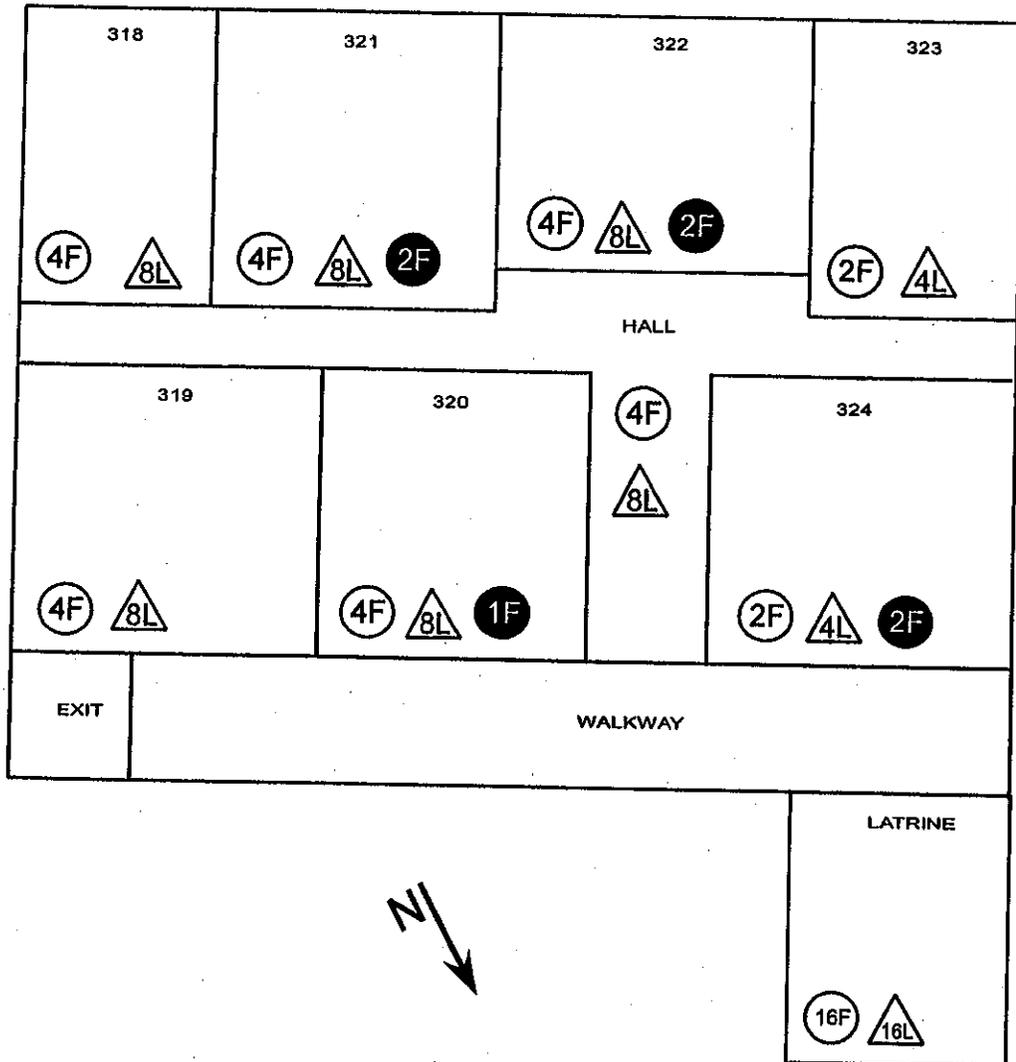
# QUAD B SCHOFIELD BARRACKS BUILDING 157 3-2



### Legend

<ul style="list-style-type: none"> <li> Light fixtures (2)</li> <li> Mercury lamps</li> <li> Light fixtures investigated (2)</li> <li> PCB-containing ballast</li> </ul>	<ul style="list-style-type: none"> <li><b>157 2-2</b> Building 157/2nd fl/section 2</li> <li><b>220</b> Room number</li> <li><b>NA</b> No access</li> <li> North Seeking Arrow</li> </ul>
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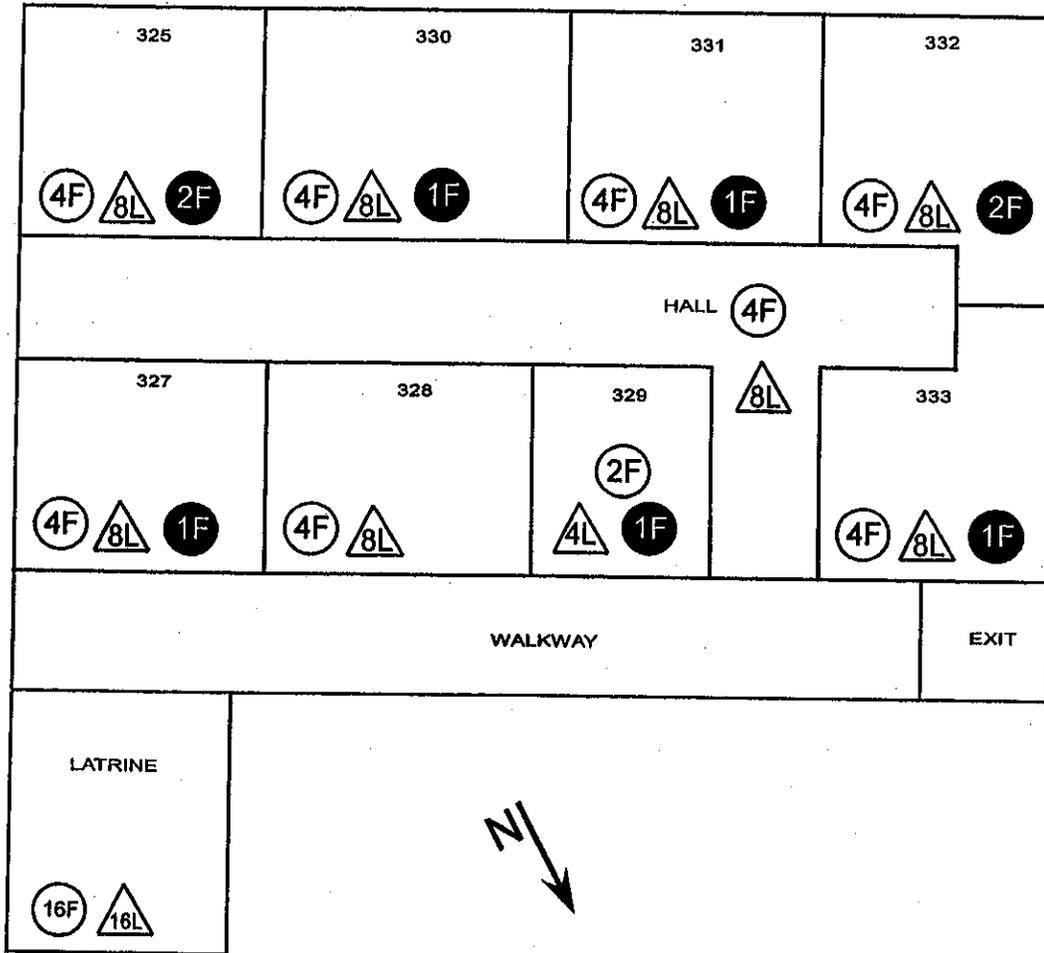
# QUAD B SCHOFIELD BARRACKS BUILDING 157 3-3



Legend	
(2F)	Light fixtures (2)
(6L)	Mercury lamps
(2F)	Light fixtures investigated (2)
1	PCB-containing ballast
157 3-3	Building 157/3rd fl/section 3
220	Room number
NA	No access
↑ N	North Seeking Arrow



# QUAD B SCHOFIELD BARRACKS BUILDING 157 3-4



## Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

157 3-4 Building 157/3rd fl/section 4

220 Room number

NA No access

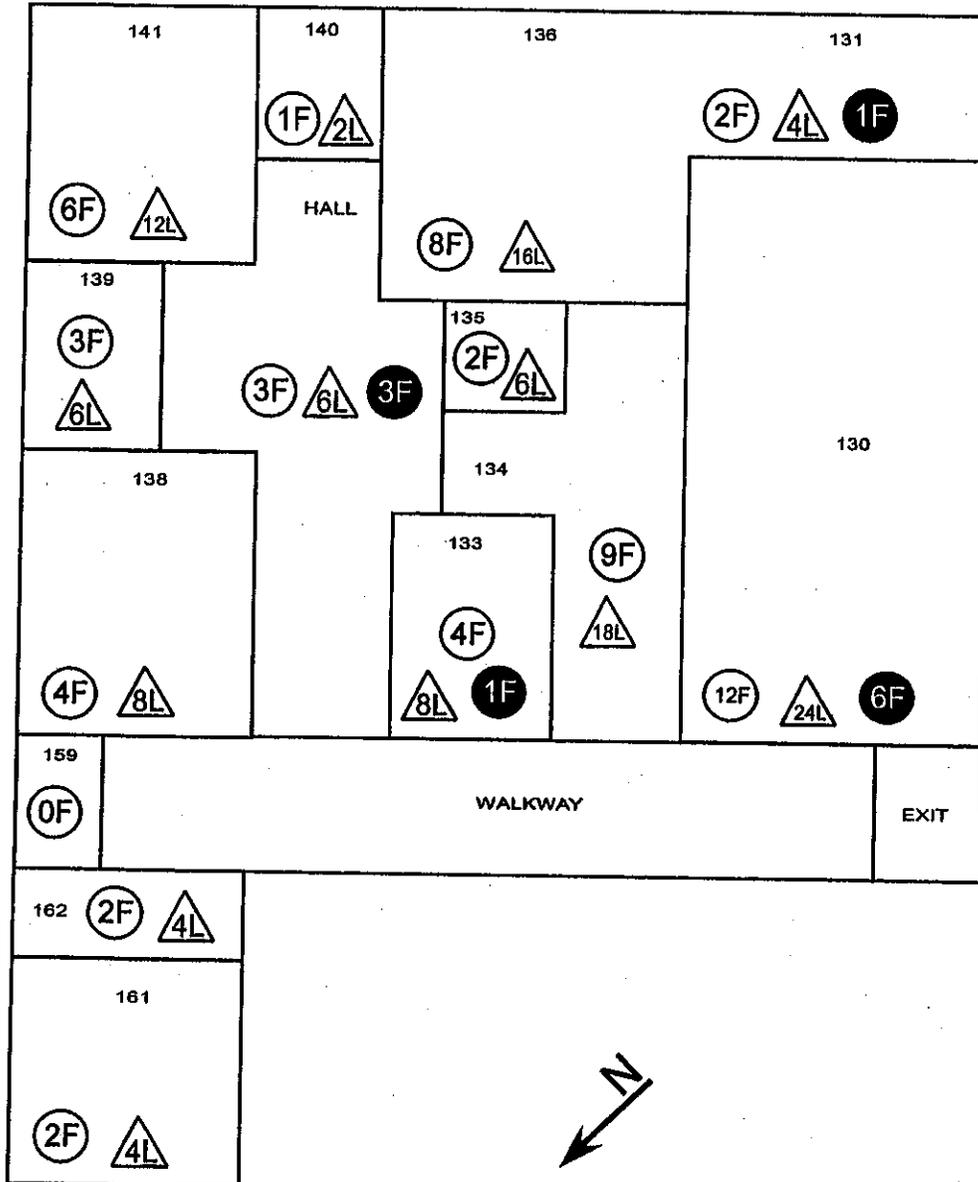


North Seeking Arrow





# QUAD B SCHOFIELD BARRACKS BUILDING 158 1-2



### Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

158 1-2 Building 158/1st fl/section 2

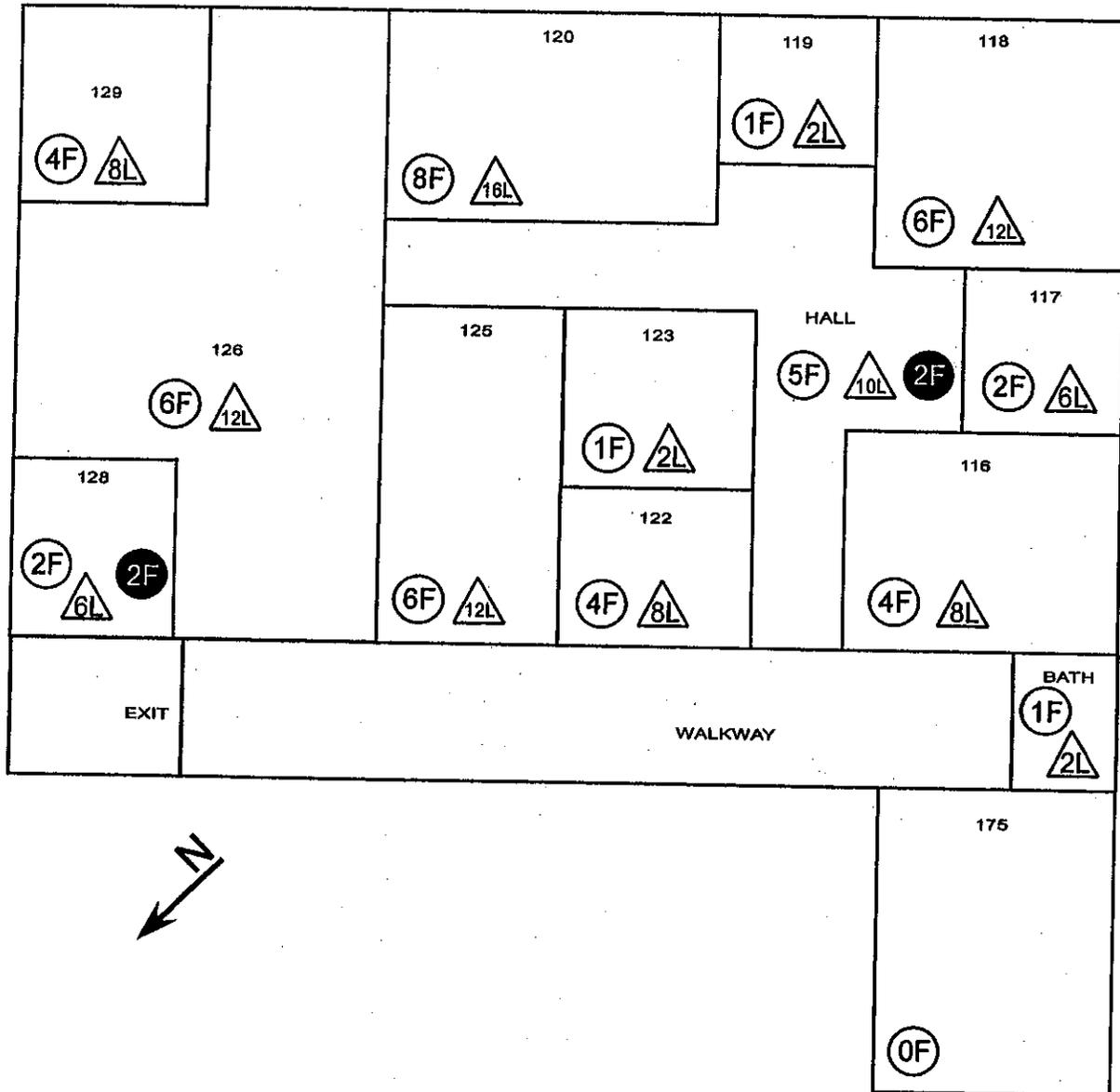
220 Room number

NA No access

 North Seeking Arrow

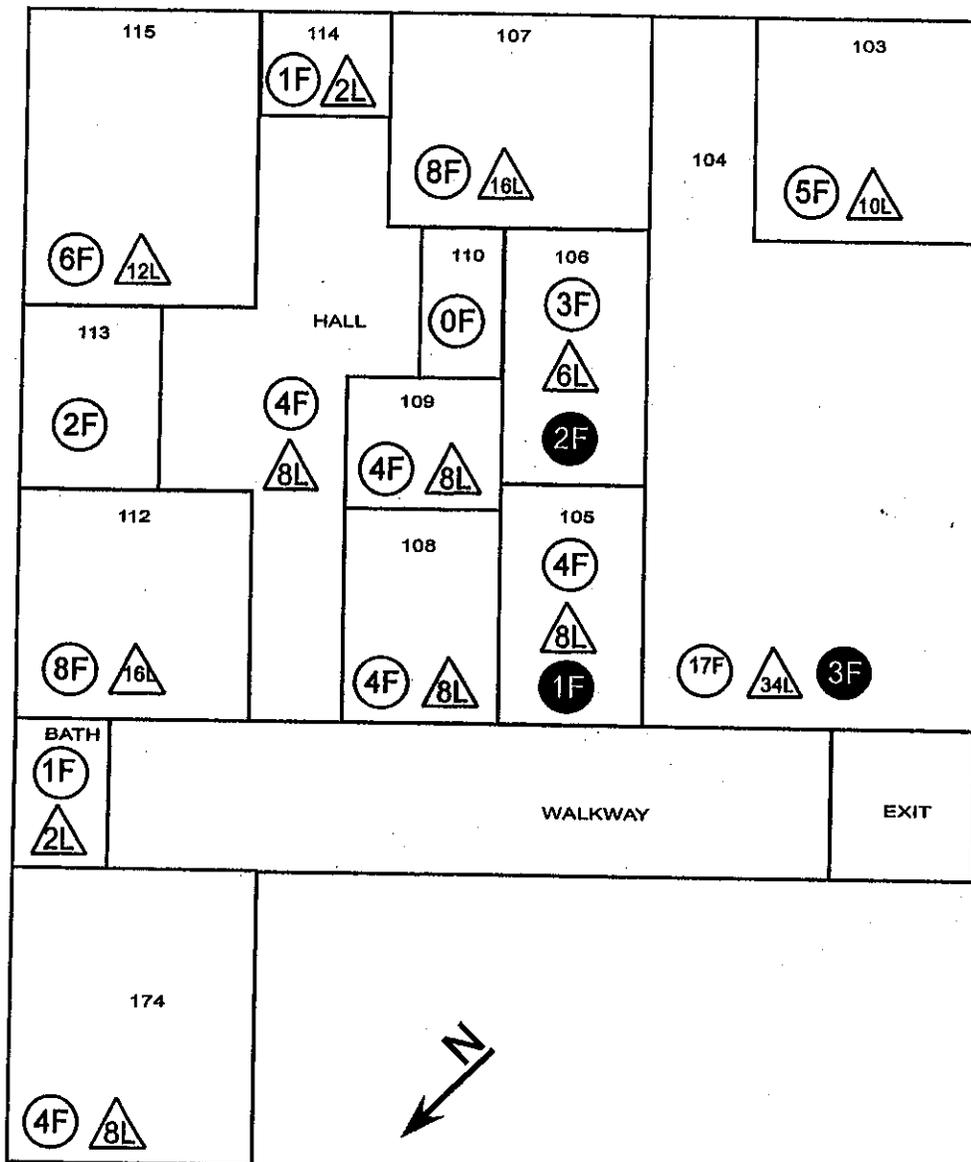


# QUAD B SCHOFIELD BARRACKS BUILDING 158 1-3



Legend	
<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p>158 1-3 Building 158/1st fl/section 3</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>

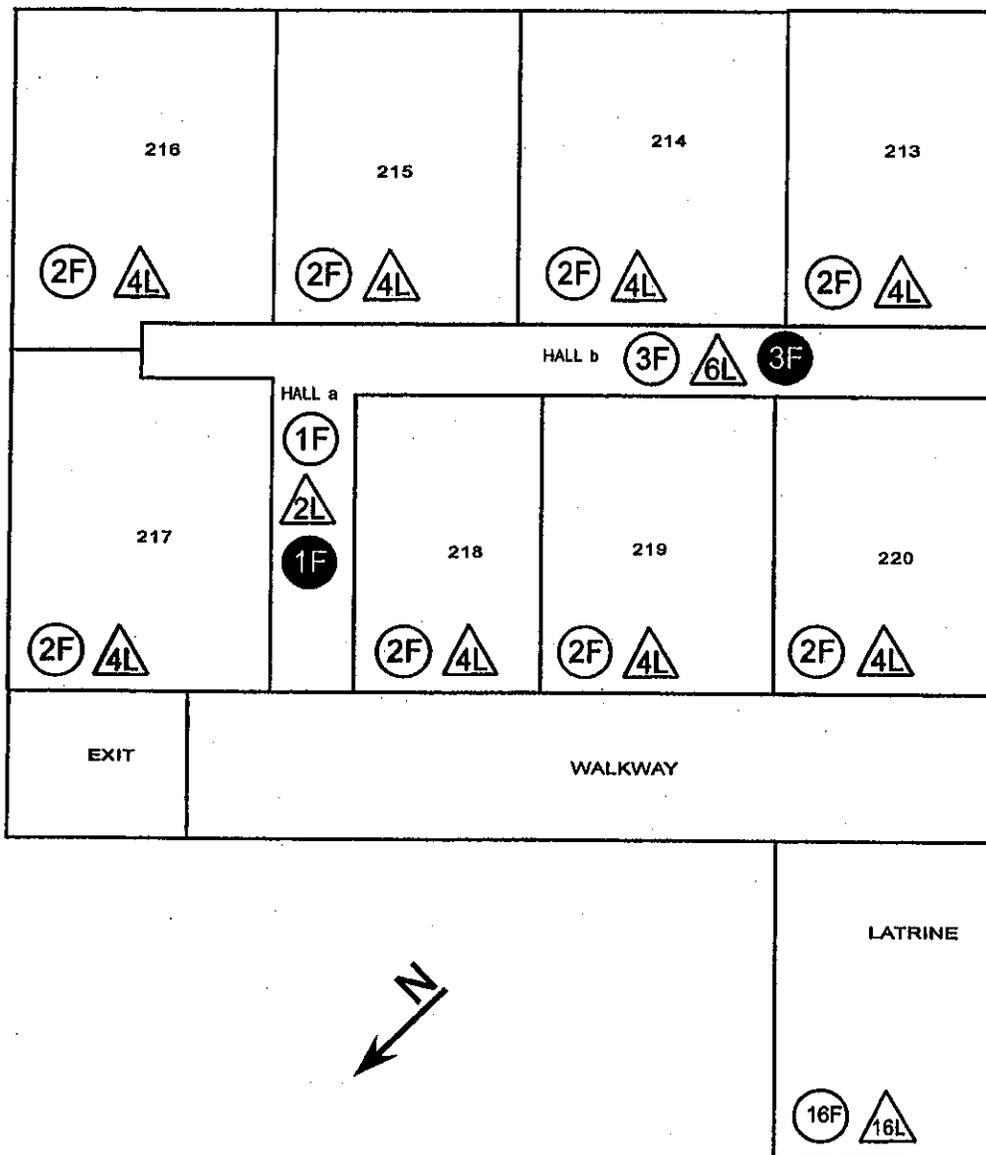
# QUAD B SCHOFIELD BARRACKS BUILDING 158 1-4



### Legend

<ul style="list-style-type: none"> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">2F</span> Light fixtures (2)</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">6L</span> Mercury lamps</li> <li><span style="background-color: black; border: 1px solid black; border-radius: 50%; padding: 2px 5px; display: inline-block; width: 10px; height: 10px;"></span> 2F Light fixtures investigated (2)</li> <li><span style="background-color: black; border: 1px solid black; padding: 2px 5px; display: inline-block; width: 10px; height: 10px;"></span> 1 PCB-containing ballast</li> </ul>	<ul style="list-style-type: none"> <li>158 1-4 Building 158/1st fl/section 4</li> <li>220 Room number</li> <li>NA No access</li> <li style="text-align: center;">↑ N</li> <li>North Seeking Arrow </li> </ul>
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# QUAD B SCHOFIELD BARRACKS BUILDING 158 2-1



## Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

158 2-1 Building 158/2nd fl/section 1

220 Room number

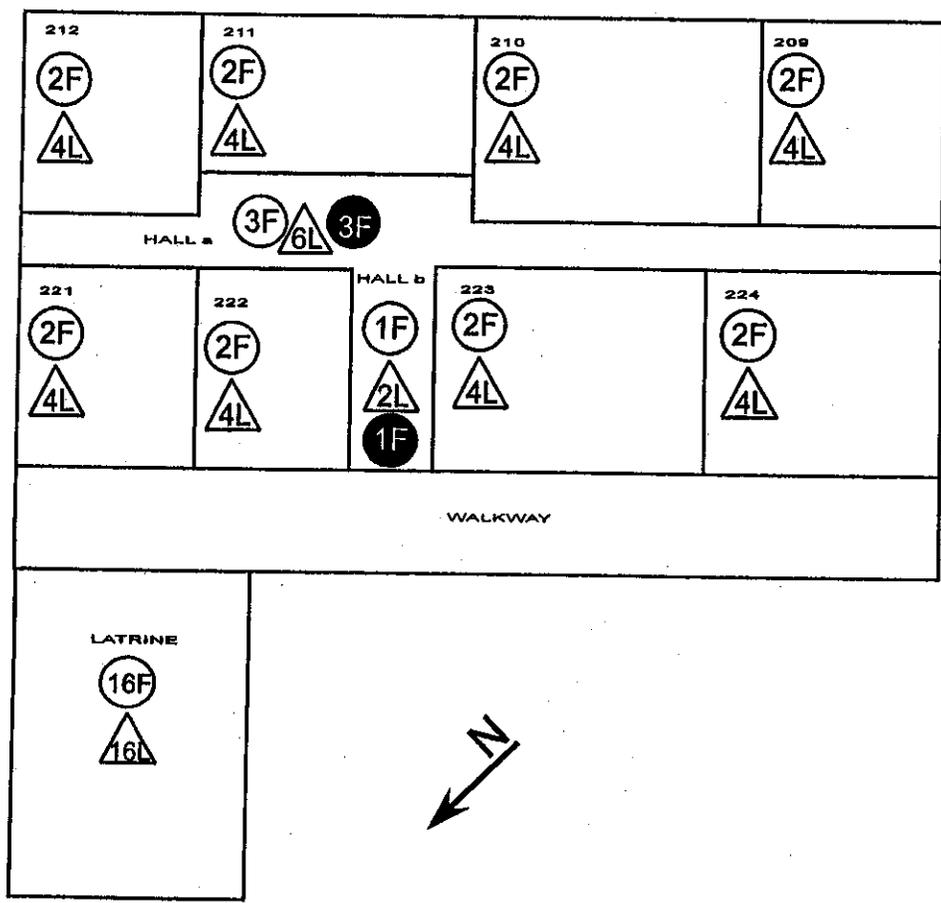
NA No access



North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 158 2-2

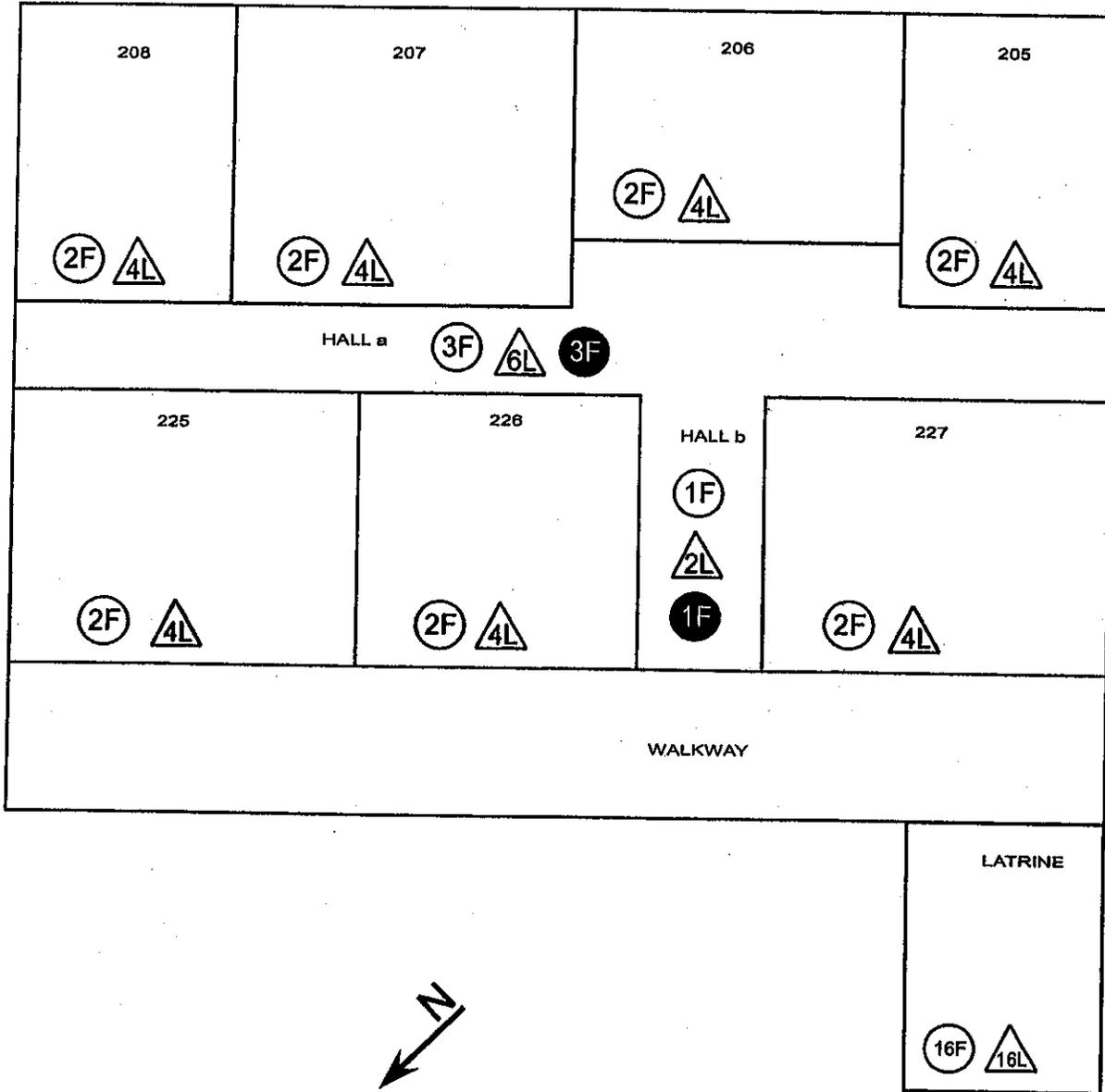


### Legend

<p><b>2F</b> Light fixtures (2)</p> <p><b>6L</b> Mercury lamps</p> <p><b>2F</b> Light fixtures investigated (2)</p> <p><b>1</b> PCB-containing ballast</p>	<p><b>158-2-2</b> Building 158/2nd fl/section 2</p> <p><b>220</b> Room number</p> <p><b>NA</b> No access</p> <p><b>↑</b> North Seeking Arrow</p>
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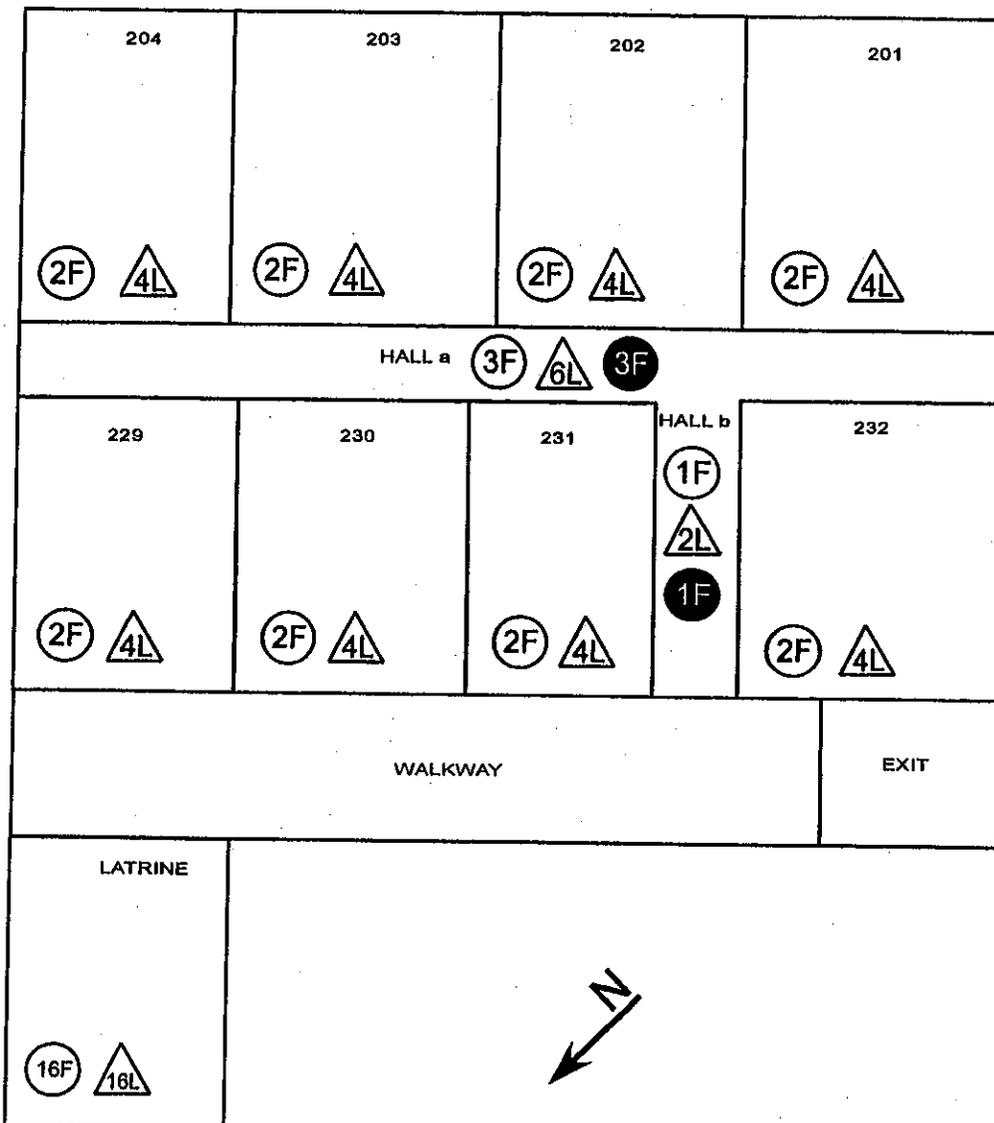
# QUAD B SCHOFIELD BARRACKS BUILDING 158 2-3



Legend	
<p>⊙<sup>2F</sup> Light fixtures (2)</p> <p>△<sup>6L</sup> Mercury lamps</p> <p>●<sup>2F</sup> Light fixtures investigated (2)</p> <p>■<sup>1</sup> PCB-containing ballast</p>	<p>158 2-3 Building 158/2nd fl/section 3</p> <p>220 Room number</p> <p>NA No access</p> <p>↑<sup>IN</sup> North Seeking Arrow</p>



# QUAD B SCHOFIELD BARRACKS BUILDING 158 2-4



### Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

158 2-4 Building 158/2nd fl/section 4

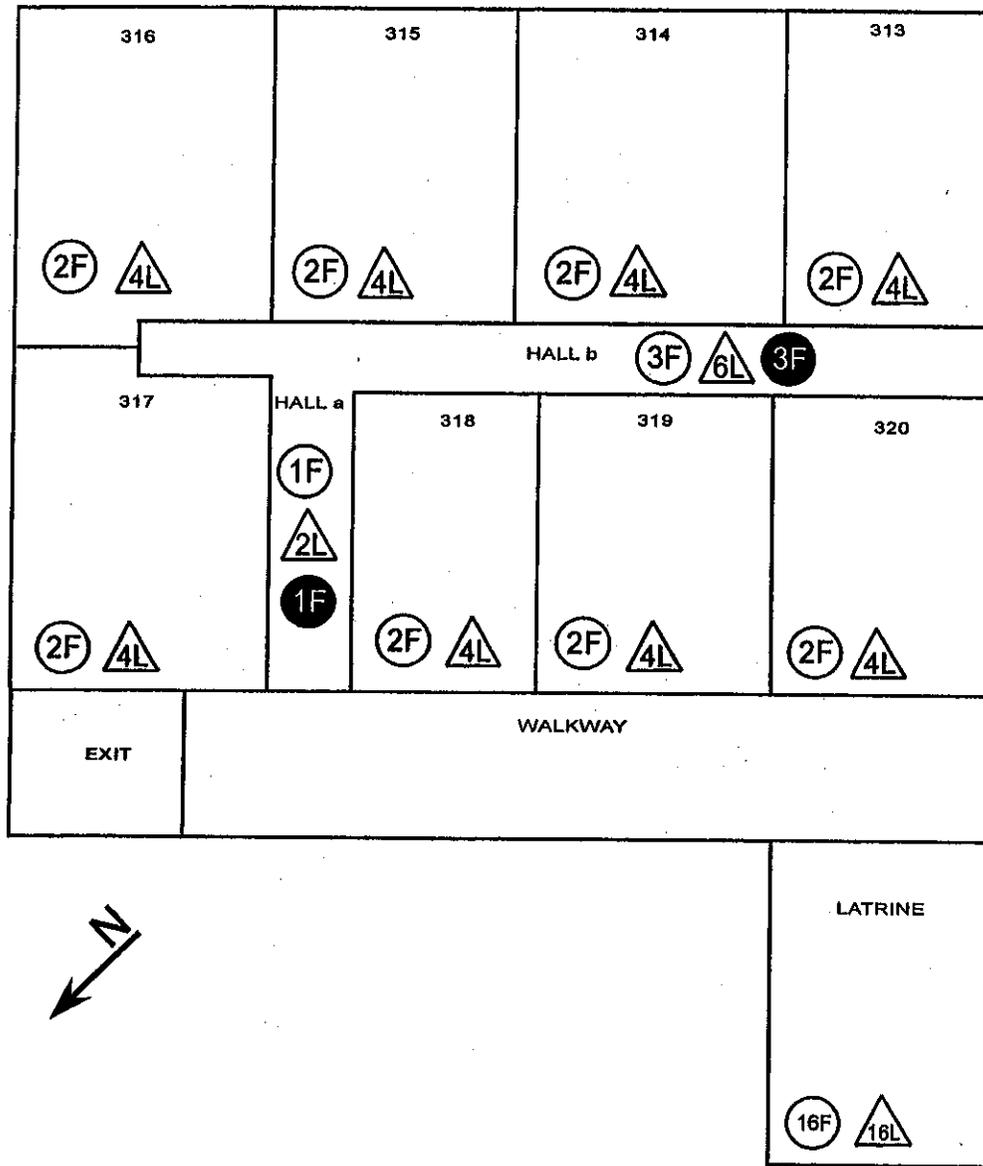
220 Room number

NA No access

 North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 158 3-1



### Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

158 3-1 Building 158/3RD fl/section 1

220 Room number

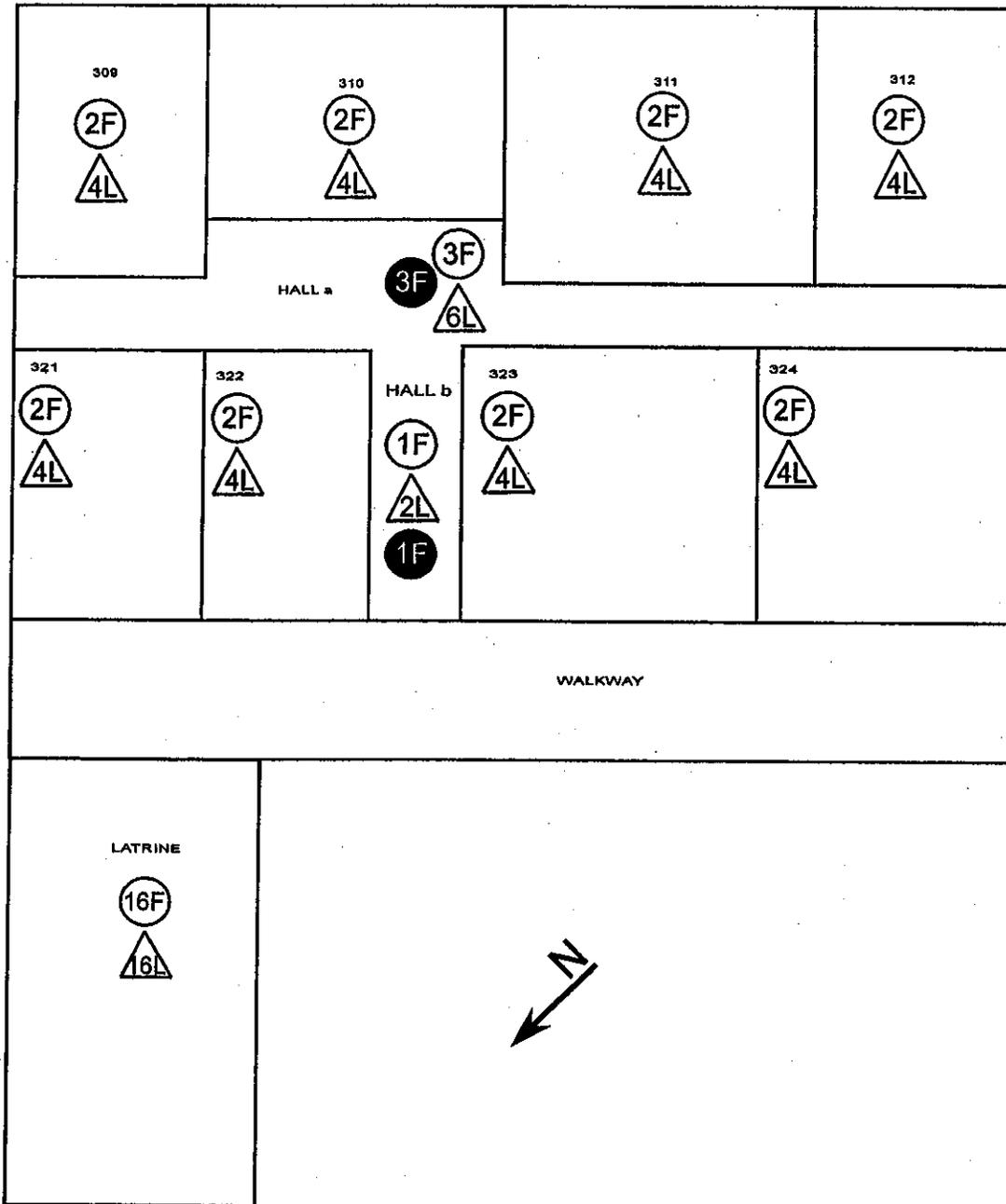
NA No access



North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 158 3-2



### Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

158-3-2 Building 158/3rd fl/section 2

220 Room number

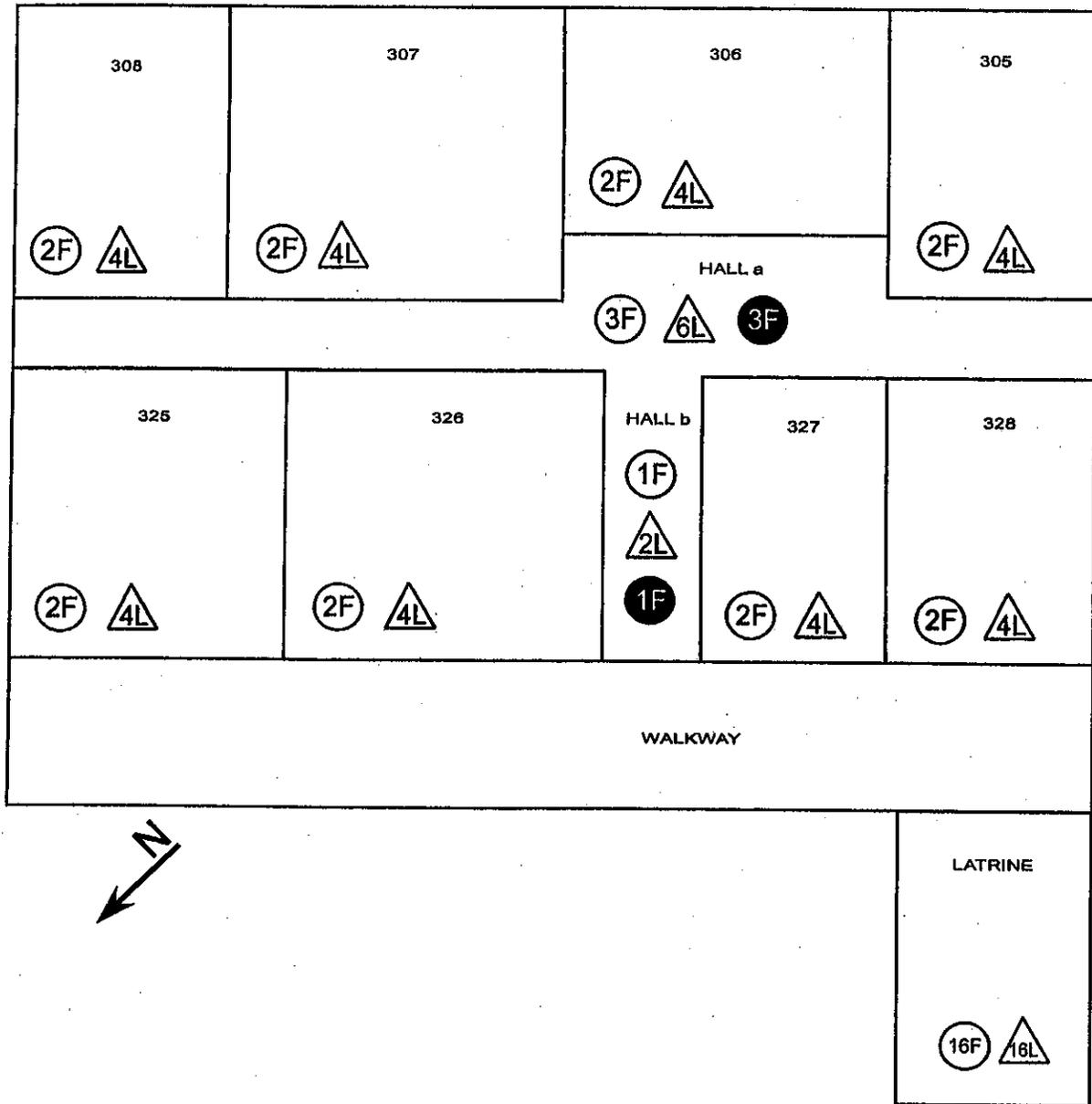
NA No access



North Seeking Arrow



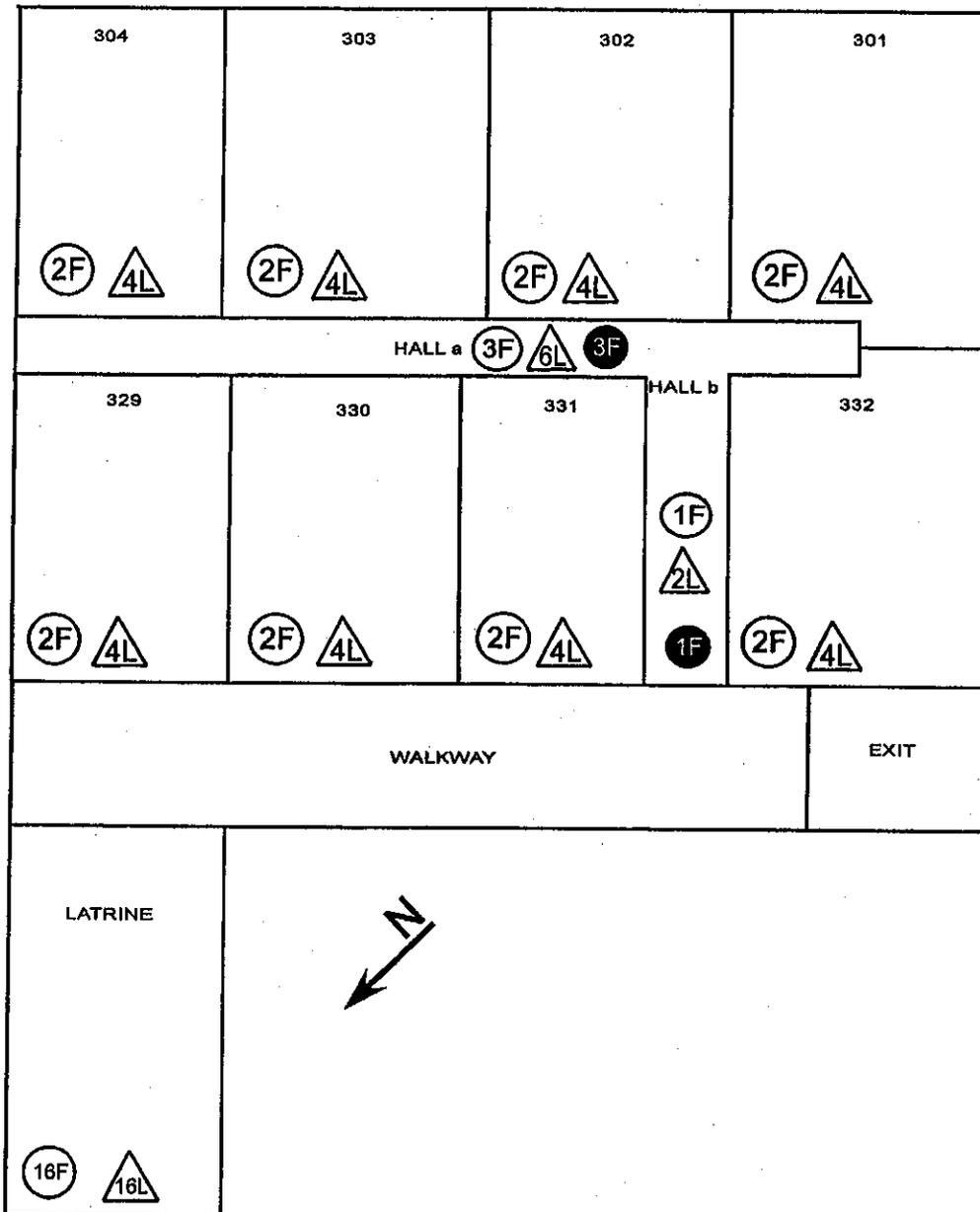
# QUAD B SCHOFIELD BARRACKS BUILDING 158 3-3



Legend	
<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p><b>158 3-3</b> Building 158/3RD fl/section 3</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>



# QUAD B SCHOFIELD BARRACKS BUILDING 158 3-4



Legend	
<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p><b>158 3-4</b> Building 158/3rd fl/section 4</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>

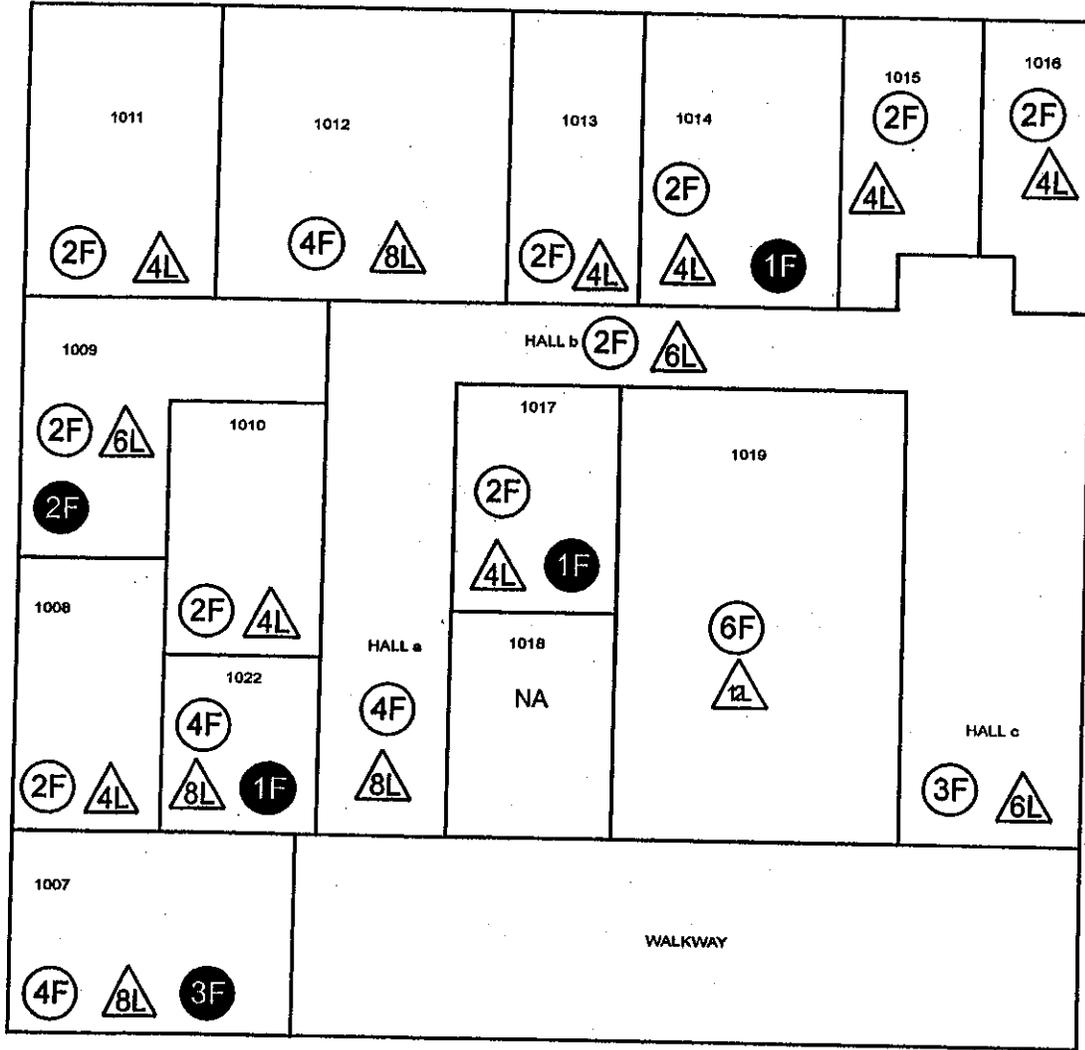


0

0

0

# QUAD D SCHOFIELD BARRACKS SKETCH 449 1-1



### Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

449 1-1 Building 449/1st fl/section 1

220 Room number

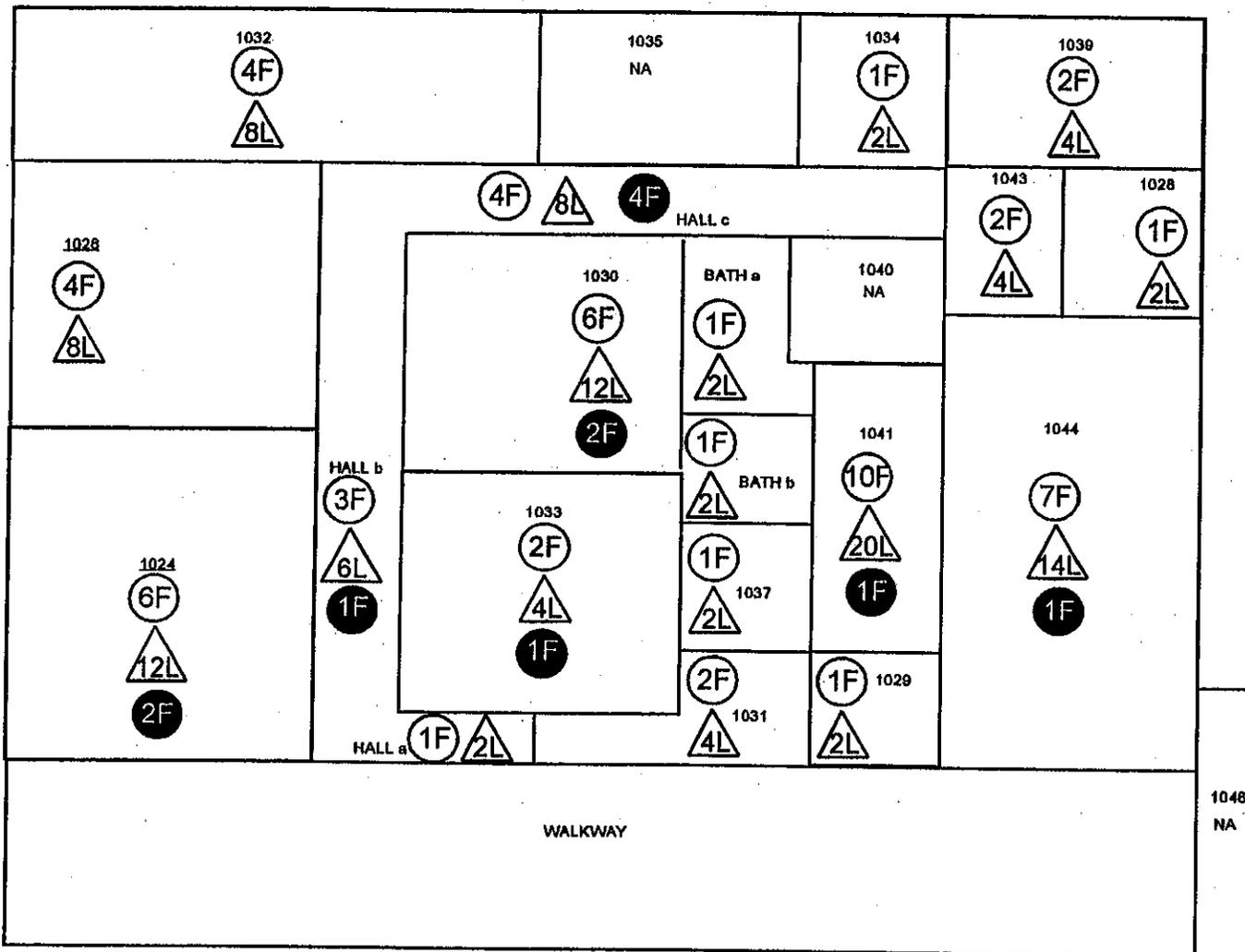
NA No access



North Seeking Arrow



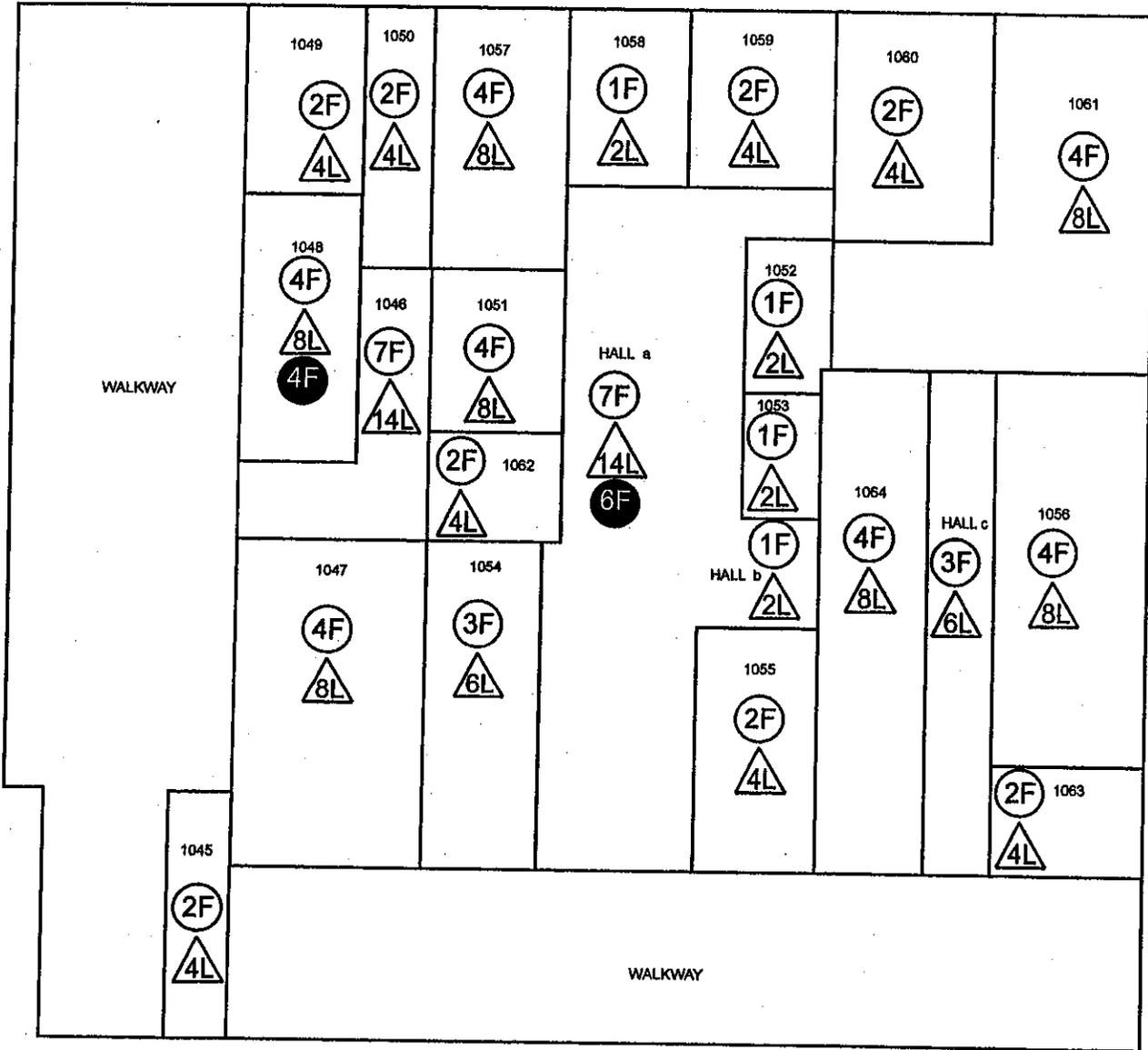
# QUAD D SCHOFIELD BARRACKS SKETCH 449 1-2



### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p style="text-align: center;"><b>449-1-2</b> Building 449/1st fl/section 2</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>
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# QUAD D SCHOFIELD BARRACKS SKETCH 449 1-3



### Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

449-1-3 Building 449/1st fl/section 3

220 Room number

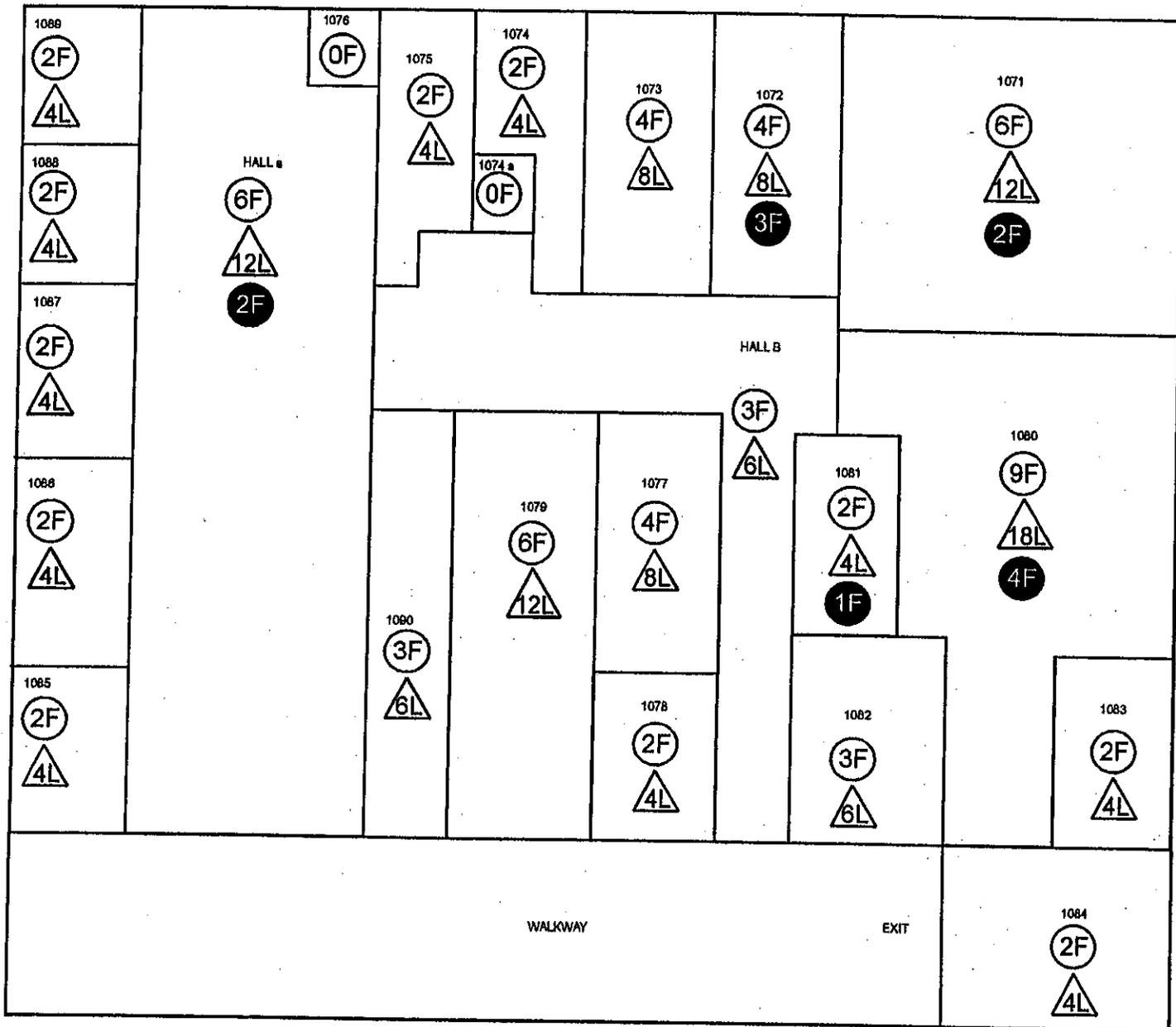
NA No access



North Seeking Arrow



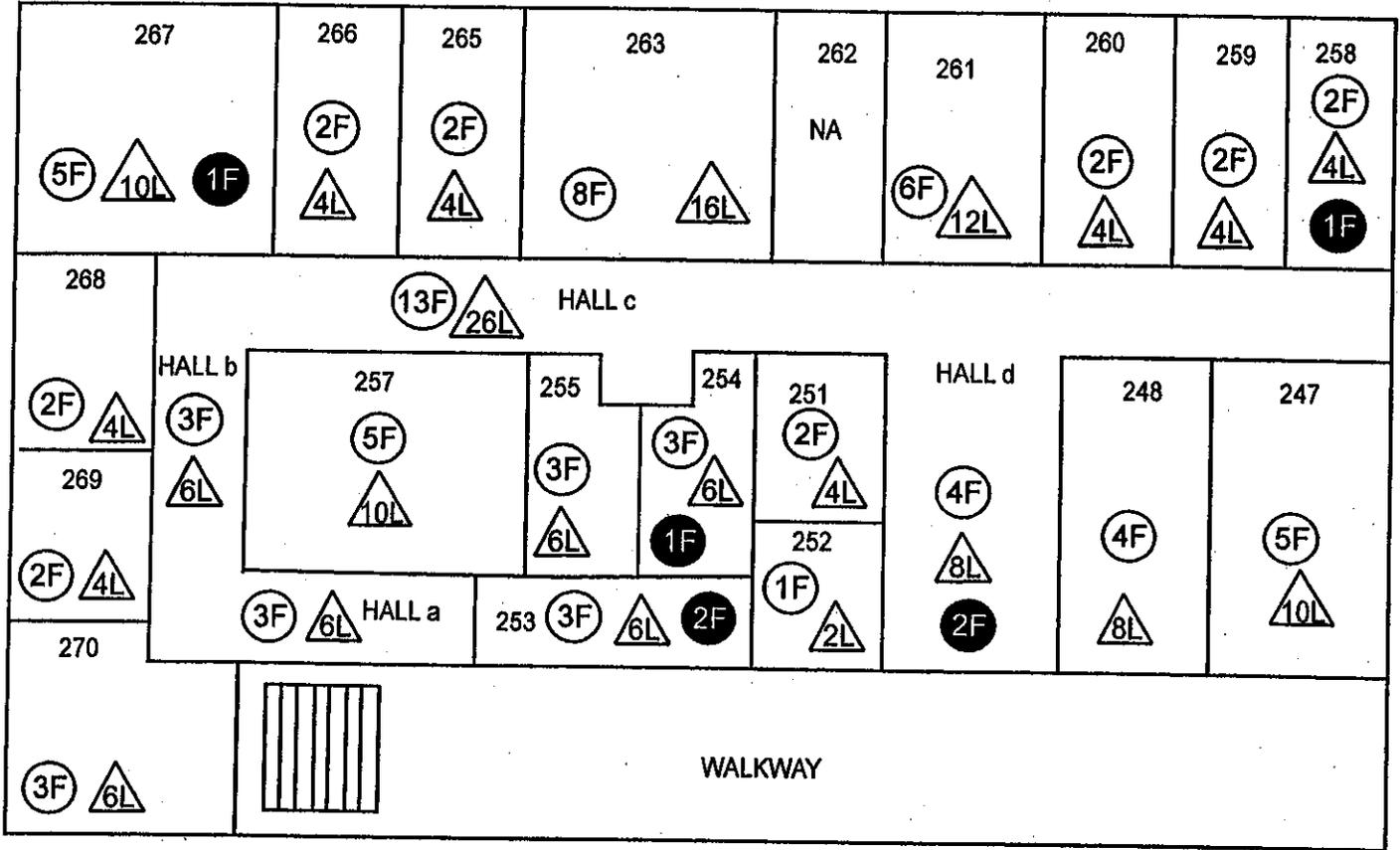
# QUAD D SCHOFIELD BARRACKS SKETCH 449 1-4



### Legend

<ul style="list-style-type: none"> <li> Light fixtures (2)</li> <li> Mercury lamps</li> <li> Light fixtures investigated (2)</li> <li> PCB-containing ballast</li> </ul>	<p style="text-align: center;"><b>449-1-4 Building 449/1st fl/section 4</b></p> <ul style="list-style-type: none"> <li>220 Room number</li> <li>NA No access</li> <li> North Seeking Arrow</li> </ul>
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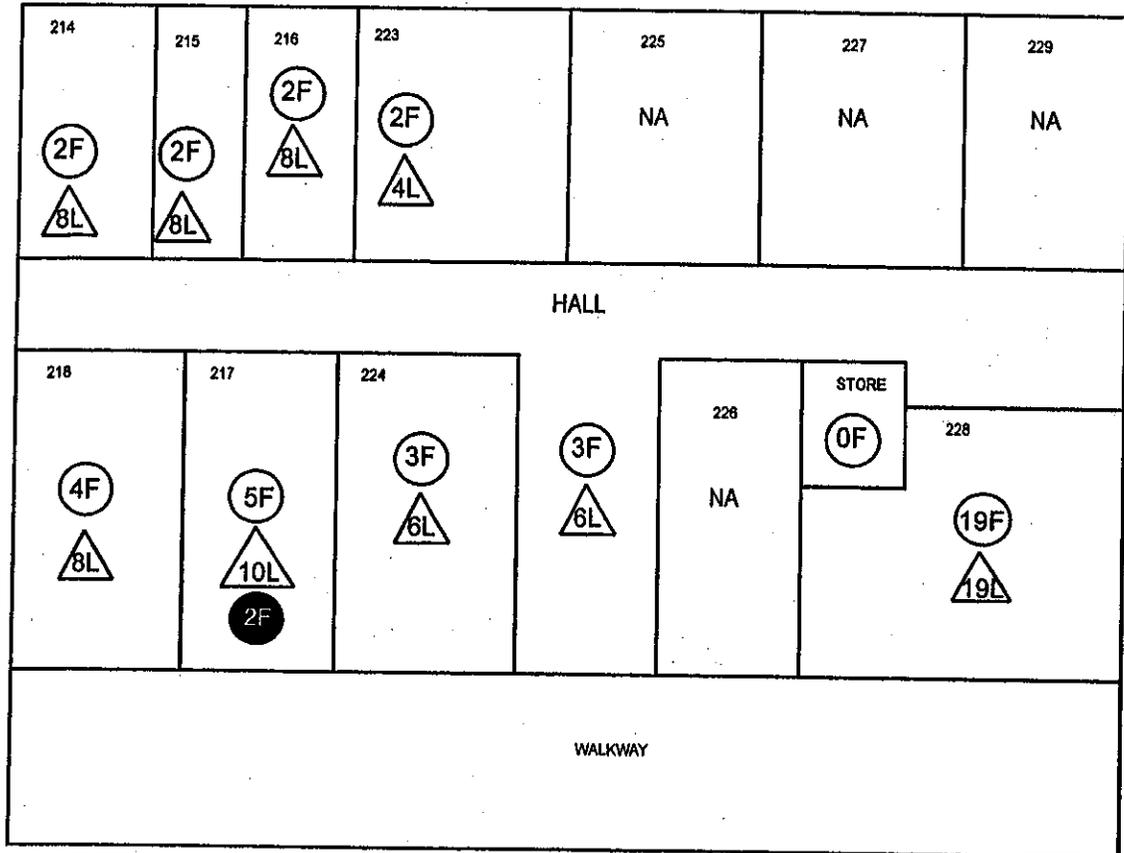
# QUAD D SCHOFIELD BARRACKS BUILDING 449 2-1



**Legend**

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p>449-2-1 Building 449/2nd fl/section 1</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>
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# QUAD D SCHOFIELD BARRACKS BUILDING 449 2-2



### Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

449-2-2 Building 449/2nd fl/section 2

220 Room number

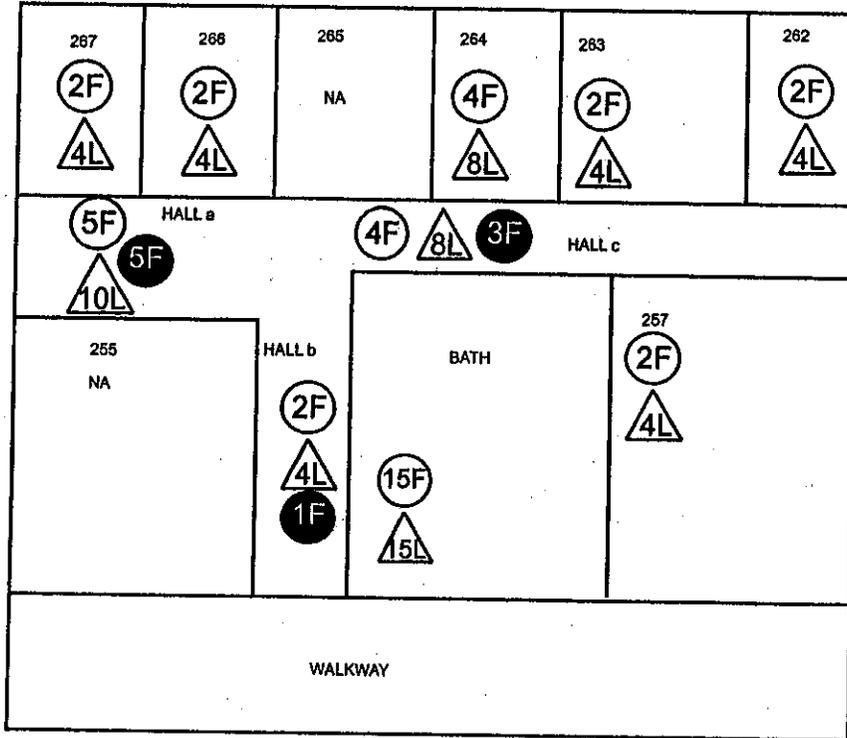
NA No access



North Seeking Arrow



# QUAD D SCHOFIELD BARRACKS BUILDING 449 2-3



### Legend

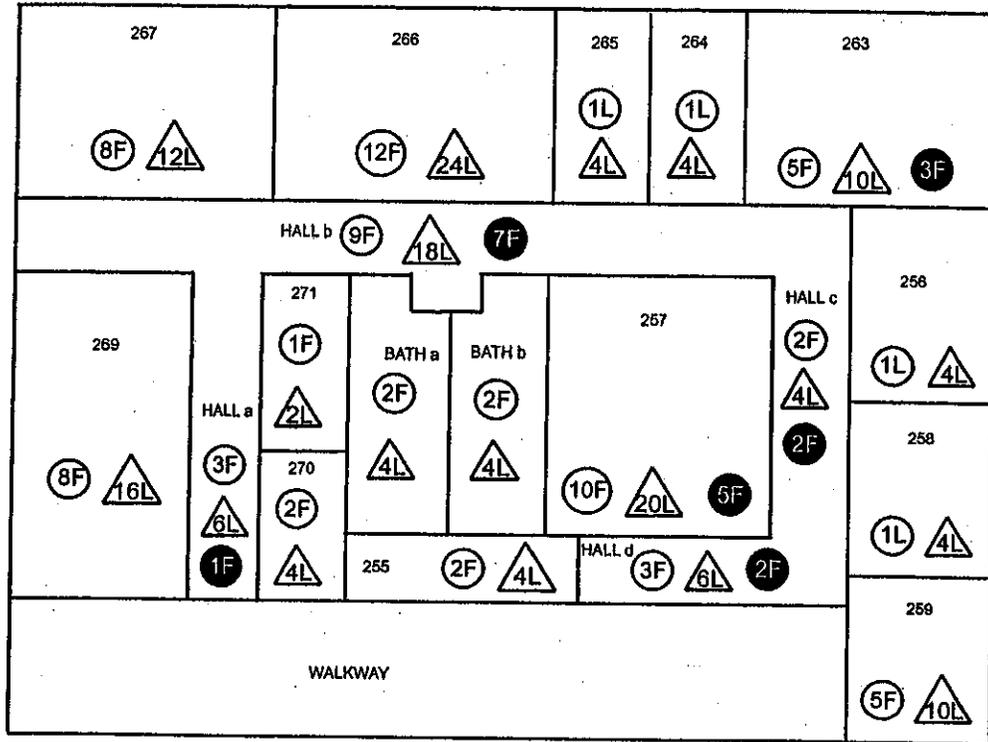
- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li> Light fixtures (2)</li> <li> Mercury lamps</li> <li> Light fixtures investigated (2)</li> <li> PCB-containing ballast</li> </ul> | <ul style="list-style-type: none"> <li><b>449-2-3</b> Building 449/2nd fl/section 3</li> <li>220 Room number</li> <li>NA No access</li> </ul> |
|--|---|



North Seeking Arrow



# QUAD D SCHOFIELD BARRACKS BUILDING 449 2-4



## Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

449-2-4 Building 449/2nd fl/section 4

220 Room number

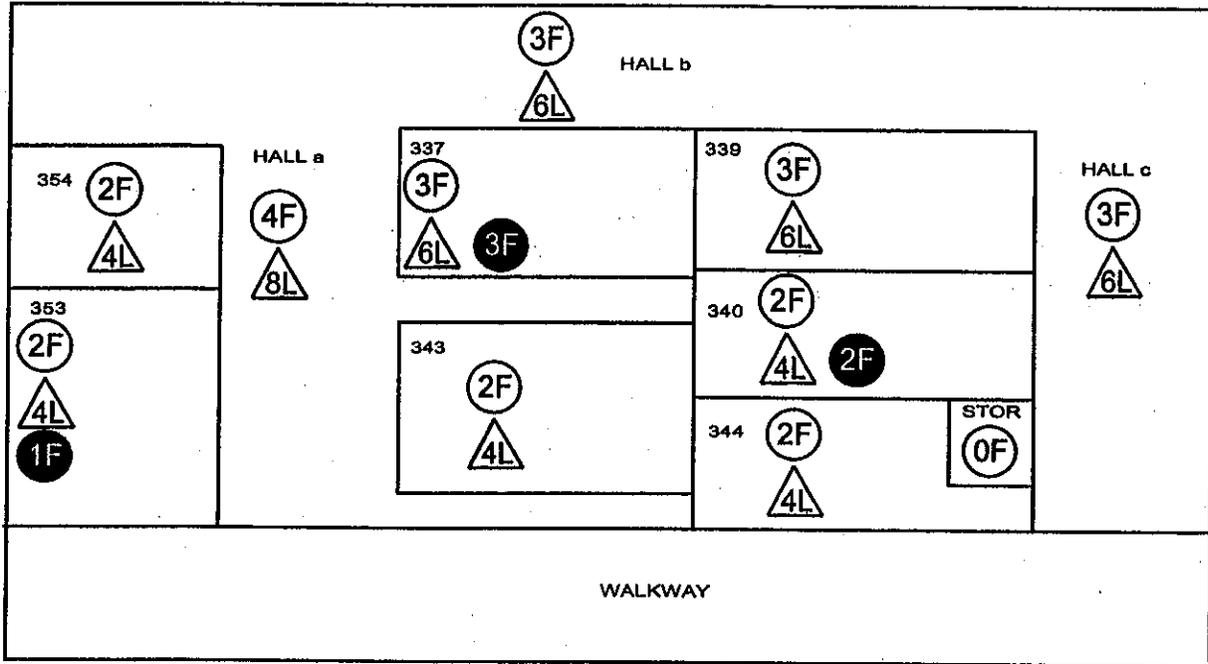
NA No access



North Seeking Arrow



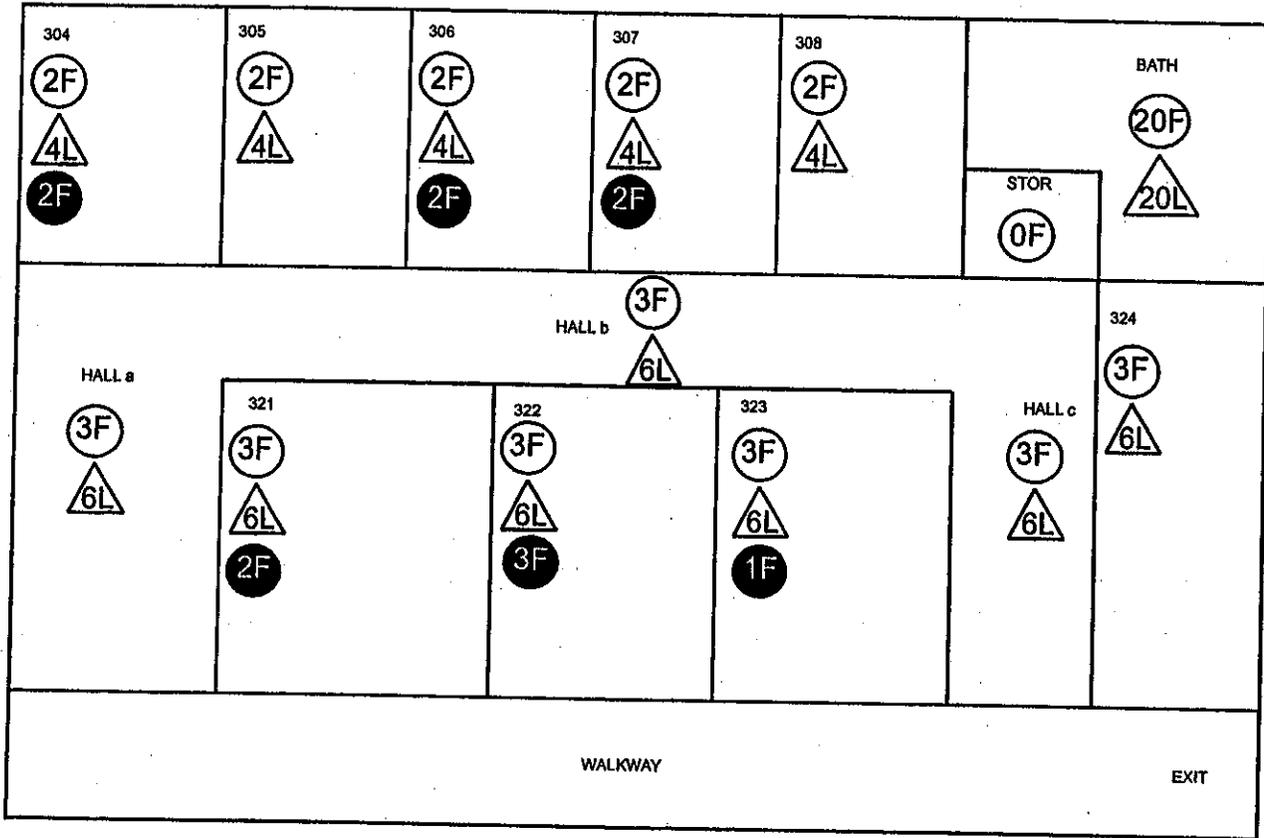
# QUAD D SCHOFIELD BARRACKS BUILDING 449 3-1



### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p><b>449-3-1</b> Building 449/3rd fl/section 1</p> <p>220 Room number</p> <p>NA No access</p> <p style="text-align: center;"> North Seeking Arrow</p>
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**QUAD D SCHOFIELD BARRACKS  
BUILDING 449 FLOOR 3-2**



**Legend**

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

**449-3-2** Building 449/3rd fl/section 2

220 Room number

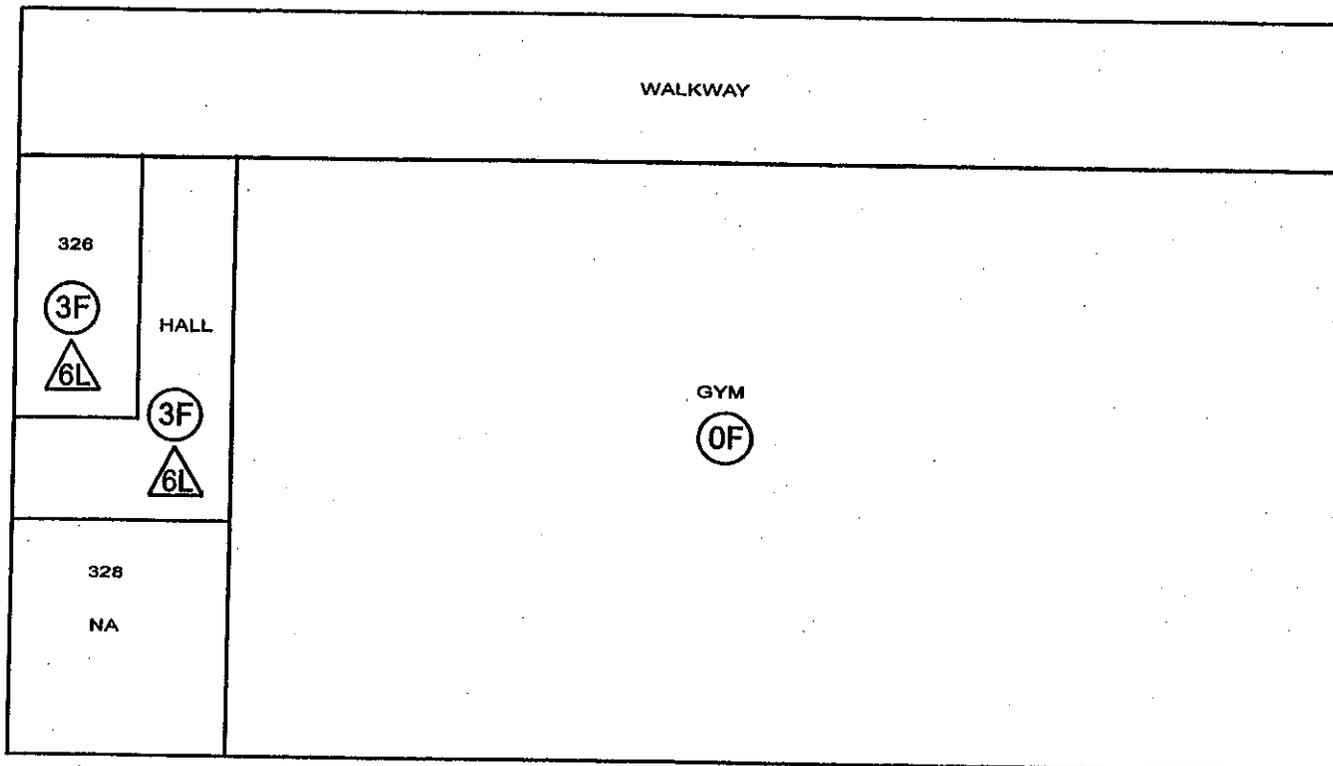
NA No access



North Seeking Arrow



QUAD D SCHOFIELD BARRACKS  
BUILDING 449 FLOOR 3-3



**Legend**

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

449-3-3 Building 449/3rd fl/section 3

220 Room number

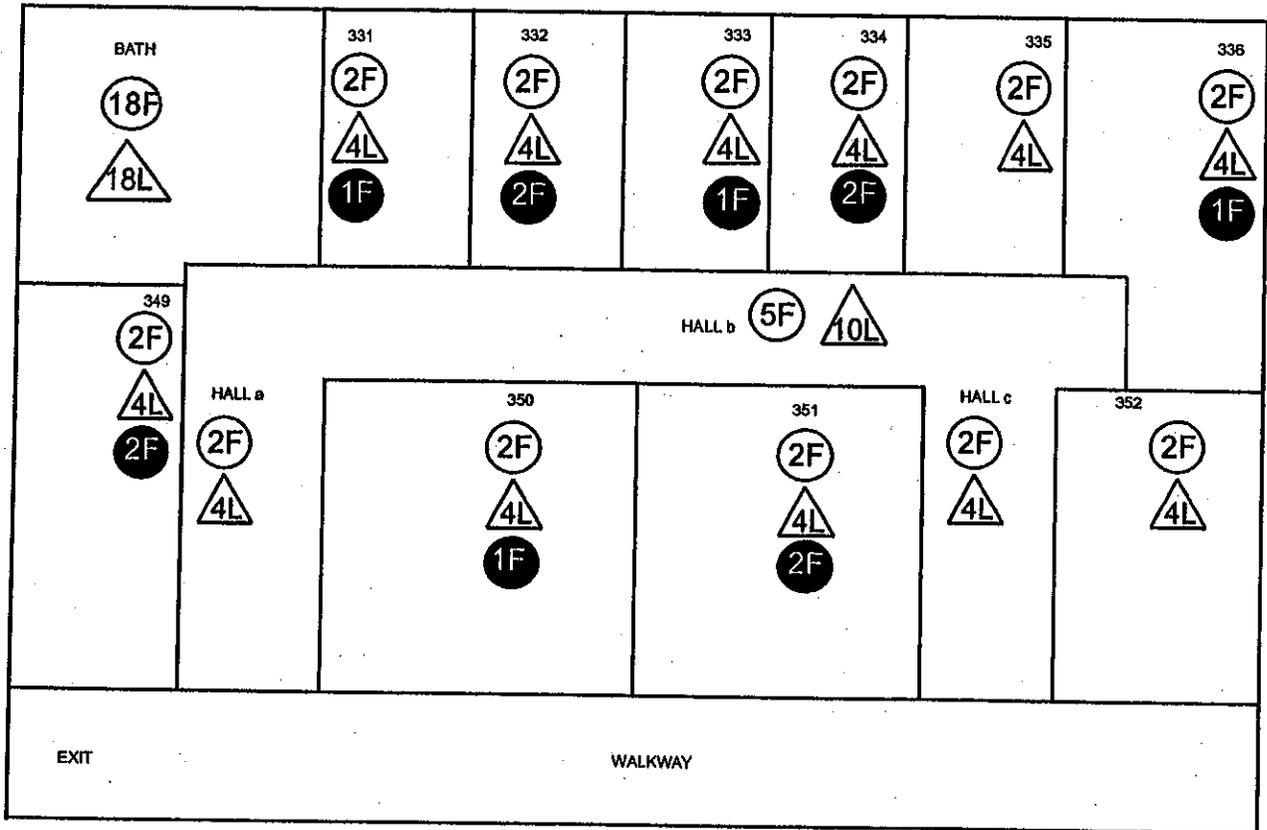
NA No access



North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 449 3-4



## Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

449 3-4 Building 449/3rd fl/section 4

220 Room number

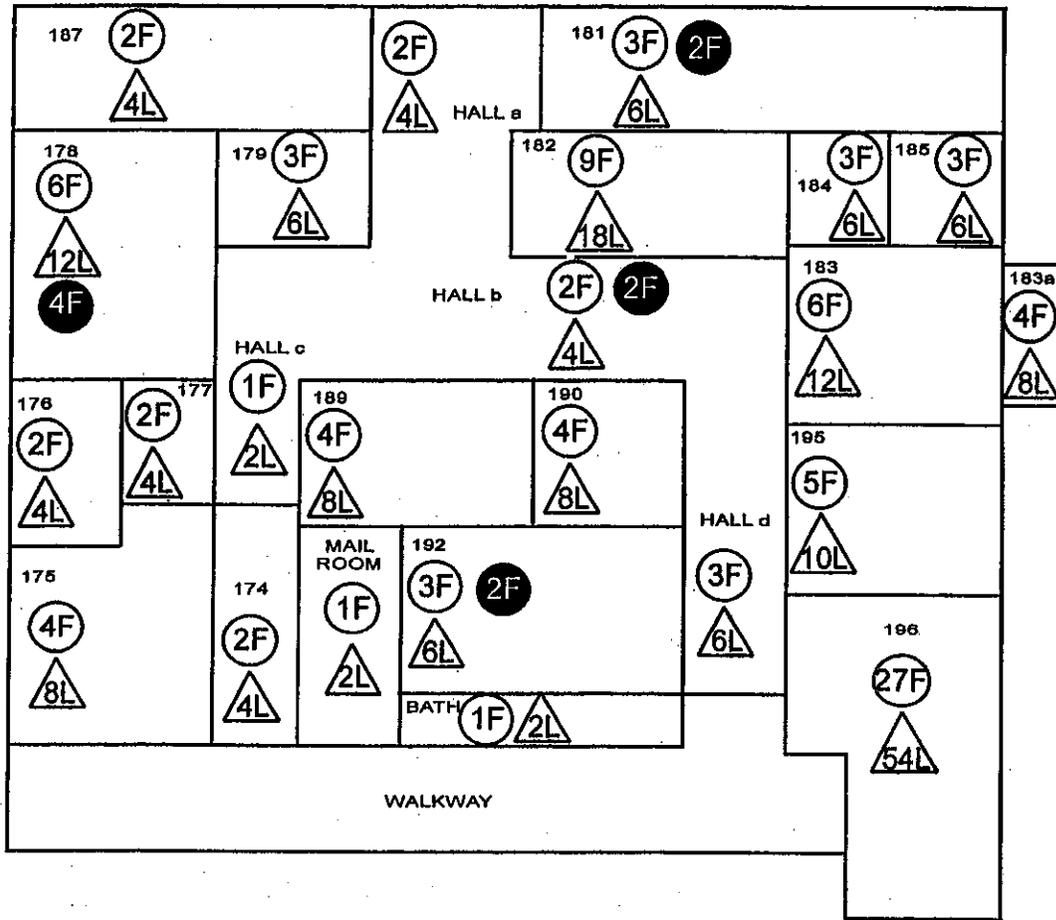
NA No access



North Seeking Arrow



**QUAD C SCHOFIELD BARRACKS  
SKETCH 450 1-1**

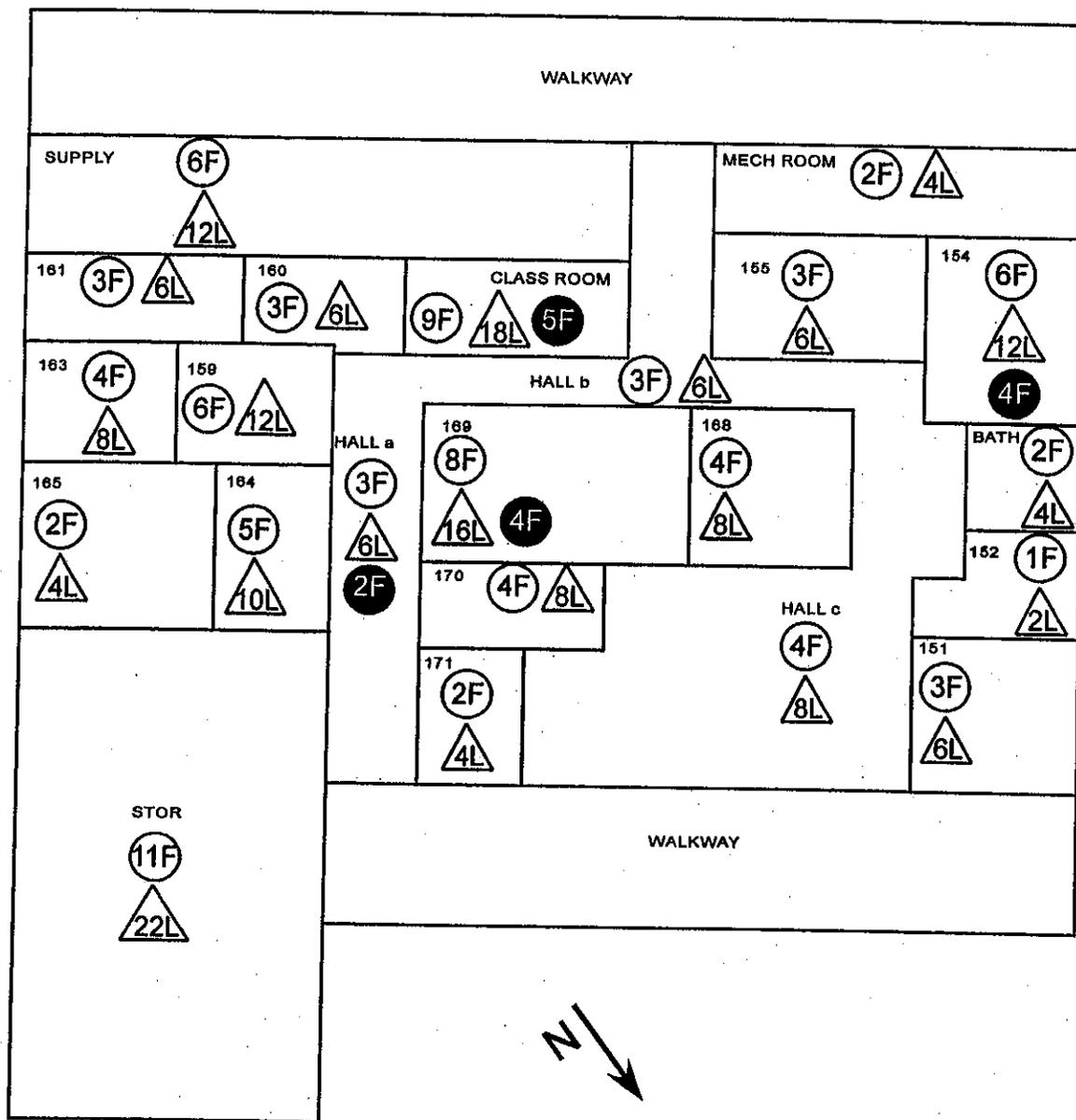


**Legend**

Light fixtures (2)	450-1-1 Building 450/1st fl/section 1
Mercury lamps	220 Room number
Light fixtures investigated (2)	NA No access
PCB-containing ballast	North Seeking Arrow



# QUAD D SCHOFIELD BARRACKS SKETCH 450 1-2



### Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

450-1-2 Building 450/1st fl/section 2

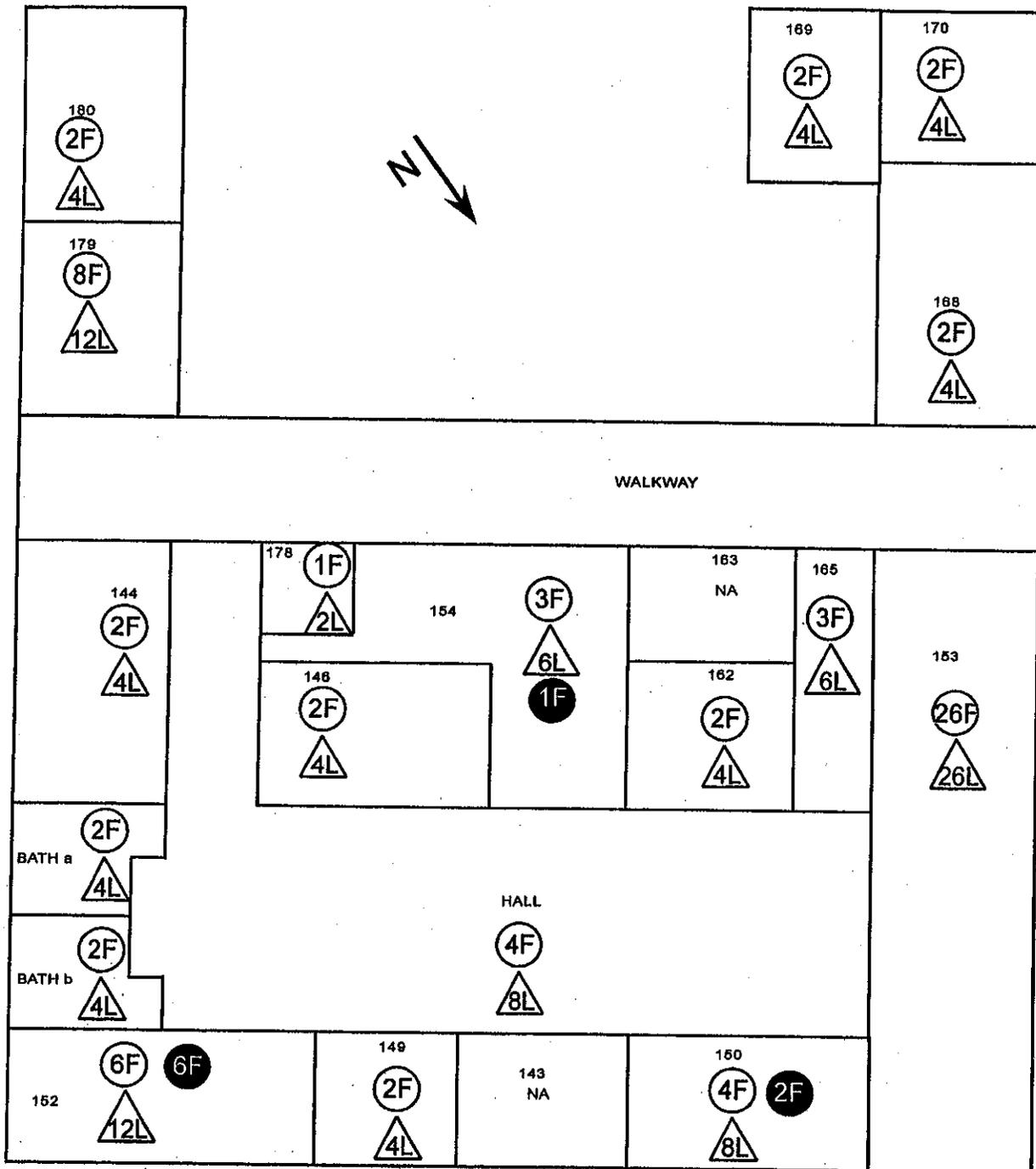
220 Room number

NA No access

 North Seeking Arrow



# QUAD D SCHOFIELD BARRACKS SKETCH 450 1-3



### Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

450-1-3 Building 450/1st fl/section 3

220 Room number

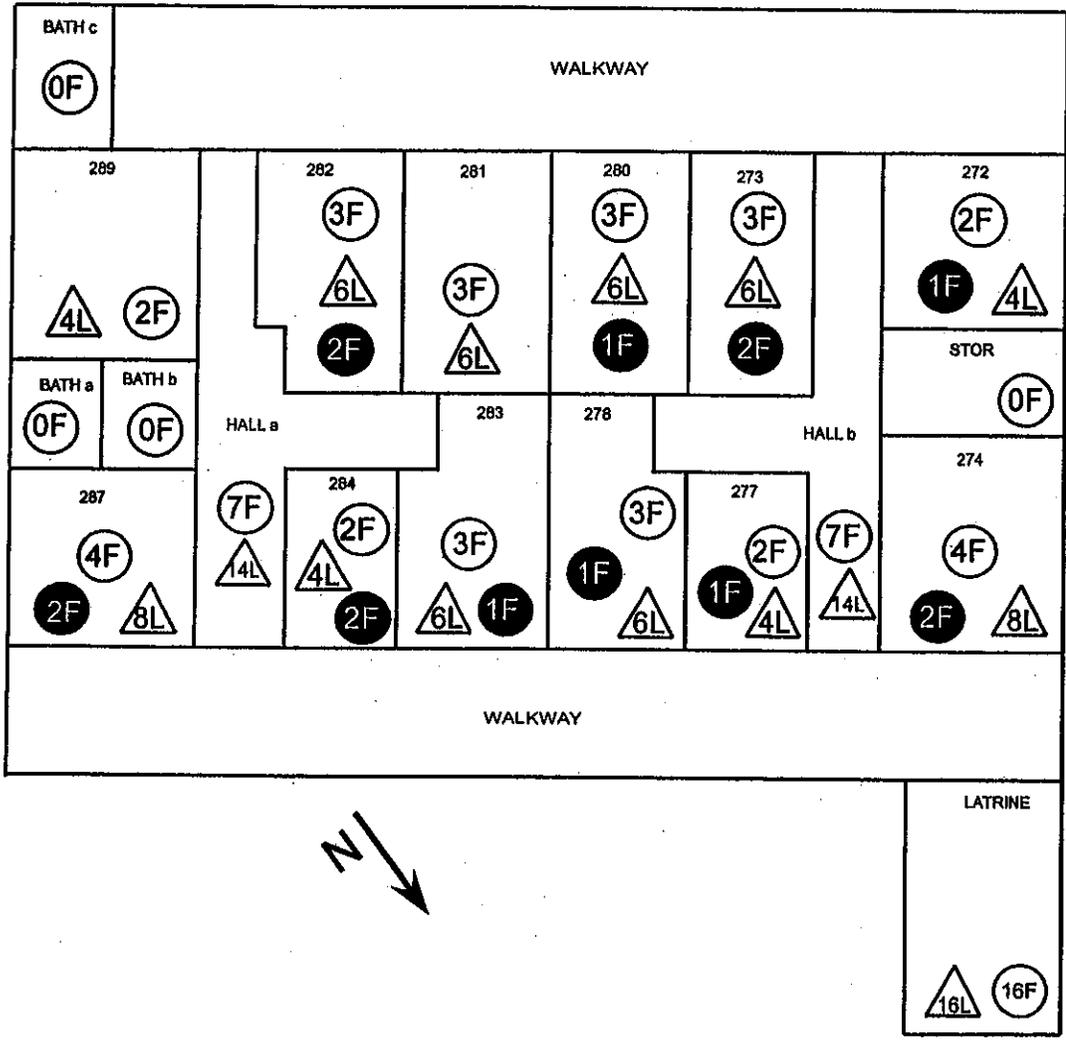
NA No access

North Seeking Arrow





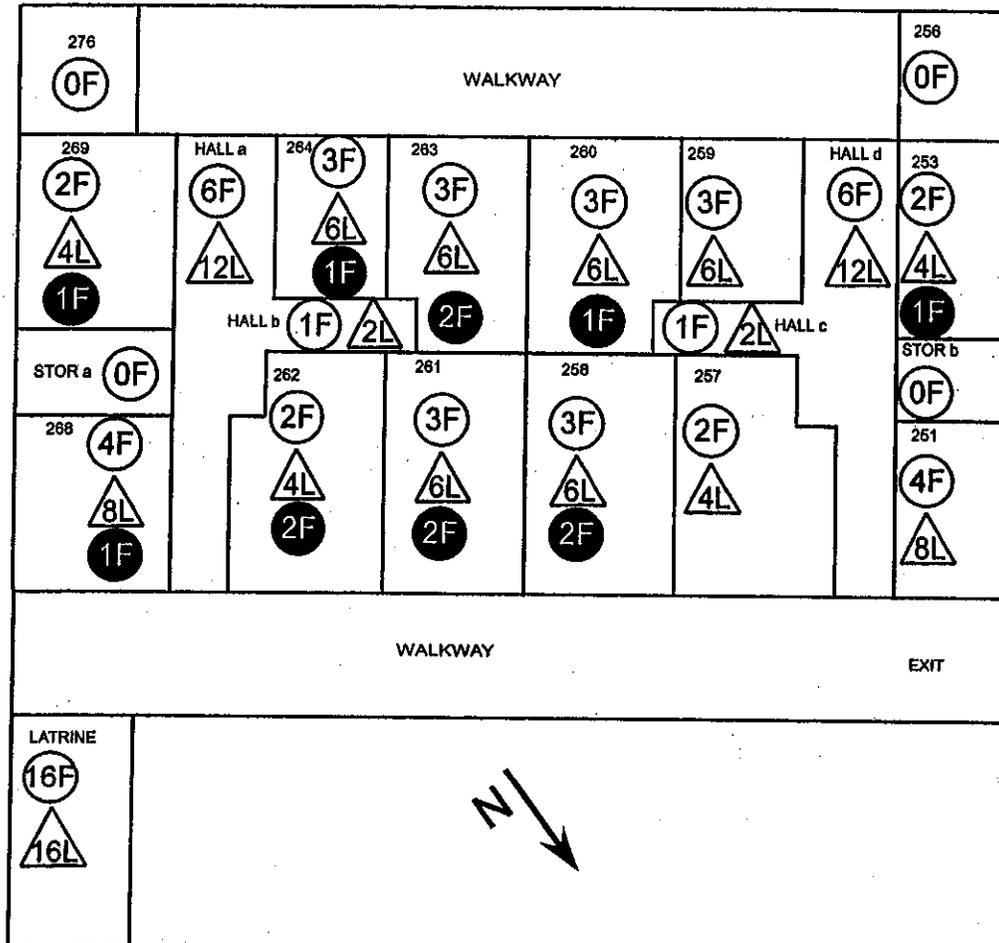
# QUAD D SCHOFIELD BARRACKS BUILDING 450 2-1



**Legend**

<ul style="list-style-type: none"> <li> Light fixtures</li> <li> Mercury lamps</li> <li> Light fixtures investigated</li> <li> PCB-containing ballast</li> </ul>	<ul style="list-style-type: none"> <li>450-2-1 Building 450 2nd floor part 1</li> <li>220 Room number</li> <li>NA No access</li> <li> North Seeking Arrow</li> </ul>
--	--

# QUAD D SCHOFIELD BARRACKS BUILDING 450 2-2



### Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

450-2-2 Building 450/2nd fl/section 2

220 Room number

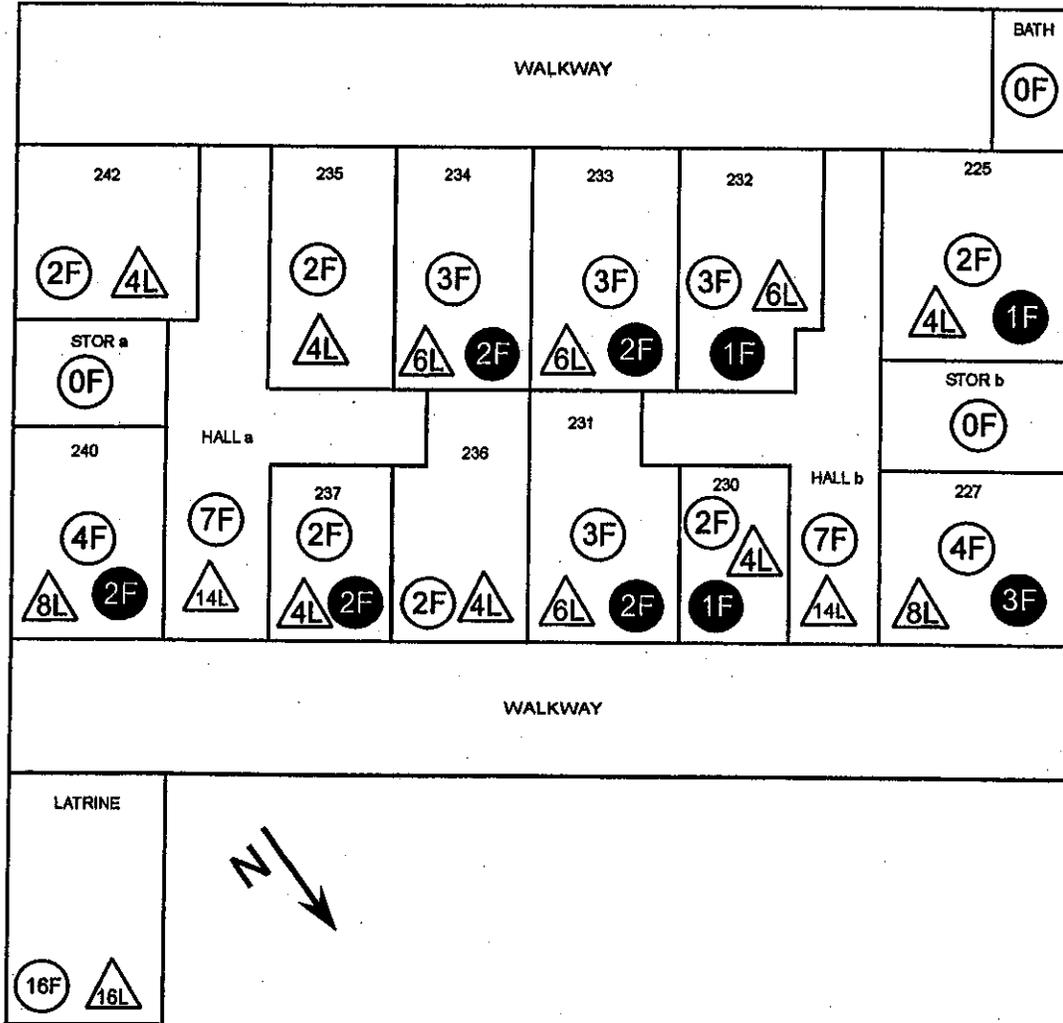
NA No access



North Seeking Arrow



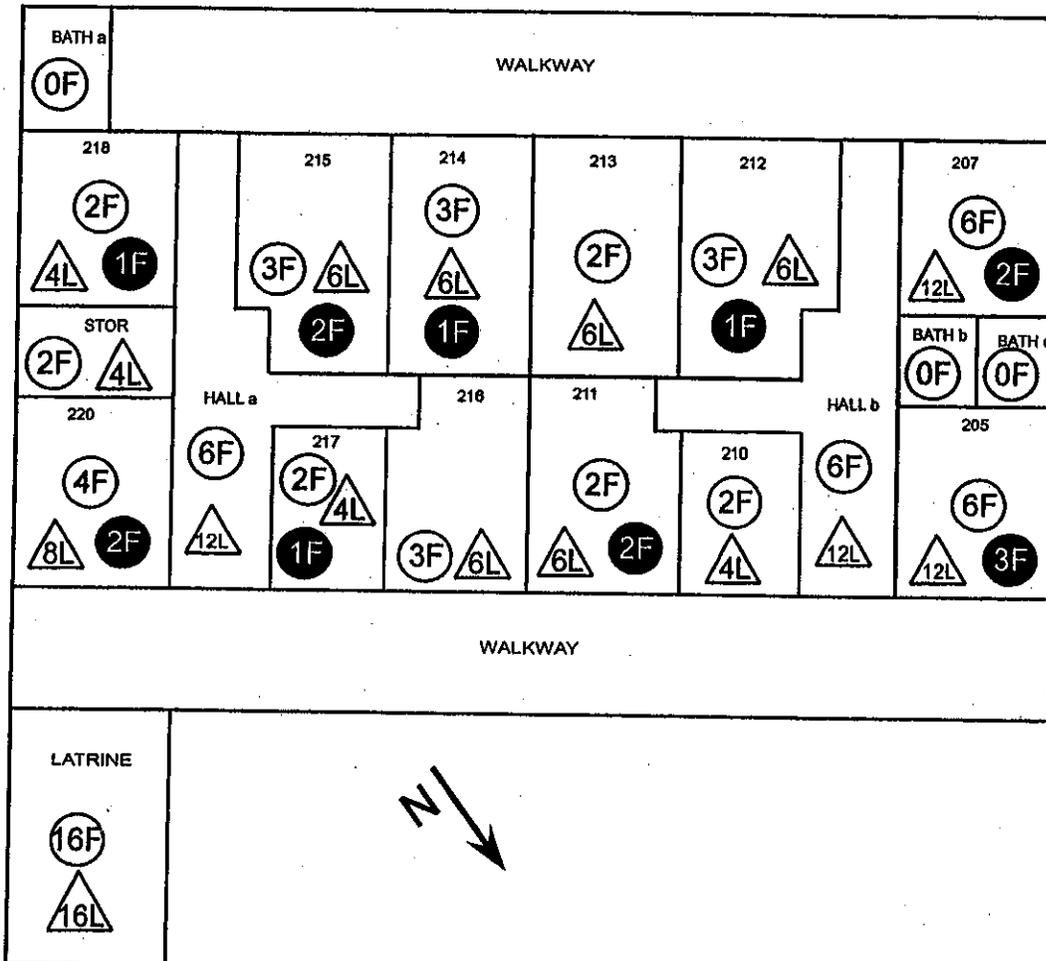
# QUAD D SCHOFIELD BARRACKS BUILDING 450 2-3



### Legend

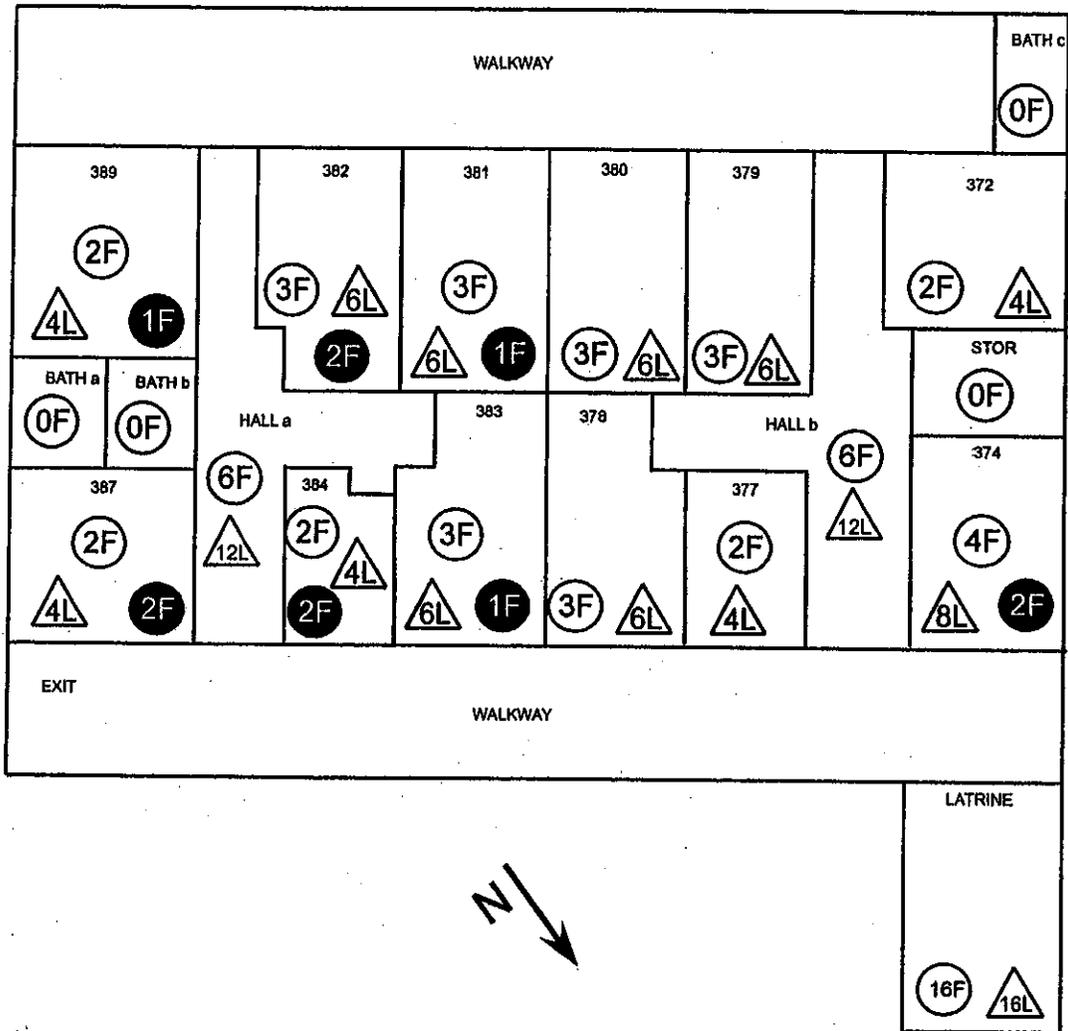
<ul style="list-style-type: none"> <li> Light fixtures (2)</li> <li> Mercury lamps</li> <li> Light fixtures investigated (2)</li> <li> PCB-containing ballast</li> </ul>	<ul style="list-style-type: none"> <li>450-2-3 Building 450/2nd fl/section 3</li> <li>220 Room number</li> <li>NA No access</li> <li> North Seeking Arrow</li> </ul>
--	--

# QUAD D SCHOFIELD BARRACKS BUILDING 450 2-4



Legend	
<ul style="list-style-type: none"> <li> Light fixtures (2)</li> <li> Mercury lamps</li> <li> Light fixtures investigated (2)</li> <li> PCB-containing ballast</li> </ul>	<p style="text-align: center;">450-2-4 Building 450/2nd fl/section 4</p> <ul style="list-style-type: none"> <li>220 Room number</li> <li>NA No access</li> <li> North Seeking Arrow</li> </ul>

# QUAD D SCHOFIELD BARRACKS BUILDING 450 3- 1



### Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

450-3-1 Building 450/3rd fl/section 1

220 Room number

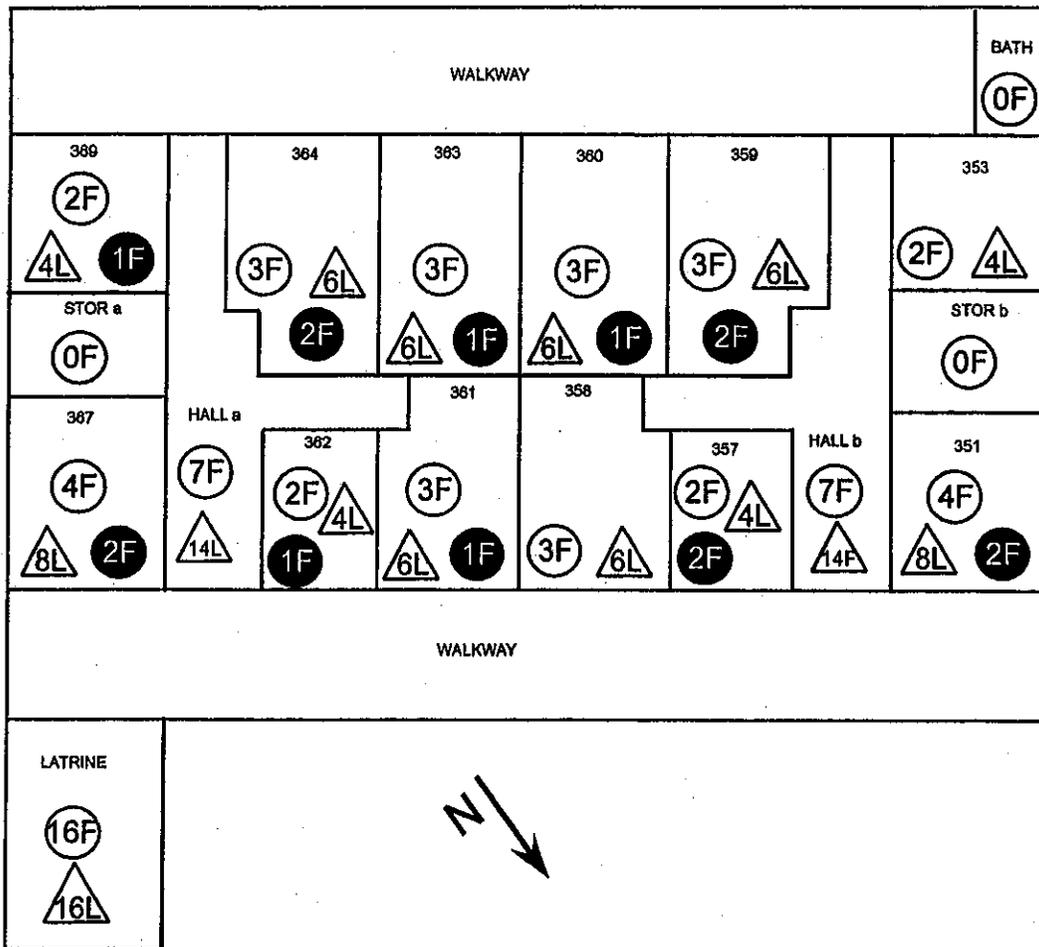
NA No access



North Seeking Arrow



# QUAD D SCHOFIELD BARRACKS BUILDING 450 3-2



### Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

**450-3-2** Building 450/3rd fl/section 2

220 Room number

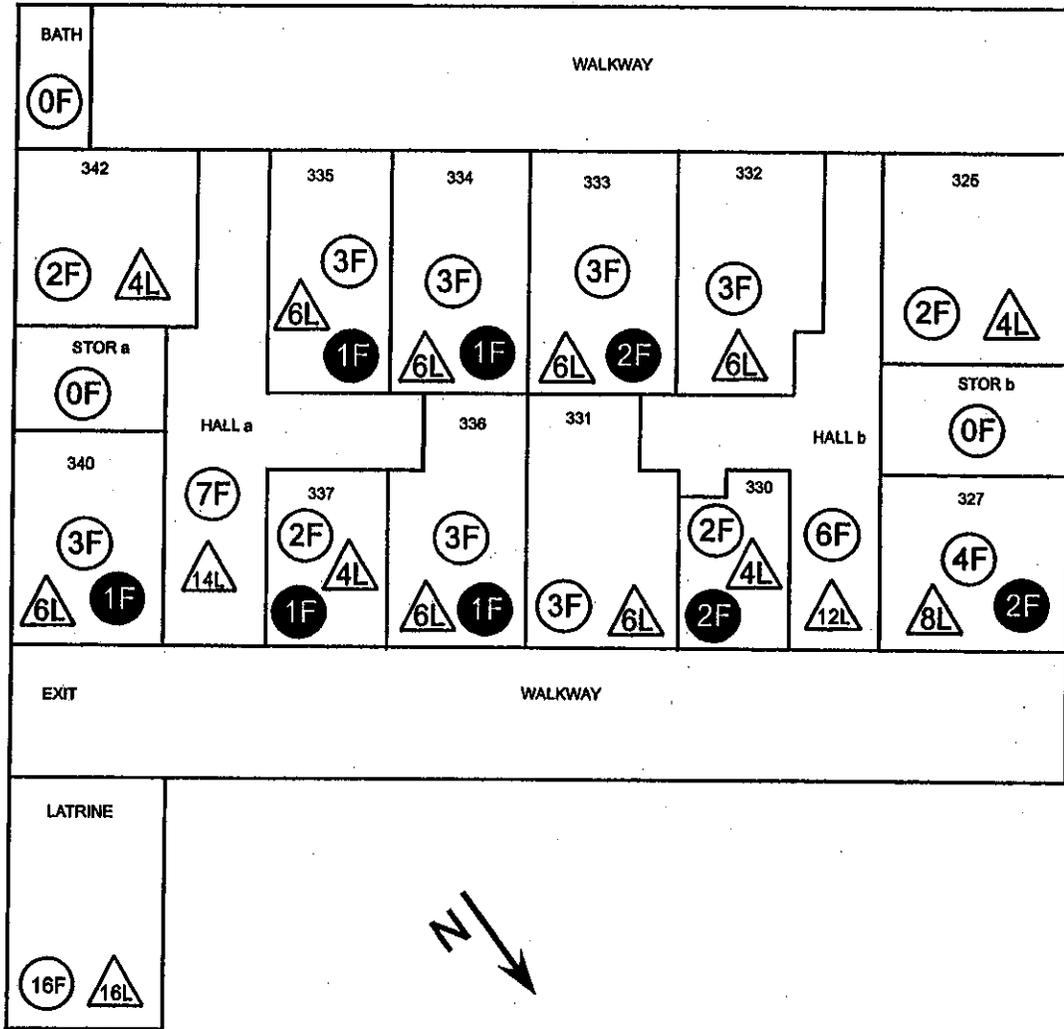
NA No access



North Seeking Arrow



# QUAD D SCHOFIELD BARRACKS BUILDING 450 3-3



### Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

450-3-3 Building 450/3rd fl/section 3

220 Room number

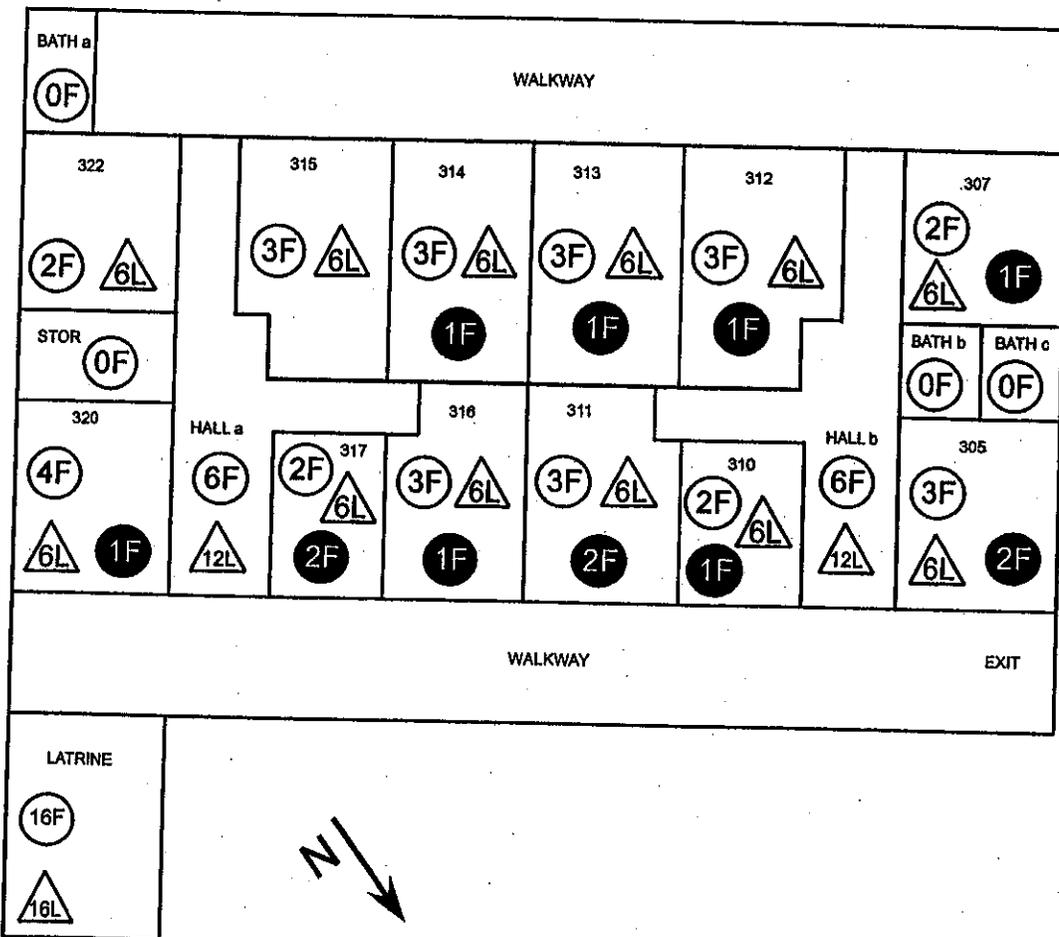
NA No access



North Seeking Arrow



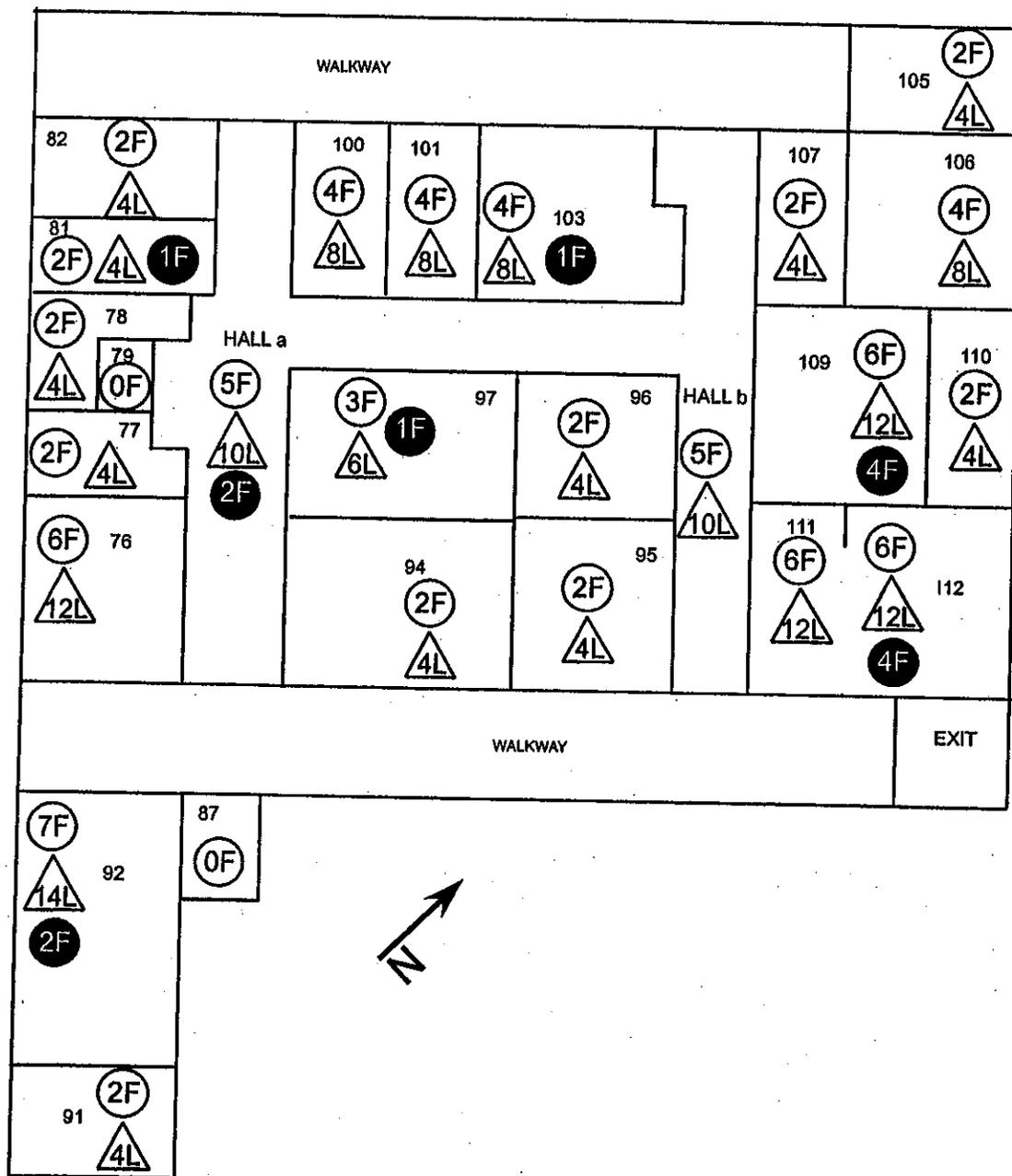
# QUAD D SCHOFIELD BARRACKS BUILDING 450 3-4



### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p><b>450-3-4</b> Building 450/3rd fl/section 4</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>
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# QUAD D SCHOFIELD BARRACKS SKETCH 451 1-1



### Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

451-1-1 Building 451/1st fl/section 1

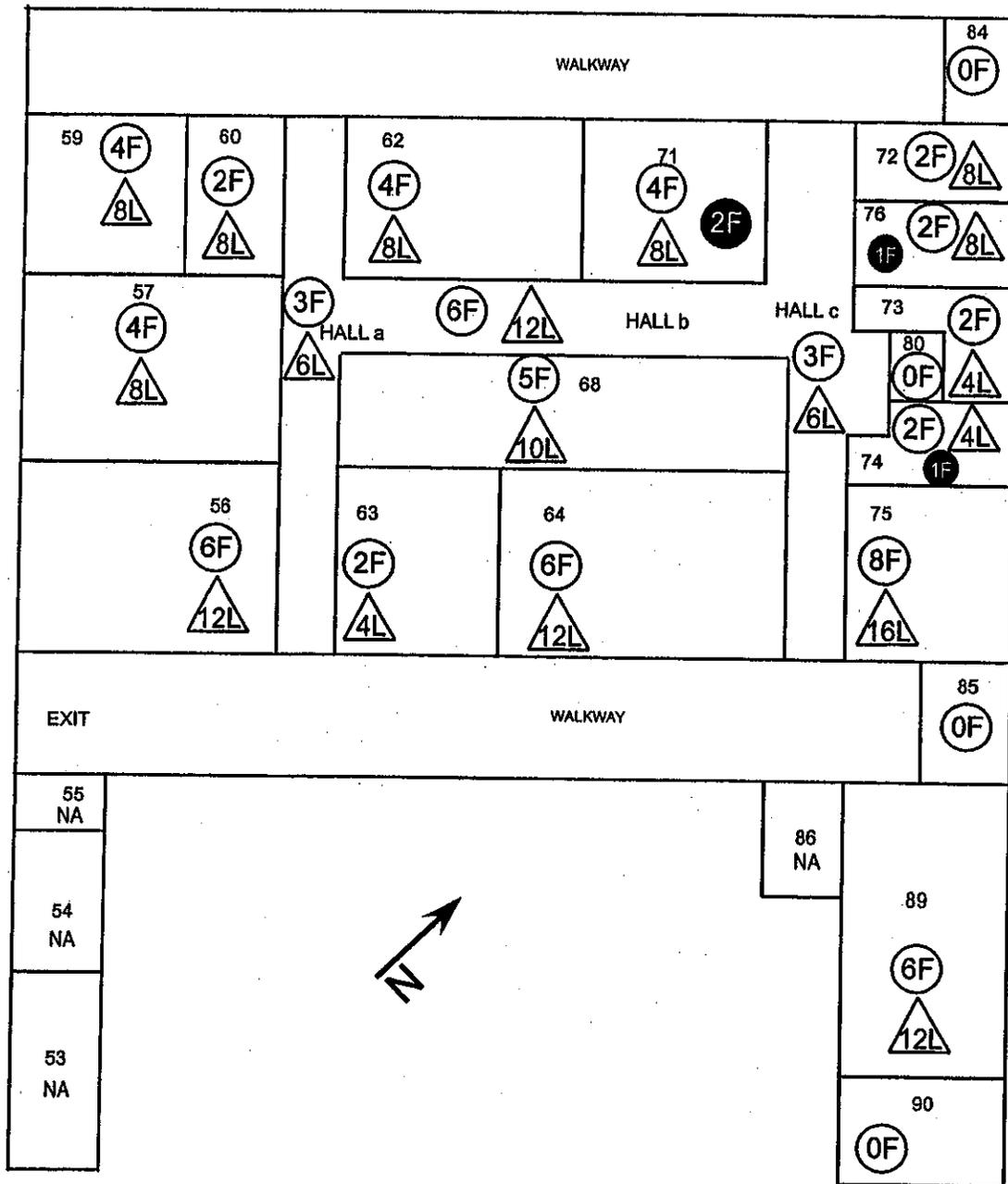
220 Room number

NA No access

North Seeking Arrow



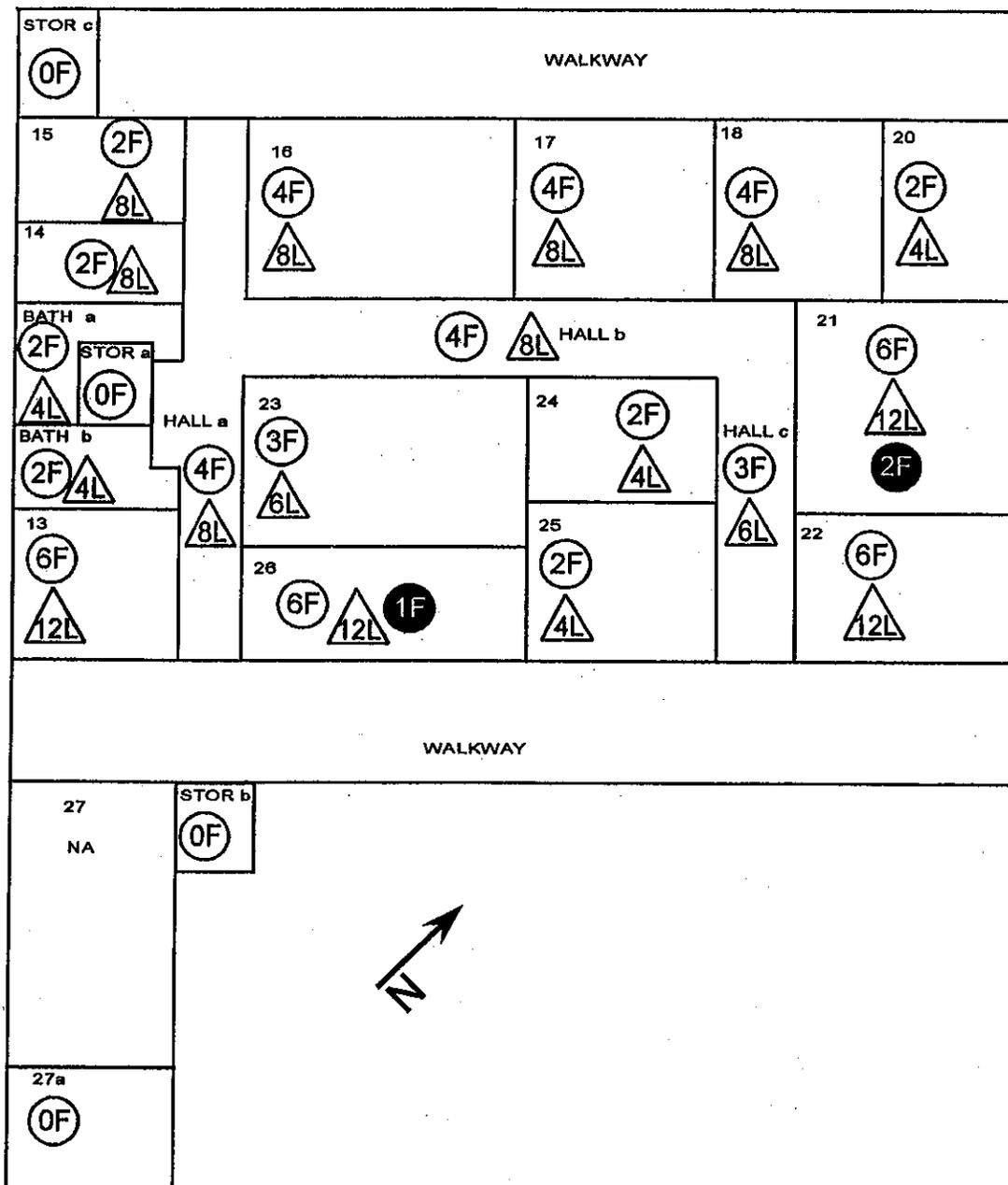
# QUAD D SCHOFIELD BARRACKS SKETCH 451 1-2



### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p>451-1-2 Building 451/1st fl/section 2</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>
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# QUAD C SCHOFIELD BARRACKS SKETCH 451 1-3



### Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

451-1-3 Building 451/1st fl/section 3

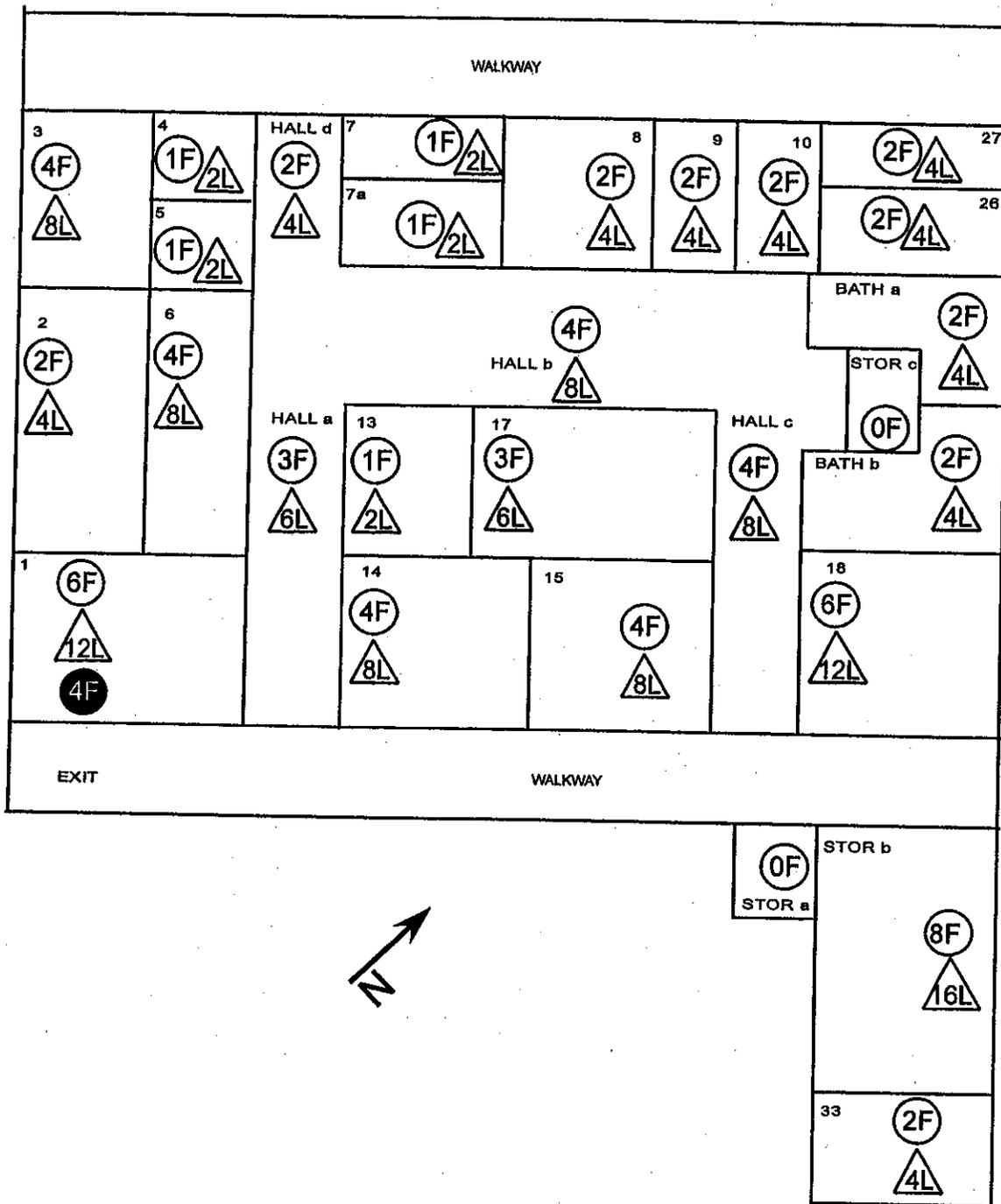
220 Room number

NA No access

 North Seeking Arrow



# QUAD D SCHOFIELD BARRACKS BUILDING 451 FLOOR 1-4



### Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

451-1-4 Building 449/1st fl/section 4

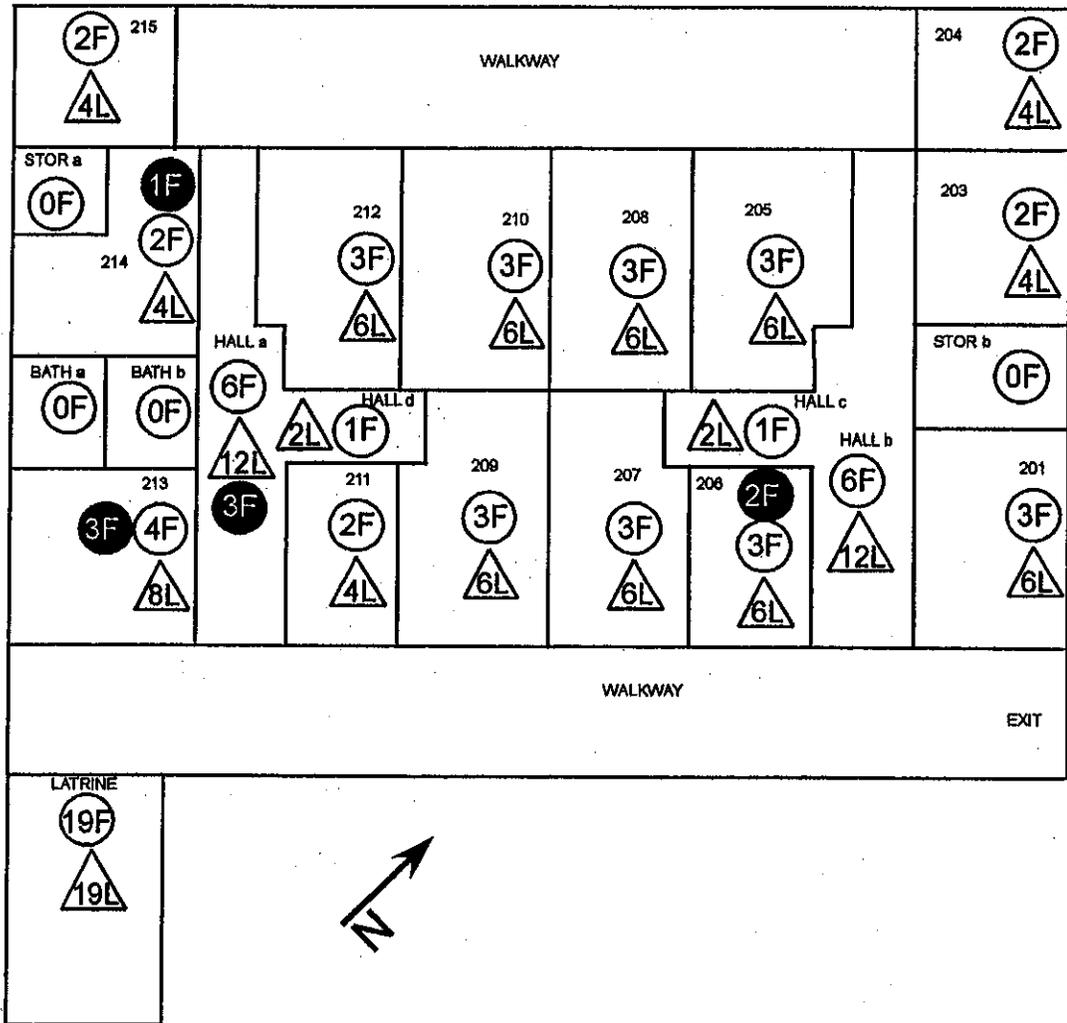
220 Room number

NA No access

 North Seeking Arrow



# QUAD D SCHOFIELD BARRACKS BUILDING 451 2-1



### Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

**451-2-1** Building 451/2nd fl/section 1

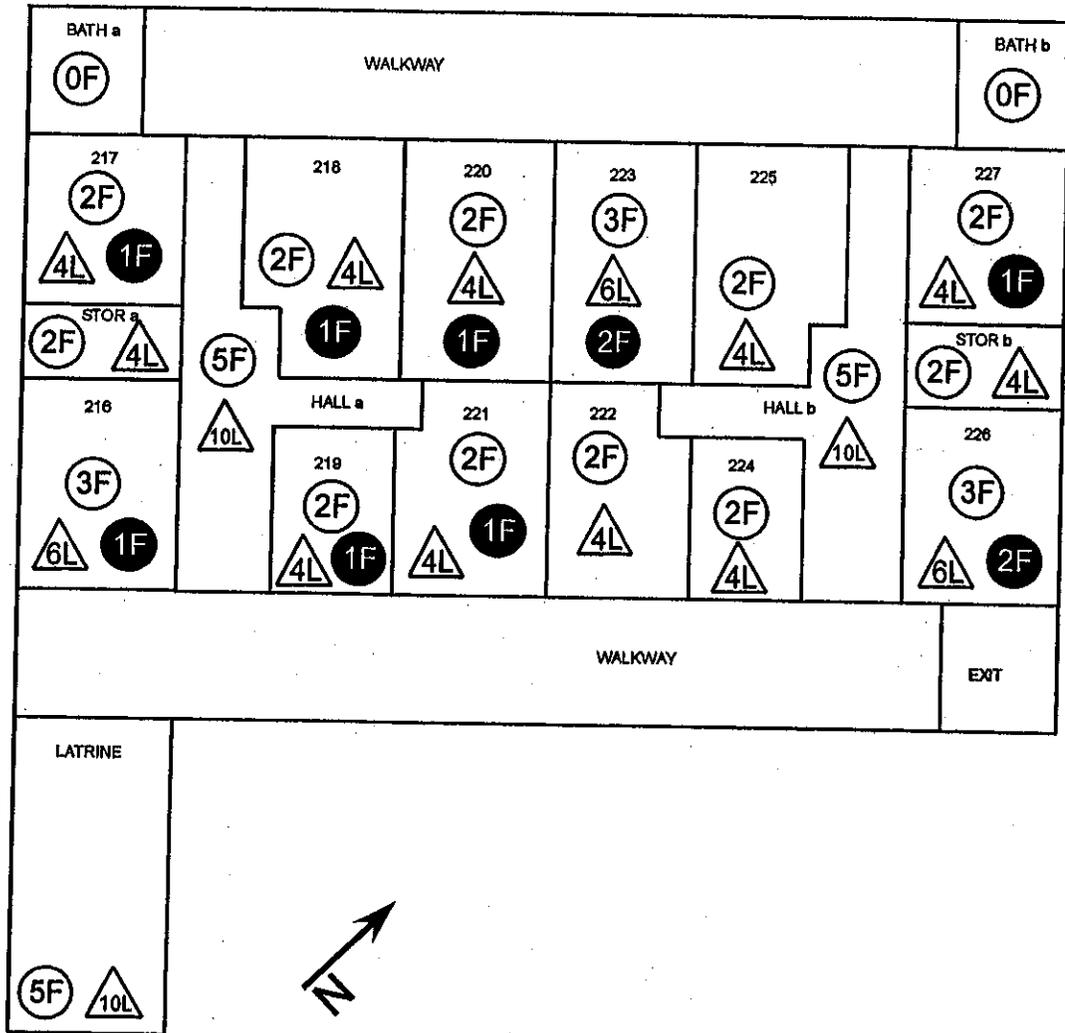
220 Room number

NA No access

 North Seeking Arrow



# QUAD D SCHOFIELD BARRACKS BUILDING 451 2-2



### Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

451-2-2 Building 452/2nd fl/section 2

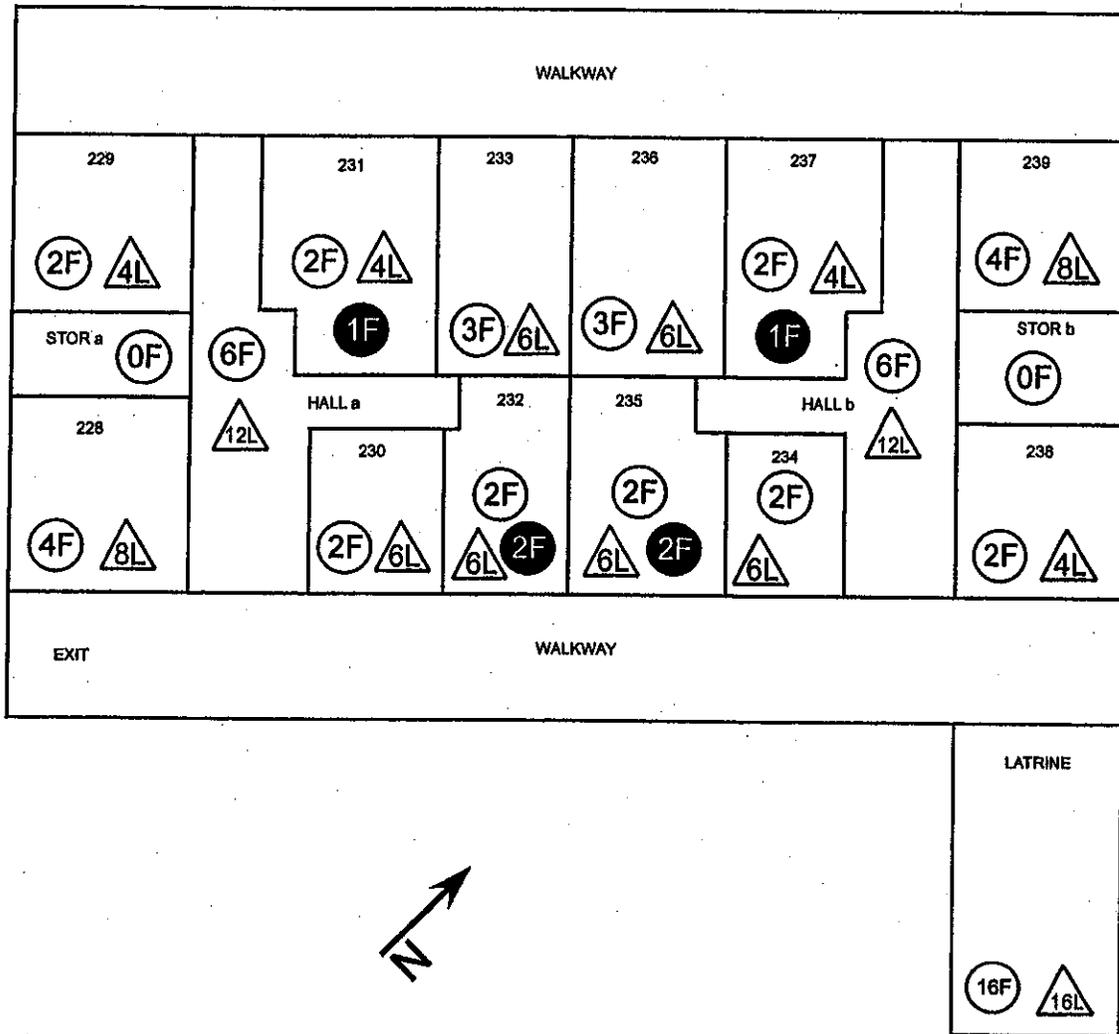
220 Room number

NA No access

North Seeking Arrow



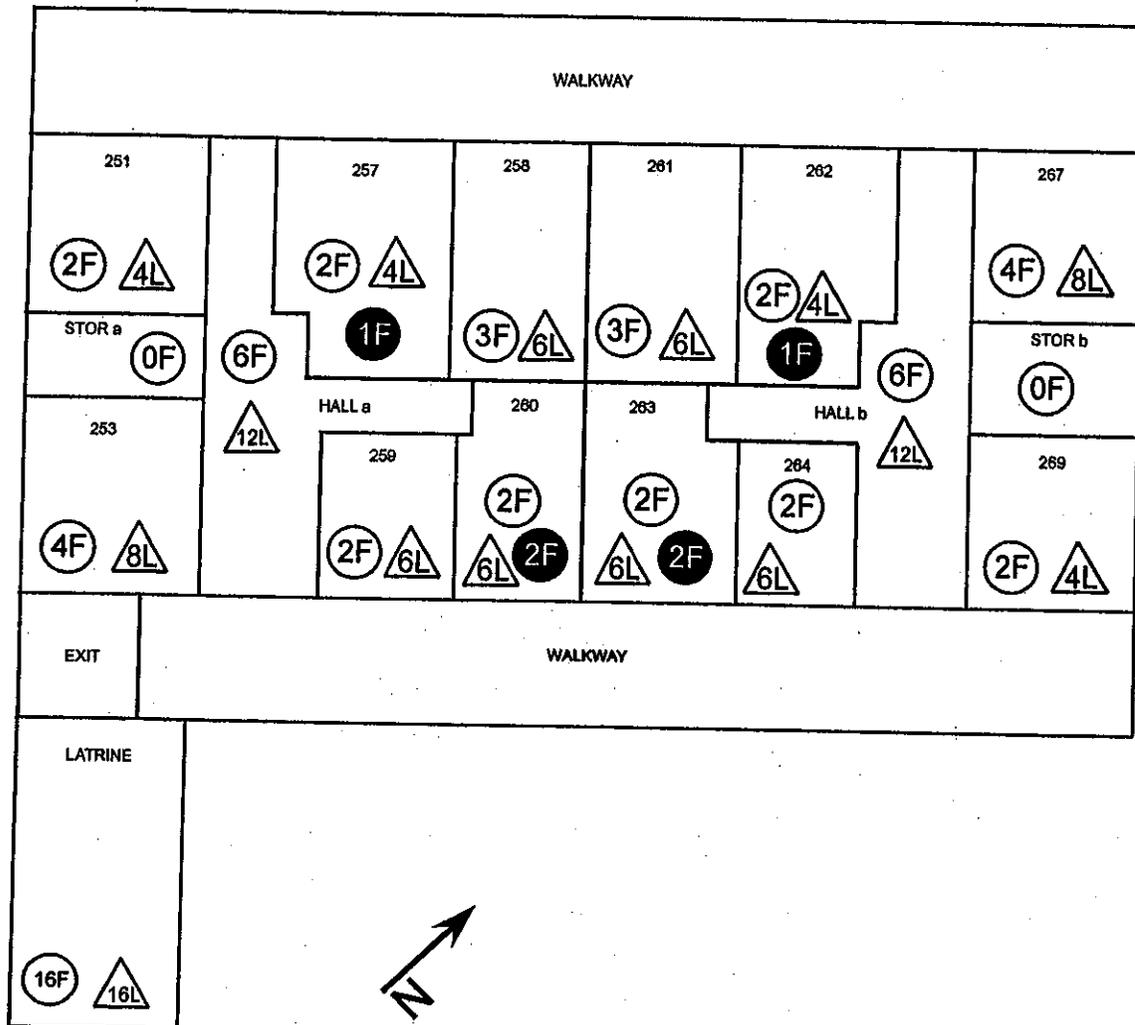
# QUAD D SCHOFIELD BARRACKS BUILDING 451 2-3



### Legend

<ul style="list-style-type: none"> <li>(2F) Light fixtures (2)</li> <li>(6L) Mercury lamps</li> <li>(2F) Light fixtures investigated (2)</li> <li>1 PCB-containing ballast</li> </ul>	<p style="text-align: center;"><b>451-2-3 Building 451/2nd fl/section 3</b></p> <ul style="list-style-type: none"> <li>220 Room number</li> <li>NA No access</li> <li>↑ North Seeking Arrow</li> </ul>
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# QUAD D SCHOFIELD BARRACKS BUILDING 451 2-4



### Legend

⊙<sup>2F</sup> Light fixtures (2)

△<sup>6L</sup> Mercury lamps

●<sup>2F</sup> Light fixtures investigated (2)

■<sup>1</sup> PCB-containing ballast

451-2-4 Building 451/2nd fl/section 4

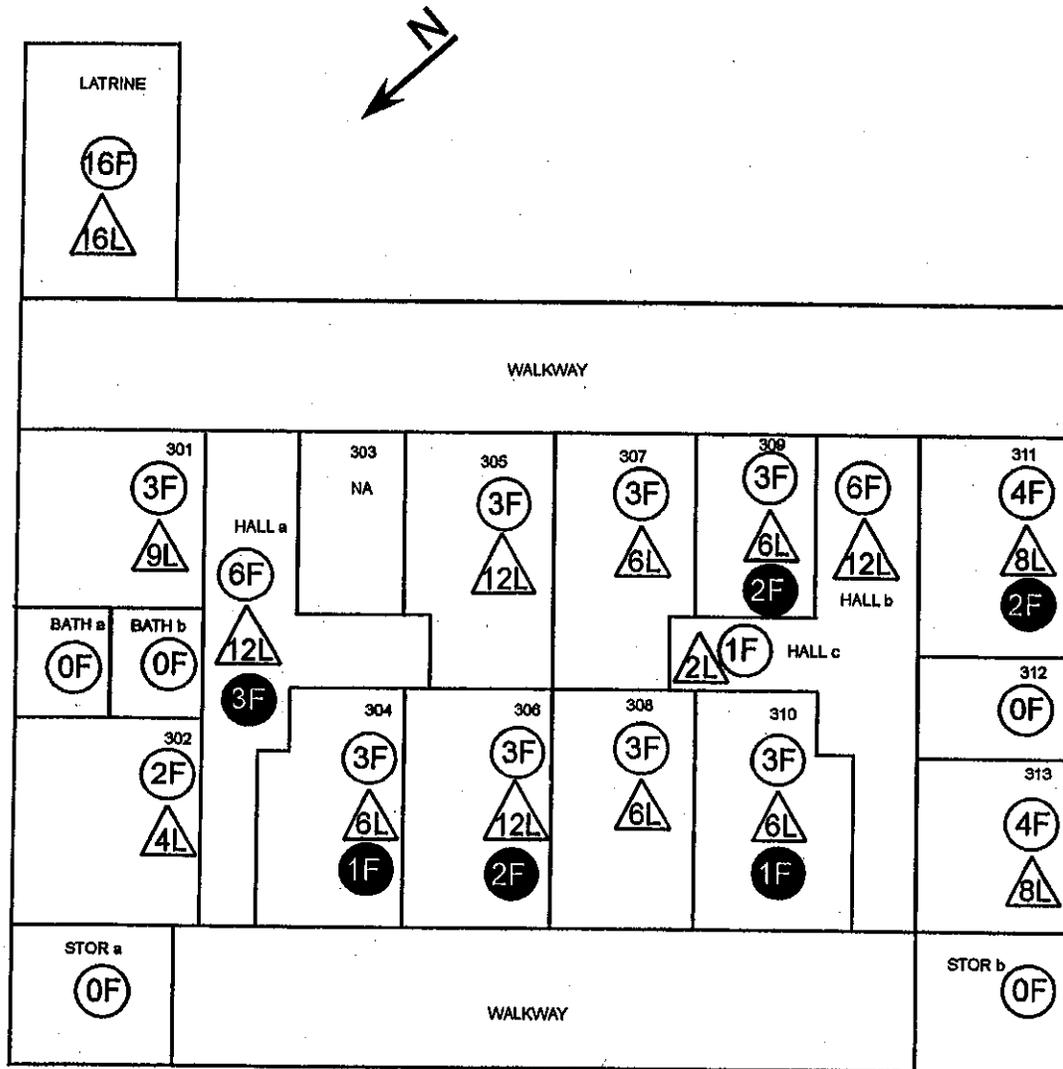
220 Room number

NA No access

↑<sup>N</sup> North Seeking Arrow



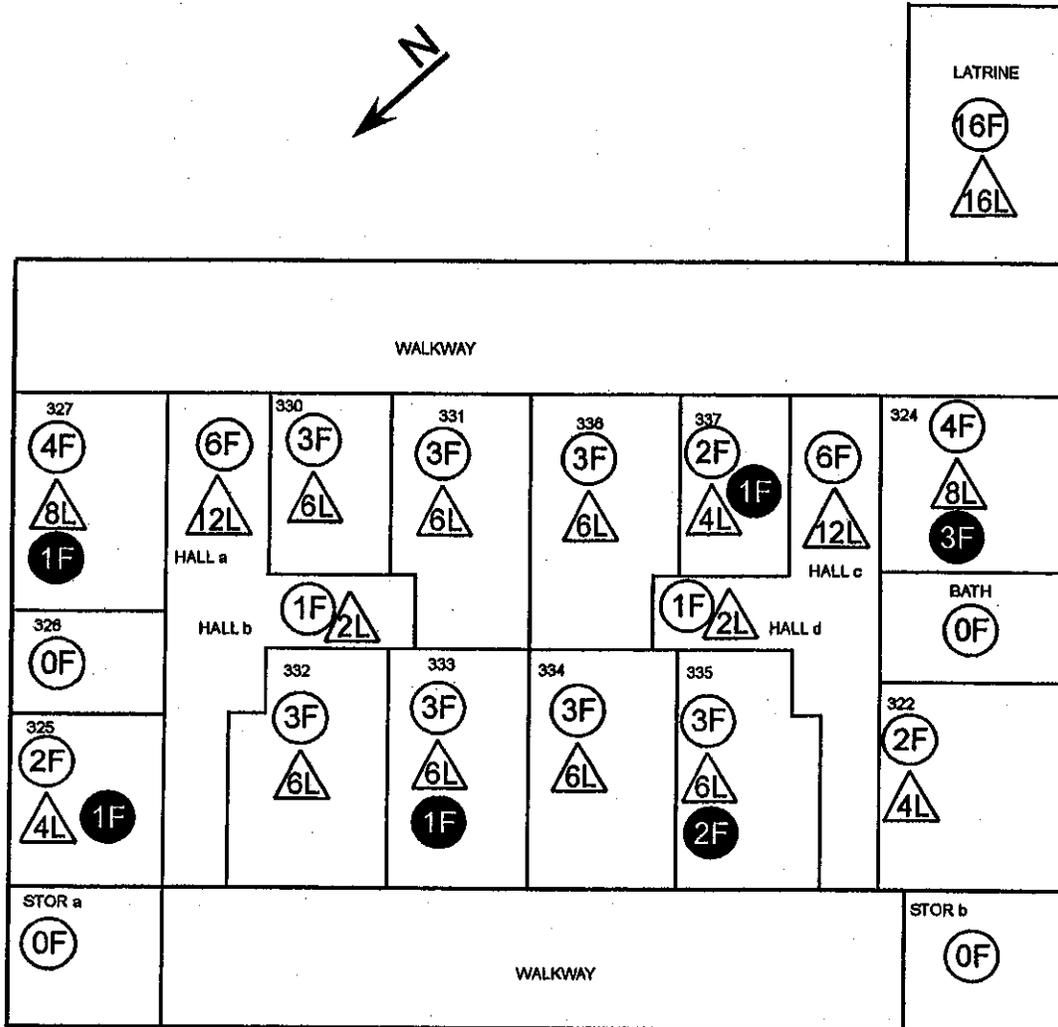
# QUAD E SCHOFIELD BARRACKS BUILDING 451 3-1



### Legend

<ul style="list-style-type: none"> <li> Light fixtures (2)</li> <li> Mercury lamps</li> <li> Light fixtures investigated (2)</li> <li> PCB-containing ballast</li> </ul>	<ul style="list-style-type: none"> <li>451-3-1 Building 451/1st fl/section 1</li> <li>220 Room number</li> <li>NA No access</li> <li> North Seeking Arrow</li> </ul>
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# QUAD E SCHOFIELD BARRACKS BUILDING 451 3-2

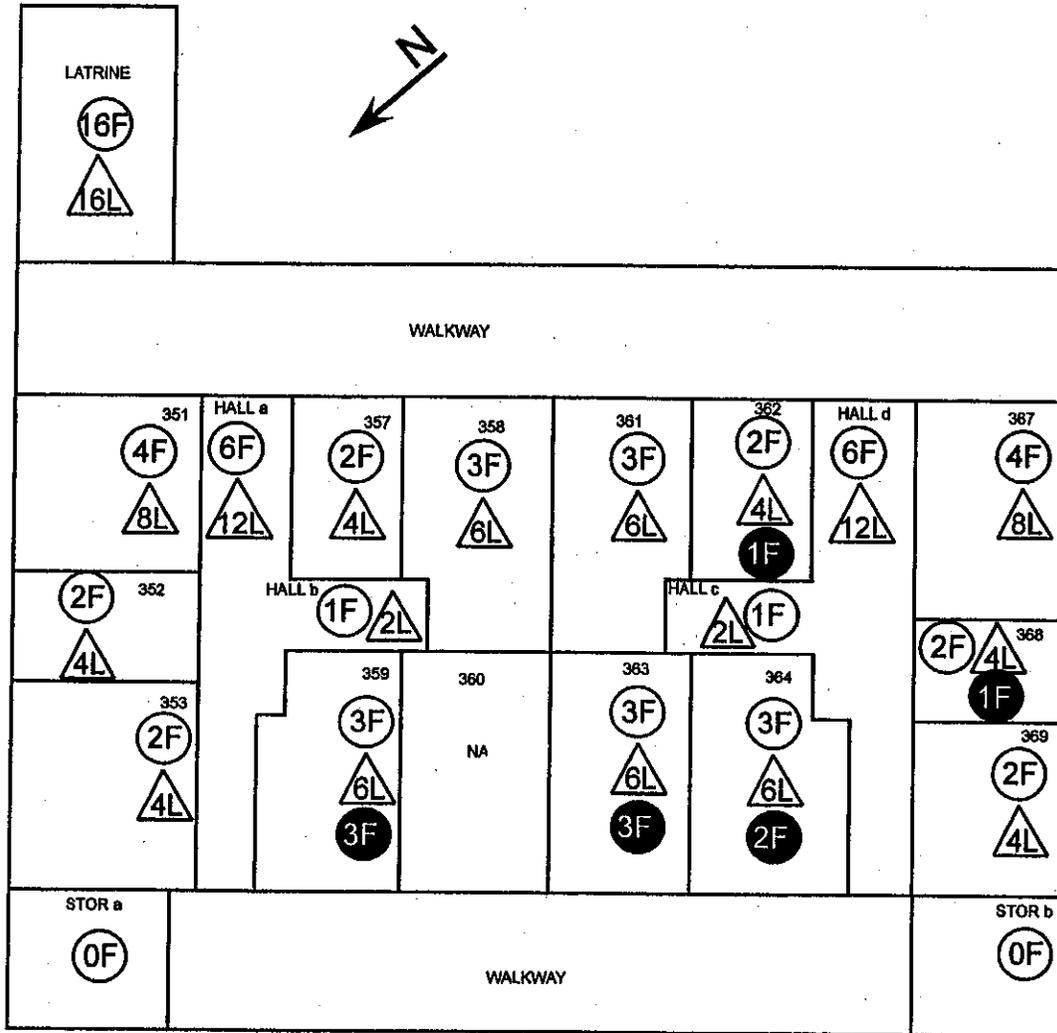


**Legend**

<p>⊙(2F) Light fixtures (2)</p> <p>⊙(6L) Mercury lamps</p> <p>⊙(2F) Light fixtures investigated (2)</p> <p>■(1) PCB-containing ballast</p>	<p>451-3-2 Building 451/3rd fl/section 2</p> <p>220 Room number</p> <p>NA No access</p> <p>↑(N) North Seeking Arrow</p>
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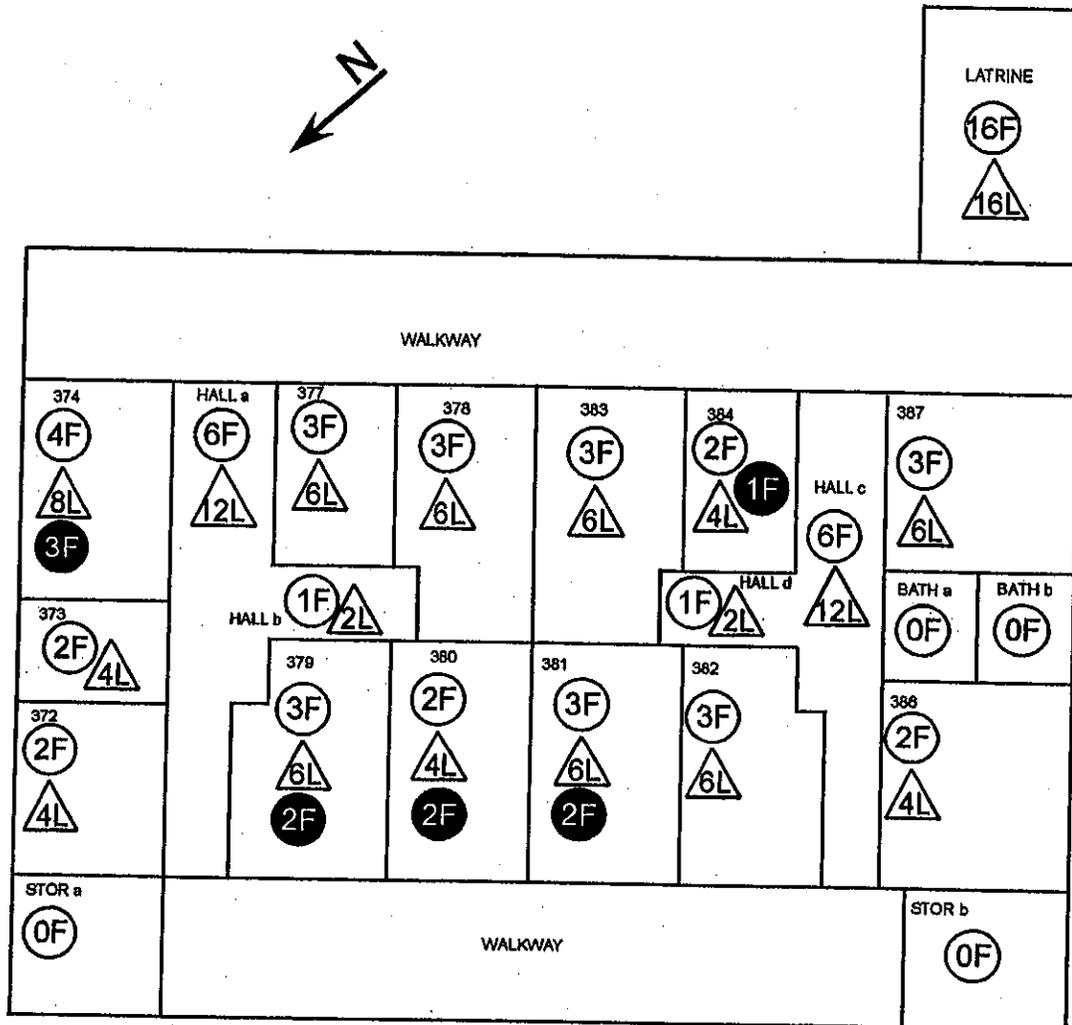
# QUAD D SCHOFIELD BARRACKS BUILDING 451 3-3



### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p style="text-align: right;">451-3-3 Building 451/1st fl/section 3</p> <p style="text-align: right;">220 Room number</p> <p style="text-align: right;">NA No access</p> <p style="text-align: right;">  North Seeking Arrow             </p>
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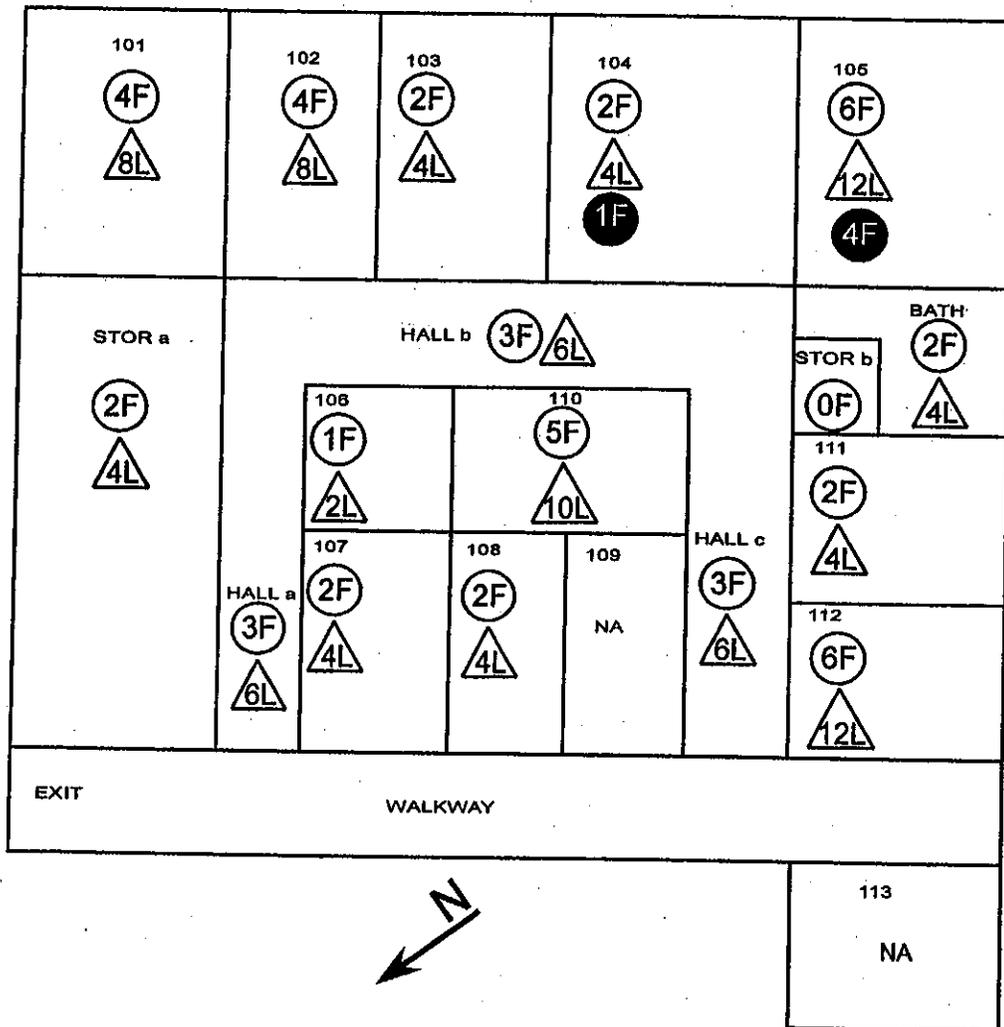
# QUAD D SCHOFIELD BARRACKS BUILDING 451 FLOOR 3-4



### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p style="text-align: center;"><b>451-3-4</b> Building 451/3rd fl/section 4</p> <p>220 Room number</p> <p>NA No access</p> <p style="text-align: center;">↑ IN</p> <p>North Seeking Arrow</p>
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QUAD C SCHOFIELD BARRACKS  
SKETCH 452 1-1



Legend

(2F) Light fixtures (2)

(6L) Mercury lamps

(2F) Light fixtures investigated (2)

(1) PCB-containing ballast

452-1-1 Building 452/1st fl/section 1

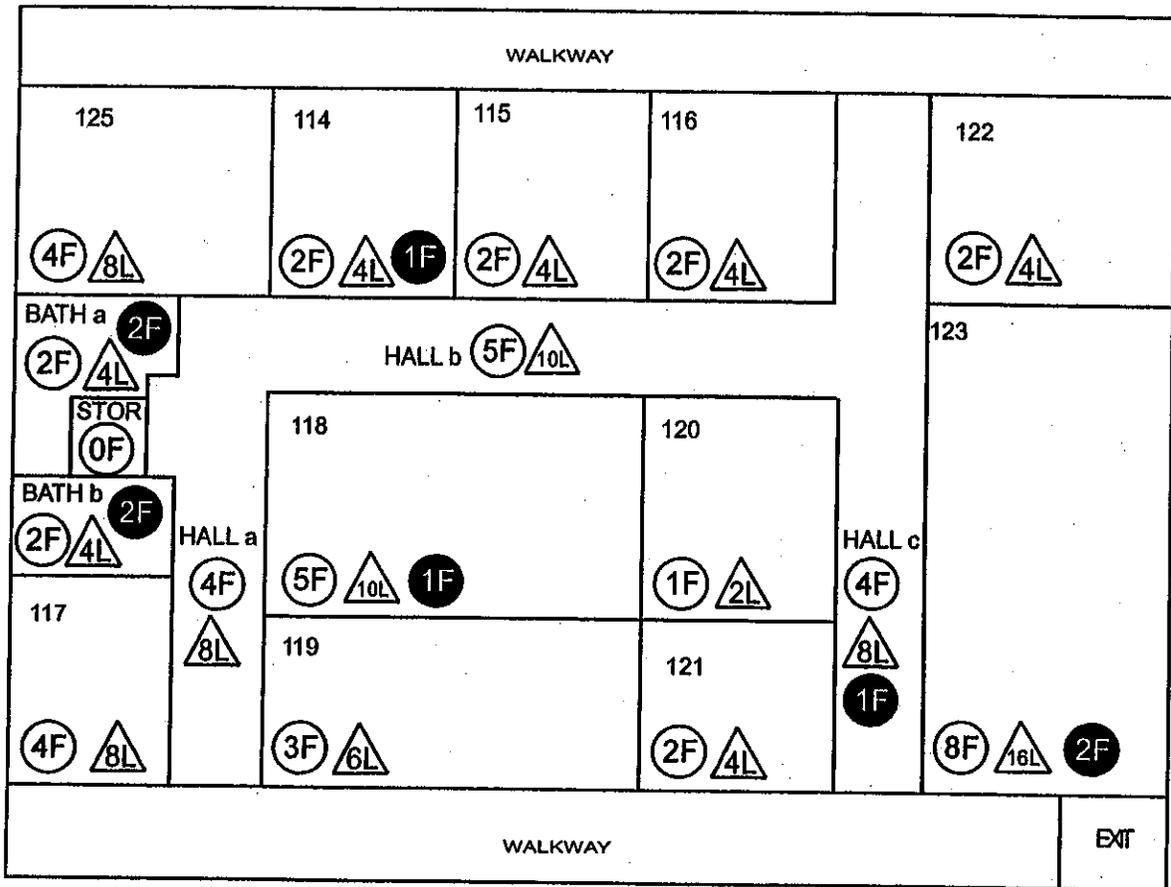
220 Room number

NA No access

↑ N North Seeking Arrow



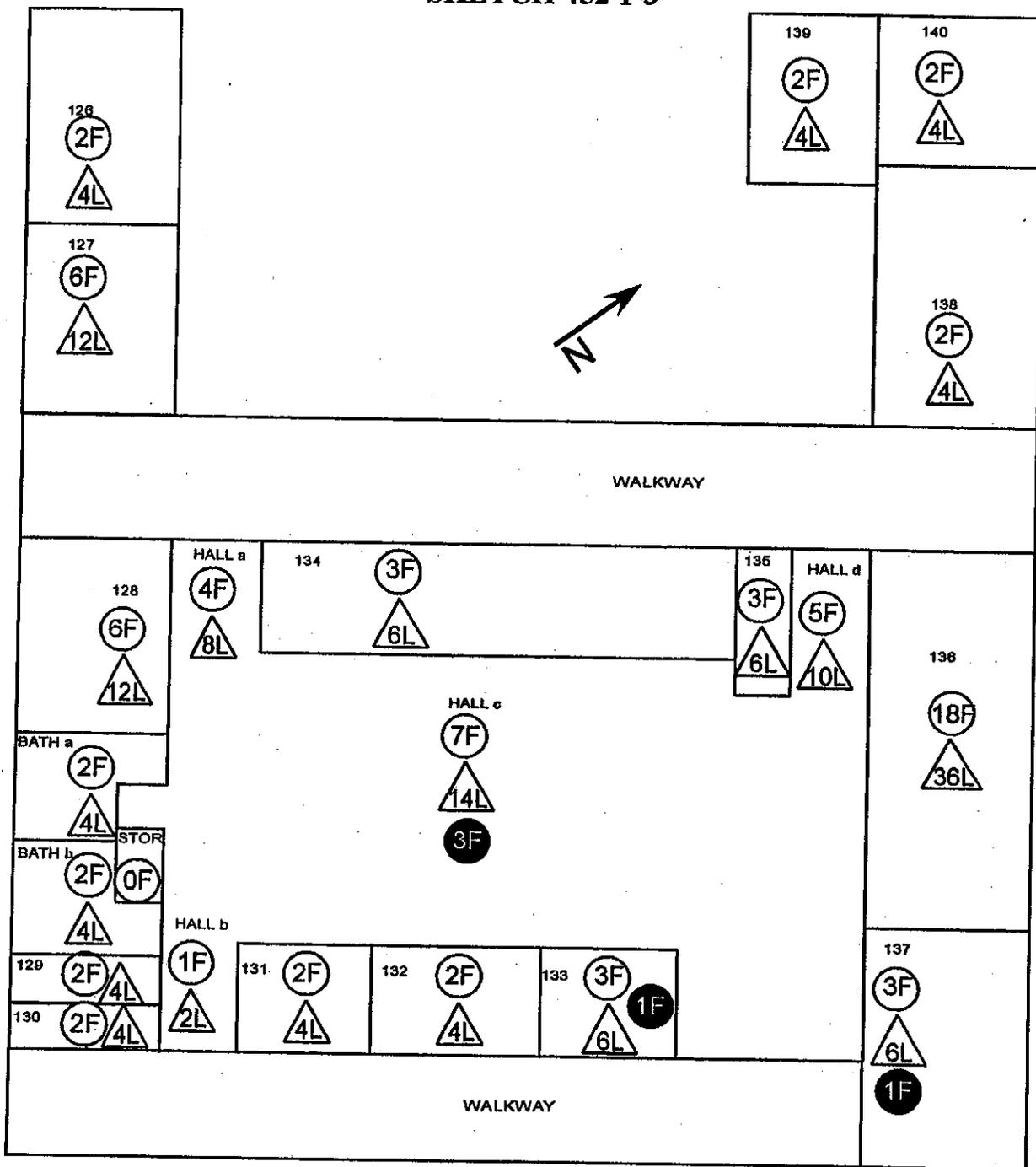
# QUAD C SCHOFIELD BARRACKS SKETCH 452 1-2



### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p>452-1-2 Building 452/1st fl/section 2</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>
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# QUAD C SCHOFIELD BARRACKS SKETCH 452 1-3



## Legend

⊙<sub>2F</sub> Light fixtures (2)

△<sub>6L</sub> Mercury lamps

●<sub>2F</sub> Light fixtures investigated (2)

■<sub>1</sub> PCB-containing ballast

452-1-3 Building 452/1st fl/section 3

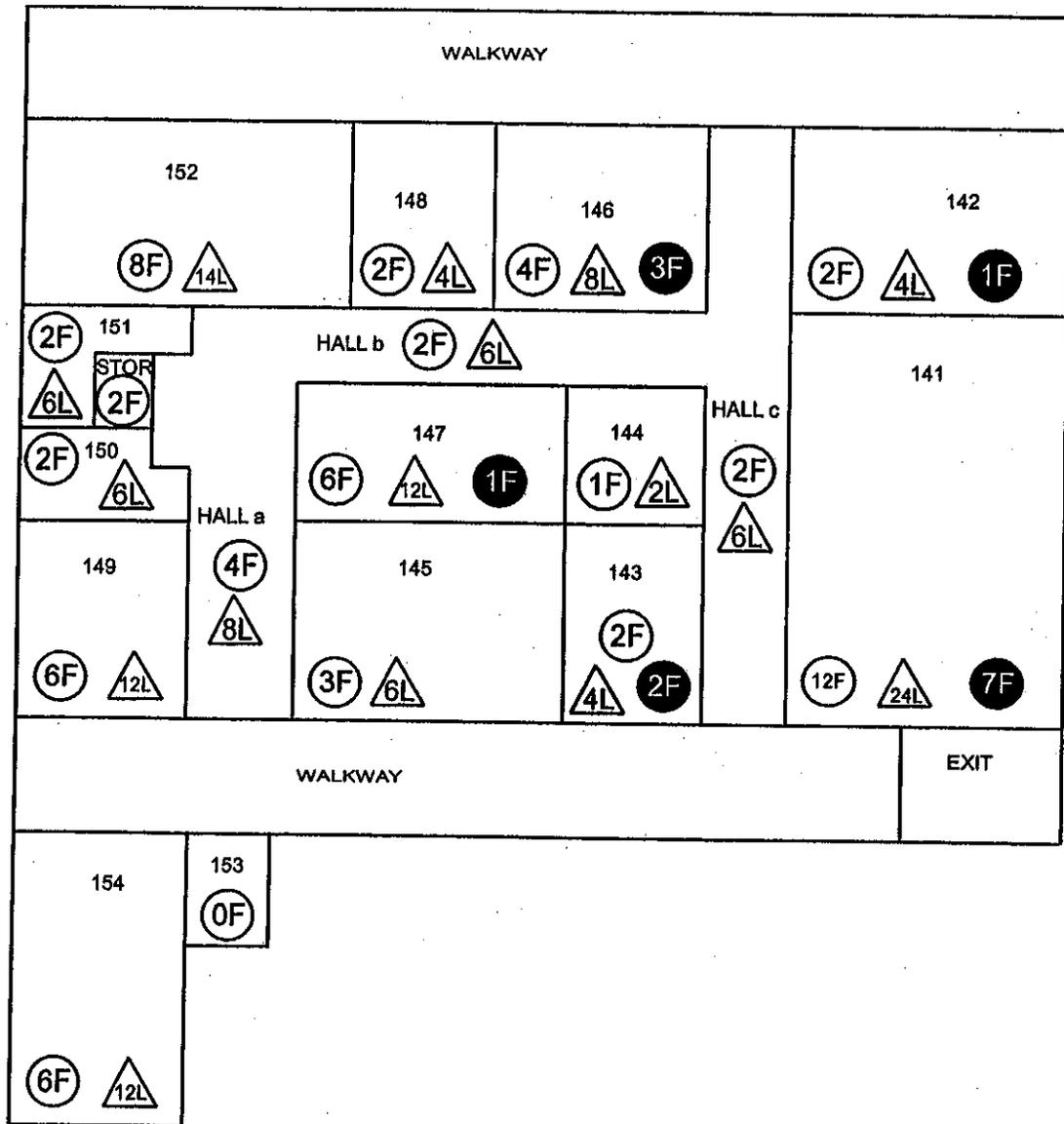
220 Room number

NA No access

↑<sub>N</sub> North Seeking Arrow



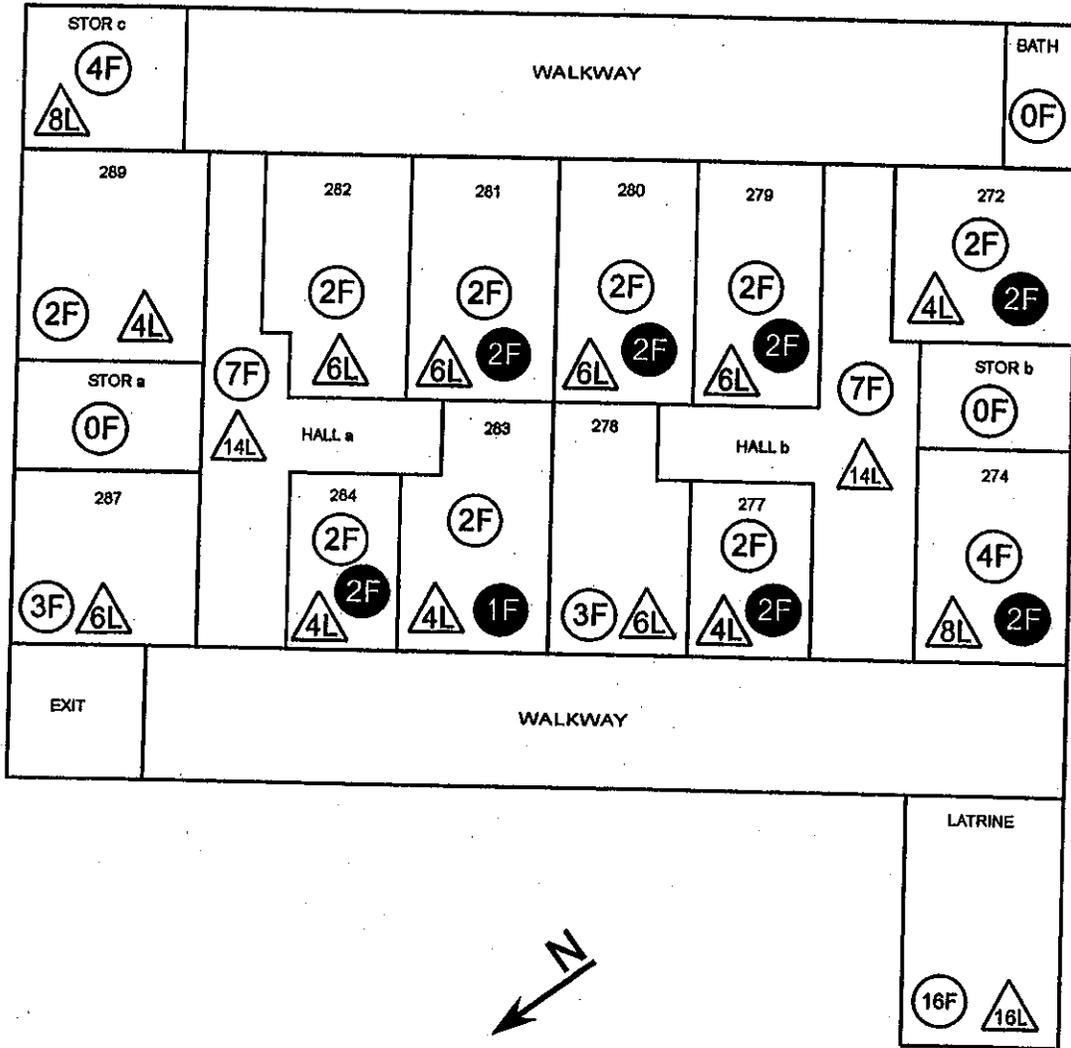
# QUAD C SCHOFIELD BARRACKS SKETCH 452 1-4



### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p style="text-align: right;">452-1-4 Building 452/1st fl/section 4</p> <p style="text-align: right;">220 Room number</p> <p style="text-align: right;">NA No access</p>
---	--

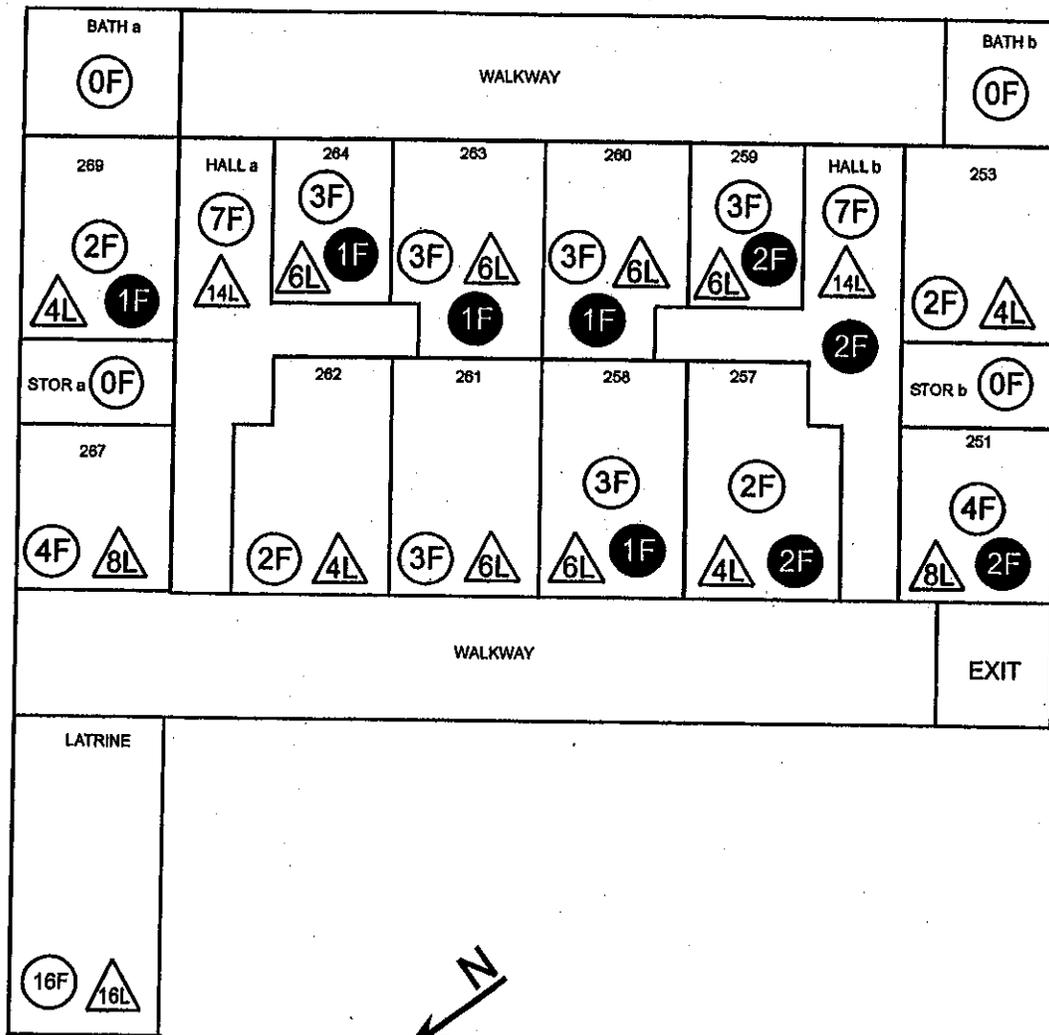
# QUAD D SCHOFIELD BARRACKS BUILDING 452 2-1



### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p>452-2-1 Building 442/2nd fl/section 1</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>
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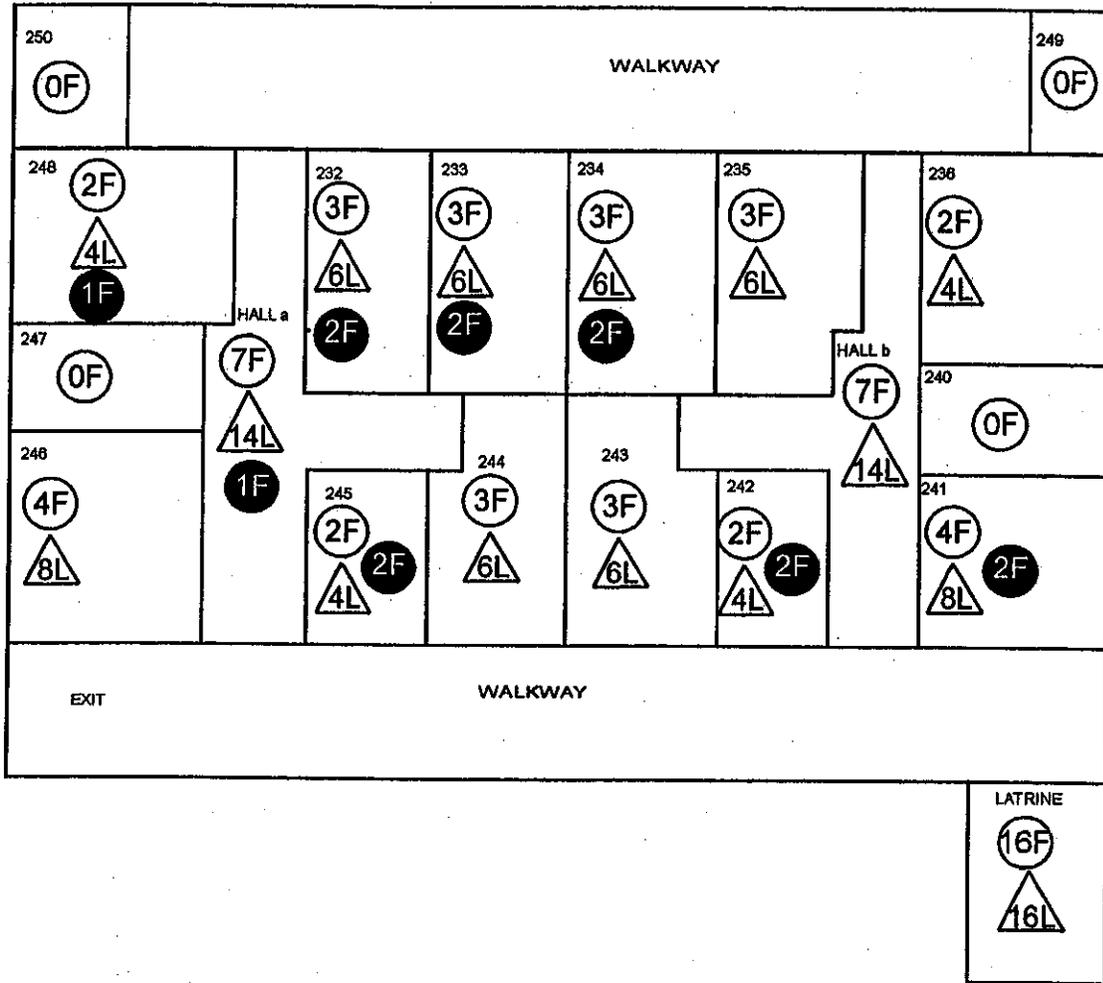
# QUAD D SCHOFIELD BARRACKS BUILDING 452 2-2



### Legend

<ul style="list-style-type: none"> <li> Light fixtures (2)</li> <li> Mercury lamps</li> <li> Light fixtures investigated (2)</li> <li> PCB-containing ballast</li> </ul>	<p style="text-align: center;">452-2-2 Building 452/2nd fl/section 2</p> <ul style="list-style-type: none"> <li>220 Room number</li> <li>NA No access</li> <li> North Seeking Arrow</li> </ul>
--	--

# QUAD D SCHOFIELD BARRACKS BUILDING 452 2-3



### Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

452-2-3 Building 452/2nd fl/section 3

220 Room number

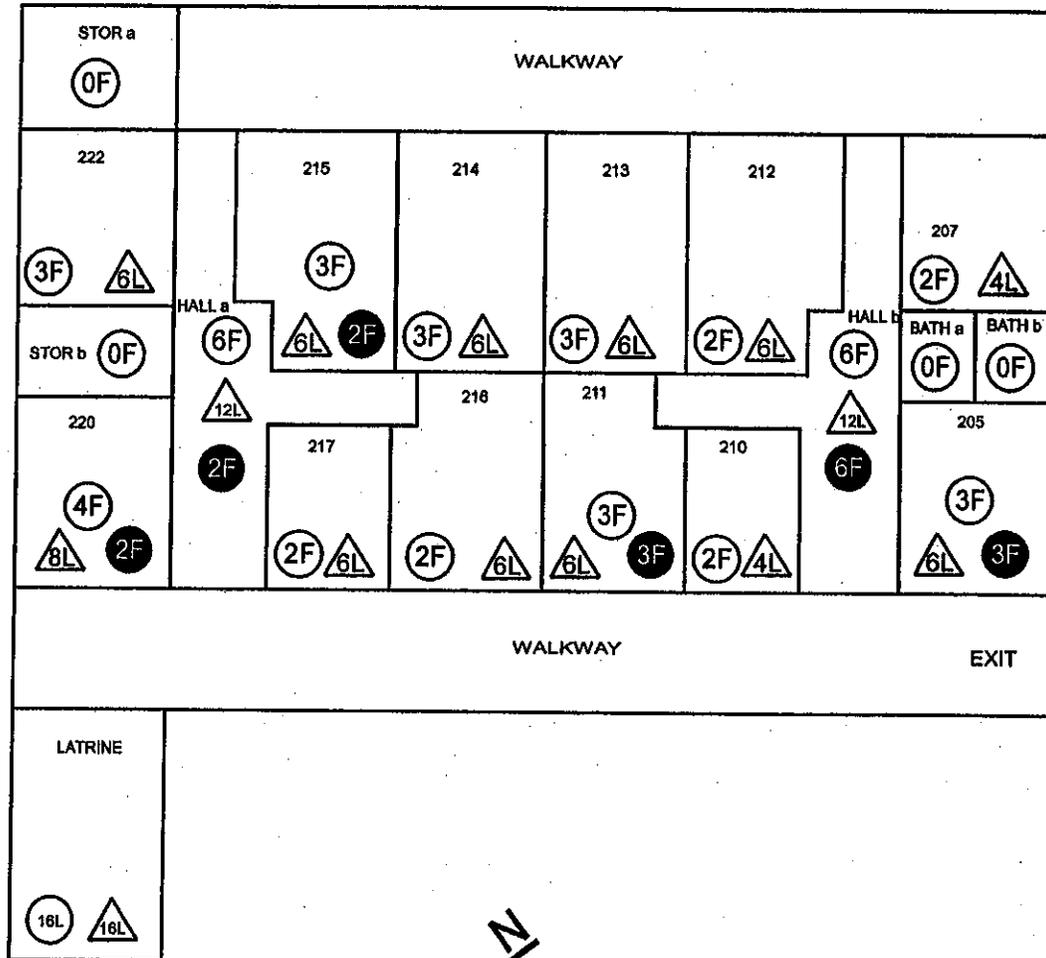
NA No access



North Seeking Arrow



# QUAD D SCHOFIELD BARRACKS BUILDING 452 2-4



### Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

452-2-4 Building 452/2nd fl/section 4

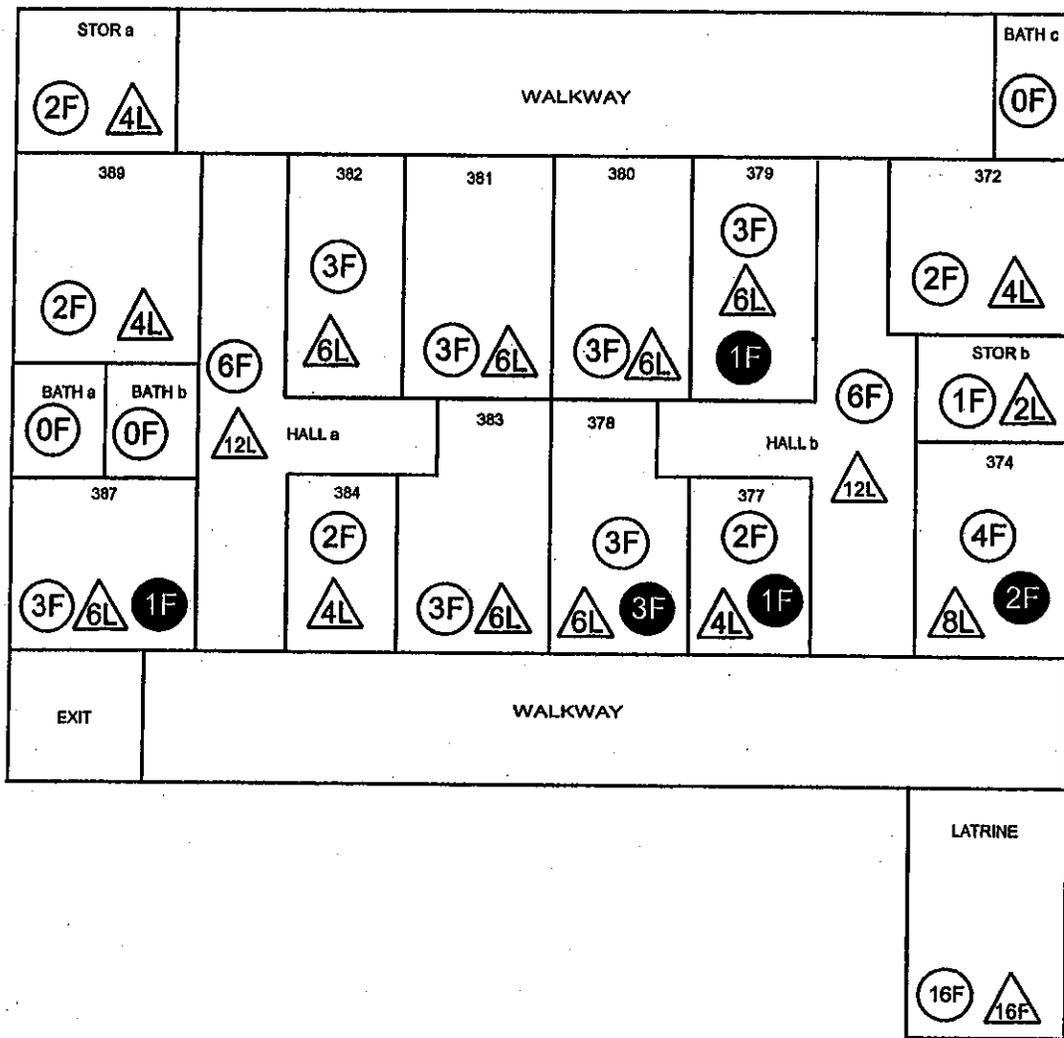
220 Room number

NA No access

 North Seeking Arrow



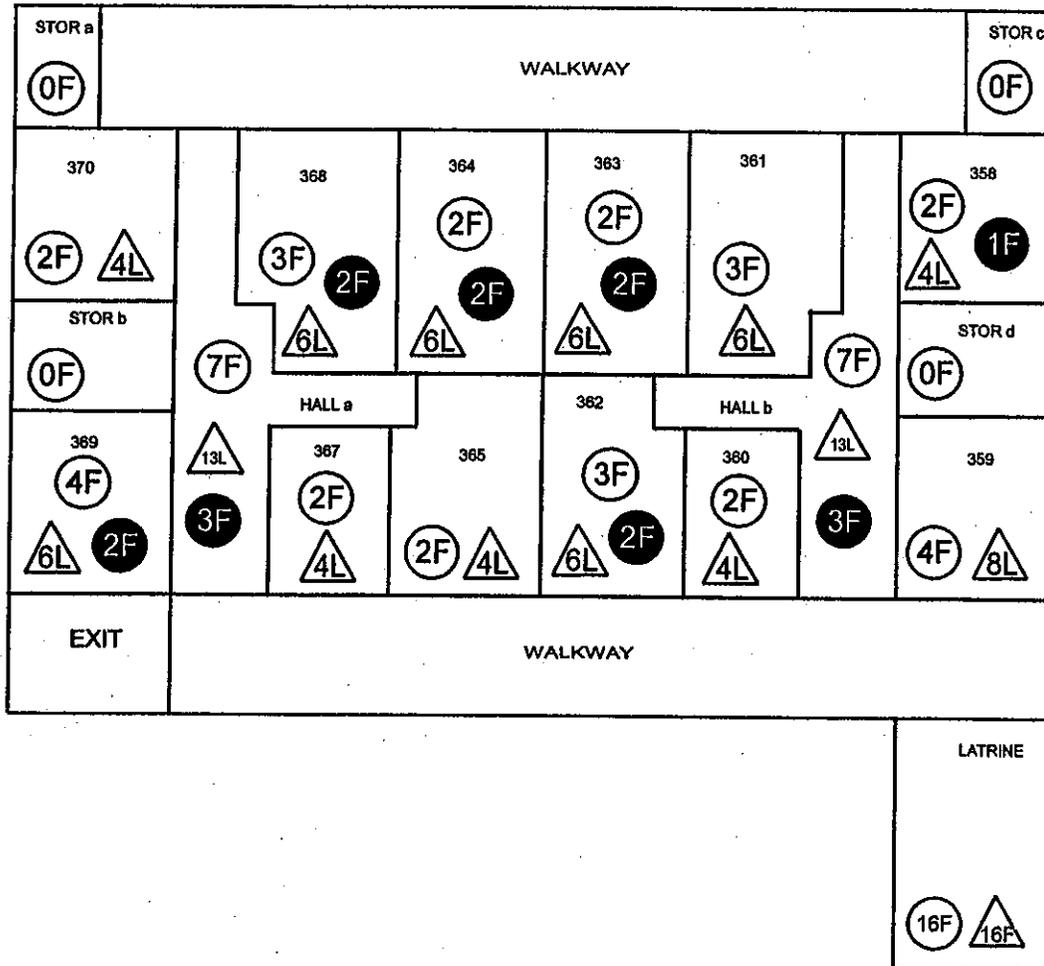
# QUAD D SCHOFIELD BARRACKS BUILDING 452 3-1



Legend	
(2F)	Light fixtures (2)
(6L)	Mercury lamps
(2F)	Light fixtures investigated (2)
1	PCB-containing ballast
452-3-1	Building 452/3rd fl/section 1
220	Room number
NA	No access
↑	North Seeking Arrow



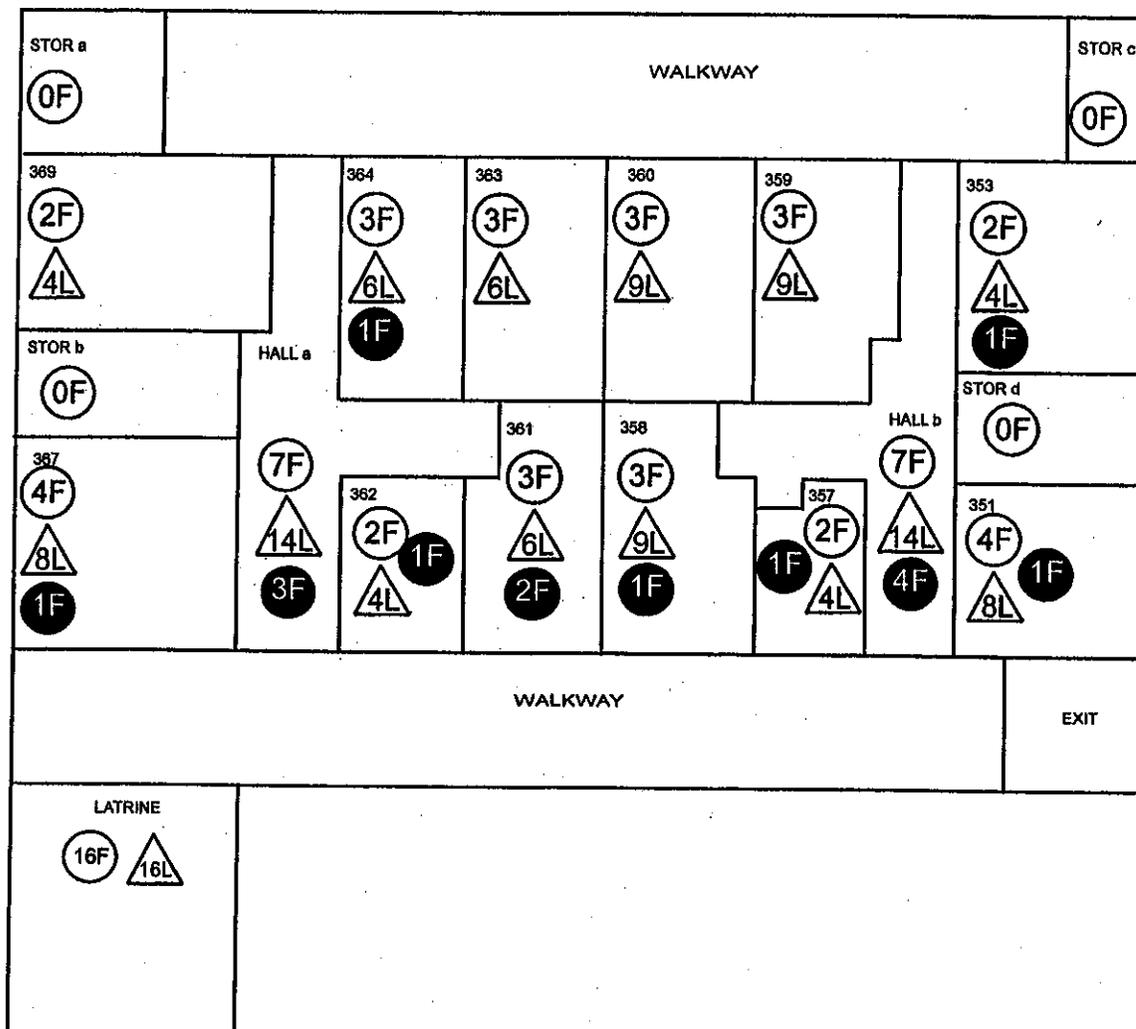
# QUAD D SCHOFIELD BARRACKS BUILDING 452 3-2



### Legend

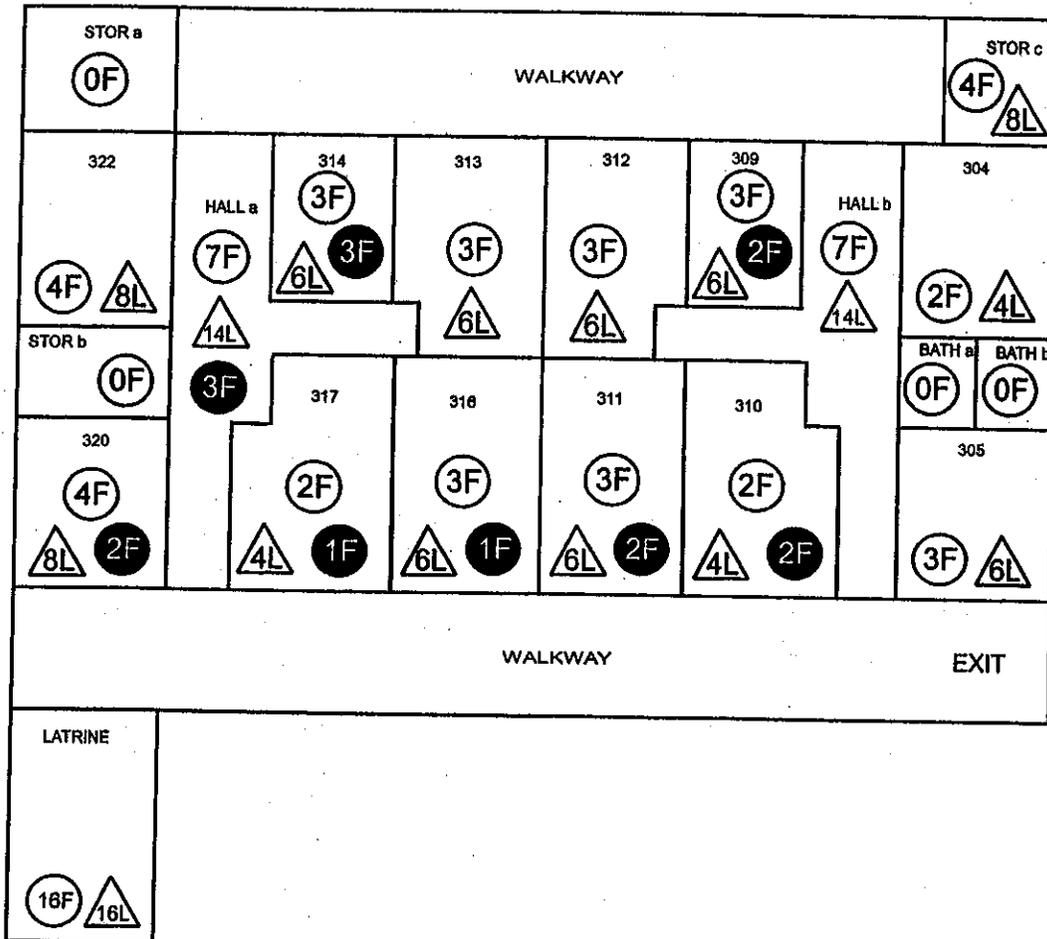
<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p style="text-align: center;"><b>452-3-2</b> Building 452/3rd fl/section 2</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>
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# QUAD D SCHOFIELD BARRACKS BUILDING 452 3-3



<b>Legend</b>	
<p>(2F) Light fixtures (2)</p> <p>(6L) Mercury lamps</p> <p>(2F) Light fixtures investigated (2)</p> <p>(1) PCB-containing ballast</p>	<p>452-3-3 Building 356/3rd fl/section 3</p> <p>220 Room number</p> <p>NA No access</p> <p>↑ North Seeking Arrow</p>

# QUAD D SCHOFIELD BARRACKS BUILDING 452 3-4



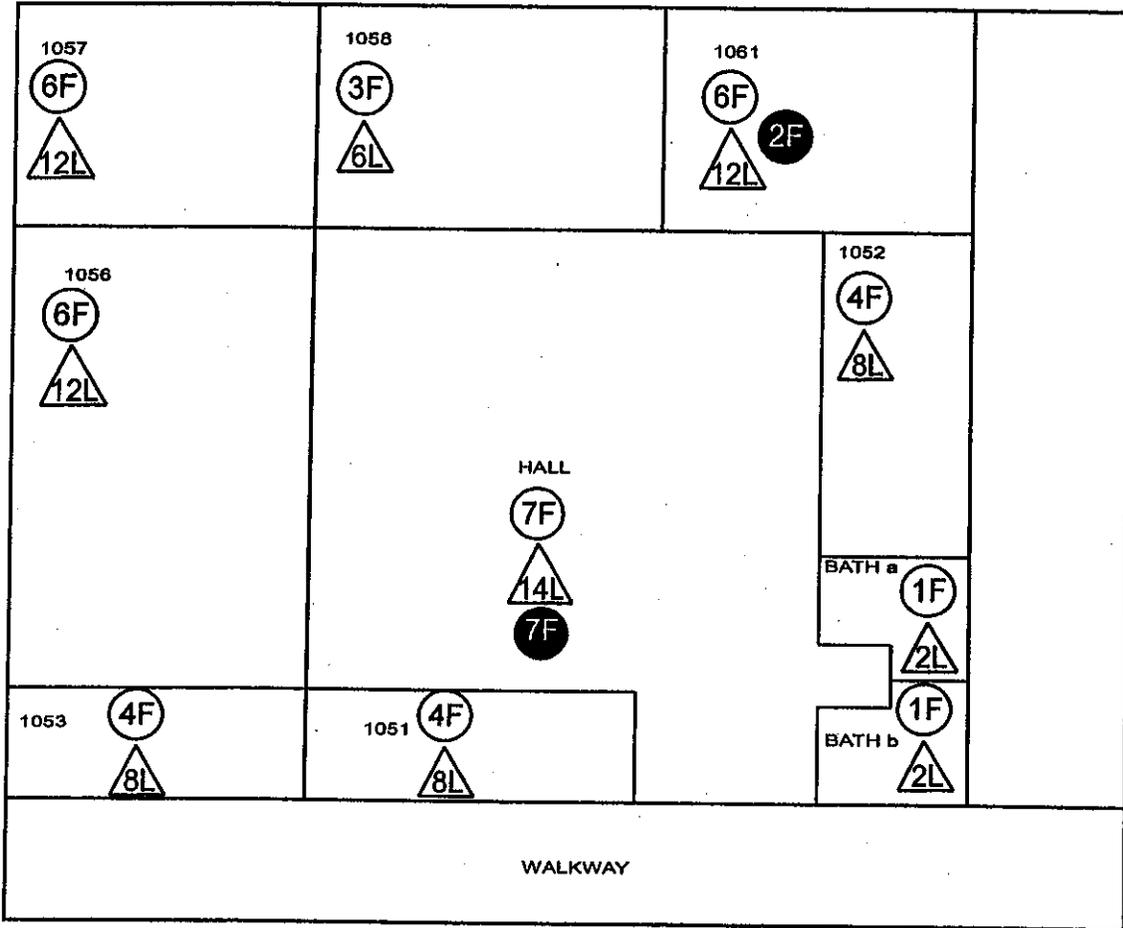
Legend	
<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p>452-3-4 Building 452/3rd fl/section 4</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>

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( )

# QUAD E SCHOFIELD BARRACKS BUILDING 549 1-1



### Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

549-1-1 Building 549/1st fl/section 1

220 Room number

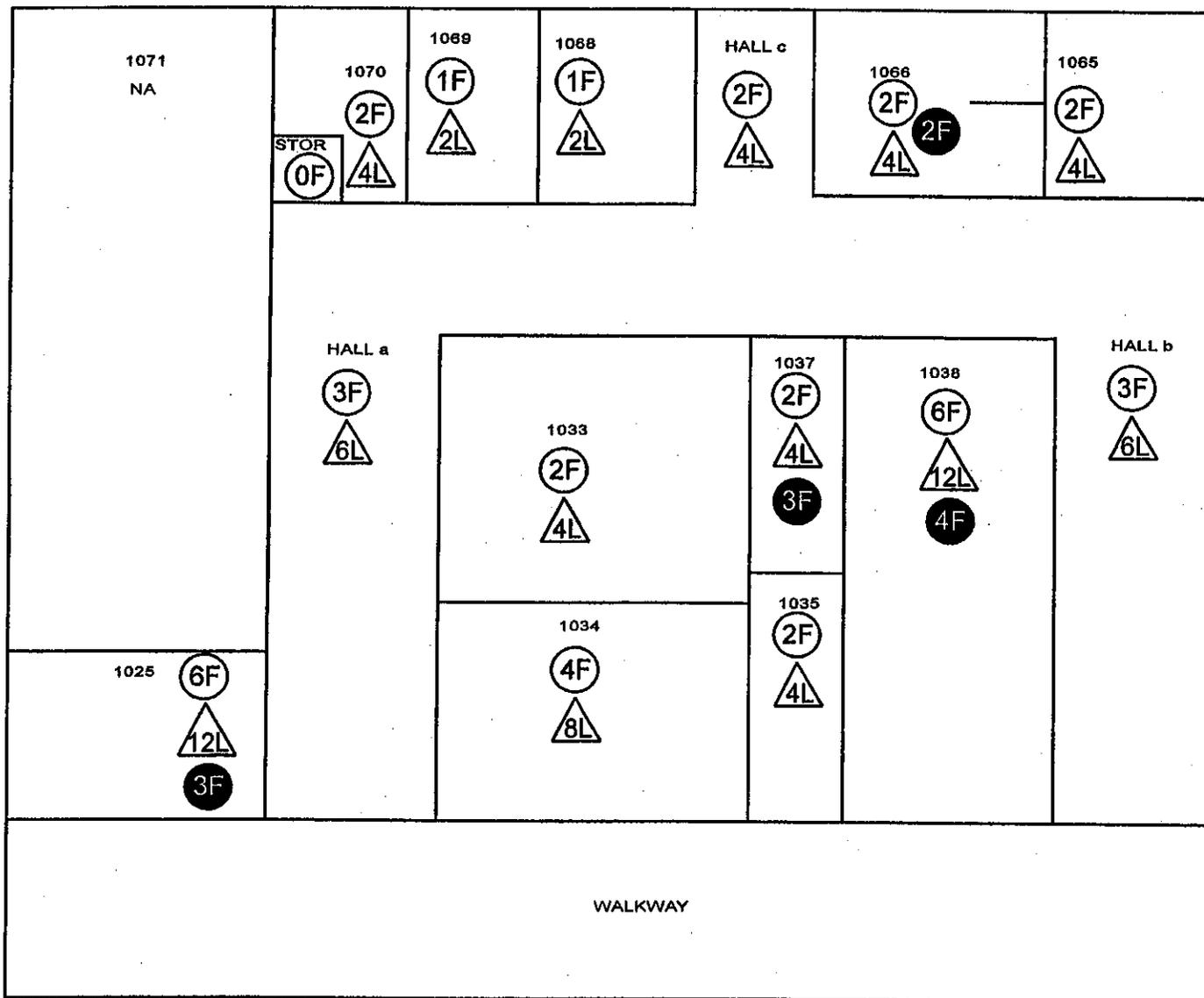
NA No access



North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 549 1-2



## Legend

- Light fixtures (2)
- Mercury lamps
- Light fixtures investigated (2)
- PCB-containing ballast

549-1-2 Building 549/1st fl/section 2

220 Room number

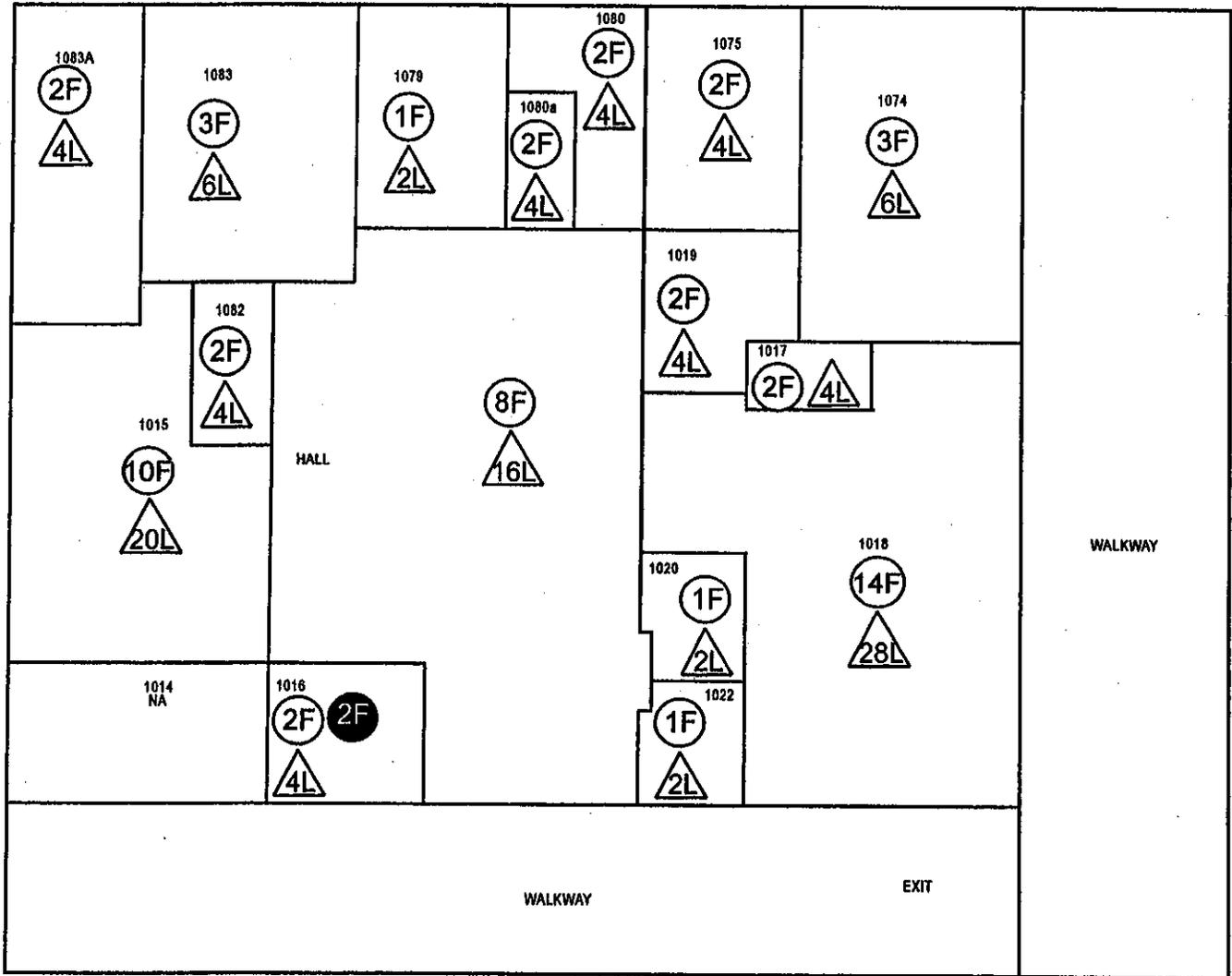
NA No access



North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 549 1-3



## Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

549-1-3 Building 549/1st fl/section 3

220 Room number

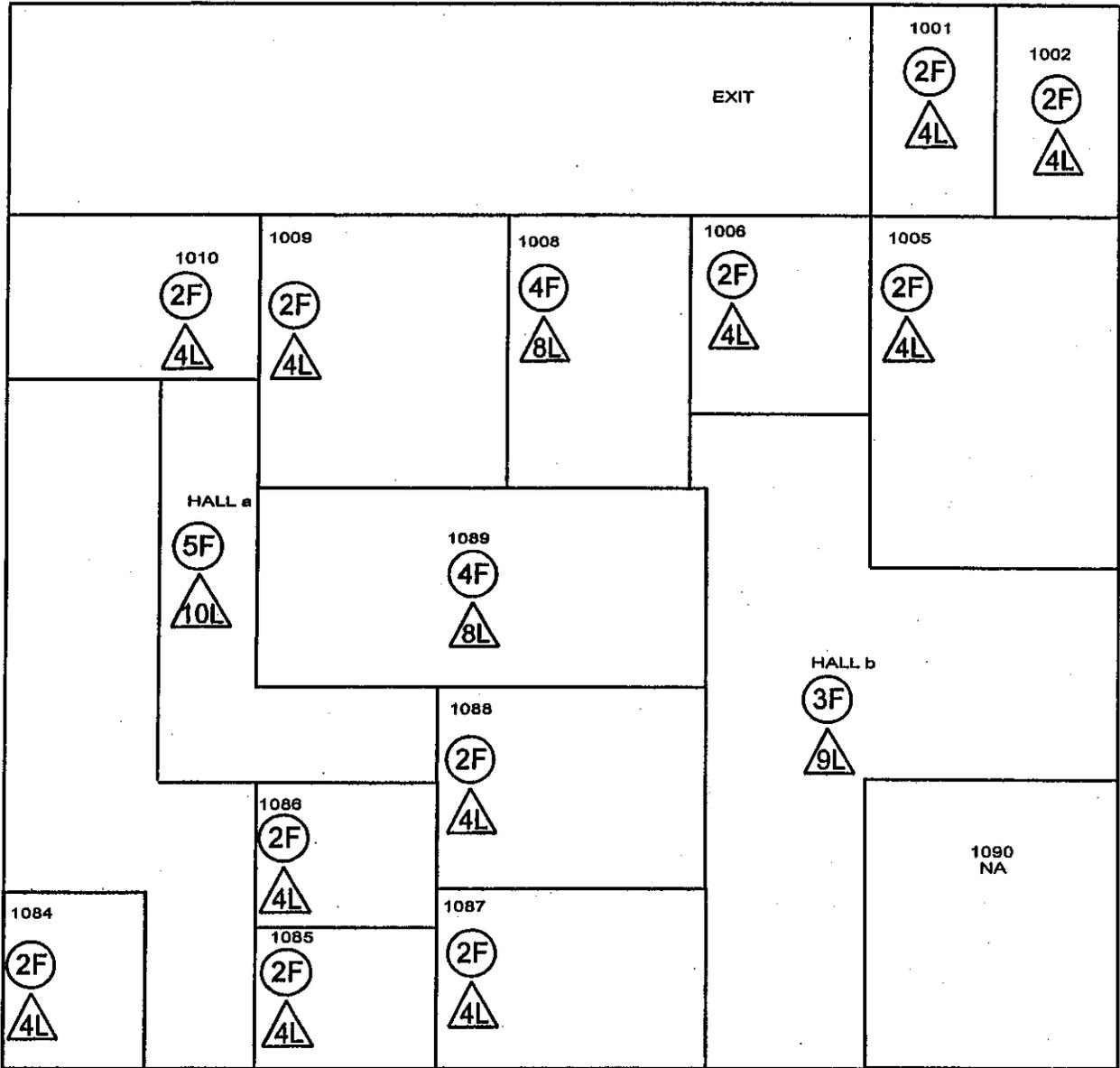
NA No access



North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 549 1-4



### Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

**549-1-4** Building 549/1st fl/section 4

220 Room number

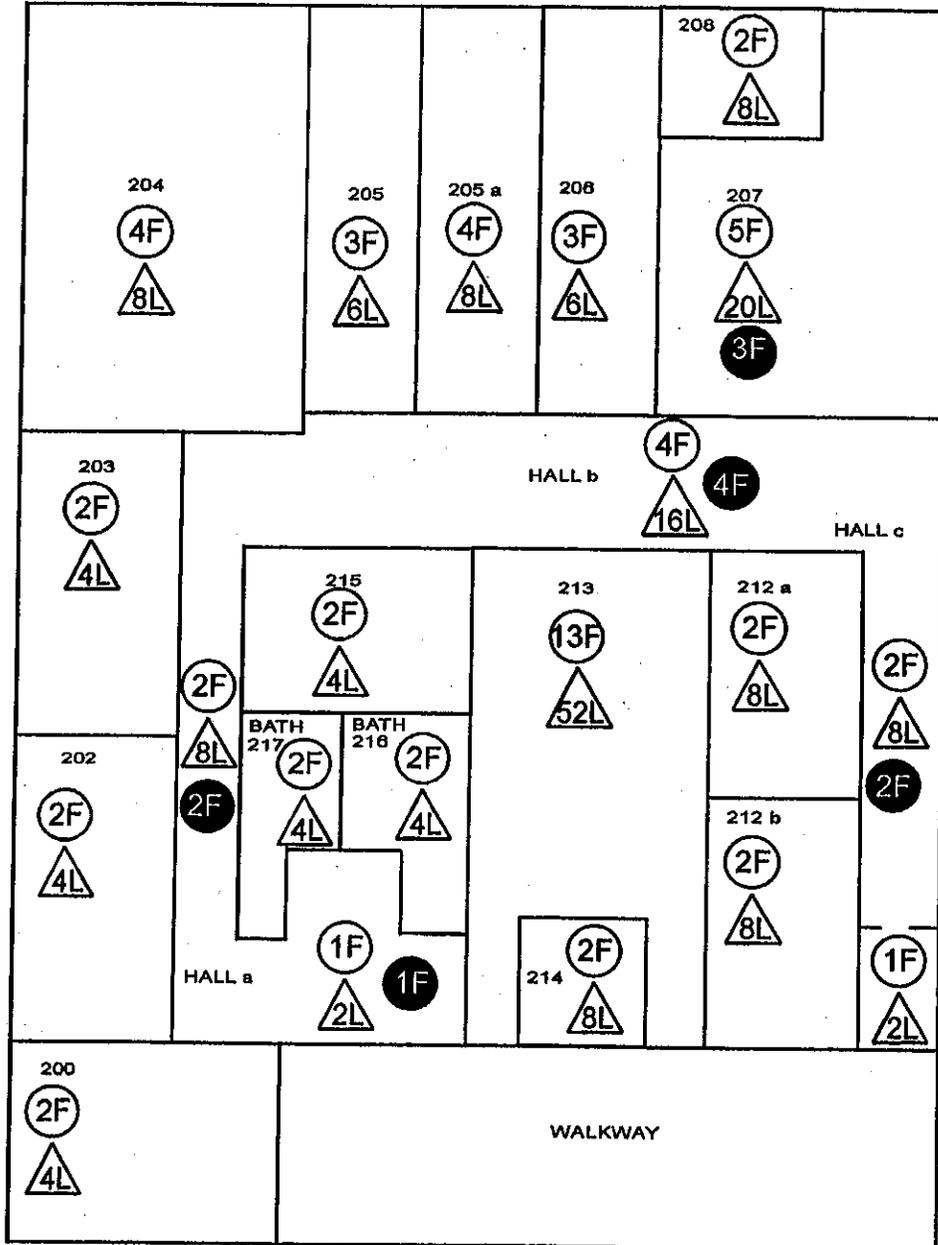
NA No access



North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 549 2-1



### Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

549-2-1 Building 549/2nd fl/section 1

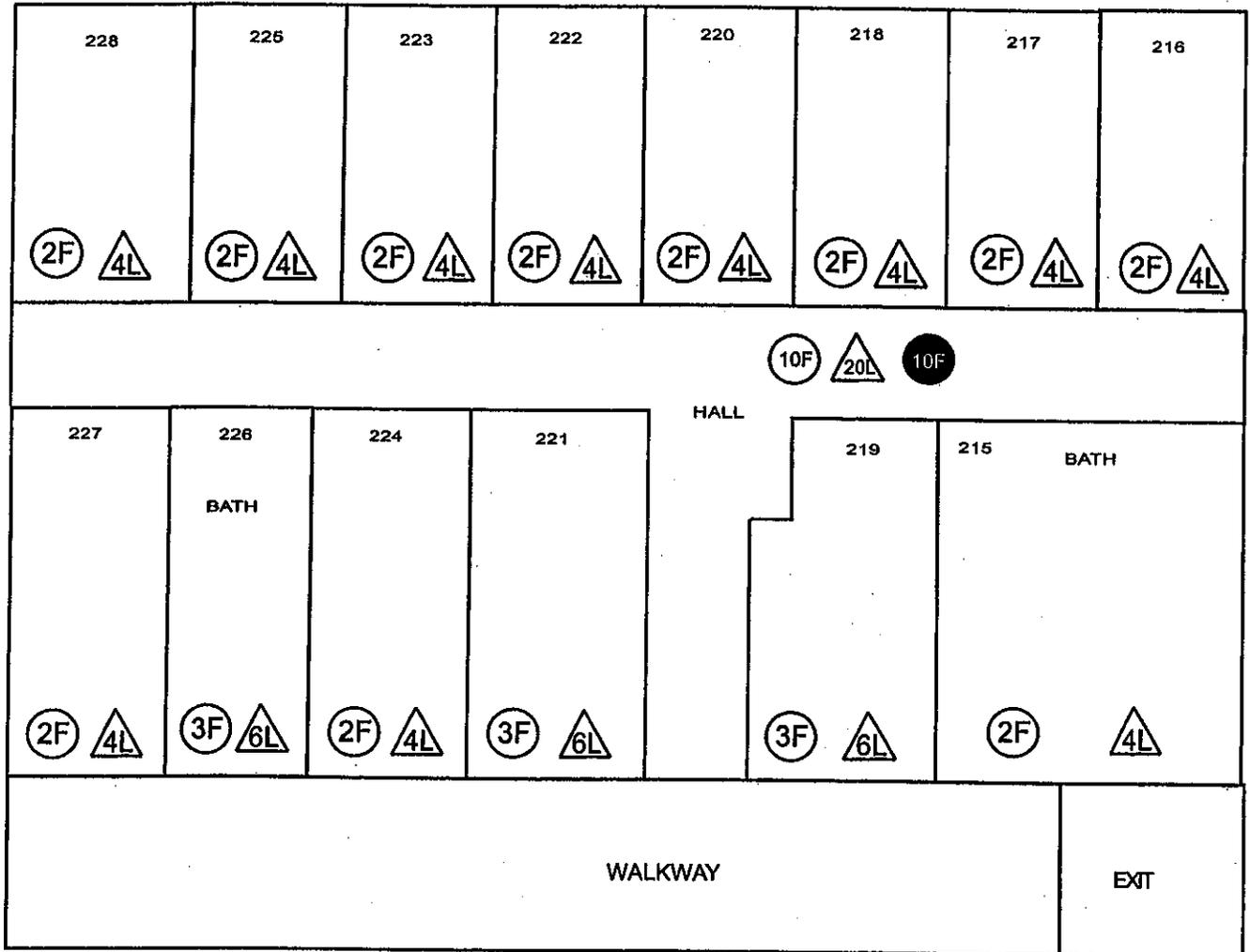
220 Room number

NA No access

 North Seeking Arrow



**QUAD E SCHOFIELD BARRACKS  
BUILDING 549 2-2**



**Legend**

⊙<sup>2F</sup> Light fixtures (2)

△<sup>6L</sup> Mercury lamps

⊙<sup>2F</sup> Light fixtures investigated (2)

■<sup>1</sup> PCB-containing ballast

549-2-2 Building 549/2nd fl/section 2

220 Room number

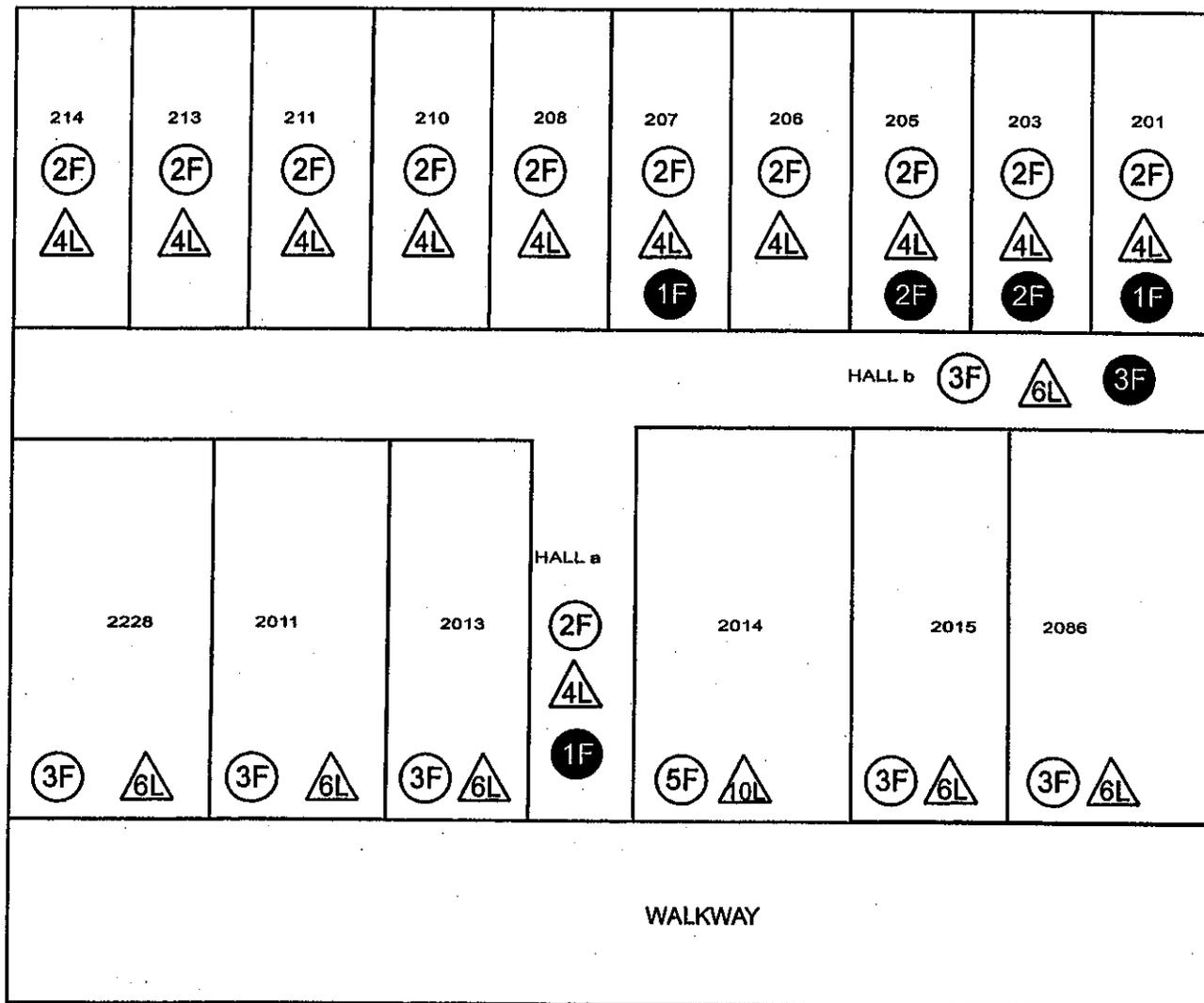
NA No access



North Seeking Arrow



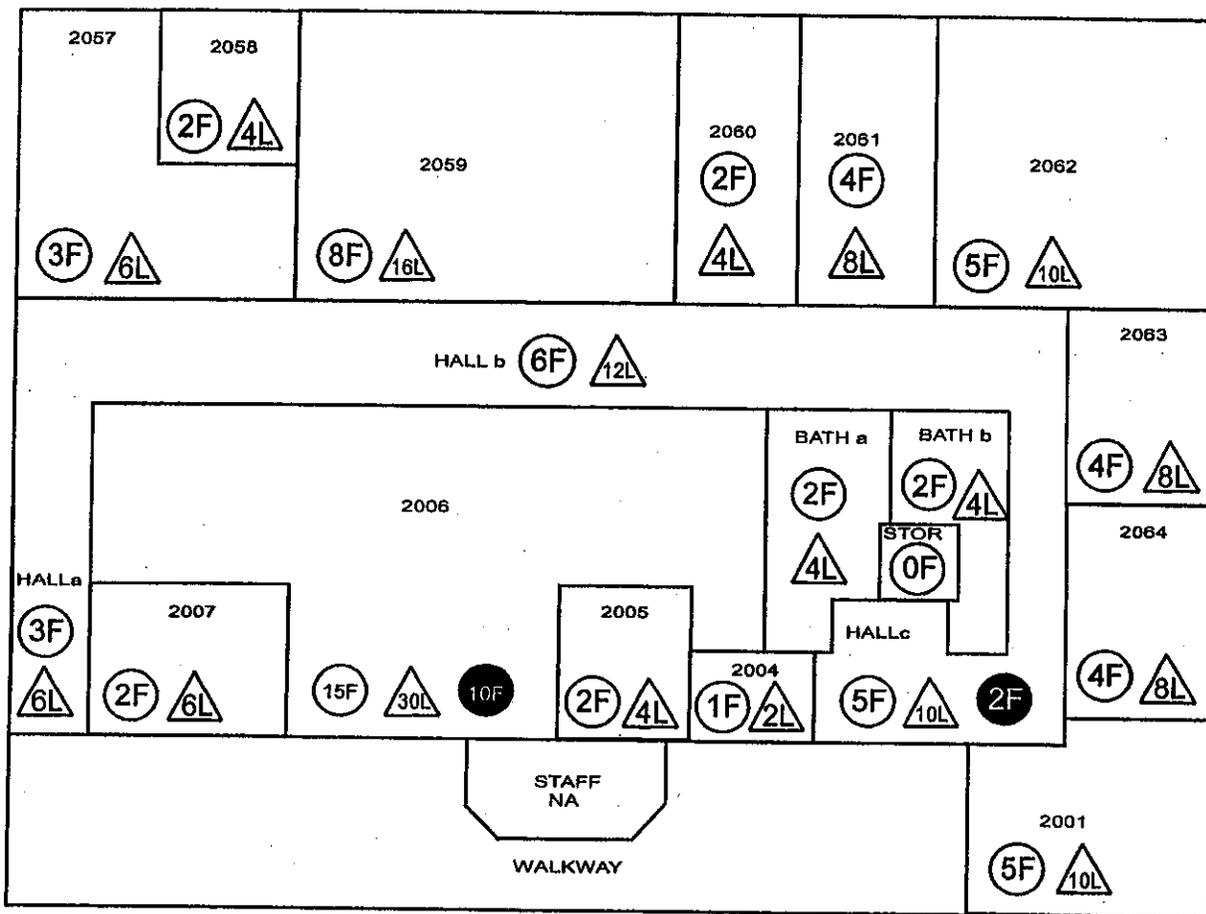
# QUAD E SCHOFIELD BARRACKS BUILDING 549 2-3



<b>Legend</b>	
<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p><b>549-2-3</b> Building 549/2nd fl/section 3</p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>



# QUAD E SCHOFIELD BARRACKS BUILDING 549 2-4



## Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

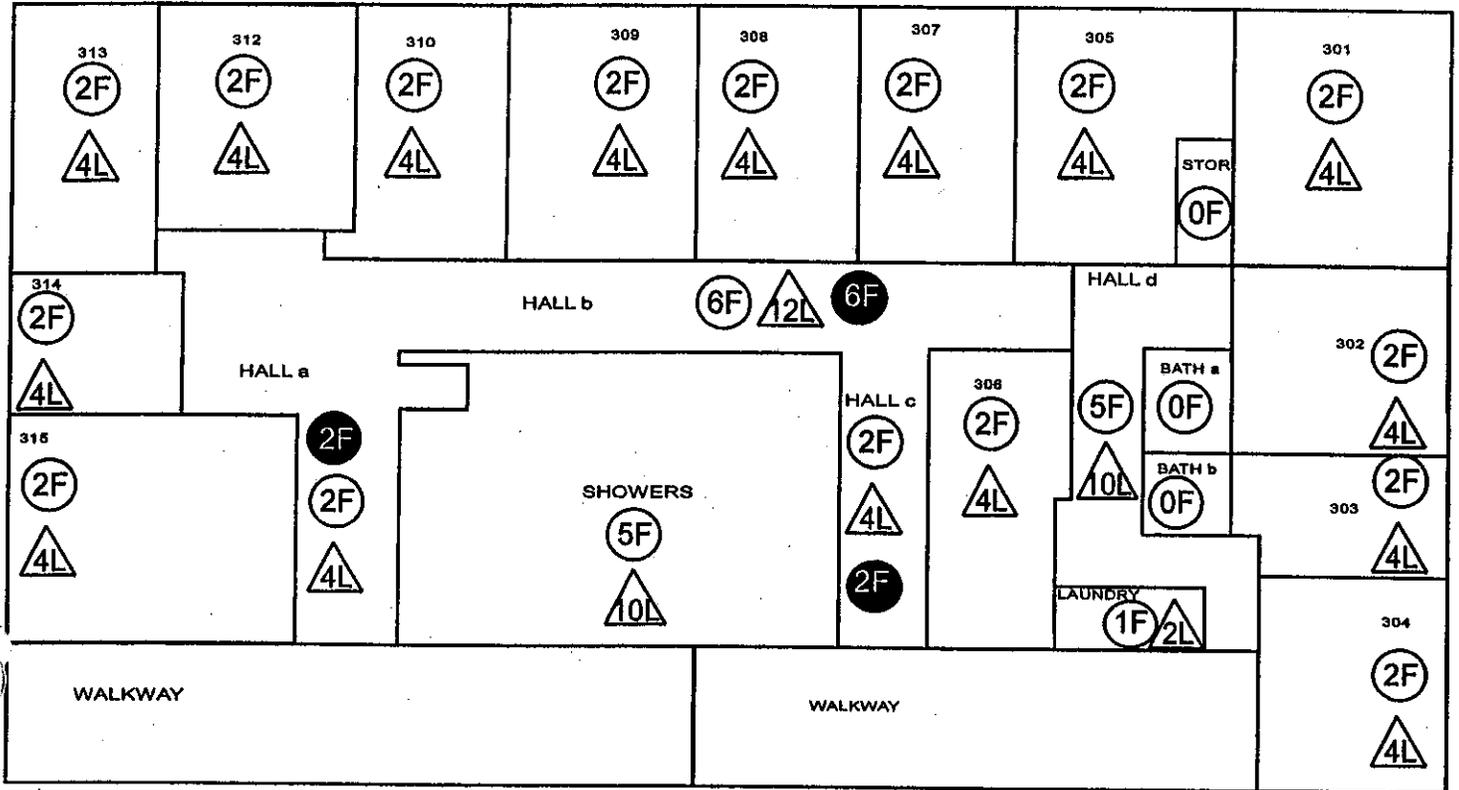
549-2-1 Building 549/2nd fl/section 4

220 Room number

NA No access

North Seeking Arrow

# QUAD E SCHOFIELD BARRACKS BUILDING 549 3-1



## Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

549-3-1 Building 549/3rd fl/section 1

220 Room number

NA No access

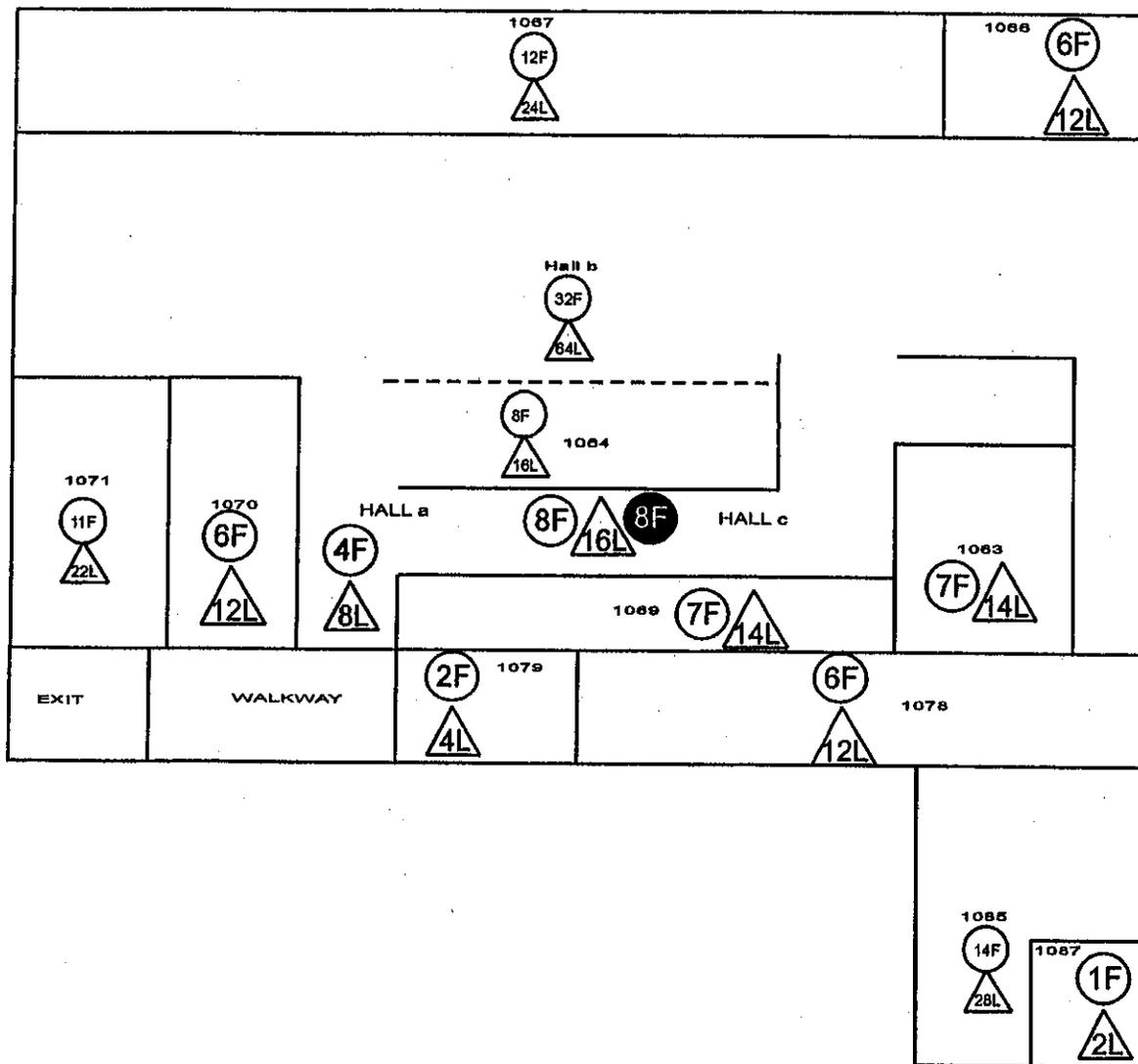


North Seeking Arrow





# QUAD E SCHOFIELD BARRACKS SKETCH 550 1-1



**(2F)** Light fixtures (2)

**(6L)** Mercury lamps

**(2F)** Light fixtures investigated (2)

**1** PCB-containing ballast

**550-1-1** Building 550/1st fl/section 1

**220** Room number

**NA** No access

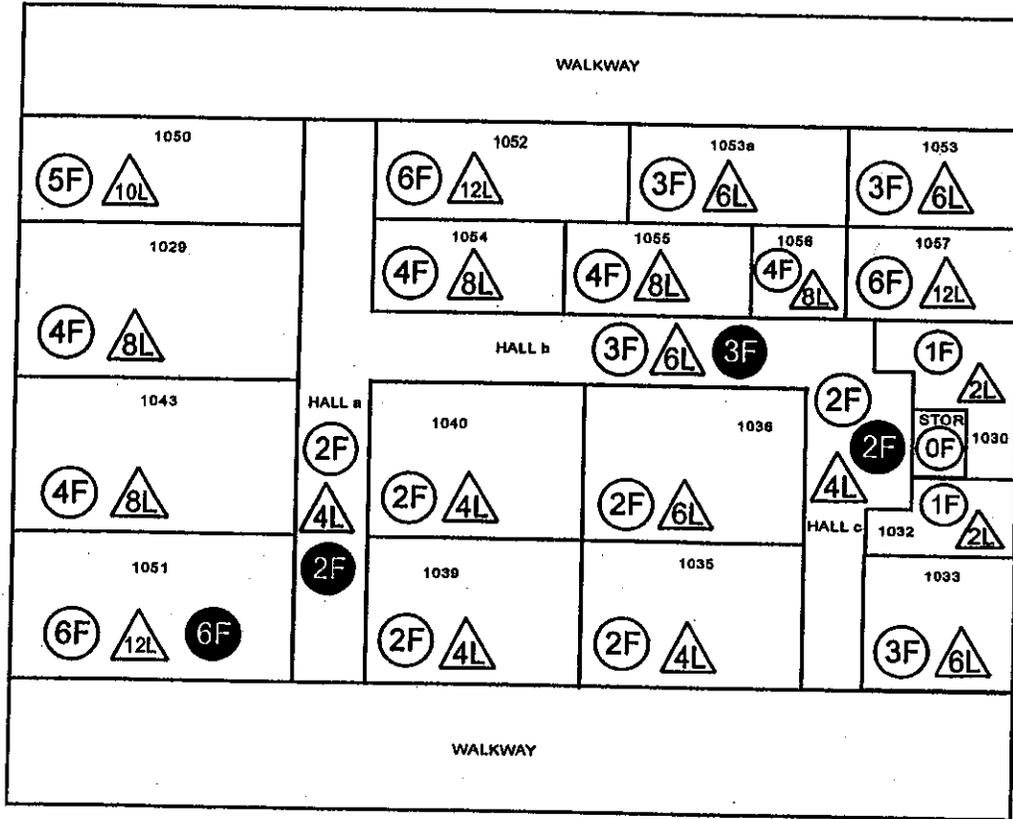


North Seeking Arrow



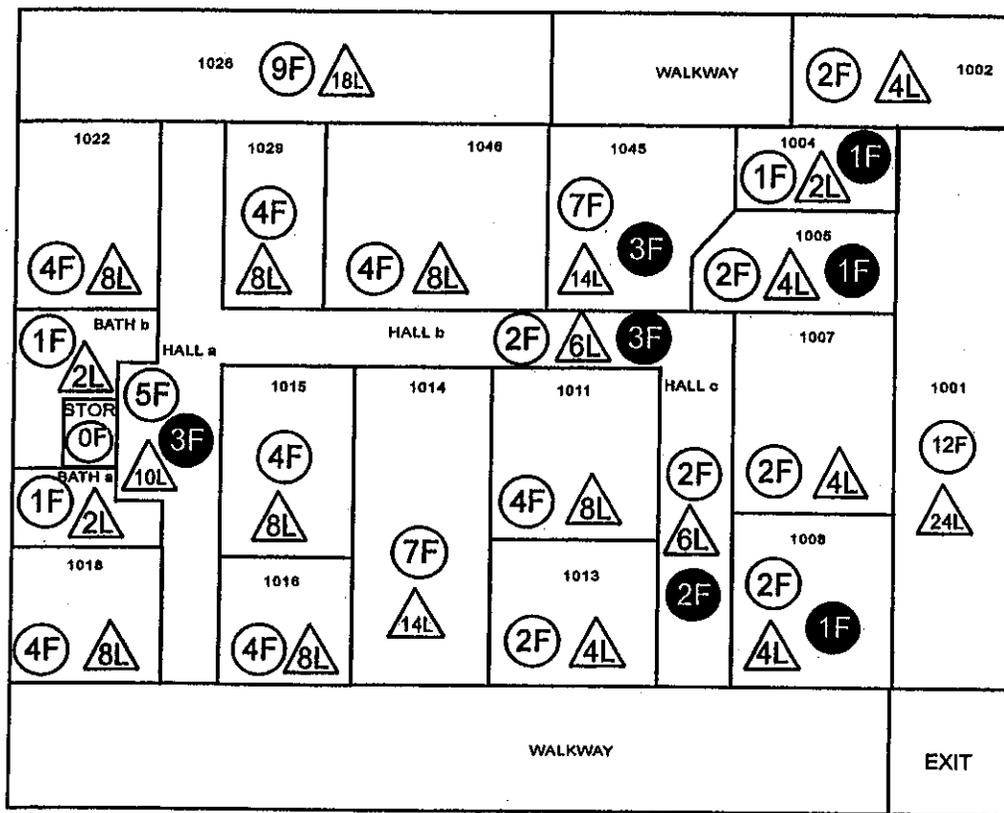


# QUAD E SCHOFIELD BARRACKS SKETCH 550 1-3



Legend	
<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p style="text-align: right;">550-1-3 Building 550/1st fl/section 3</p> <p style="text-align: right;">220 Room number</p> <p style="text-align: right;">NA No access</p> <p style="text-align: center;">  North Seeking Arrow                 </p> <div style="text-align: right;"> </div>

# QUAD E SCHOFIELD BARRACKS SKETCH 550 1-4



### Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

550-1-4 Building 550/1ST fl/section 4

220 Room number

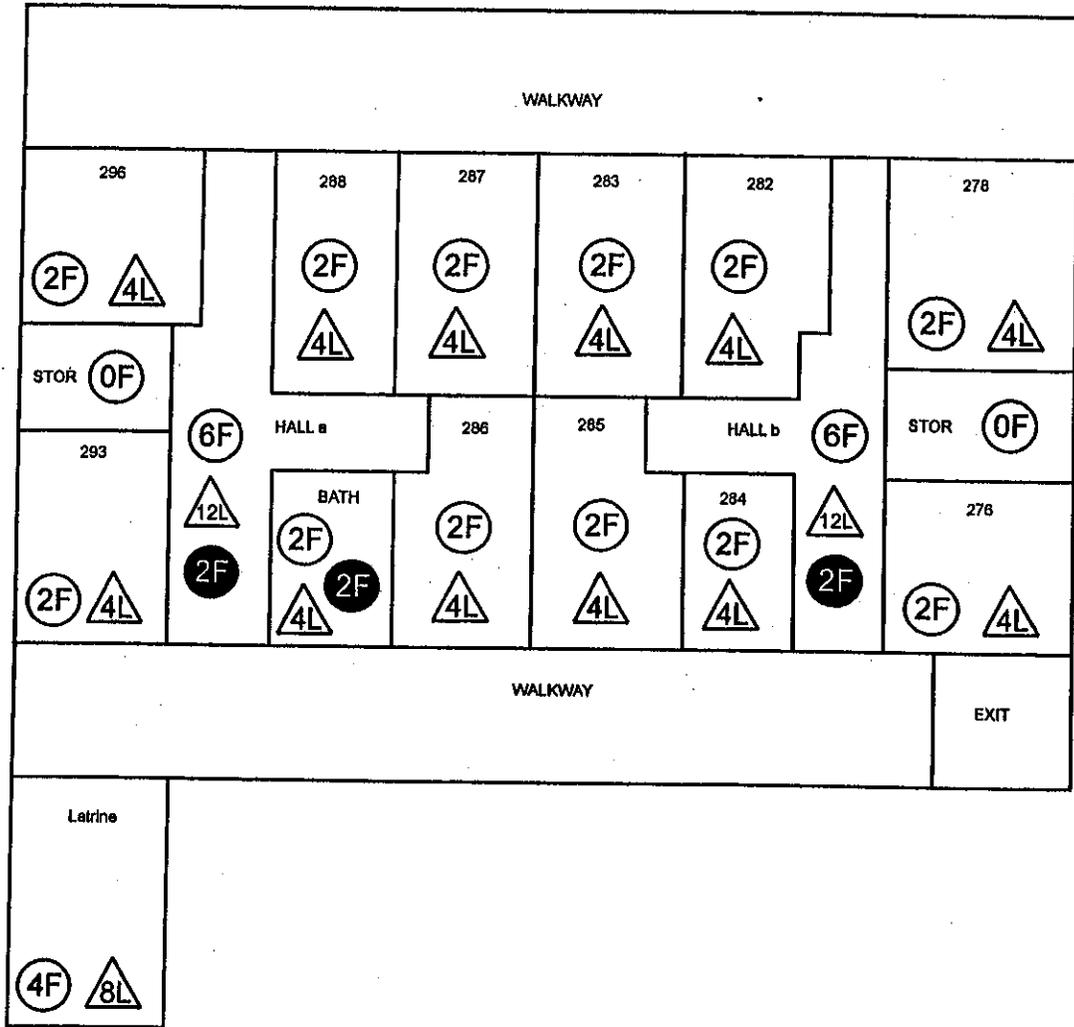
NA No access



North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 550 2-1



## Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

550-2-1 Building 550/2nd fl/section 1

220 Room number

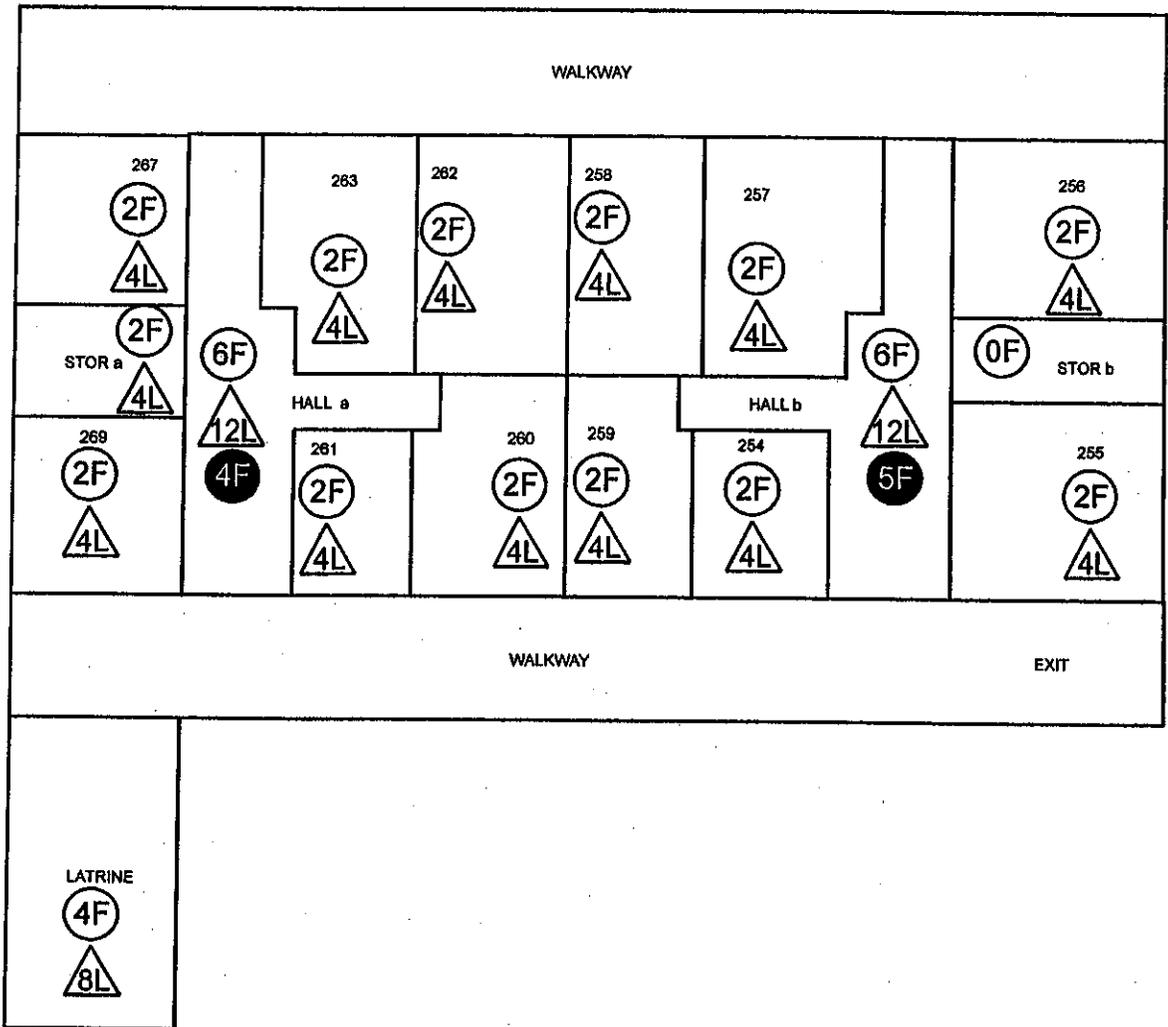
NA No access



North Seeking Arrow

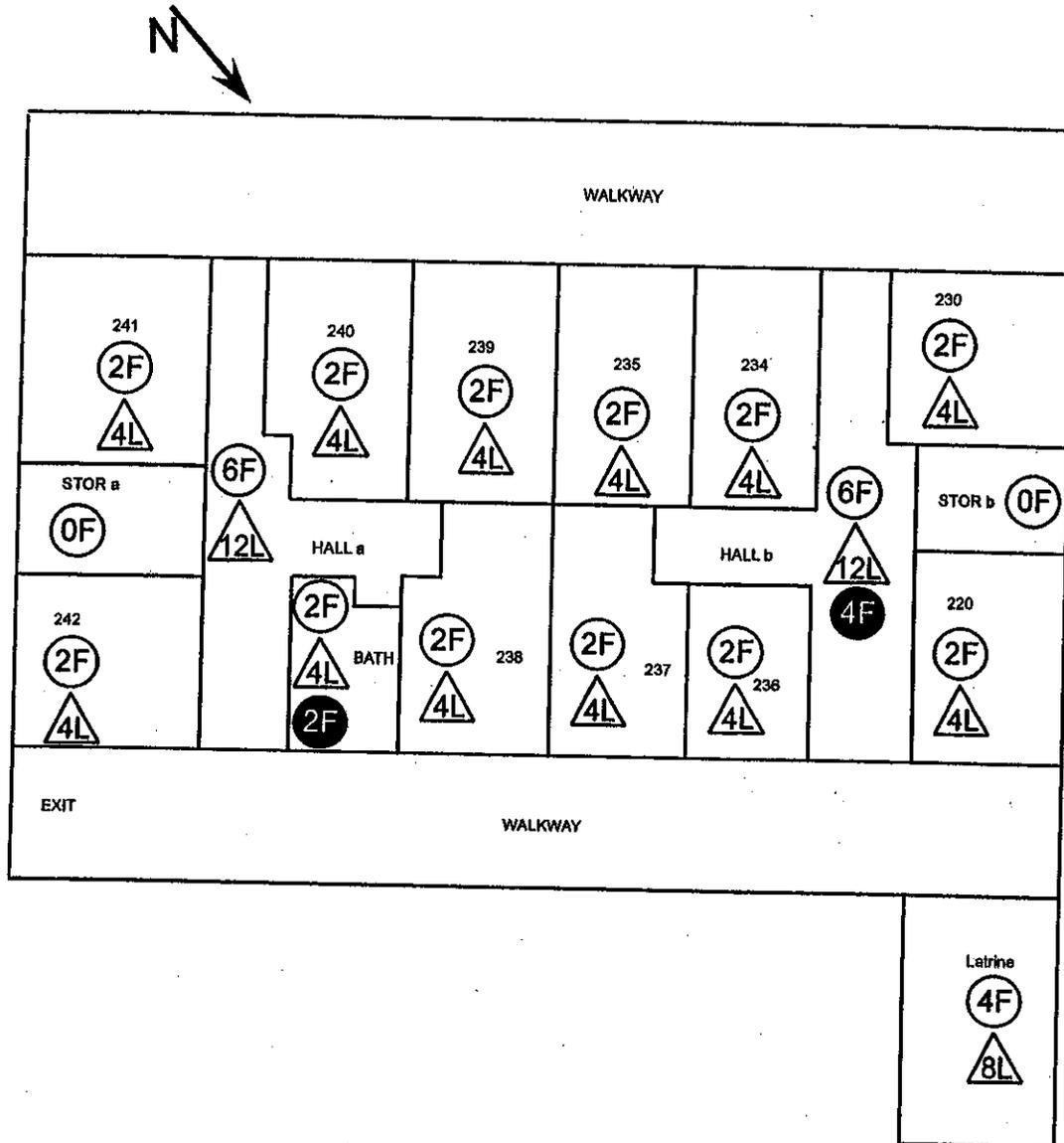


# QUAD E SCHOFIELD BARRACKS BUILDING 550 2-2



Legend	
<p>  Light fixtures (2)   Mercury lamps   Light fixtures investigated (2)   PCB-containing ballast                 </p>	<p style="text-align: center;">550-2-2 Building 550/2nd fl/section 2</p> <p>220 Room number</p> <p>NA No access</p> <p style="text-align: center;">                       North Seeking Arrow                 </p>

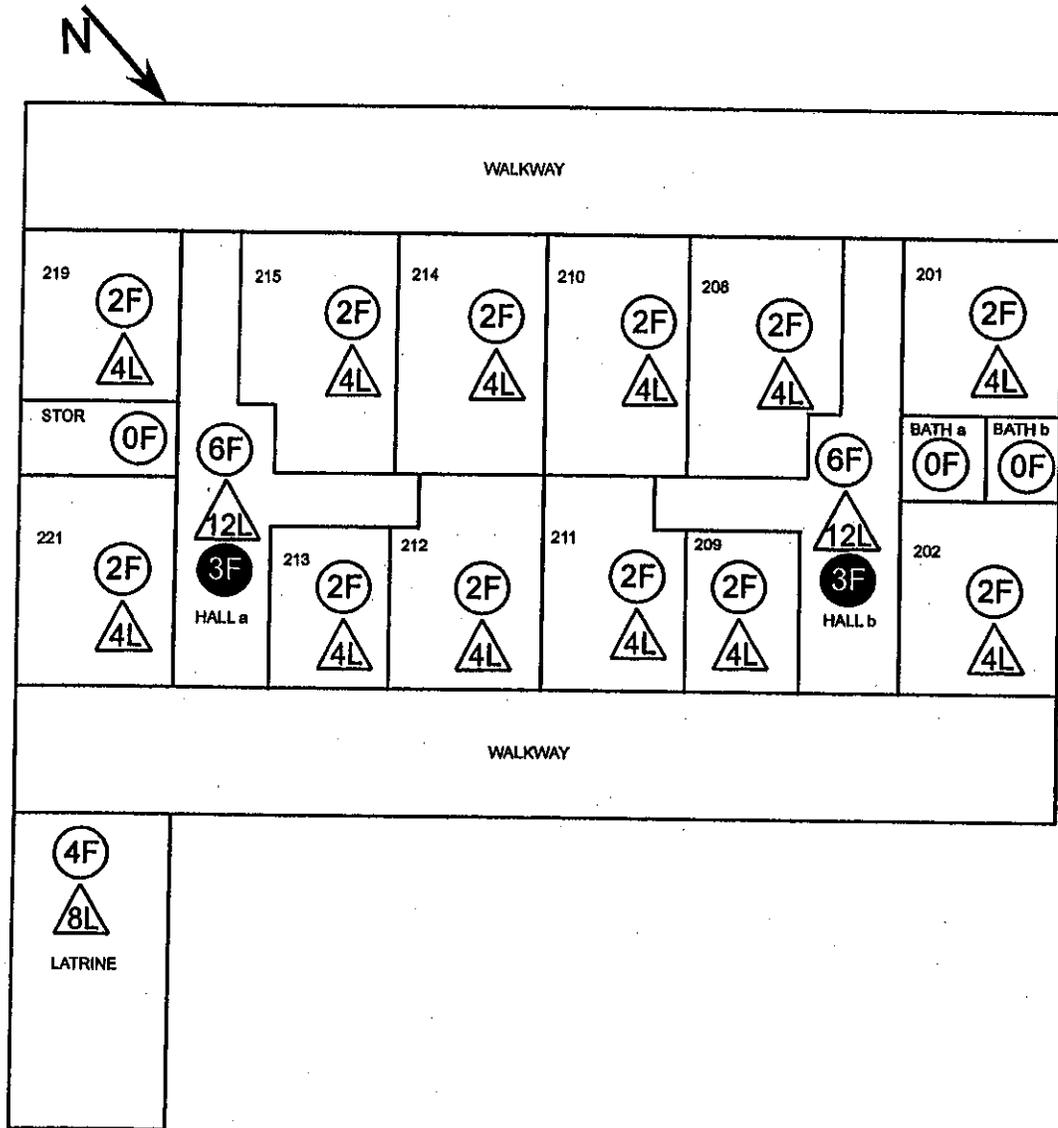
# QUAD E SCHOFIELD BARRACKS BUILDING 550 2-3



**Legend**

<p>(2F) Light fixtures (2)</p> <p>(6L) Mercury lamps</p> <p>(2F) Light fixtures investigated (2)</p> <p>1 PCB-containing ballast</p>	<p>550-2-3 Building 550/2nd fl/section 3</p> <p>220 Room number</p> <p>NA No access</p> <p>↑ North Seeking Arrow</p>
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# QUAD E SCHOFIELD BARRACKS BUILDING 550 2-4



### Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

451-2-2 Building 452/2nd fl/section 2

220 Room number

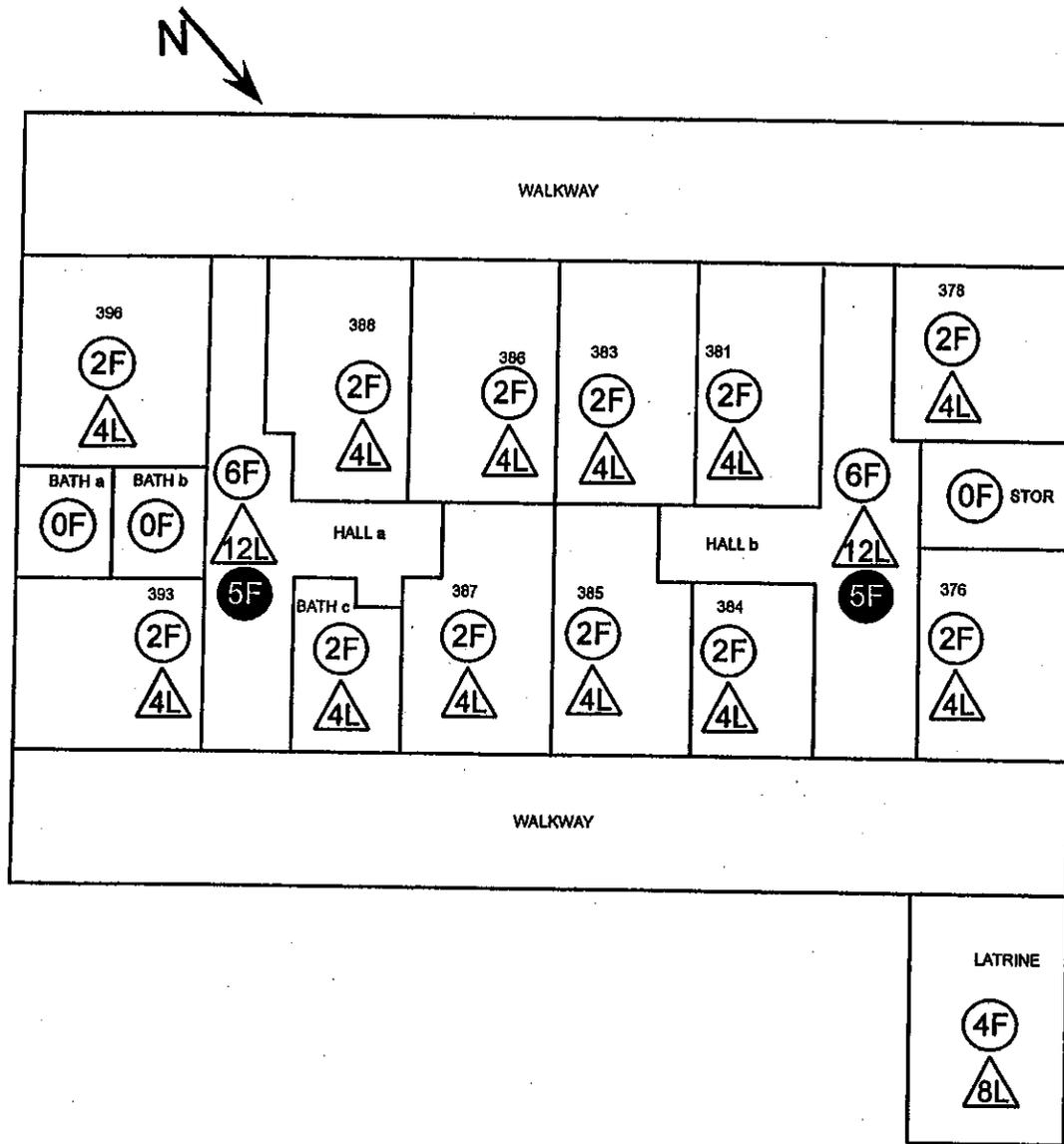
NA No access



North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 550 3-1



### Legend

(2F) Light fixtures (2)

(4L) Mercury lamps

(2F) Light fixtures investigated (2)

■ PCB-containing ballast

550-3-1 Building 550/3rd fl/section 1

220 Room number

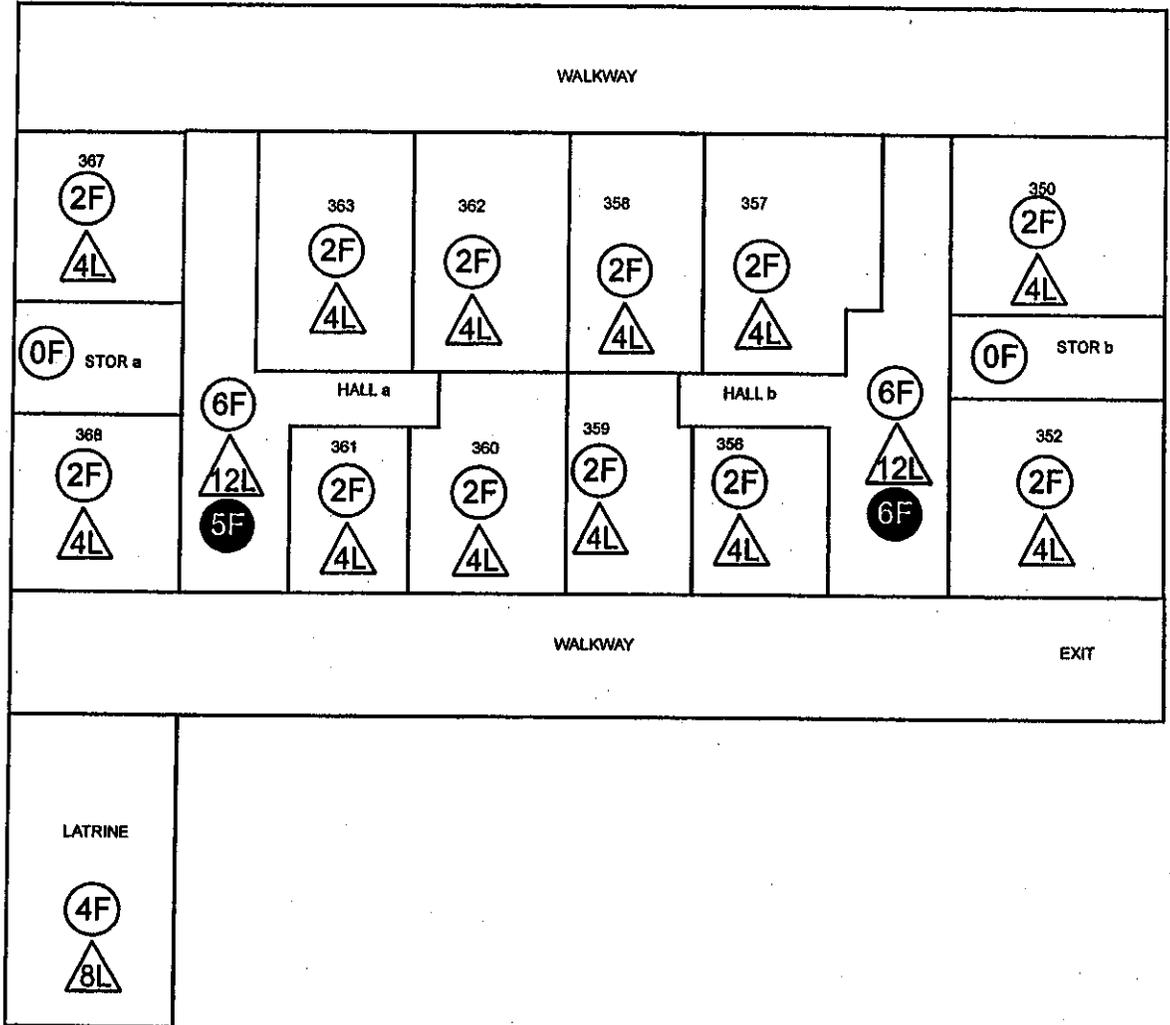
NA No access



North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 550 3-2



### Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

550-3-2 Building 550/3rd fl/section 2

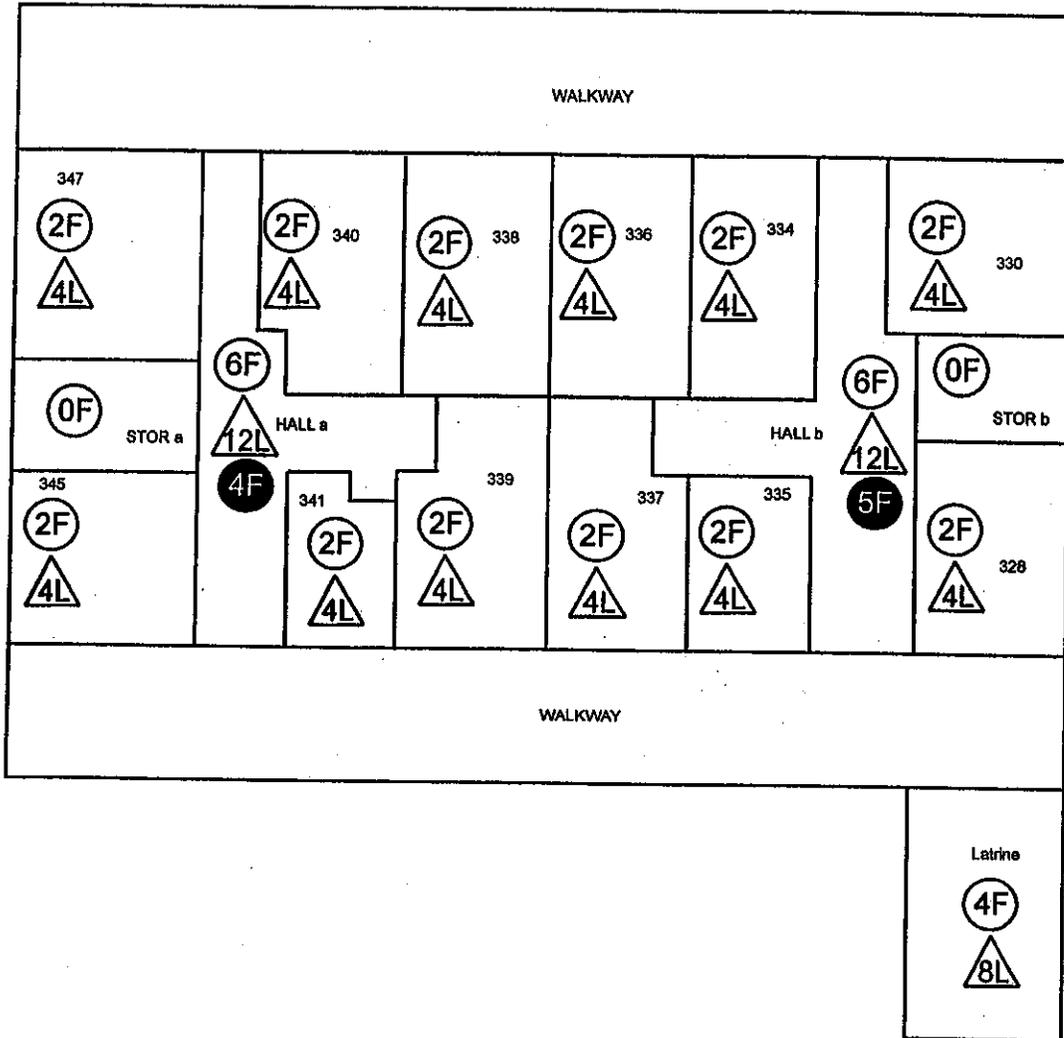
220 Room number

NA No access

North Seeking Arrow



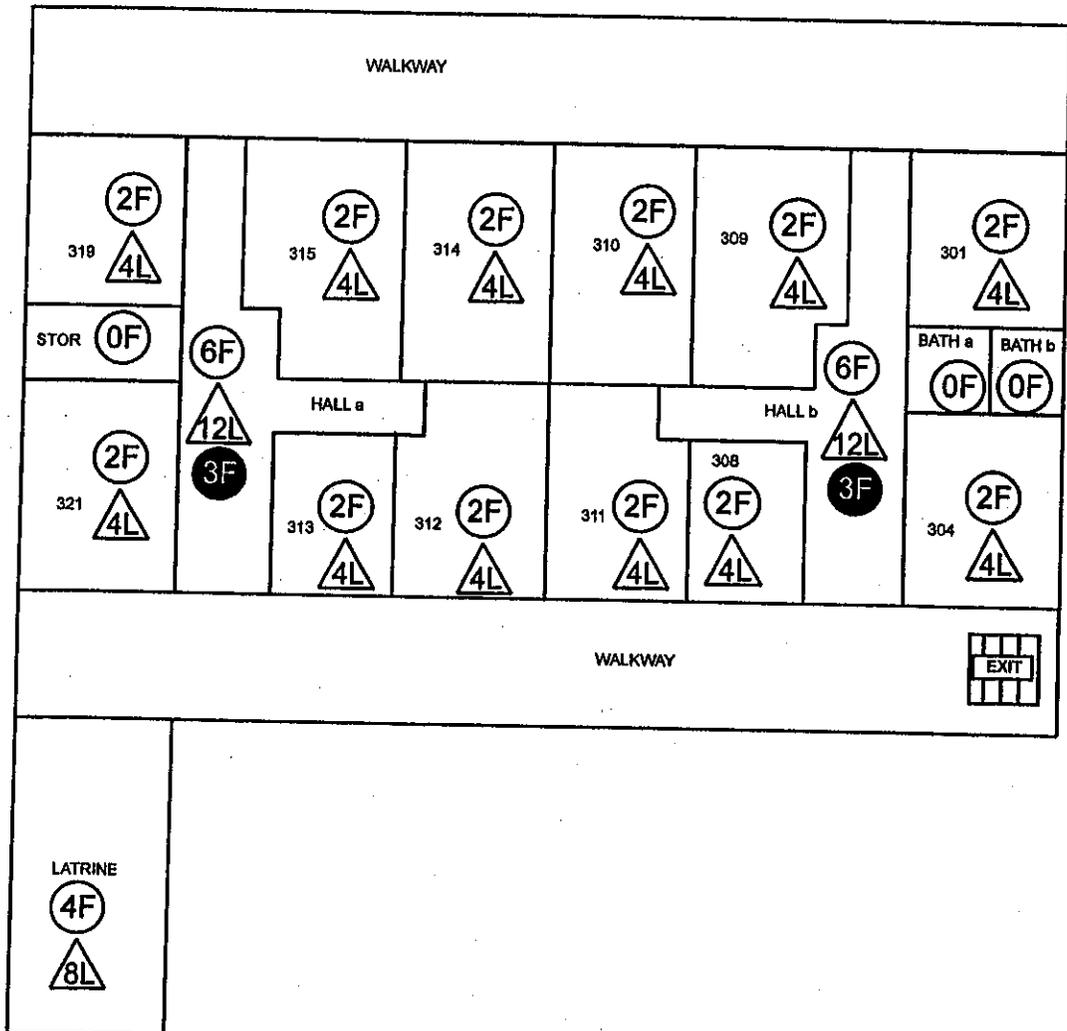
# QUAD E SCHOFIELD BARRACKS BUILDING 550 3-3



### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p style="text-align: center;"><b>550-3-3 Building 550/3rd fl/section 3</b></p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>
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# QUAD E SCHOFIELD BARRACKS BUILDING 550 3-4



### Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

451-3-4 Building 452/2nd fl/section 2

220 Room number

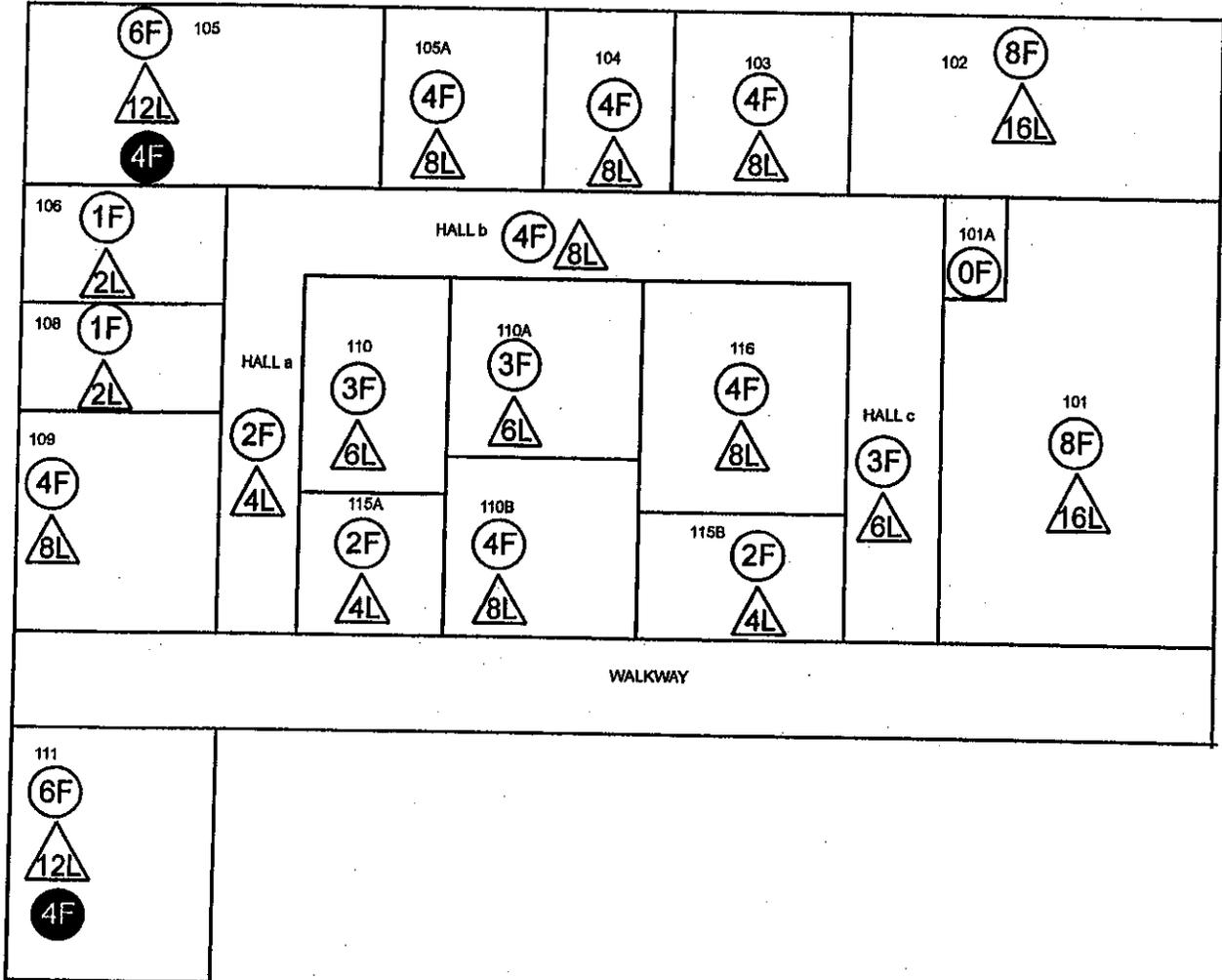
NA No access



North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 551 1-1



## Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

551-1-1 Building 551/1st fl/section 1

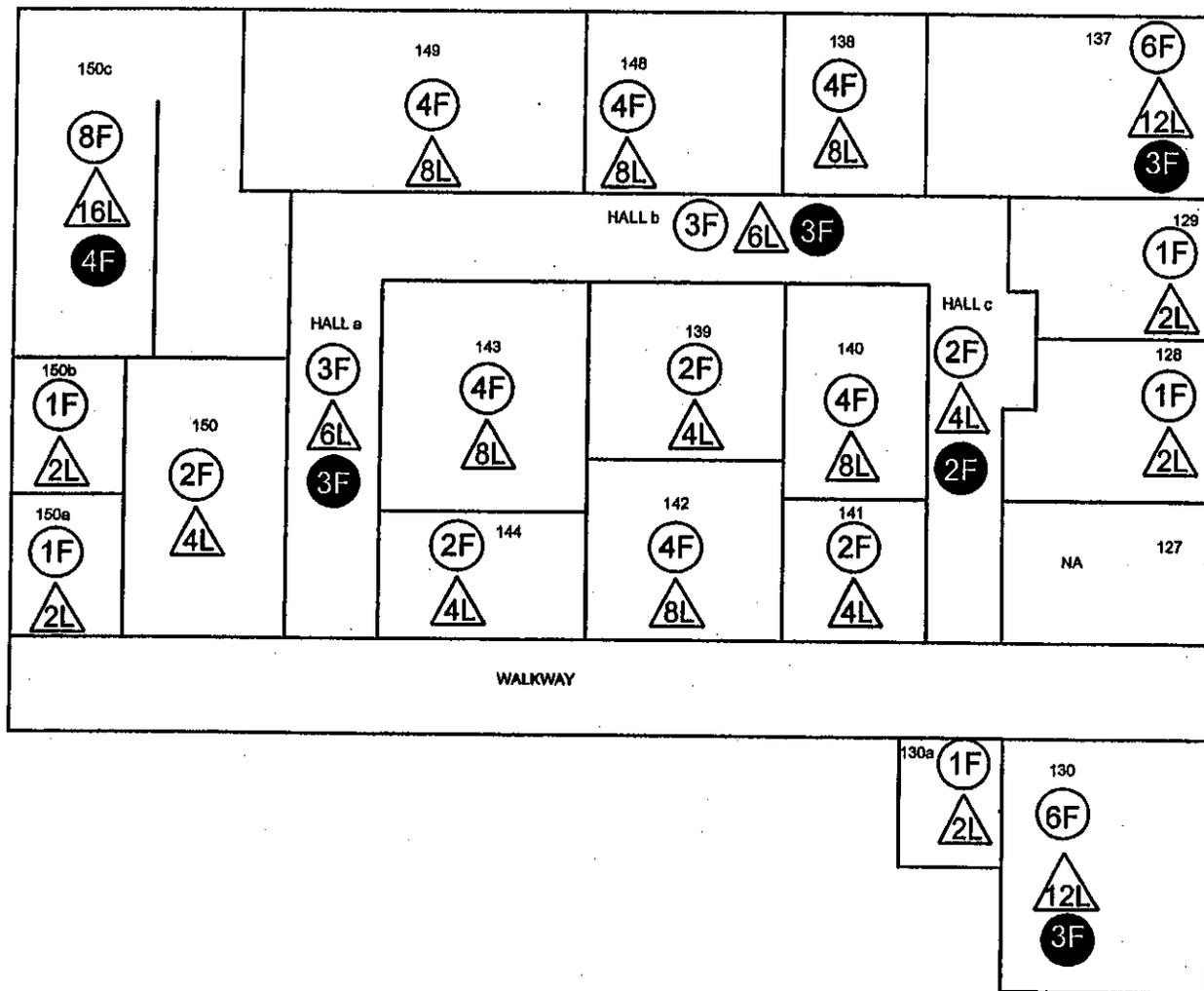
220 Room number

NA No access

North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 551 1-2



## Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

551-1-2 Building 551/1st fl/section 2

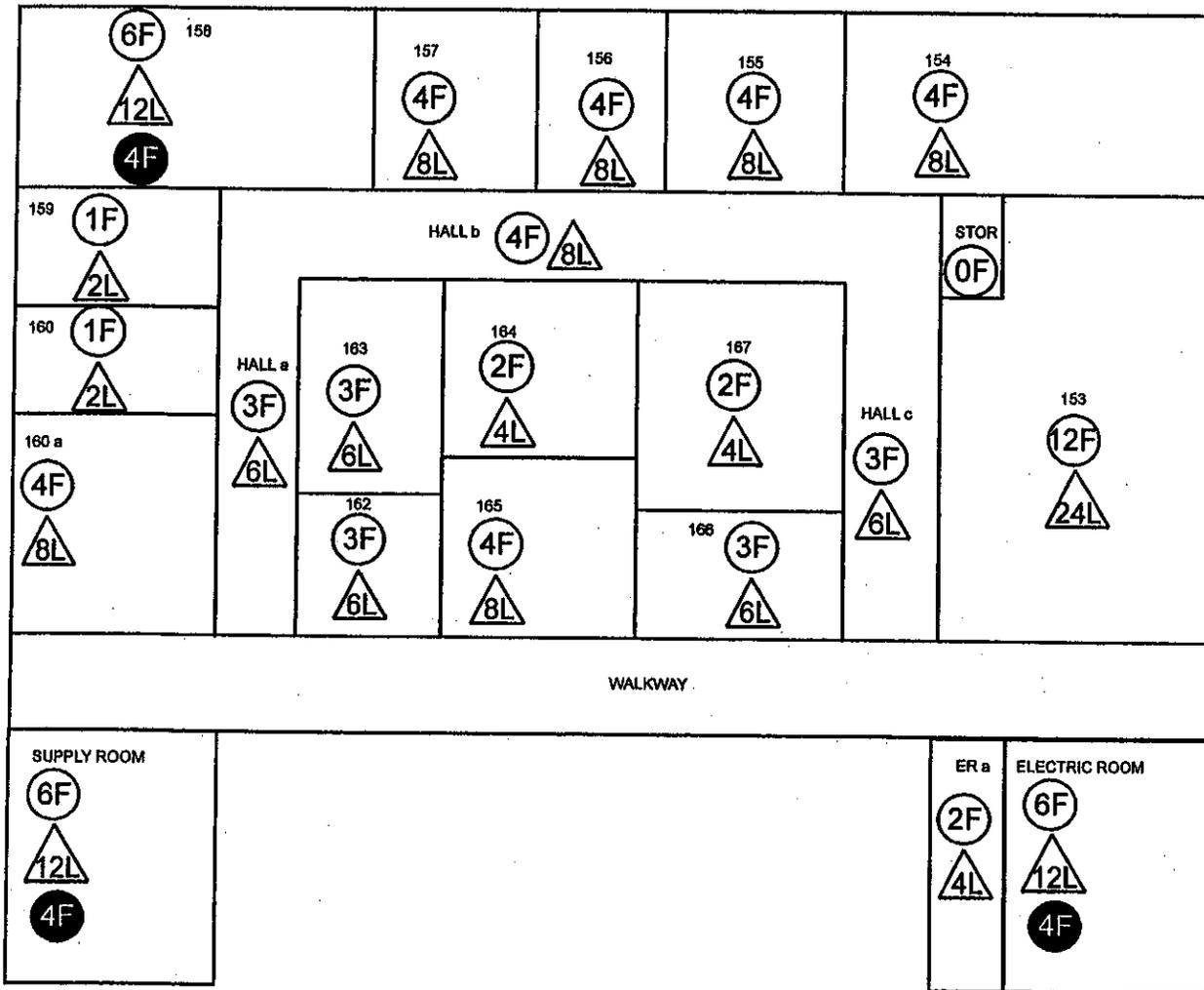
220 Room number

NA No access

North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS SKETCH 551 1-3



## Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

551-1-3 Building 551/1st fl/section 3

220 Room number

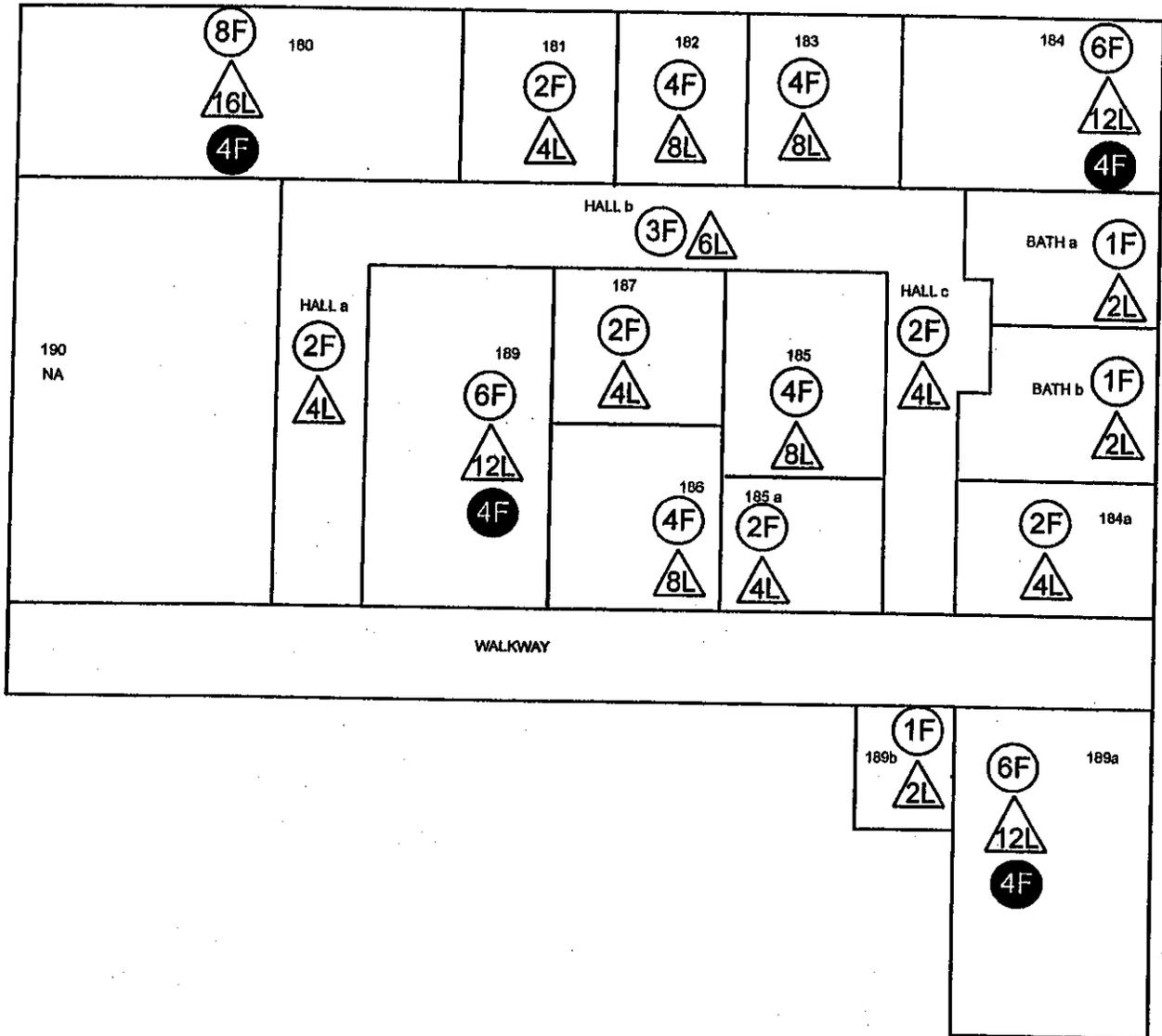
NA No access



North Seeking Arrow

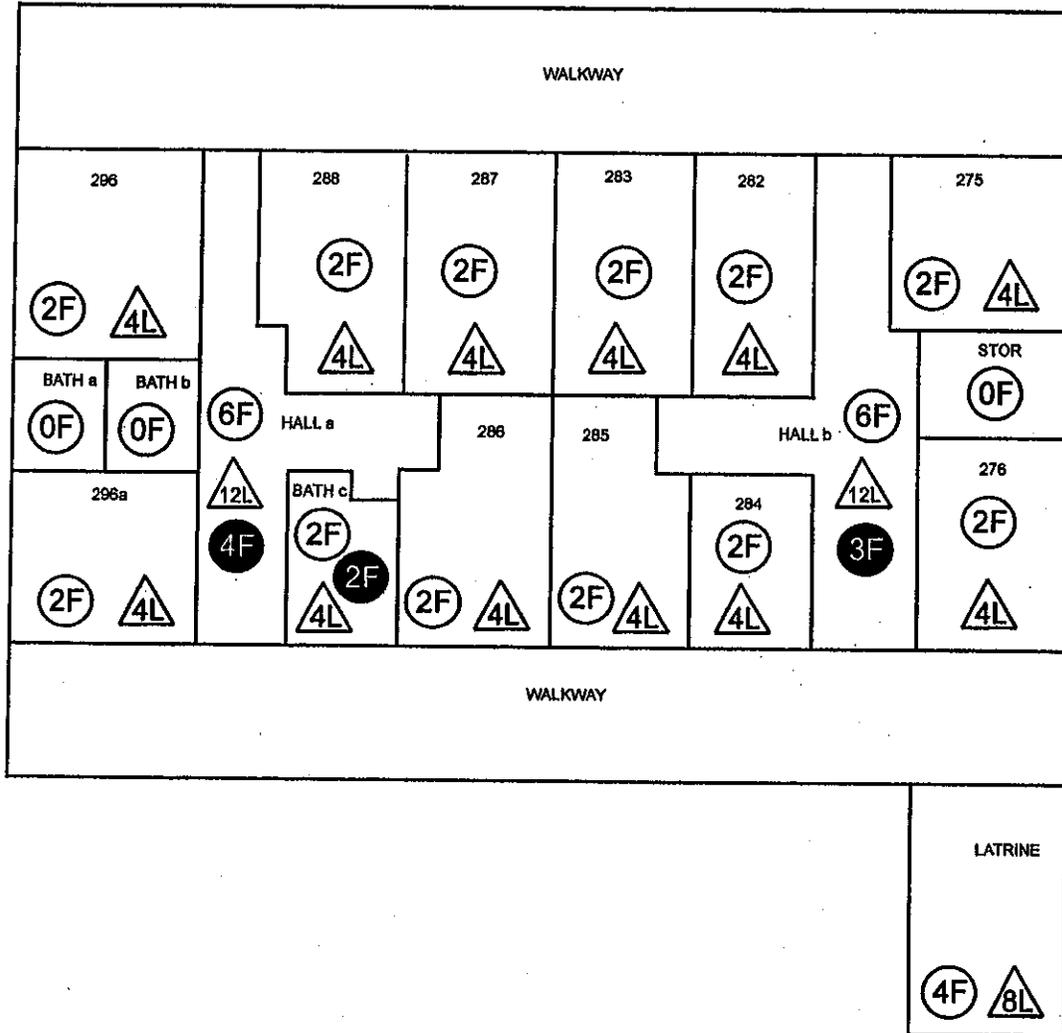


# QUAD E SCHOFIELD BARRACKS BUILDING 551 1-4



Legend			
(2F)	Light fixtures (2)	551-1-2	Building 551/1st fl/section 2
△6L	Mercury lamps	220	Room number
●2F	Light fixtures investigated (2)	NA	No access
■1	PCB-containing ballast	↑	North Seeking Arrow

# QUAD E SCHOFIELD BARRACKS BUILDING 551 2-1



### Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

551-2-1 Building 551/2nd fl/section 1

220 Room number

NA No access

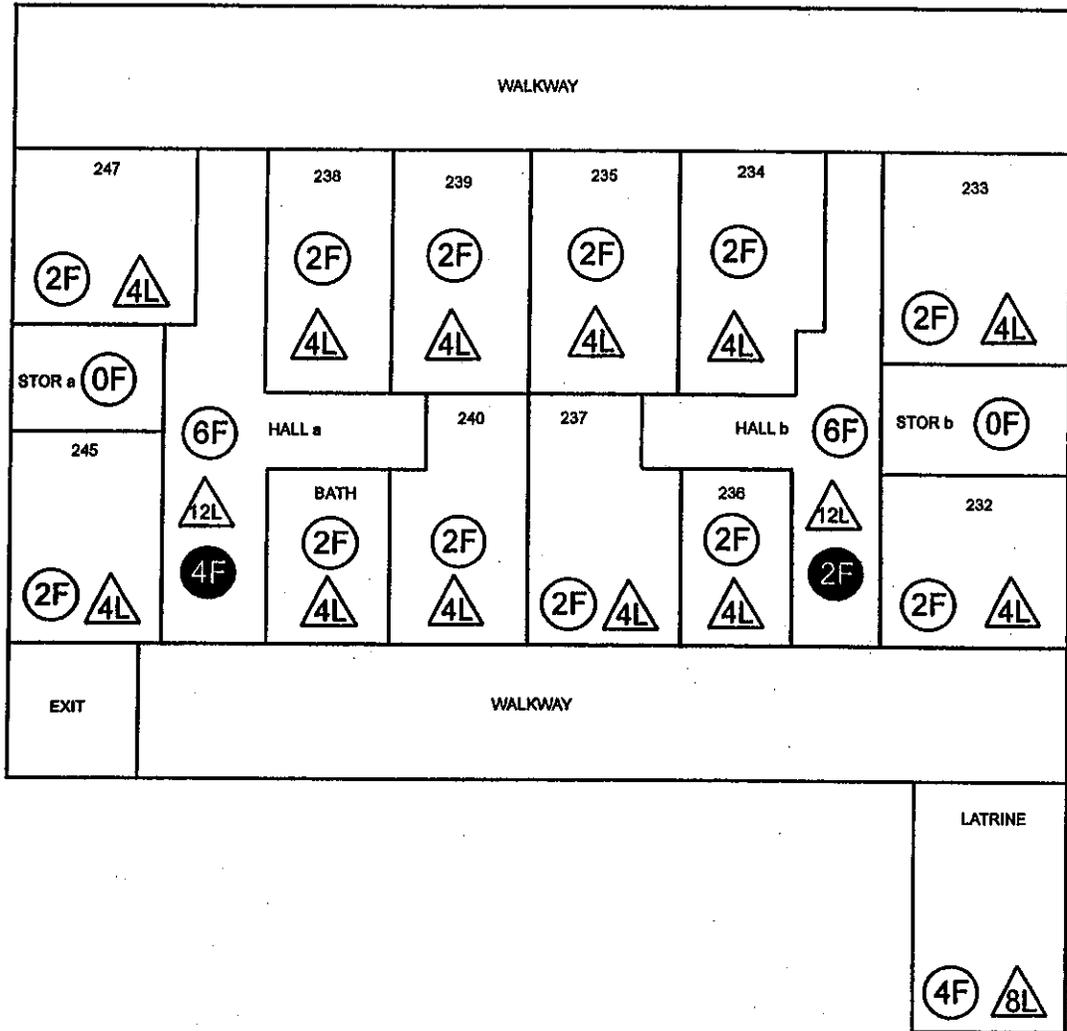


North Seeking Arrow





# QUAD E SCHOFIELD BARRACKS BUILDING 551 2-3



### Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

**551-2-3 Building 551/2nd fl/section 3**

220 Room number

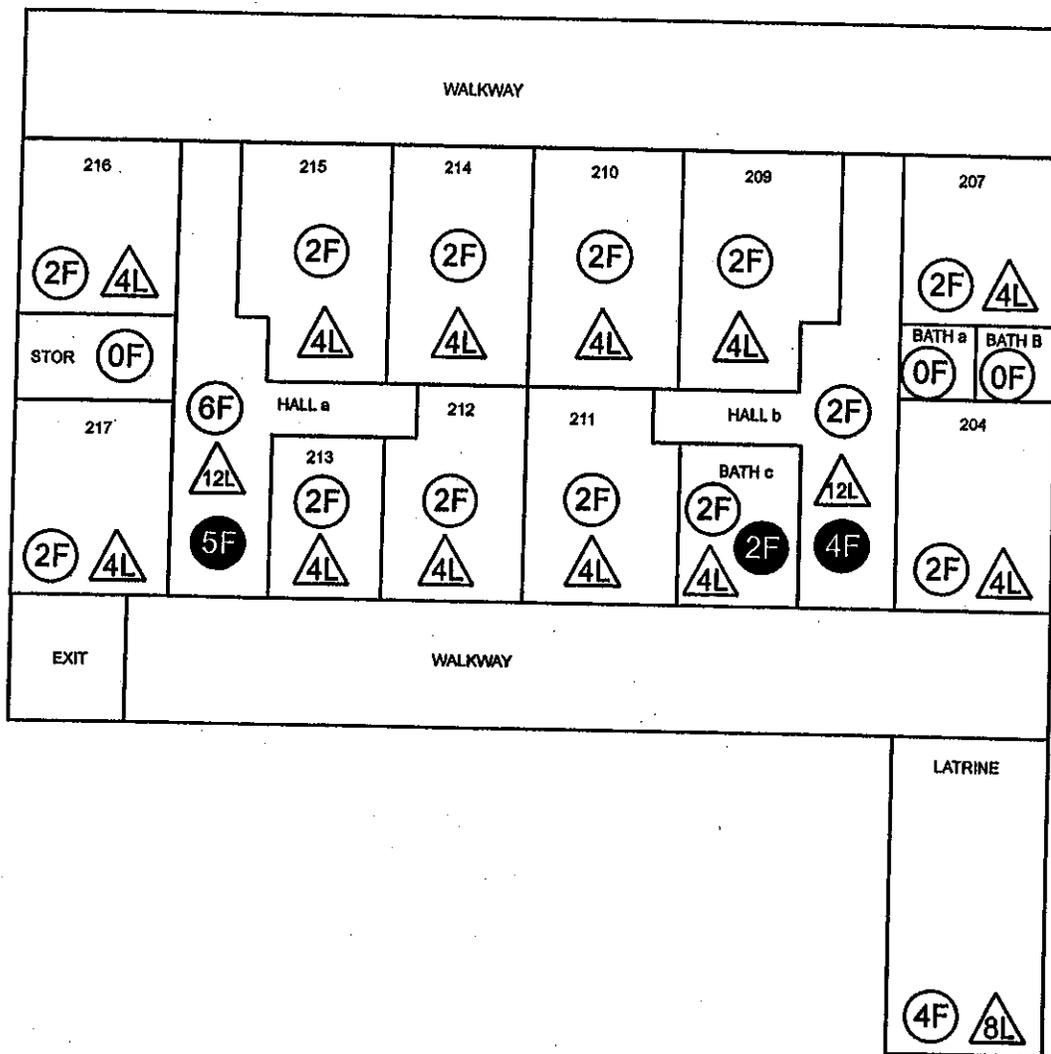
NA No access



North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 551 2-4



## Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

551-2-4 Building 551/2nd fl/section 4

220 Room number

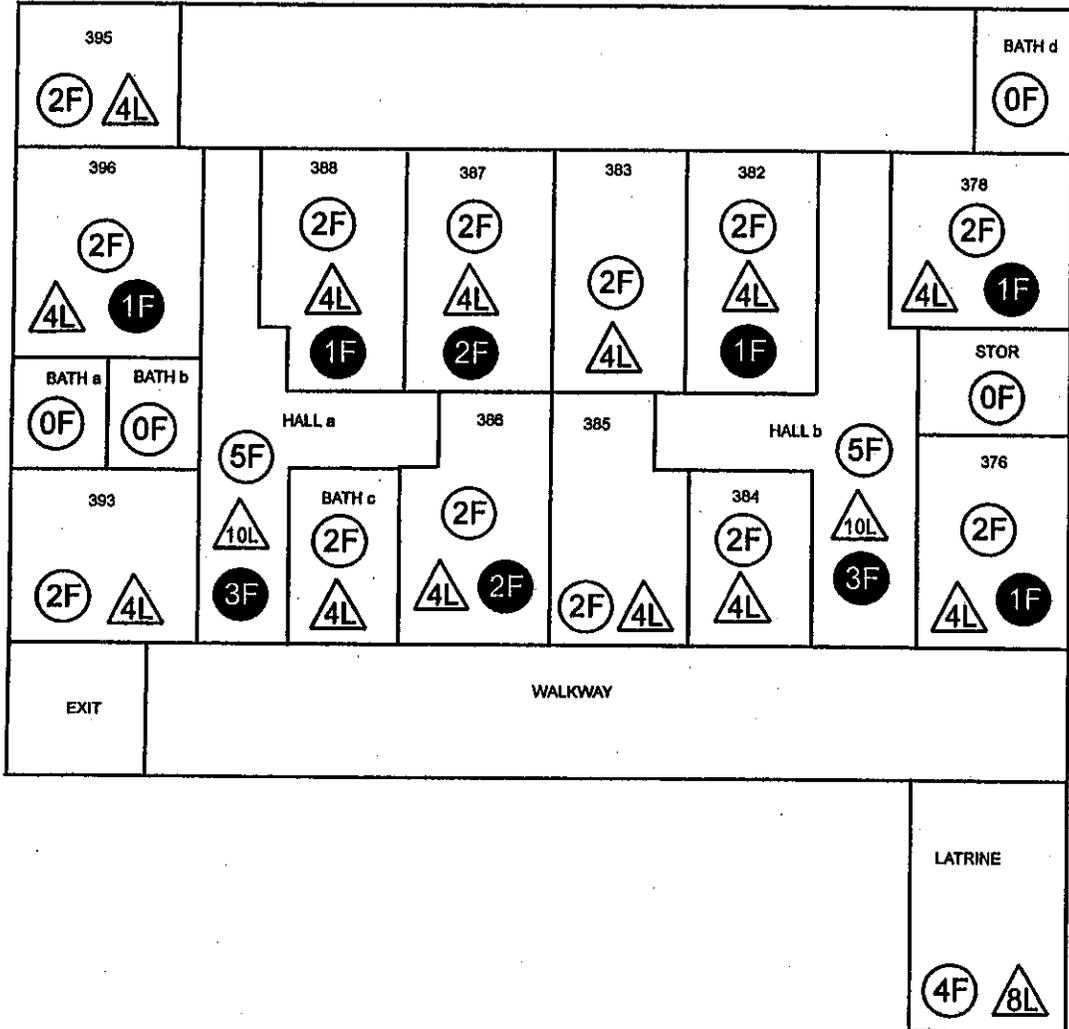
NA No access



North Seeking Arrow



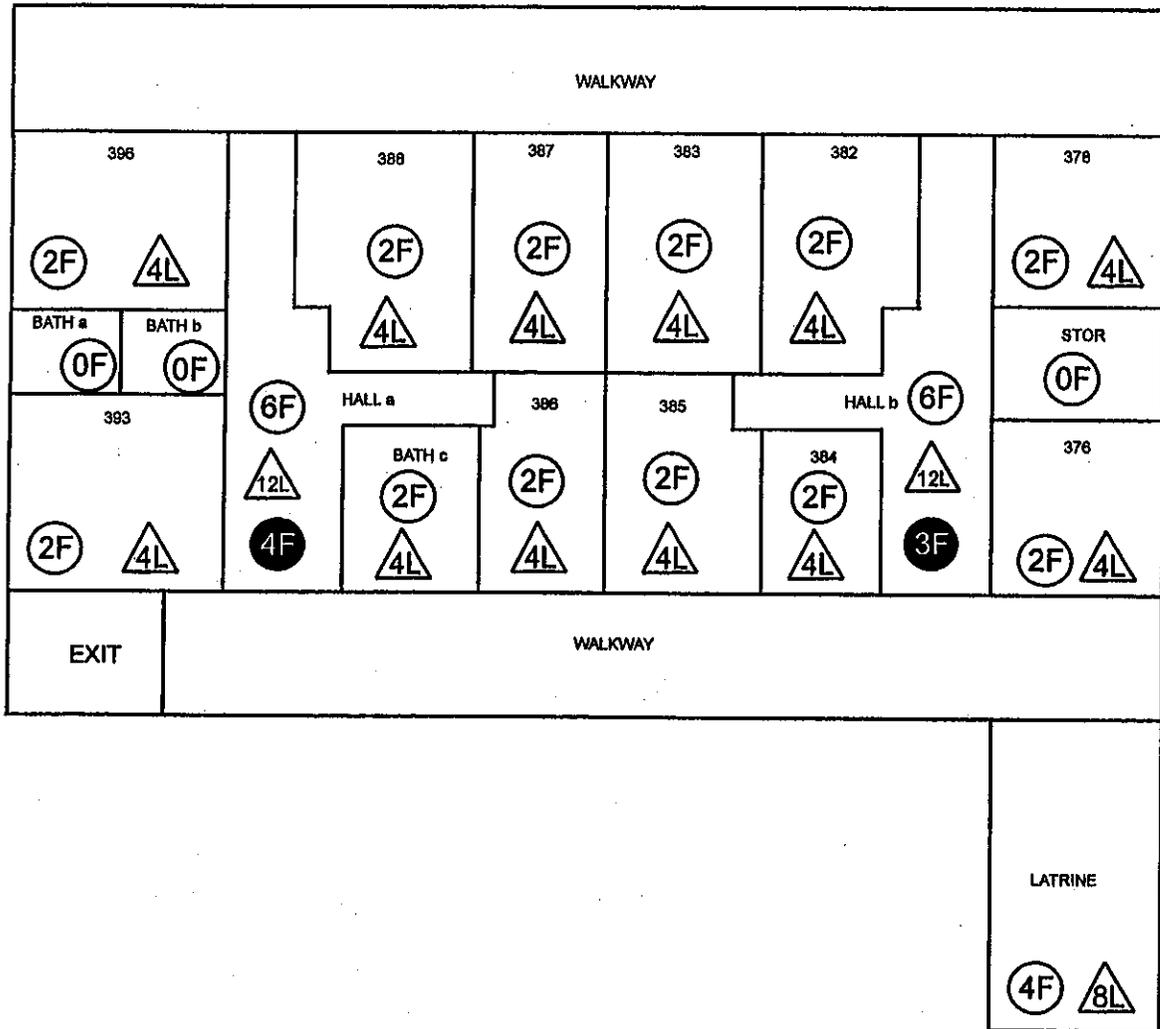
# QUAD E SCHOFIELD BARRACKS BUILDING 551 3-1



Legend	
(2F)	Light fixtures (2)
(6L)	Mercury lamps
(2F)	Light fixtures investigated (2)
1	PCB-containing ballast
	551-3-1 Building 551/3RD fl/section 1
	220 Room number
	NA No access
↑ N	North Seeking Arrow



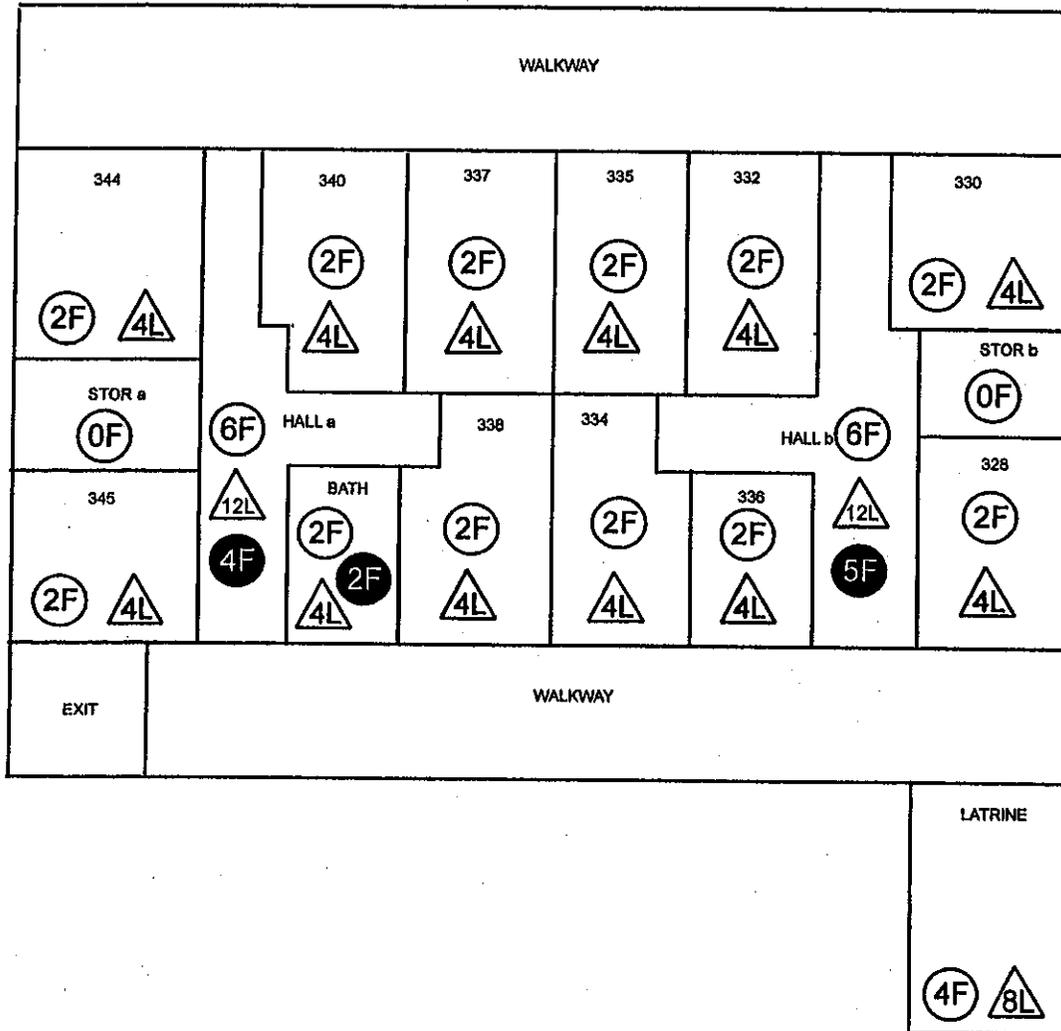
# QUAD E SCHOFIELD BARRACKS BUILDING 551 3-2



### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p style="text-align: center;"><b>551-3-2 Building 551/3rd fl/section 1</b></p> <p>220 Room number</p> <p>NA No access</p> <p> North Seeking Arrow</p>
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# QUAD E SCHOFIELD BARRACKS BUILDING 551 3-3



### Legend

 Light fixtures (2)

 Mercury lamps

 Light fixtures investigated (2)

 PCB-containing ballast

**551-3-3** Building 551/3RD fl/section 3

220 Room number

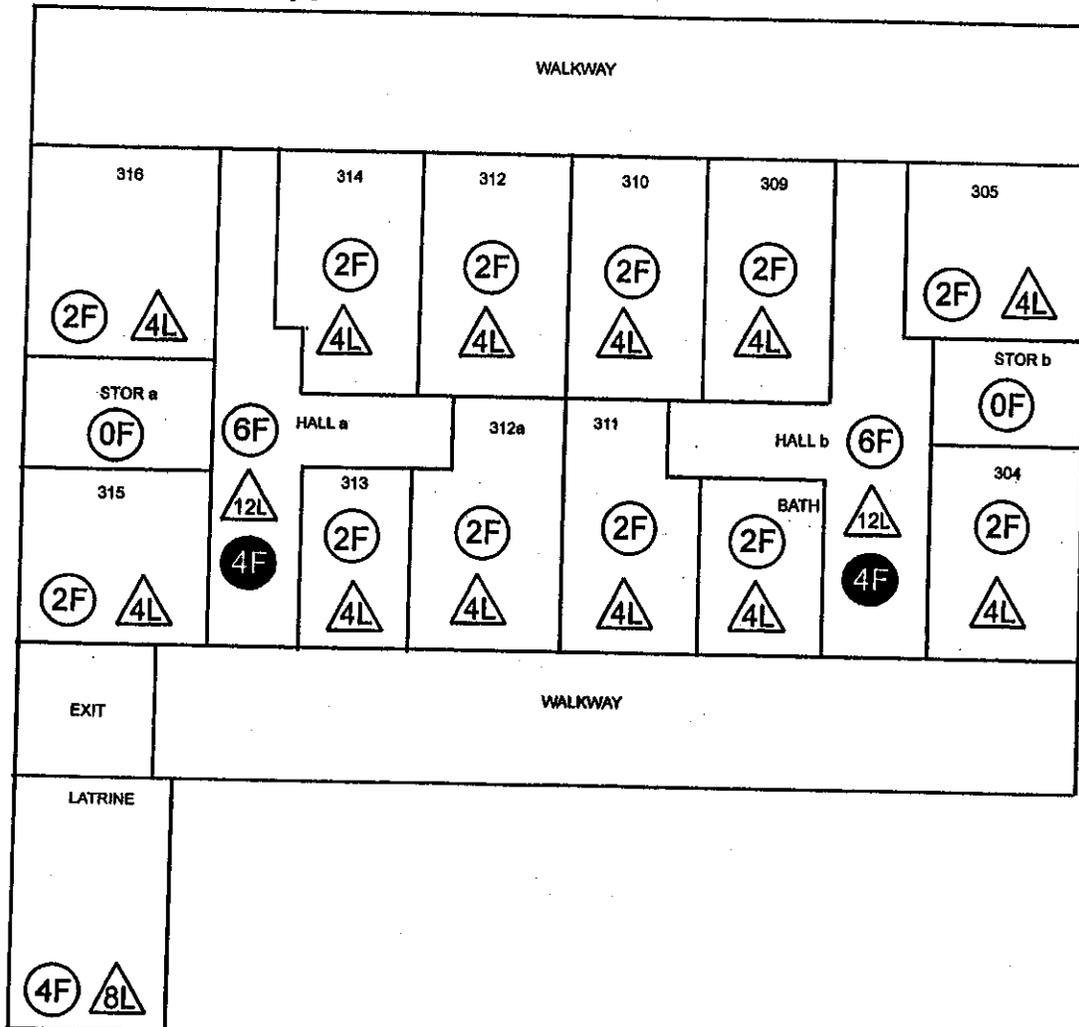
NA No access



North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 551 3-4



## Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

551-3-4 Building 551/3rd fl/section 4

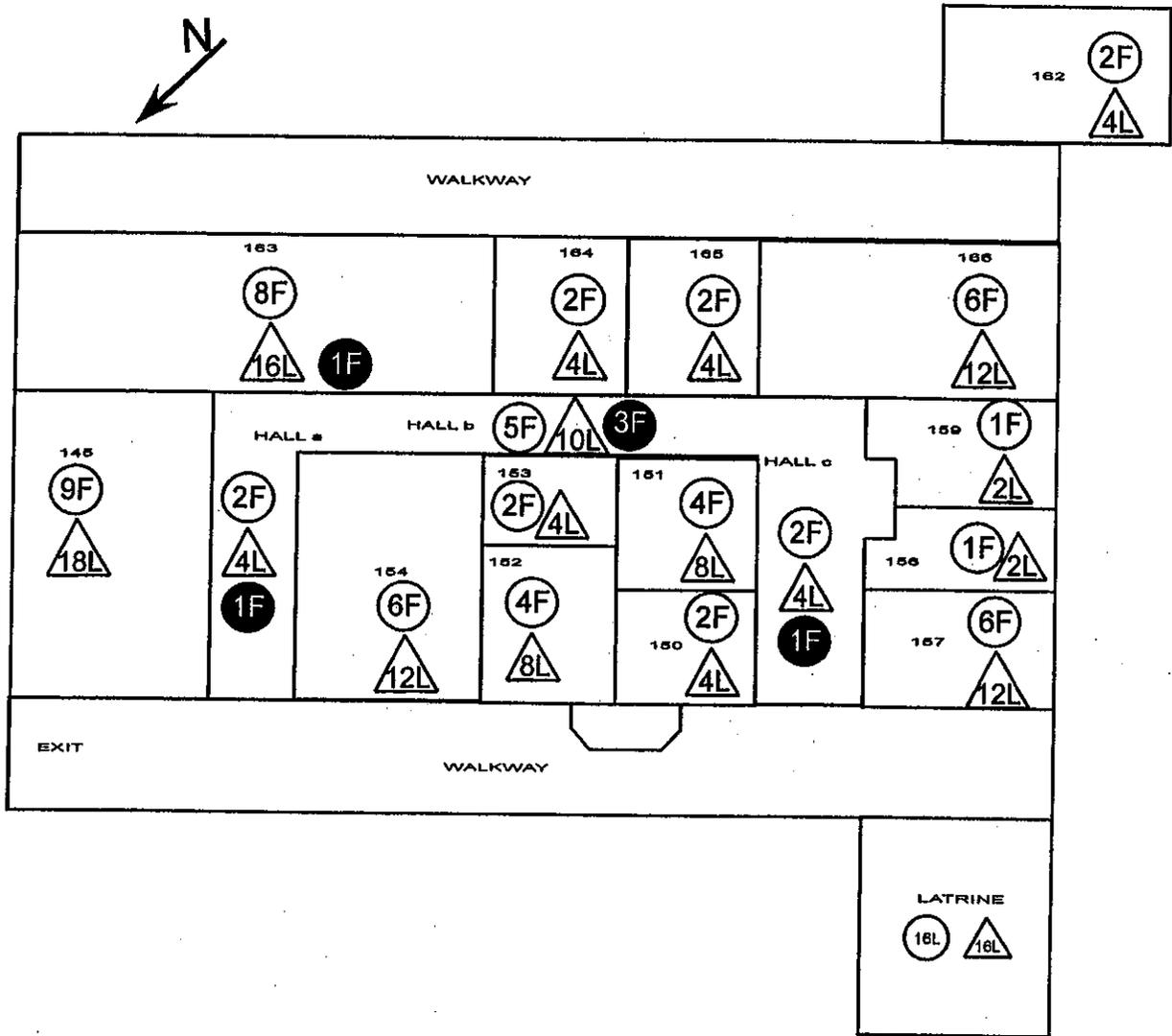
220 Room number

NA No access

North Seeking Arrow



QUAD E SCHOFIELD BARRACKS  
SKETCH 552 1-1



Legend

(2F) Light fixtures (2)

(6L) Mercury lamps

(2F) Light fixtures investigated (2)

1 PCB-containing ballast

552-1-1 Building 552/1ST fl/section 1

220 Room number

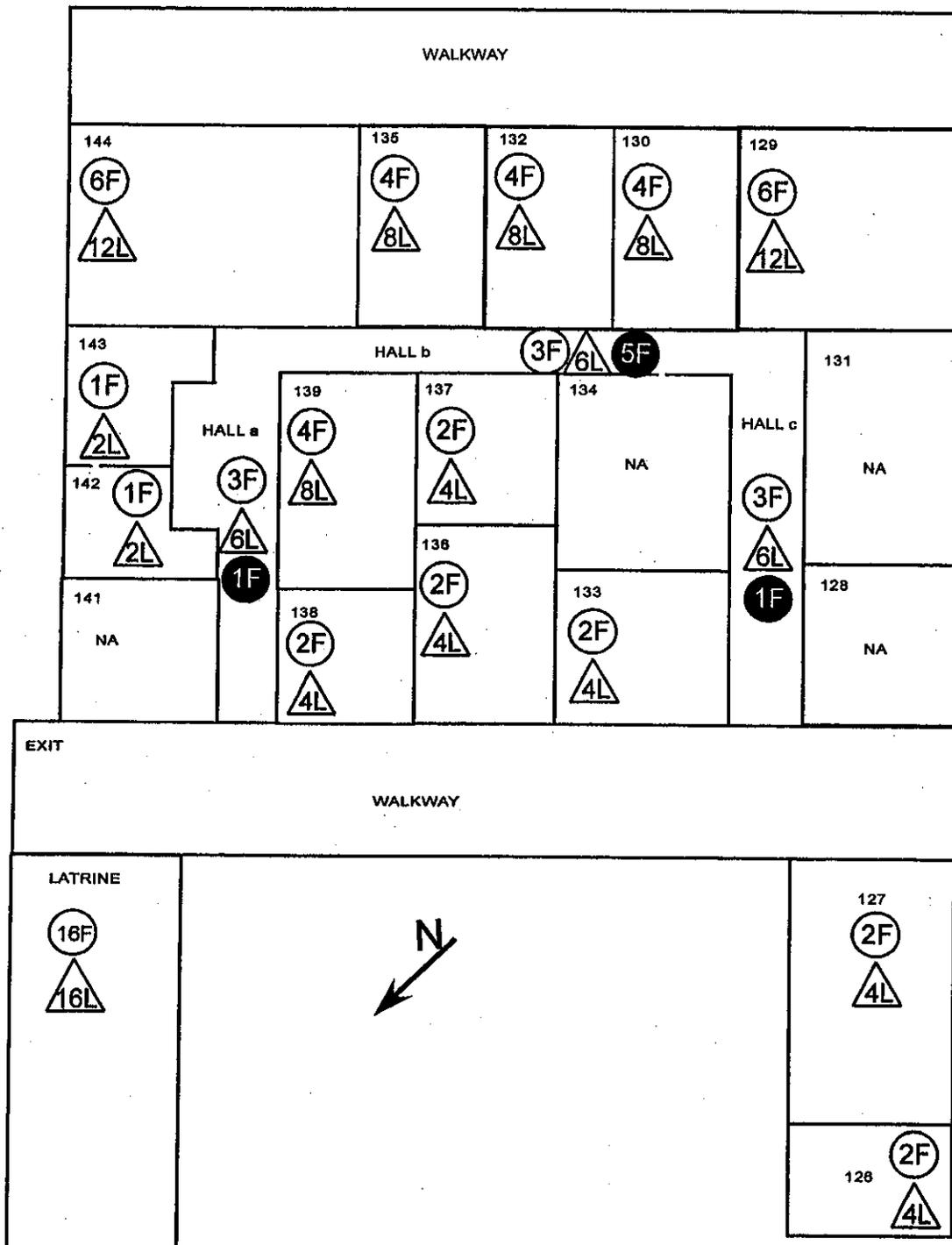
NA No access



North Seeking Arrow



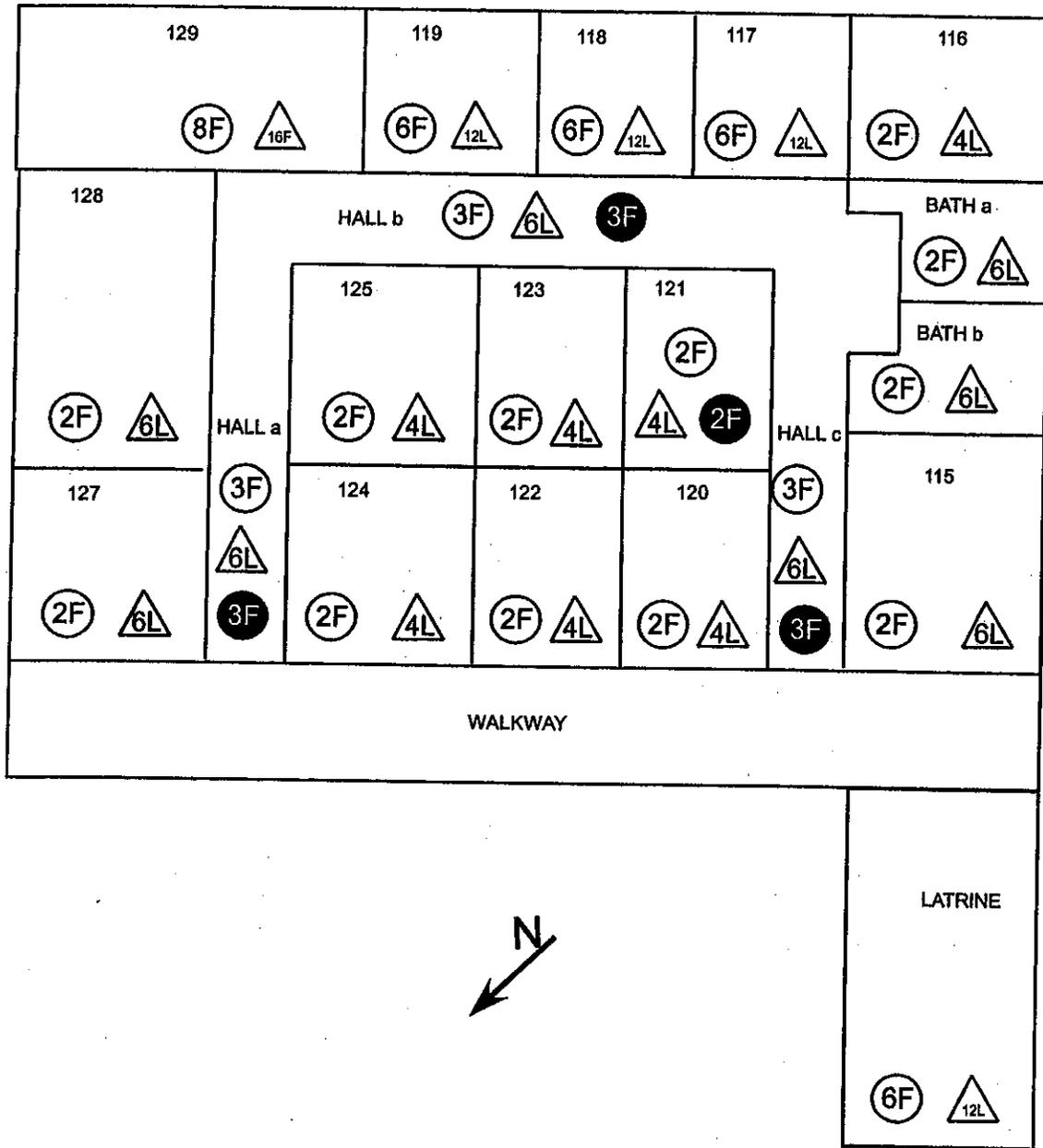
# QUAD E SCHOFIELD BARRACKS SKETCH 552 1-2



### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p style="text-align: center;"><b>552-1-2</b> Building 552/1st fl/section 2</p> <p>220 Room number</p> <p>NA No access</p> <p style="text-align: center;">↑ N North Seeking Arrow</p>
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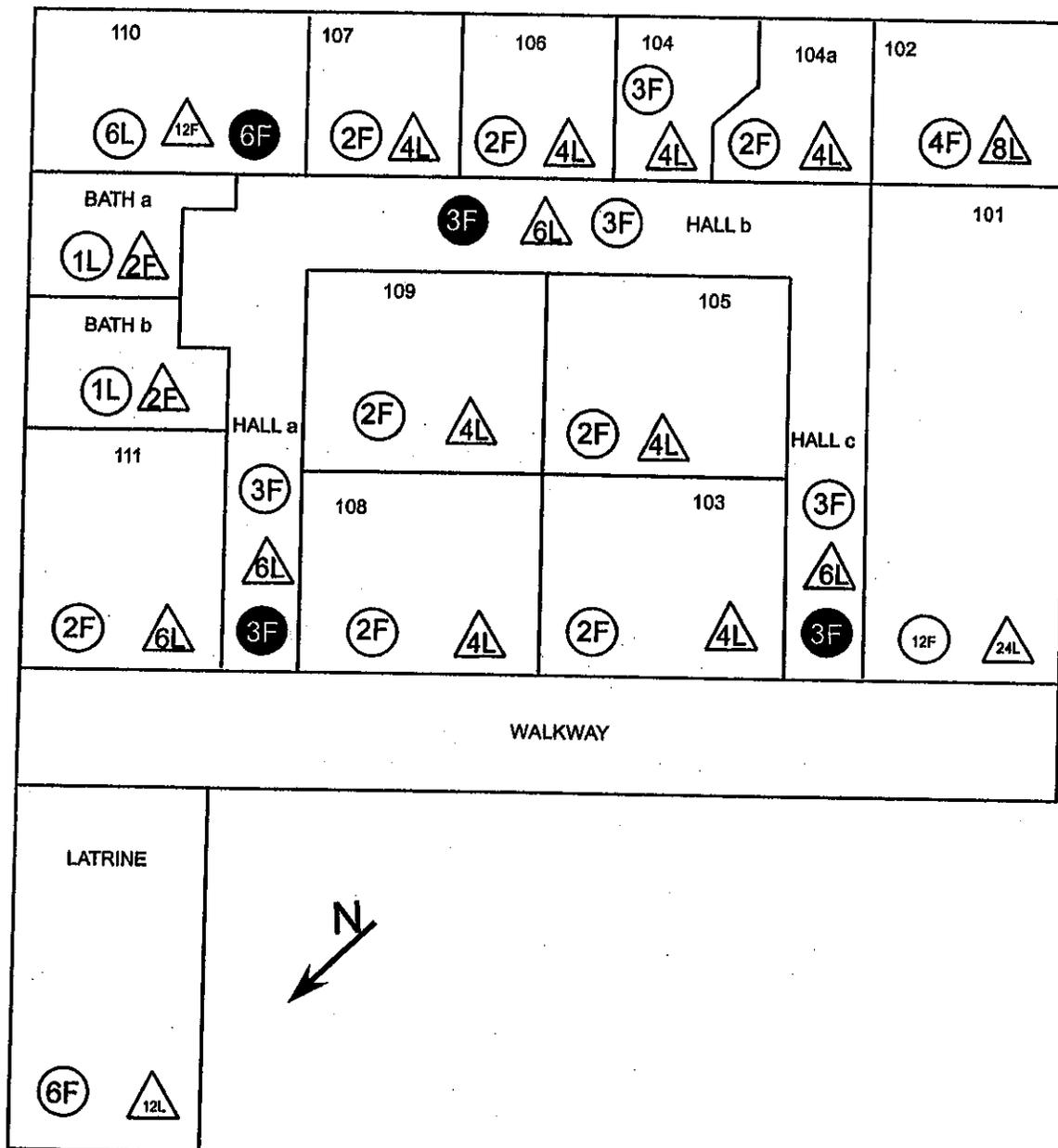
# QUAD E SCHOFIELD BARRACKS SKETCH 552 1-3



**Legend**

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p style="text-align: right;">552-1-3 Building 552/1st fl/section 3</p> <p style="text-align: right;">220 Room number</p> <p style="text-align: right;">NA No access</p> <p style="text-align: right;">  North Seeking Arrow         </p>
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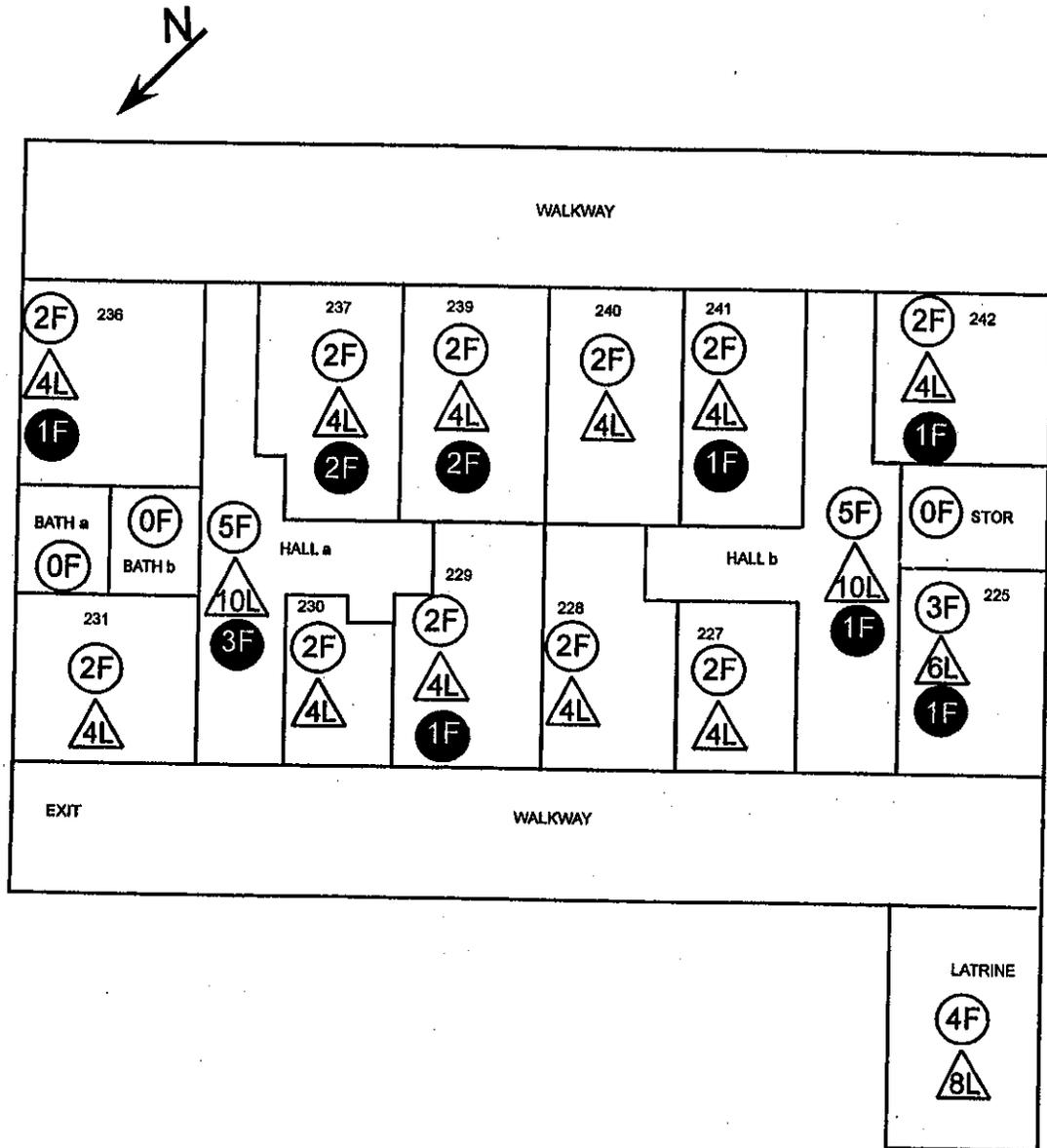
# QUAD E SCHOFIELD BARRACKS SKETCH 552 1-4



### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p style="text-align: center;"><b>552-1-4</b> Building 552/1st fl/section 4</p> <p>220 Room number</p> <p>NA No access</p> <p style="text-align: center;">↑ N ↓</p> <p style="text-align: center;">North Seeking Arrow</p>
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# QUAD E SCHOFIELD BARRACKS BUILDING 552 2-1

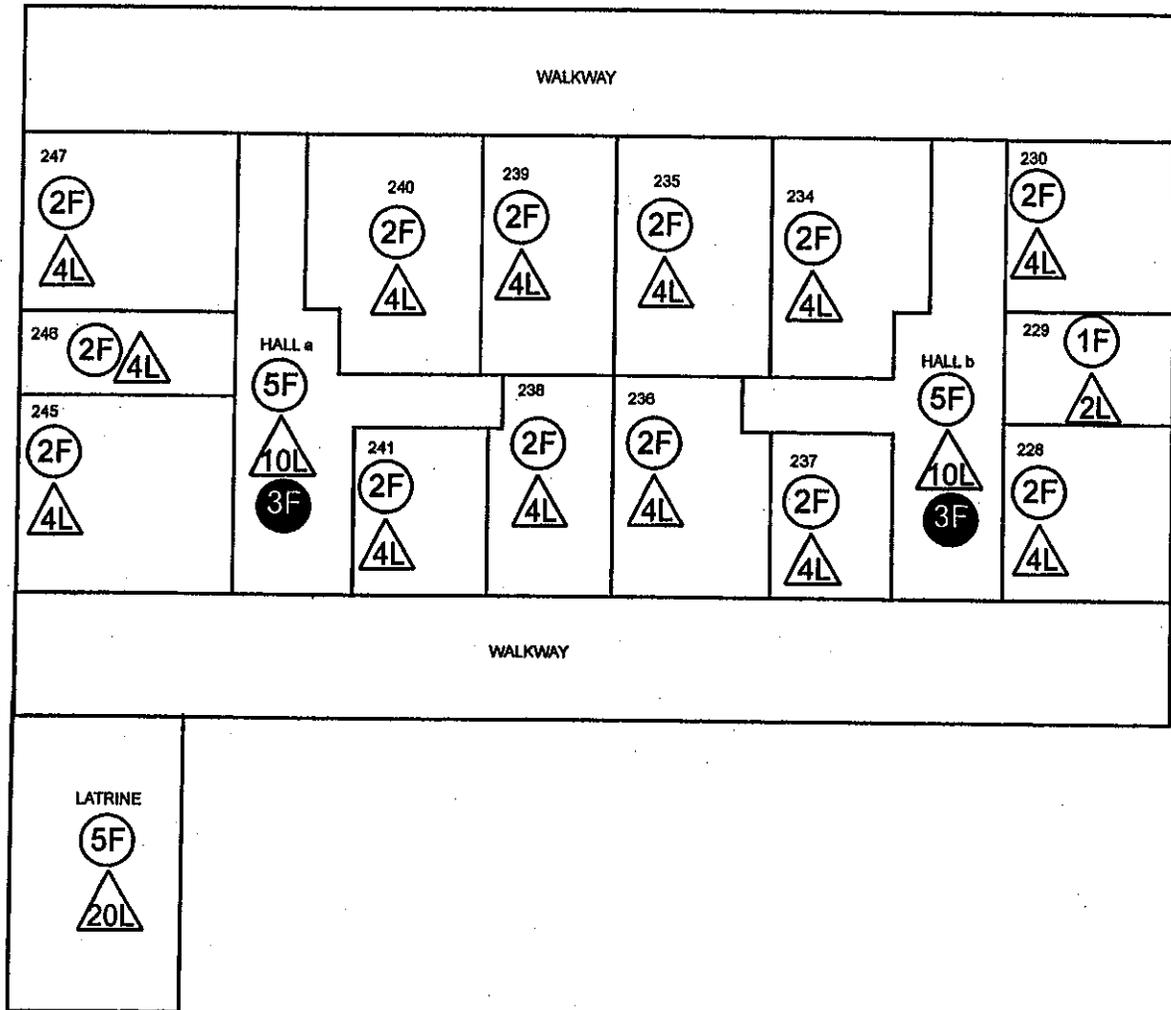


### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p style="text-align: center;"><b>552-2-1</b> Building 552/2nd fl/Part1</p> <p>220 Room number</p> <p>NA No access</p> <p style="text-align: center;">↑ N North Seeking Arrow</p>
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# QUAD E SCHOFIELD BARRACKS BUILDING 552 2-2



### Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

552-2-2 Building 552/2nd fl/section 2

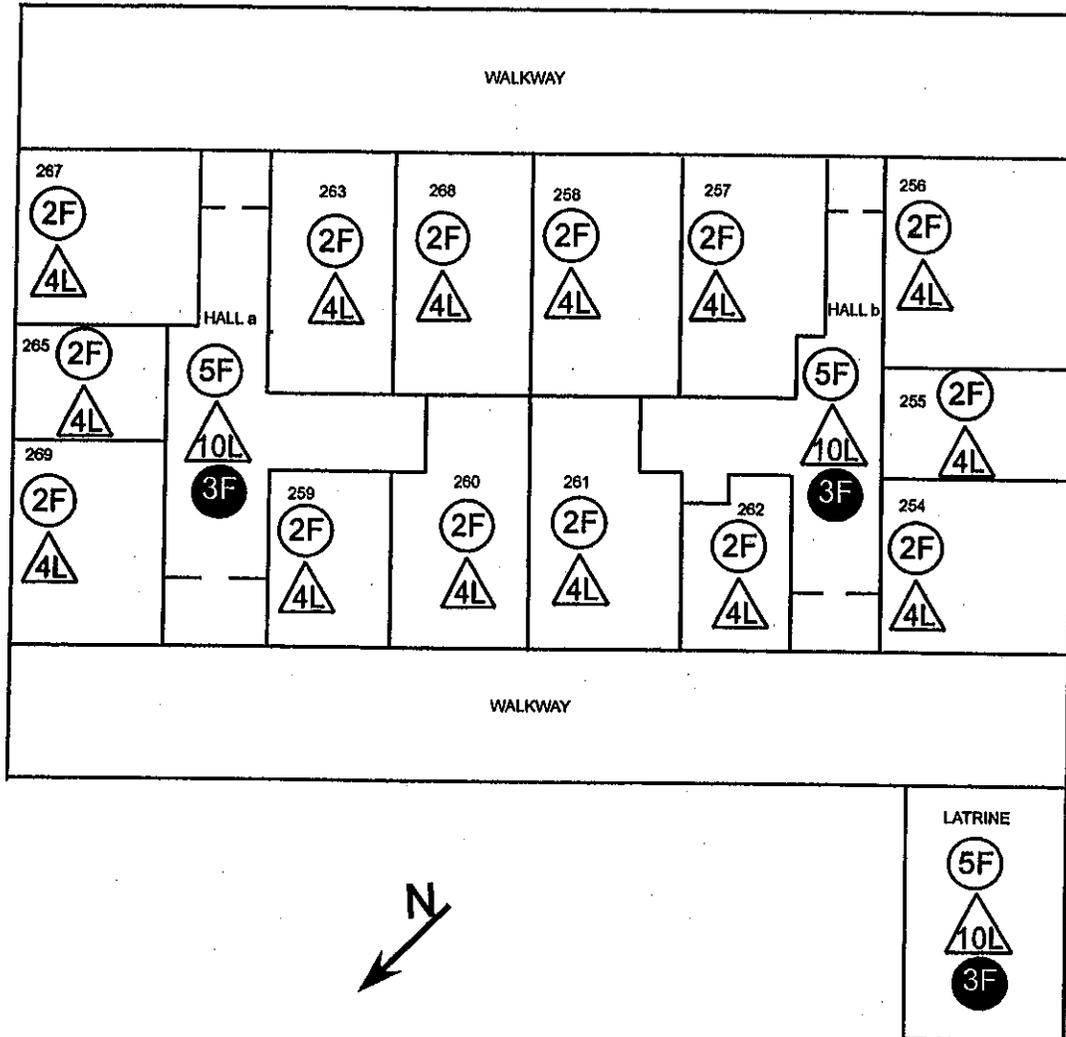
220 Room number

NA No access

North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 552 2-3



### Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

352-2-3 Building 552/2nd fl/section 3

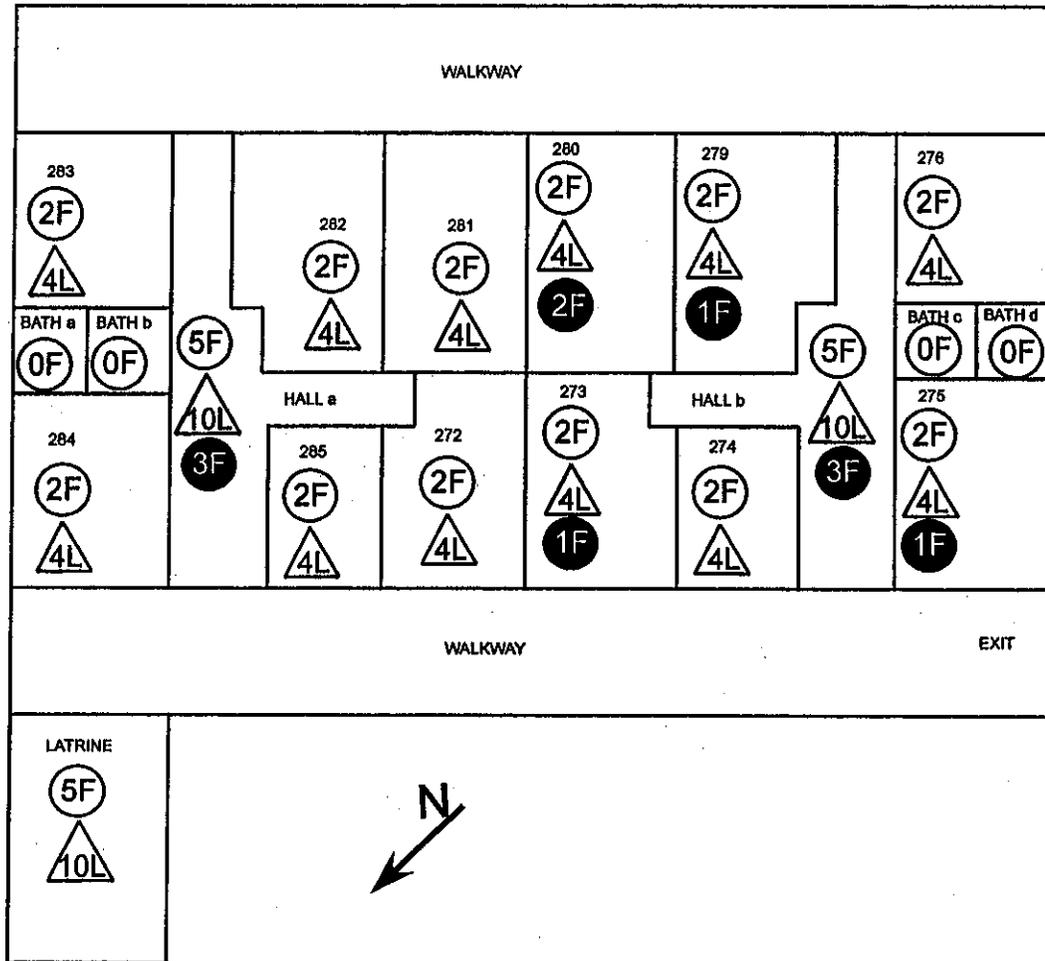
220 Room number

NA No access

North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 552 2-4



### Legend

(2F) Light fixtures (2)

(4L) Mercury lamps

(2F) Light fixtures investigated (2)

1 PCB-containing ballast

552-2-4 Building 552/2nd fl/section 4

220 Room number

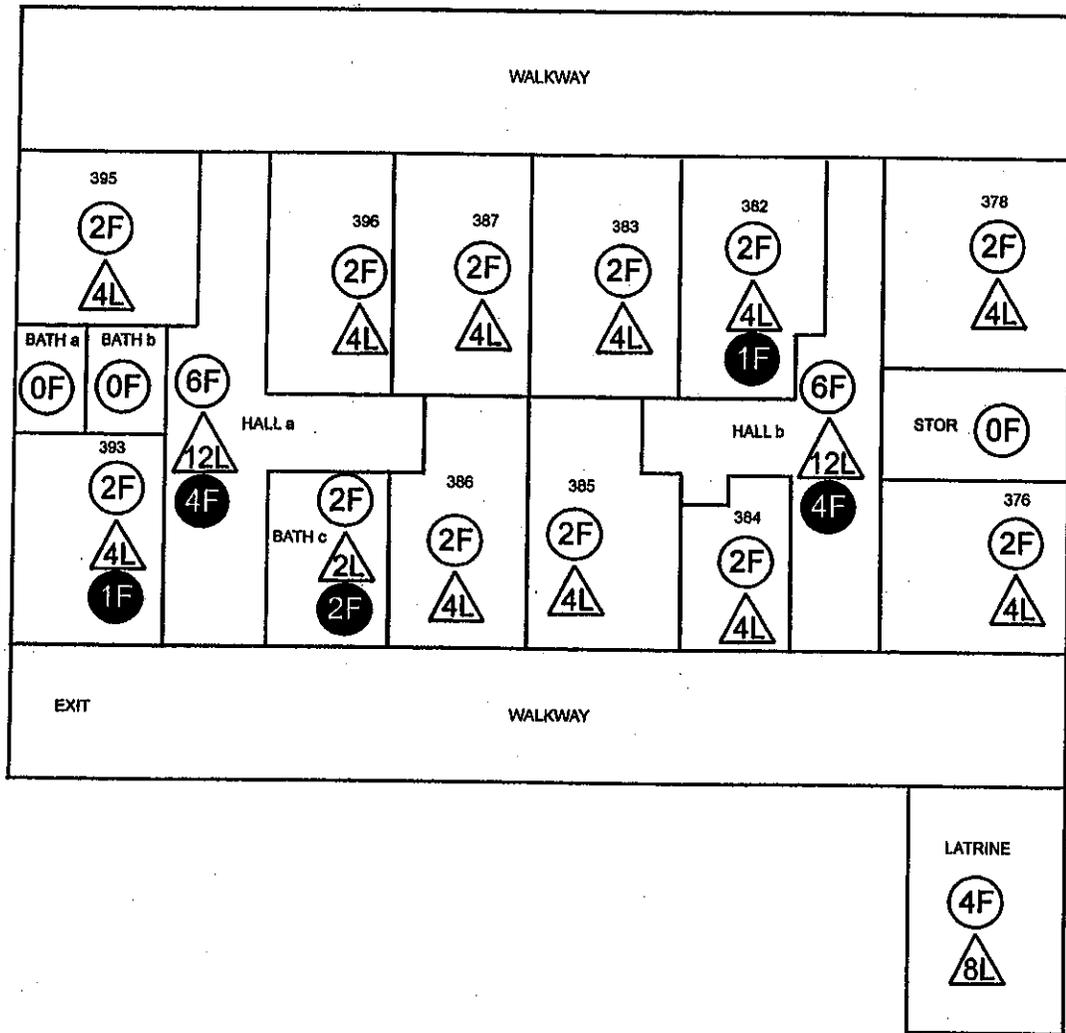
NA No access



North Seeking Arrow



# QUAD E SCHOFIELD BARRACKS BUILDING 552 3-1



## Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

552-3-1 Building 552/3rd fl/section 1

220 Room number

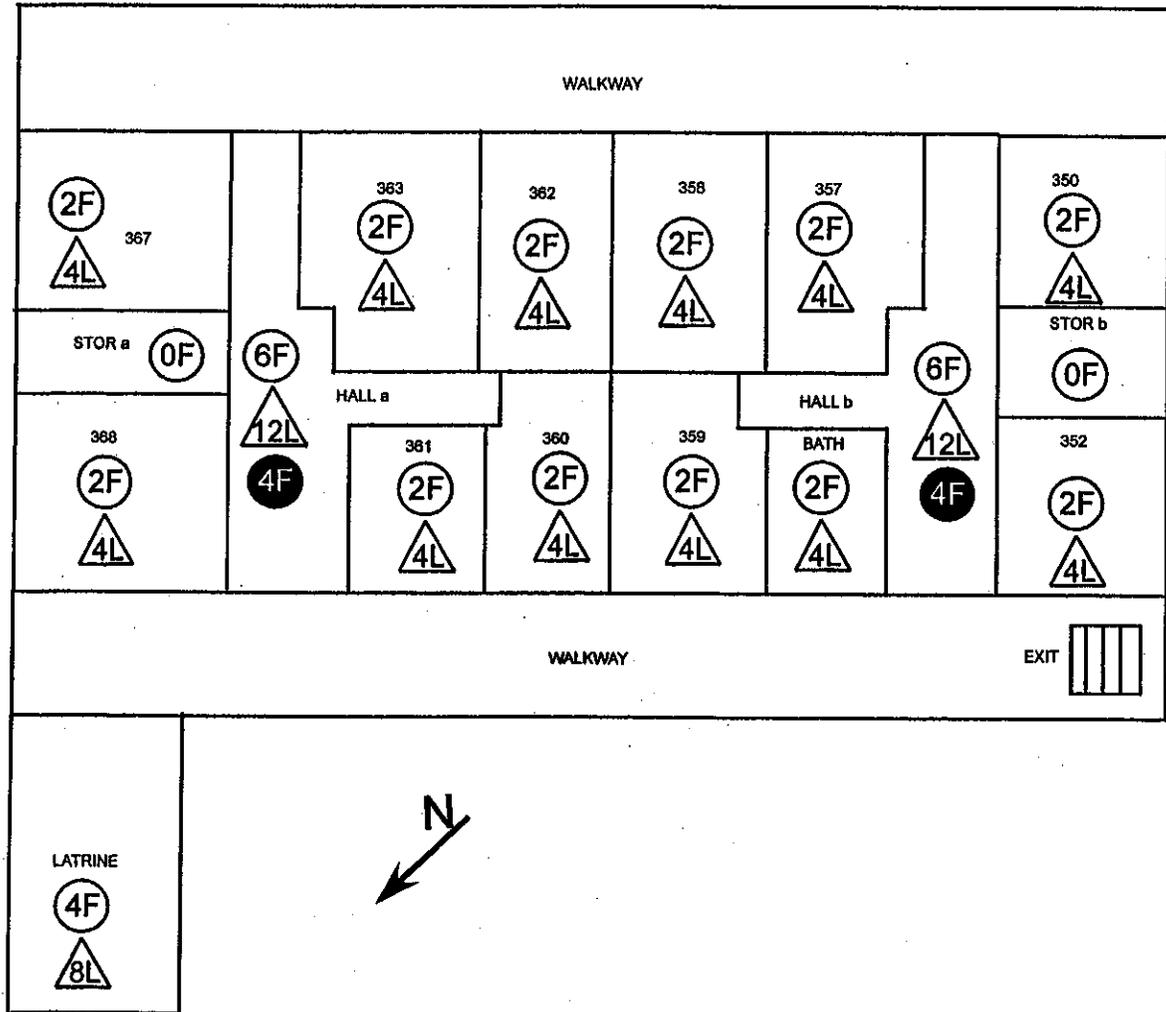
NA No access



North Seeking Arrow

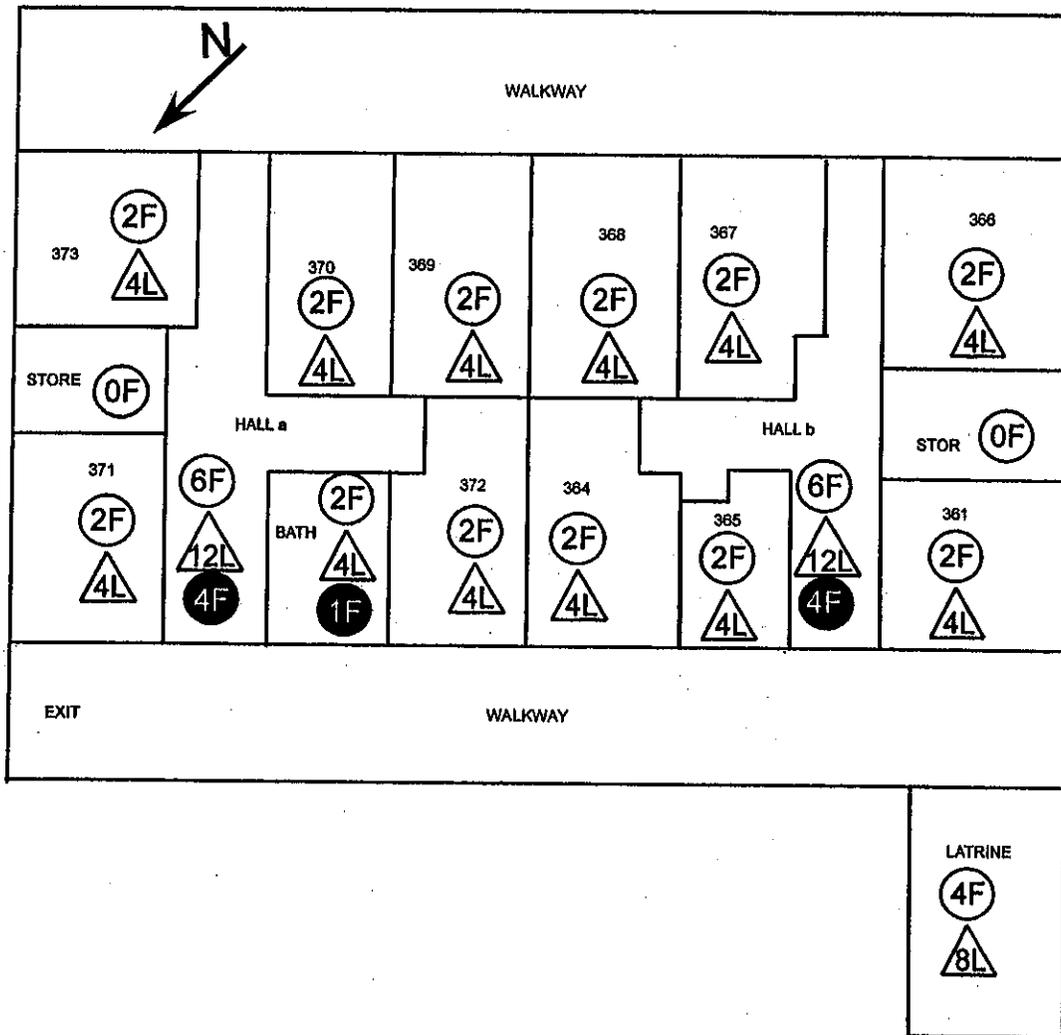


# QUAD E SCHOFIELD BARRACKS BUILDING 552 3-2



Legend			
(2F)	Light fixtures (2)	552-3-2	Building 552/3rd fl/section 2
(6L)	Mercury lamps	220	Room number
(2F)	Light fixtures investigated (2)	NA	No access
1	PCB-containing ballast	↑	North Seeking Arrow

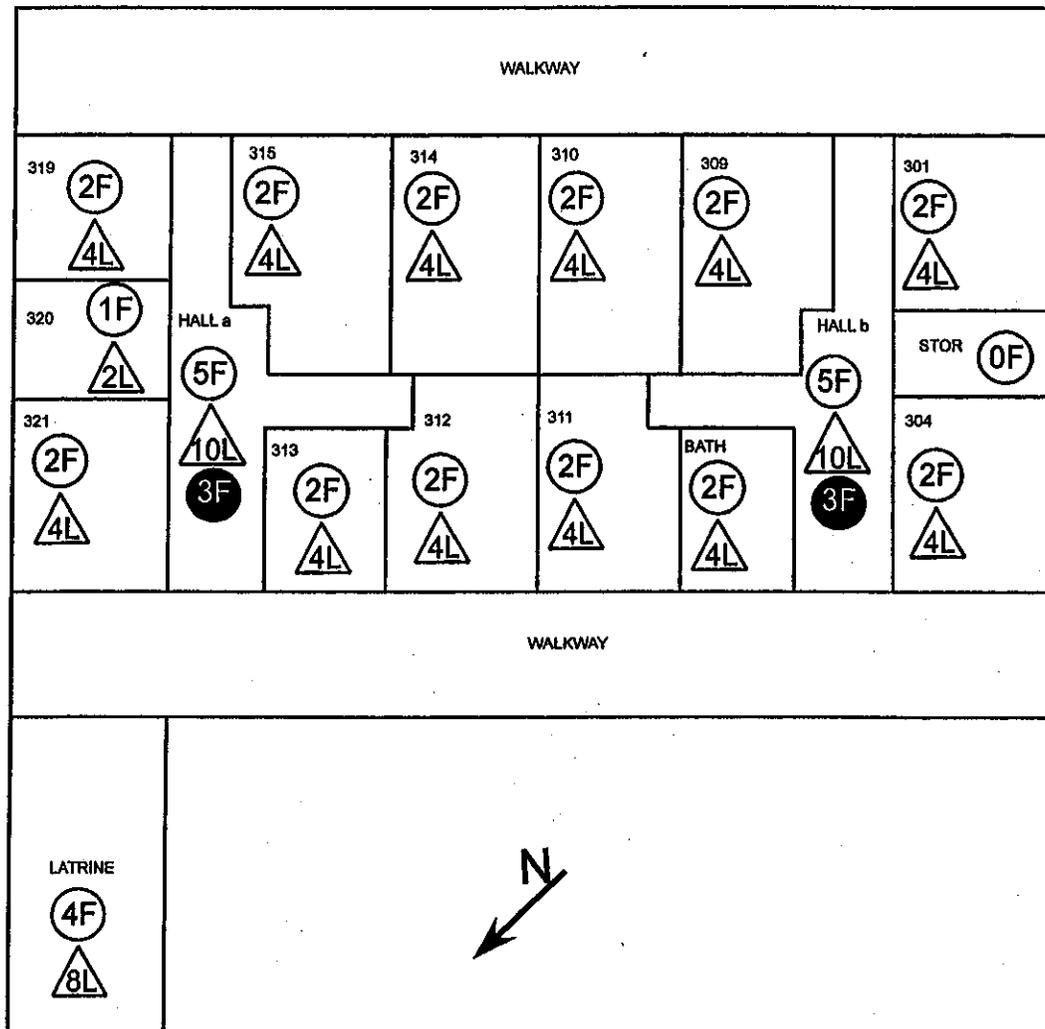
# QUAD E SCHOFIELD BARRACKS BUILDING 552 3-3



### Legend

<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p><b>552-3-3</b> Building 552/3rd fl/section 3</p> <p>220 Room number</p> <p>NA No access</p> <p style="text-align: center;">↑ N</p> <p style="text-align: center;">North Seeking Arrow</p>	
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# QUAD E SCHOFIELD BARRACKS BUILDING 552 3-4



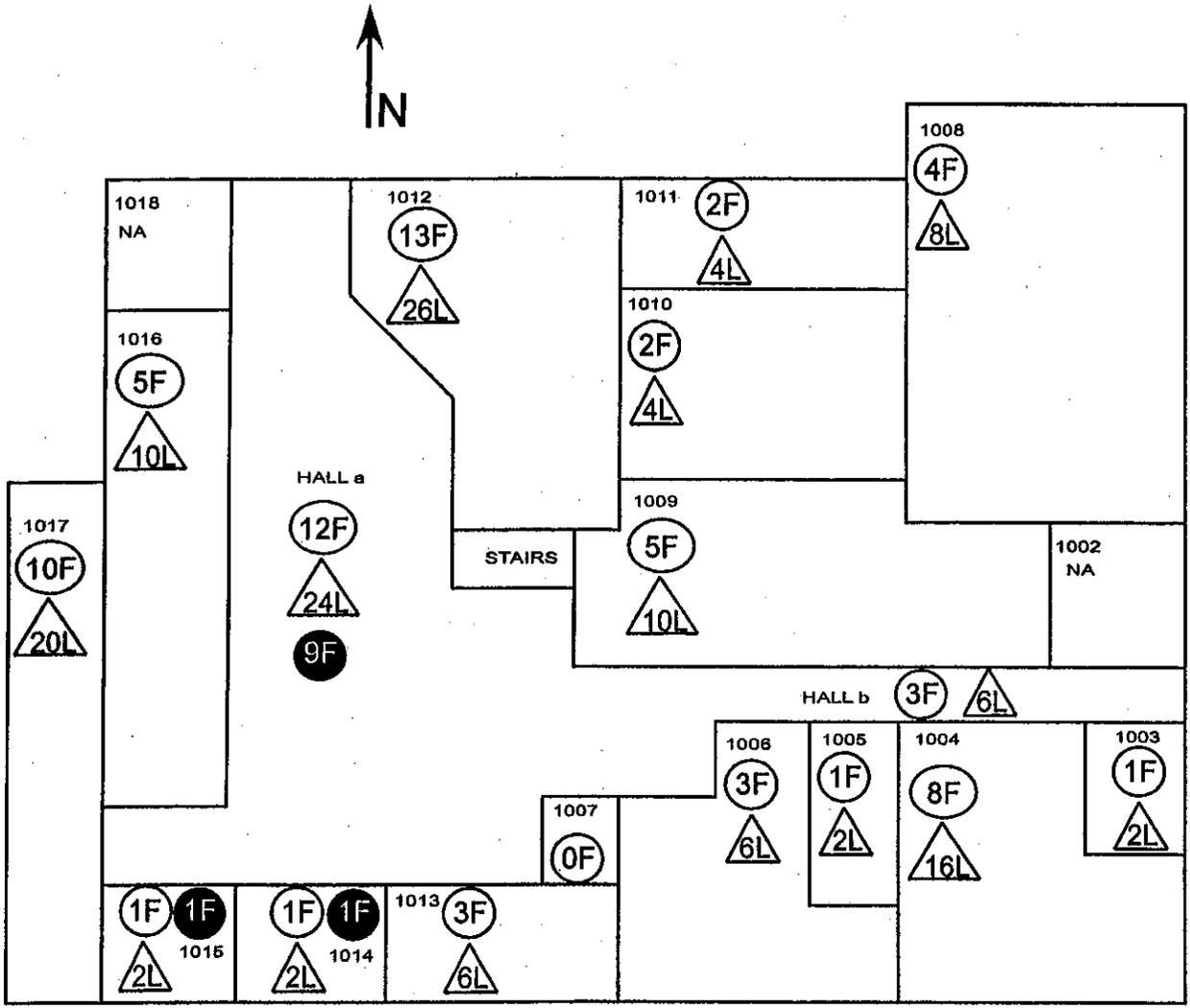
Legend			
(2F)	Light fixtures (2)	552-3-4	Building 552/3rd fl/section 4
(6L)	Mercury lamps	220	Room number
(2F)	Light fixtures investigated (2)	NA	No access
1	PCB-containing ballast	↑	North Seeking Arrow
		N	

( )

( )

( )

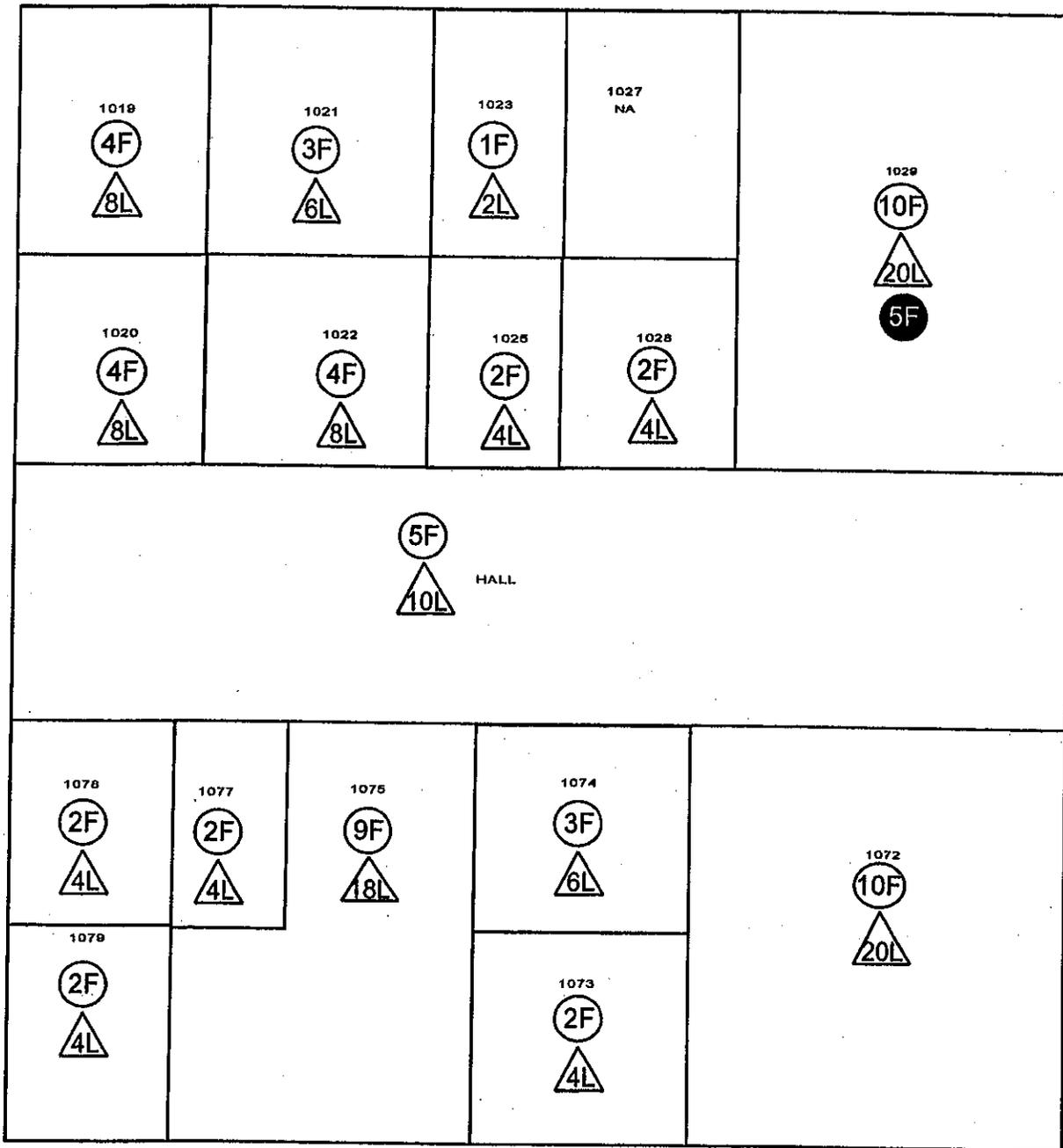
# SCHOFIELD BARRACKS BUILDING 3004 1-1



<b>Legend</b>	
(2F)	Light fixtures (2)
△6L	Mercury lamps
●2F	Light fixtures investigated (2)
■1	PCB-containing ballast
3004 1-1 Building 3004/1st fl/section 1	
220	Room number
NA	No access
↑ N	North Seeking Arrow



# SCHOFIELD BARRACKS BUILDING 3004 1-2

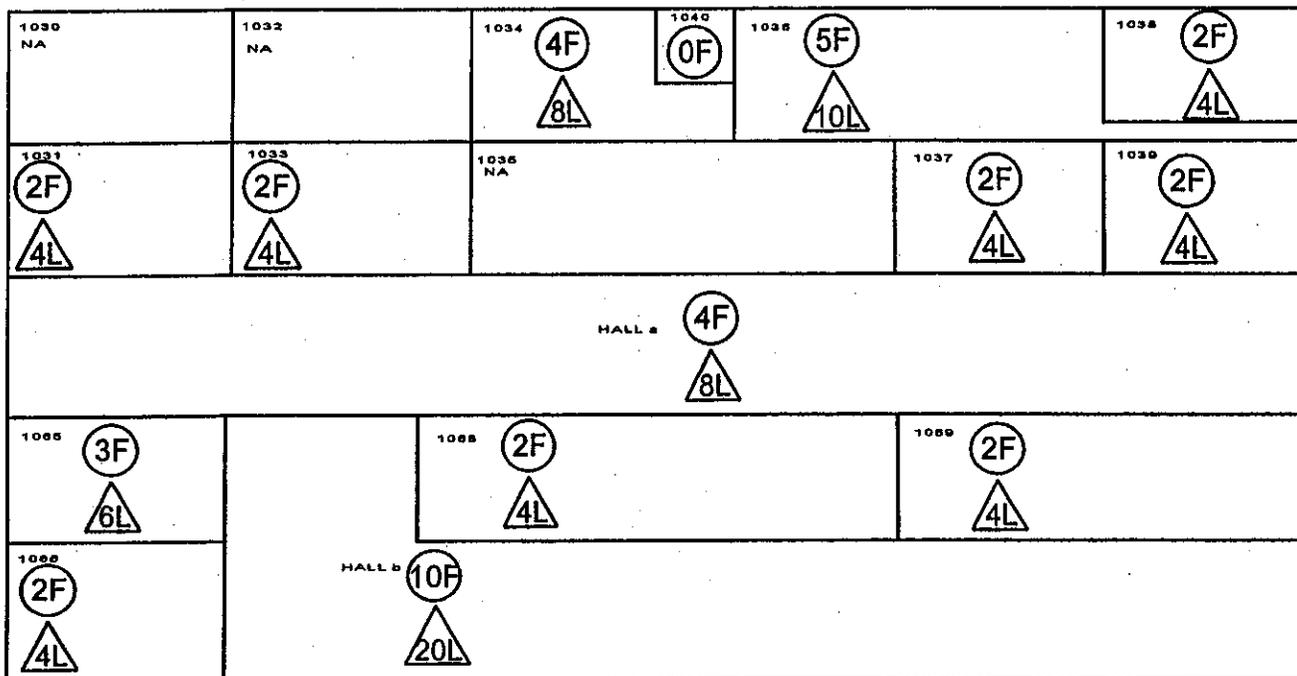


### Legend

<ul style="list-style-type: none"> <li> Light fixtures (2)</li> <li> Mercury lamps</li> <li> Light fixtures investigated (2)</li> <li> PCB-containing ballast</li> </ul>	<ul style="list-style-type: none"> <li>3004 1-2 Building 3004/1st fl/section 2</li> <li>220 Room number</li> <li>NA No access</li> <li> North Seeking Arrow</li> </ul>
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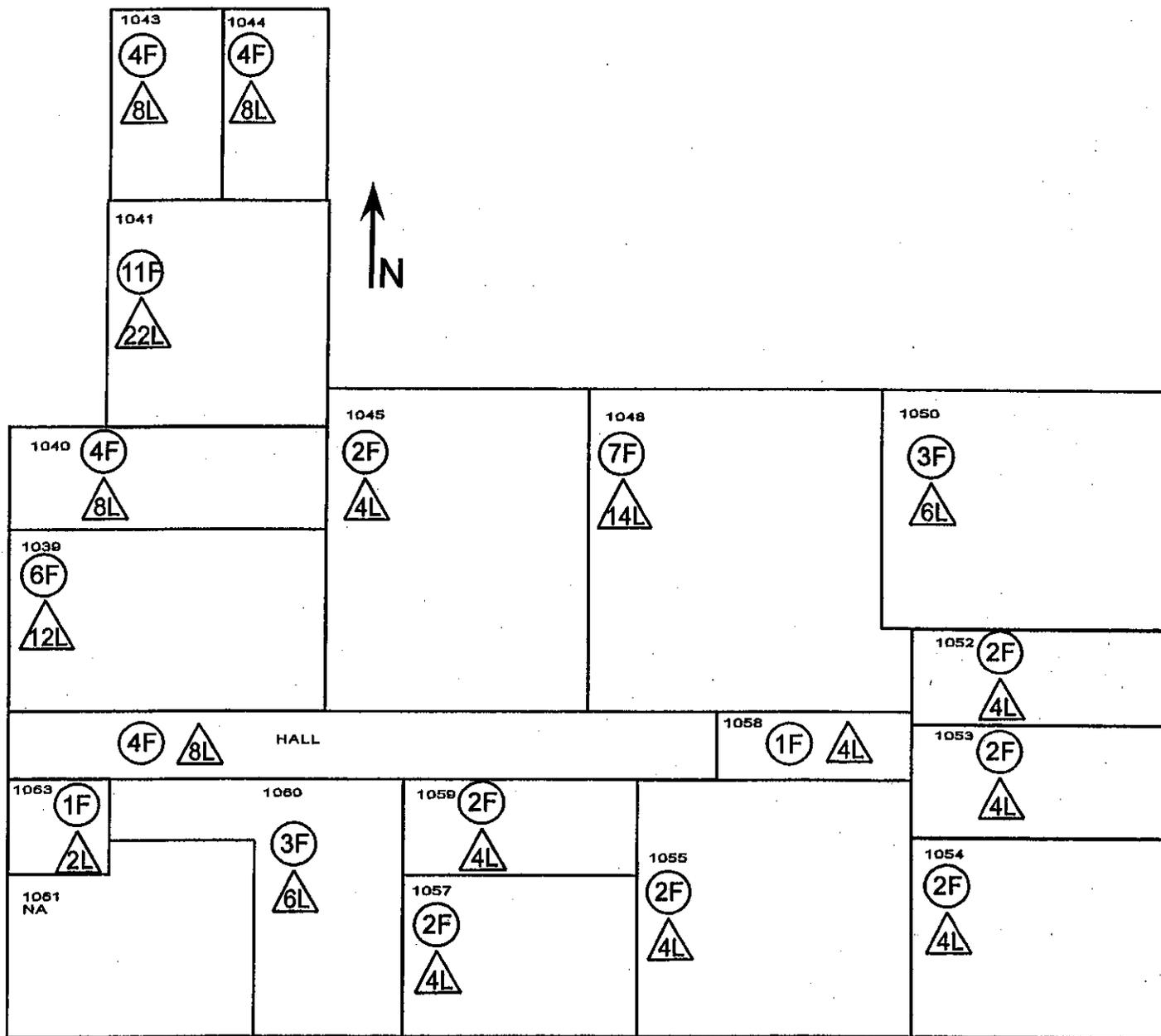
# SCHOFIELD BARRACKS BUILDING 3004 1-3



### Legend

<ul style="list-style-type: none"> <li> Light fixtures (2)</li> <li> Mercury lamps</li> <li> Light fixtures investigated (2)</li> <li> PCB-containing ballast</li> </ul>	<ul style="list-style-type: none"> <li>3004 1-3 Building 3004/1st fl/section 3</li> <li>220 Room number</li> <li>NA No access</li> <li> North Seeking Arrow</li> </ul>	
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# SCHOFIELD BARRACKS BUILDING 3004 1-4



## Legend

-  Light fixtures (2)
-  Mercury lamps
-  Light fixtures investigated (2)
-  PCB-containing ballast

3004 1-4 Building 3004/1st fl/section 4

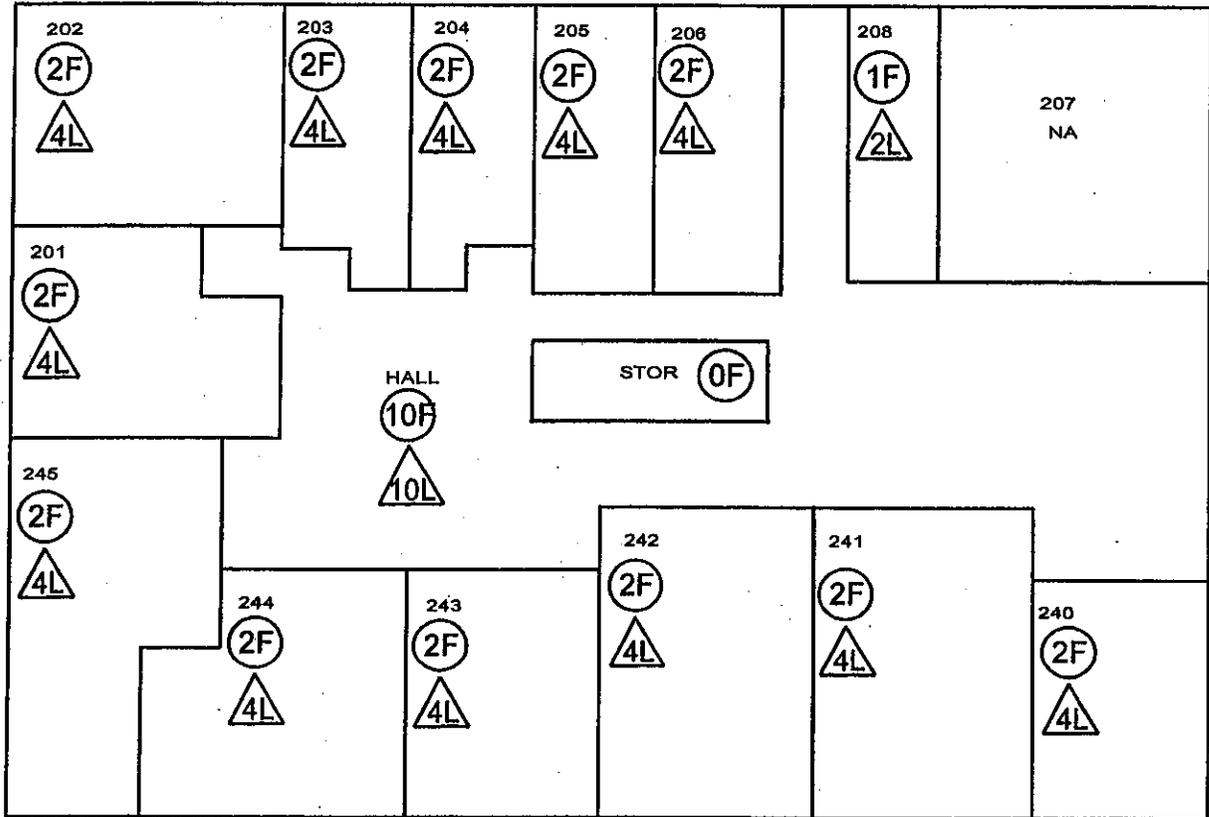
220 Room number

NA No access

 North Seeking Arrow



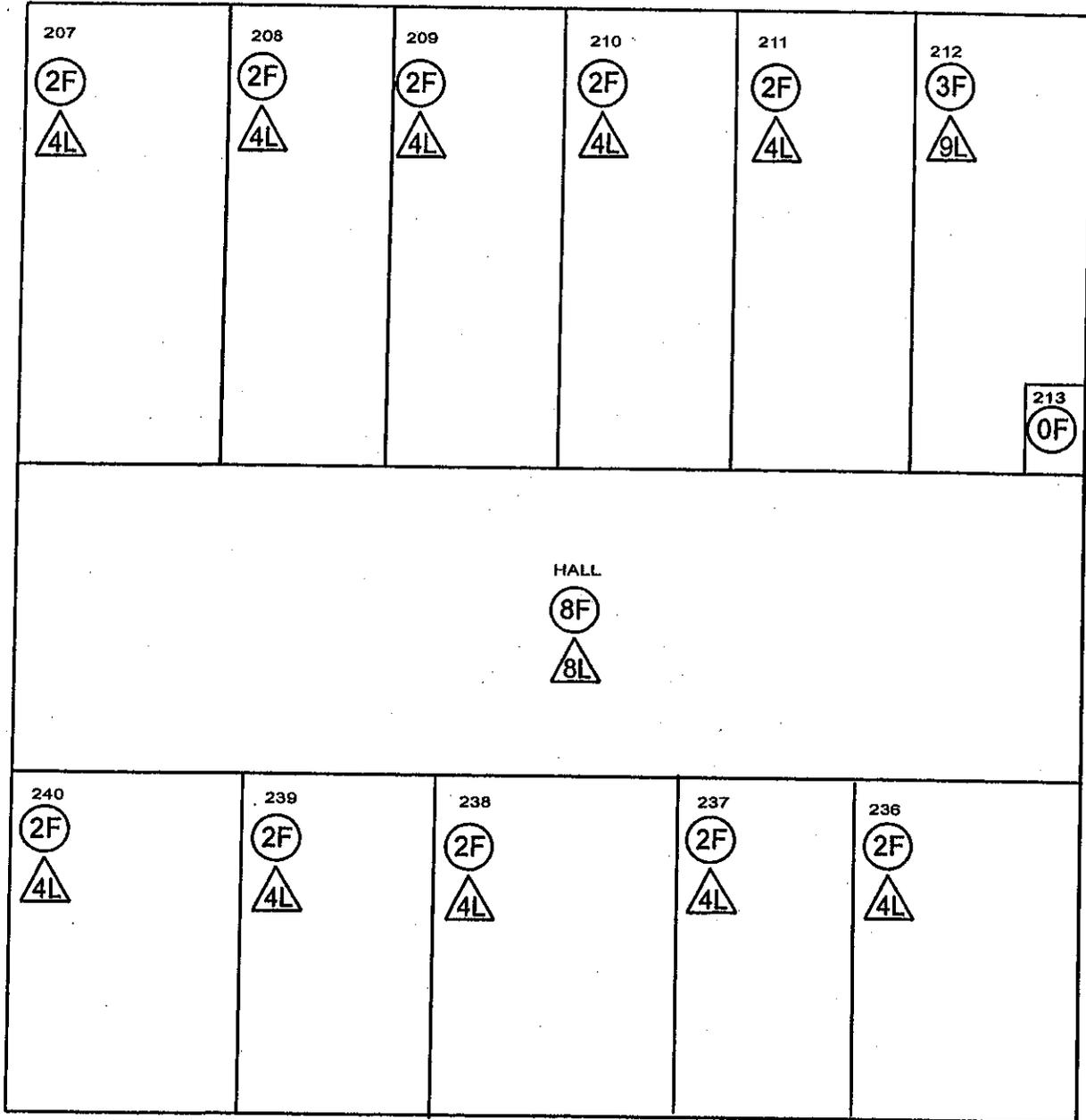
# SCHOFIELD BARRACKS BUILDING 3004 2-1



### Legend

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li> Light fixtures (2)</li> <li> Mercury lamps</li> <li> Light fixtures investigated (2)</li> <li> PCB-containing ballast</li> </ul> | <p style="text-align: center;">3004 2-1 Building 3004/2nd fl/section 1</p> <ul style="list-style-type: none"> <li>220 Room number</li> <li>NA No access</li> <li> North Seeking Arrow</li> </ul> |
|--|--|

# SCHOFIELD BARRACKS BUILDING 3004 2-2

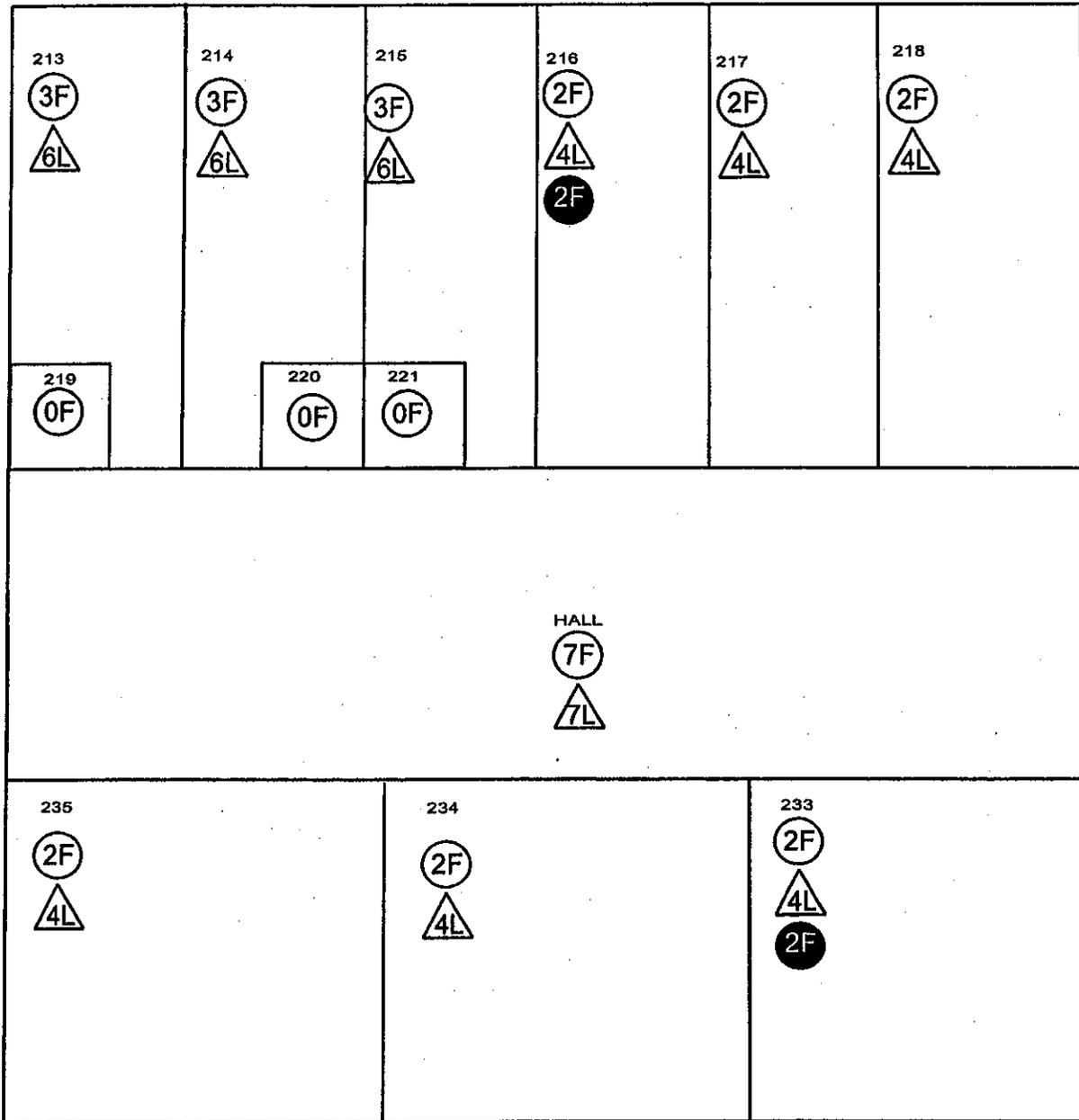


### Legend

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li> Light fixtures (2)</li> <li> Mercury lamps</li> <li> Light fixtures investigated (2)</li> <li> PCB-containing ballast</li> </ul> | <p style="text-align: center;"><b>3004 2-2 Building 3004/2nd fl/section 2</b></p> <ul style="list-style-type: none"> <li>220 Room number</li> <li>NA No access</li> <li> North Seeking Arrow</li> </ul> |
|--|--|



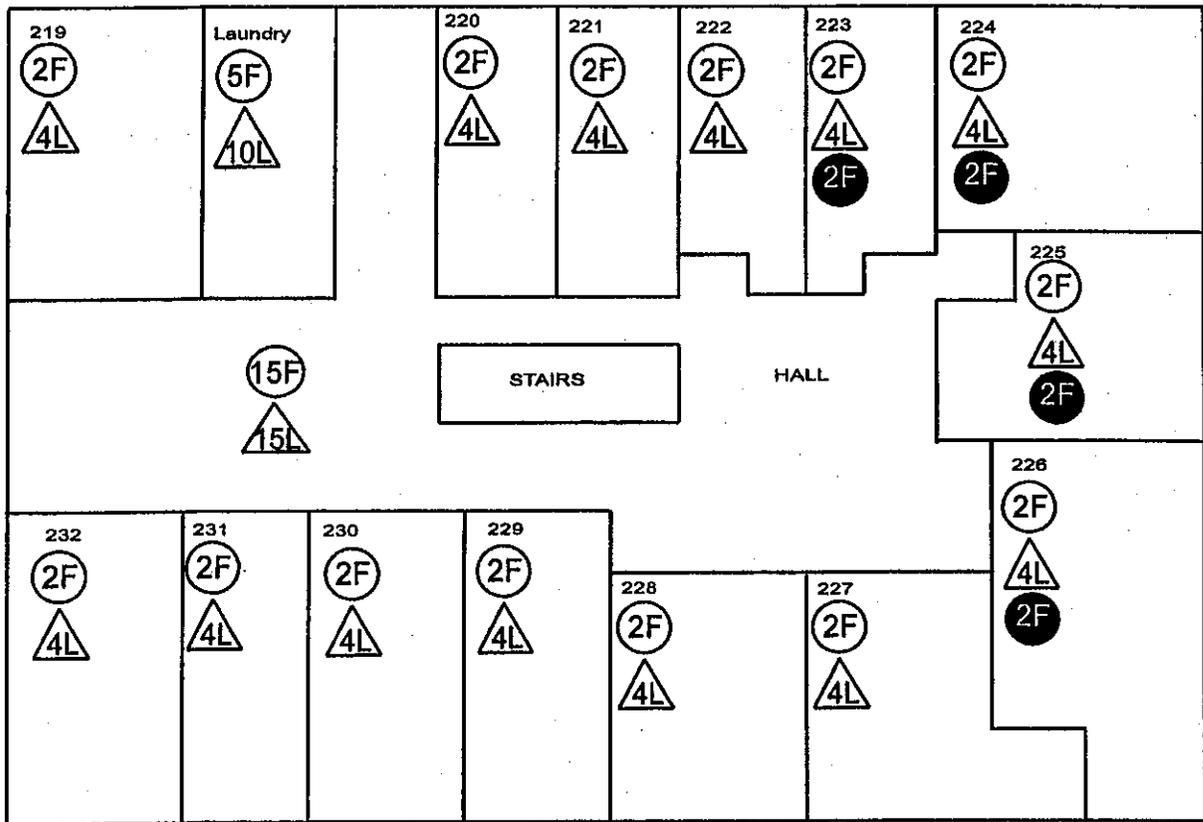
# SCHOFIELD BARRACKS BUILDING 3004 2-3



**Legend**

<ul style="list-style-type: none"> <li> Light fixtures (2)</li> <li> Mercury lamps</li> <li> Light fixtures investigated (2)</li> <li> PCB-containing ballast</li> </ul>	<ul style="list-style-type: none"> <li>3004 2-3 Building 3004/2ndfl/section 3</li> <li>220 Room number</li> <li>NA No access</li> <li> North Seeking Arrow</li> </ul>
--	---

# SCHOFIELD BARRACKS BUILDING 3004 2-4



### Legend

Light fixtures (2)

Mercury lamps

Light fixtures investigated (2)

PCB-containing ballast

3004 2-4 Building 3004/2nd fl/section 4

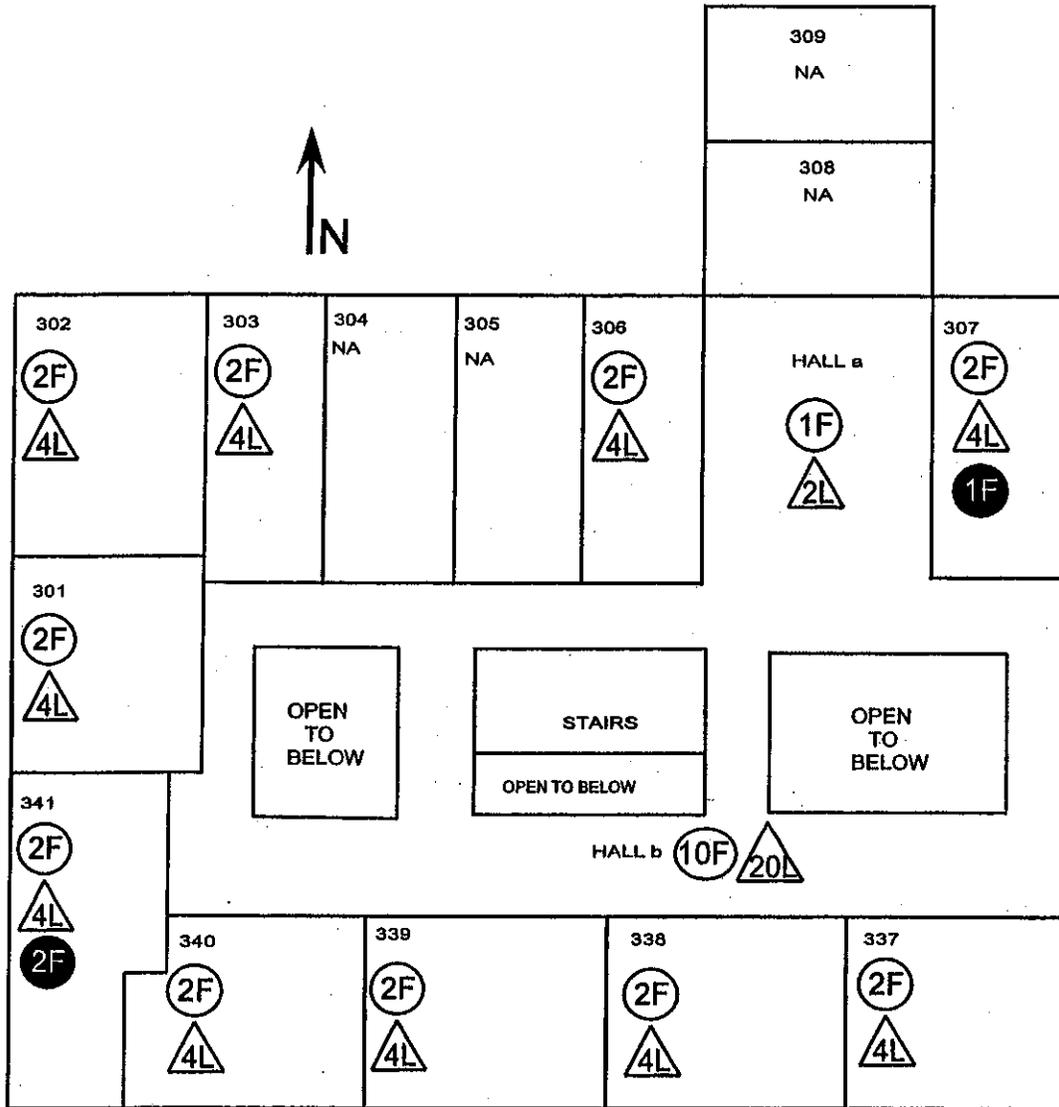
220 Room number

NA No access

North Seeking Arrow

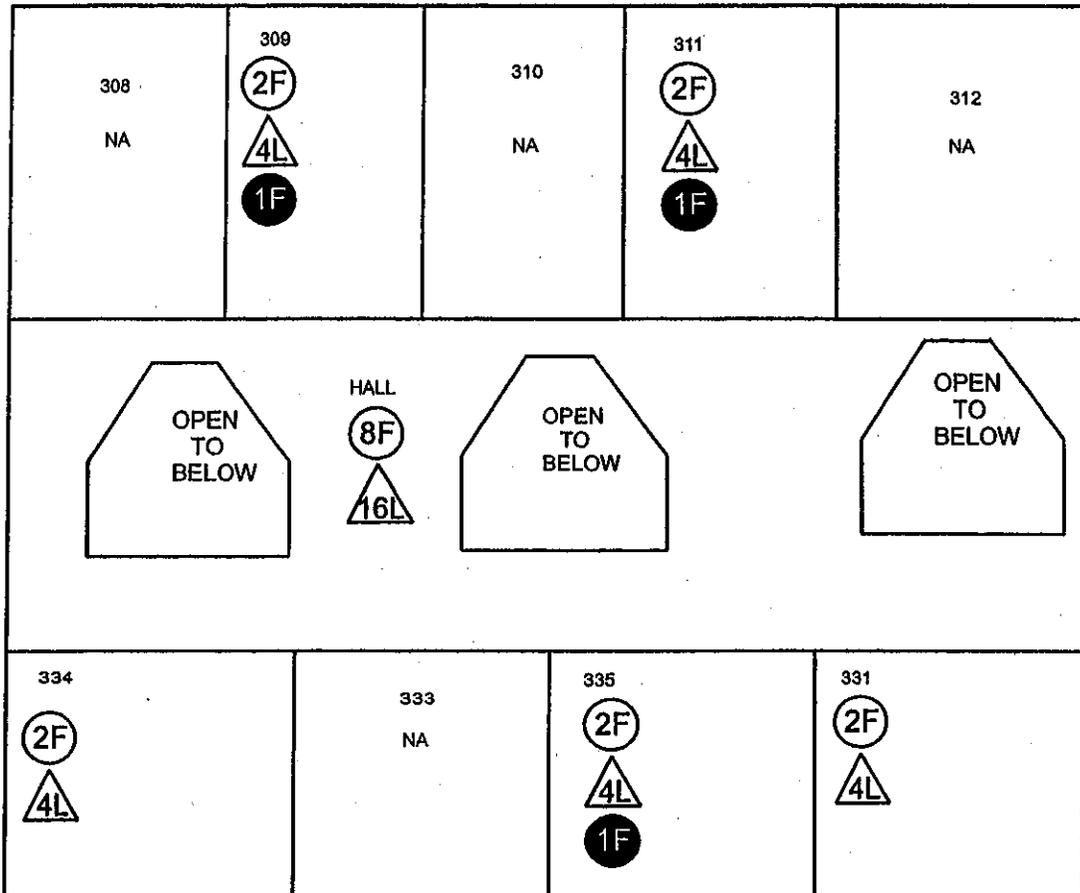


# SCHOFIELD BARRACKS SKETCH 3004 3-1



Legend	
<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p style="text-align: right;">3004 3-1 Building 3004/3rd fl/section 1</p> <p>220 Room number</p> <p>NA No access</p> <p style="text-align: center;">↑ N</p> <p style="text-align: right;">North Seeking Arrow </p>

# SCHOFIELD BARRACKS SKETCH 3004 3-2



### Legend

- (2F) Light fixtures (2)
- (6L) Mercury lamps
- (2F) Light fixtures investigated (2)
- 1 PCB-containing ballast

3004 3-2 Building 3004/3rd fl/section 2

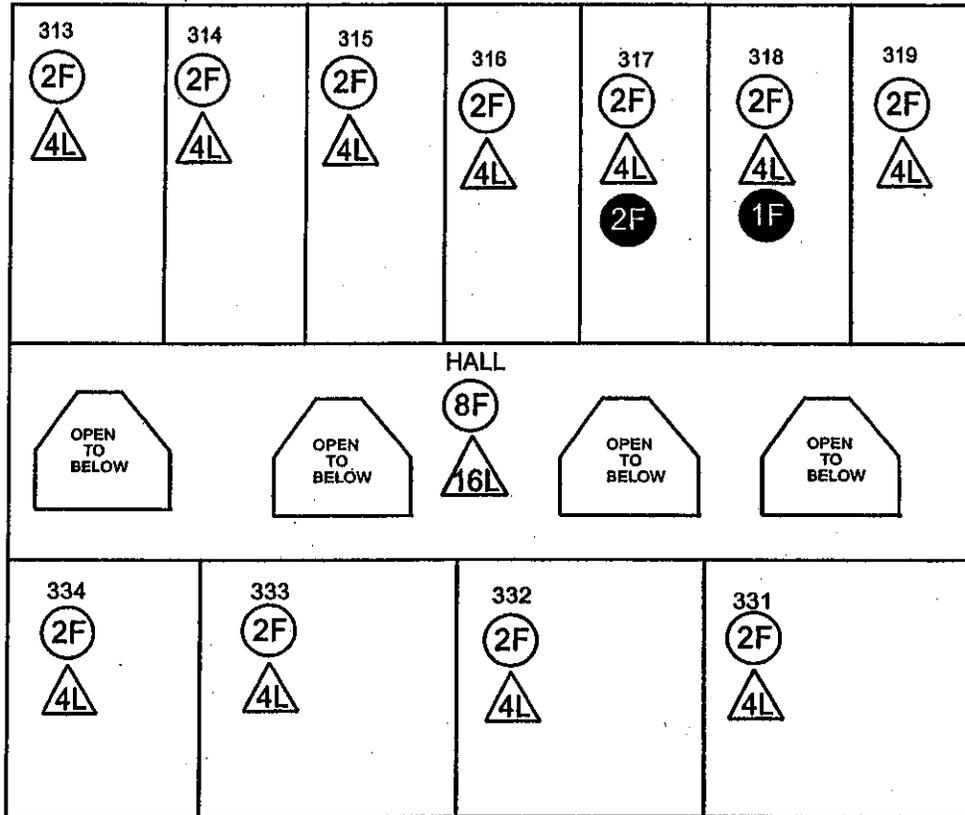
220 Room number

NA No access

↑  
N North Seeking Arrow



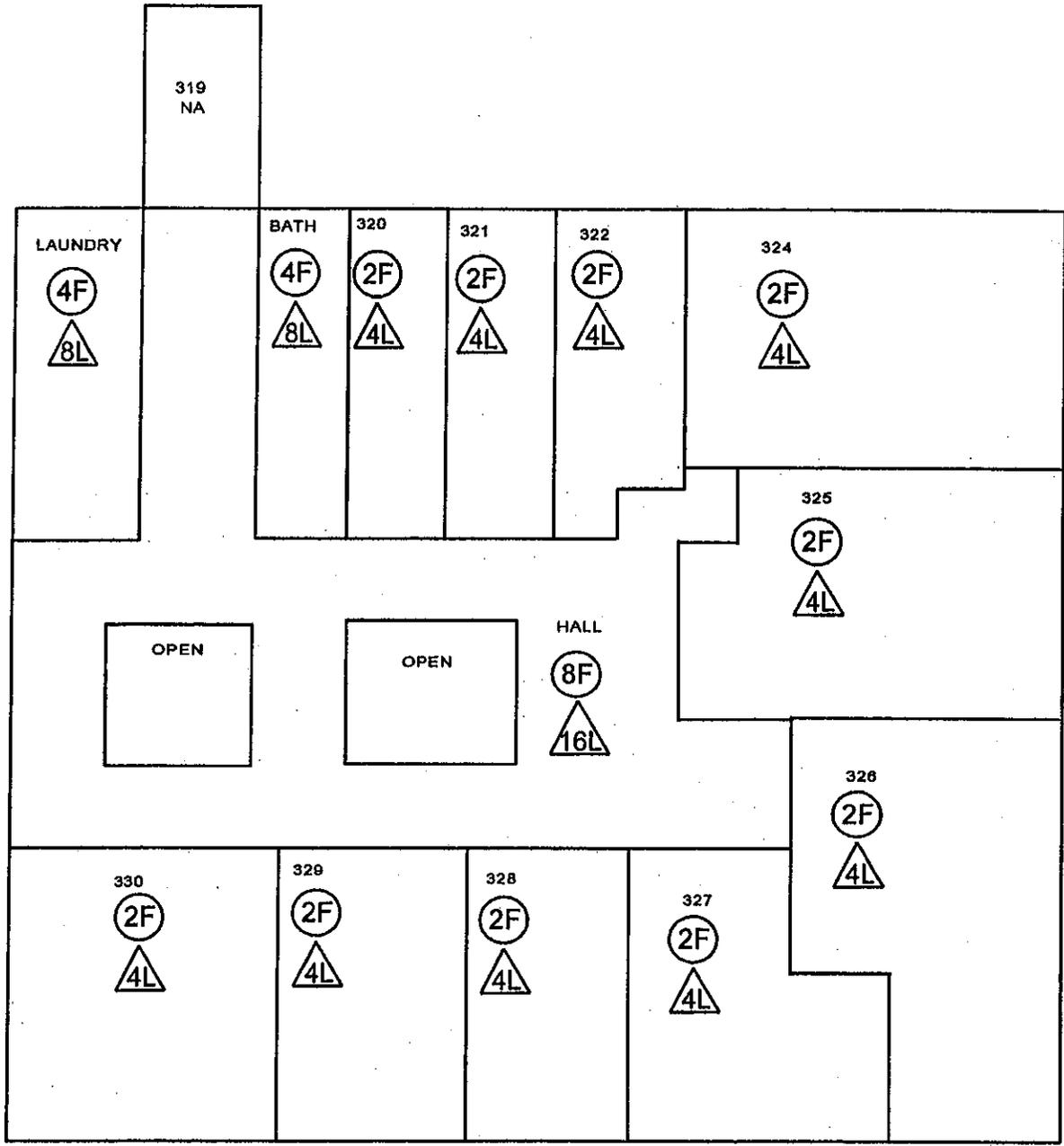
# SCHOFIELD BARRACKS SKETCH 3004 3-3



Legend	
<p> Light fixtures (2)</p> <p> Mercury lamps</p> <p> Light fixtures investigated (2)</p> <p> PCB-containing ballast</p>	<p style="text-align: center;">3004 3-3 Building 3004/3rd fl/section 3</p> <p>220      Room number</p> <p>NA      No access</p> <p> North Seeking Arrow</p>



# SCHOFIELD BARRACKS SKETCH 3004 3-4

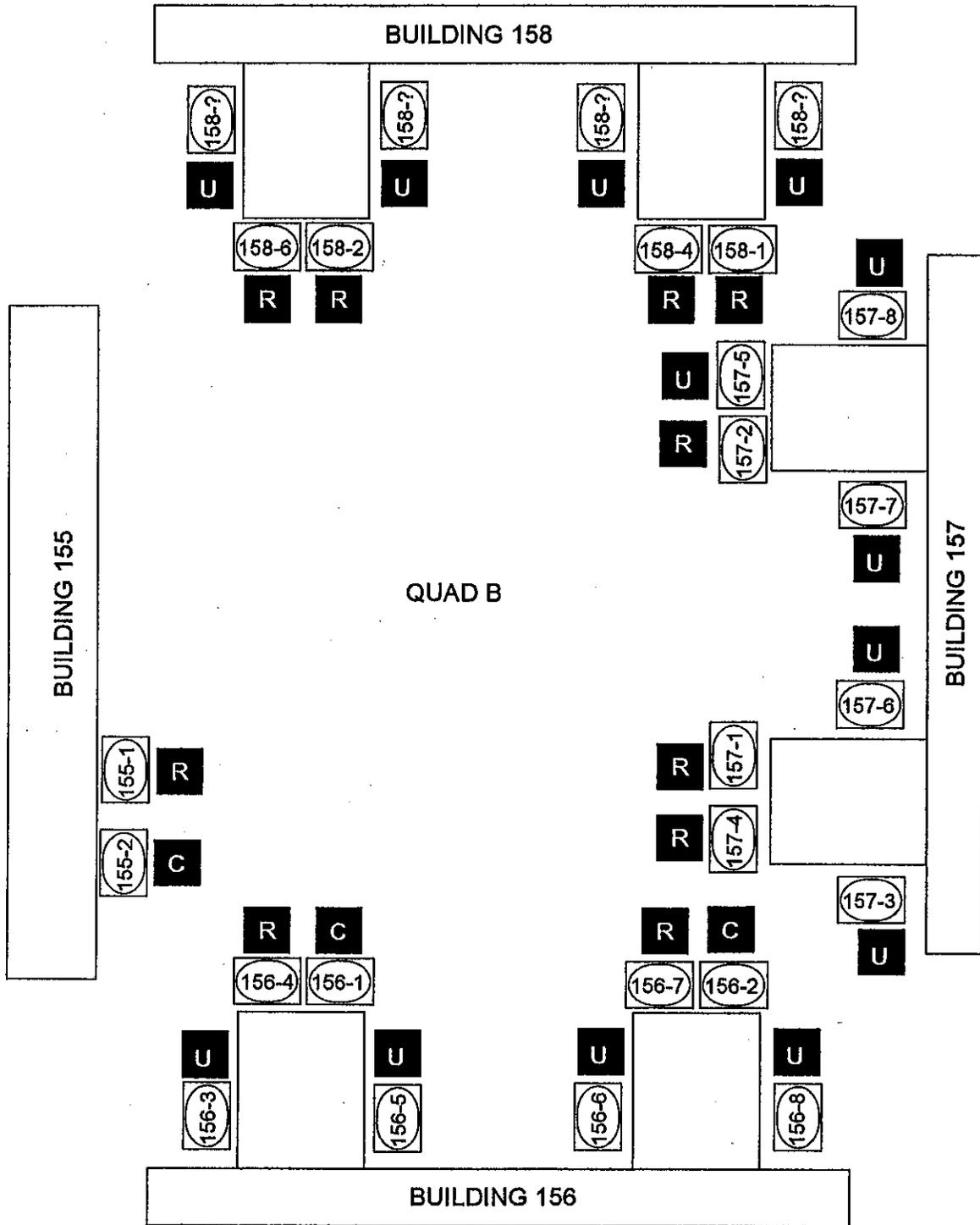


Legend	
(2F)	Light fixtures (2)
(6L)	Mercury lamps
(2F)	Light fixtures investigated (2)
1	PCB-containing ballast
3004 3-4	Building 3004/3rd fl/section 4
220	Room number
NA	No access
↑ IN	North Seeking Arrow

## **APPENDIX C**

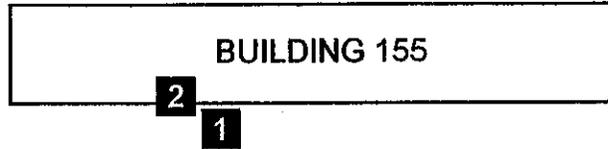
### **UST Sketches and Photographs**

# QUAD B, HEATING OIL TANK SURVEY



(156-6)	Heating oil tank, Building # and tank number where documented, ? where number is undocumented	U	Heating oil tank was undocumented, however tank is or was likely present at location
C	Heating oil tank was documented as closed in place	R	Heating oil tank was documented as removed

Quad B - Selected Photographs of Potential UST Locations

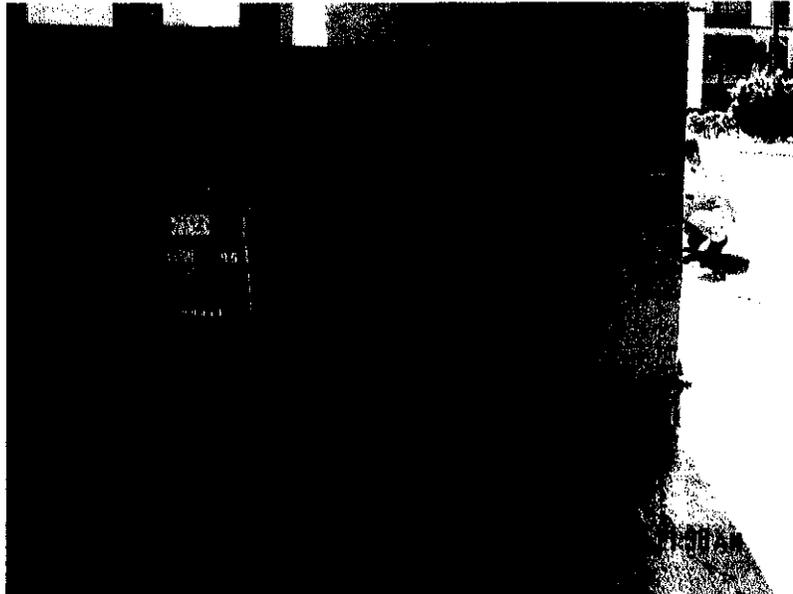


1



A view of Building 155 sidewalk bordering the boiler room. Plates may have been covers for heating oil tank fill ports.

2



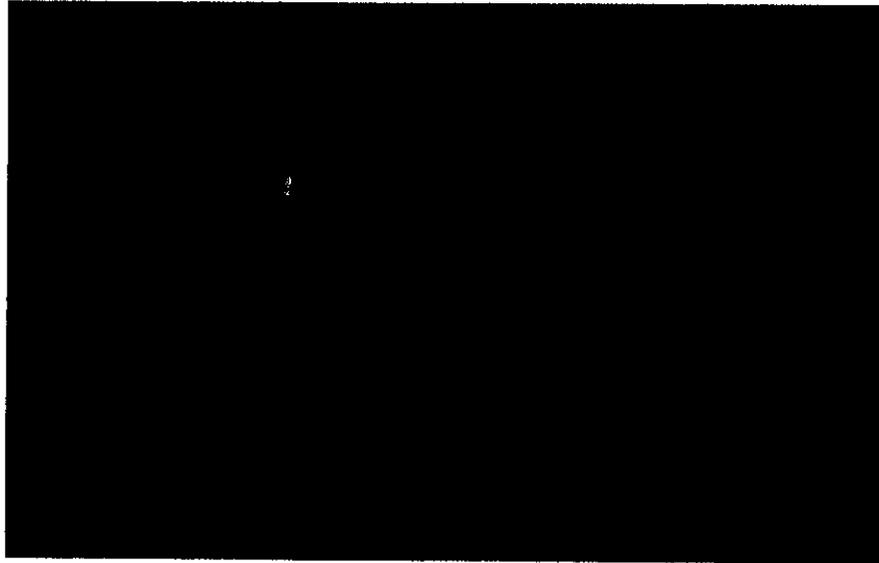
A view of propane piping at Building 155 boiler room. Heating oil boiler has been replaced by propane.

Quad B - Selected Photographs of Potential UST Locations

BUILDING 157

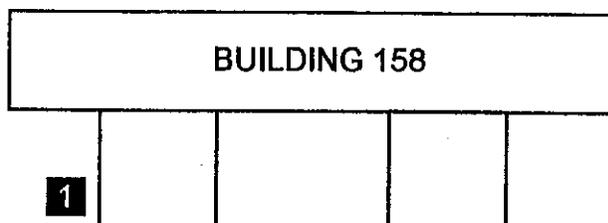
1

1

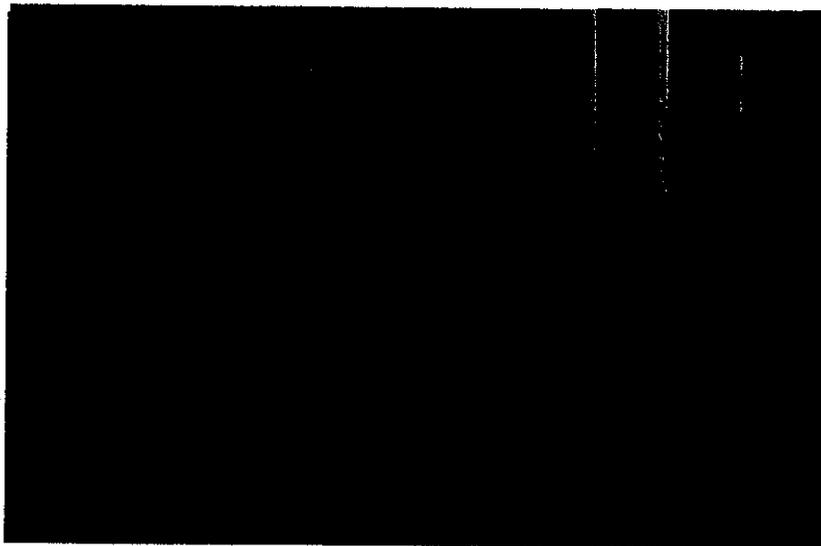


A view of exterior piping at Building 157 mechanical room facing Quad B courtyard. The highlighted feature may have been created for heating oil tank piping.

Quad B - Selected Photographs of Potential UST Locations

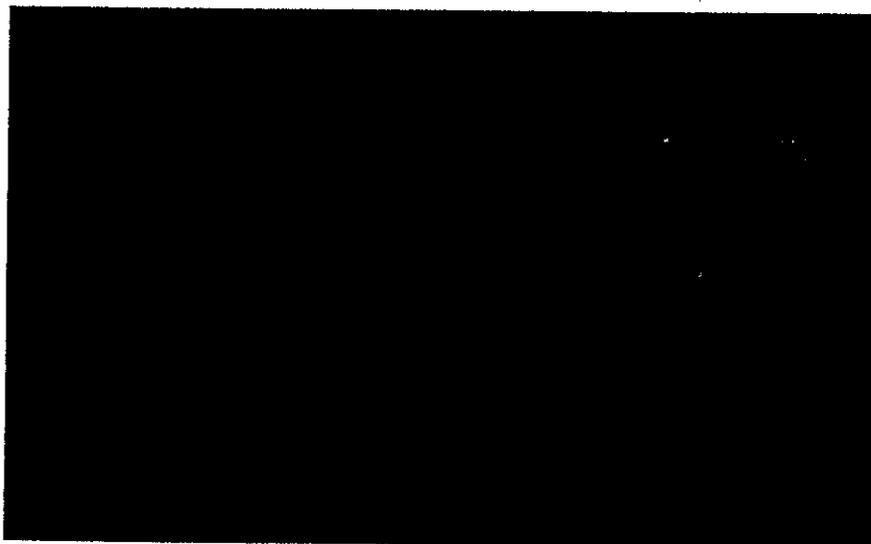


1



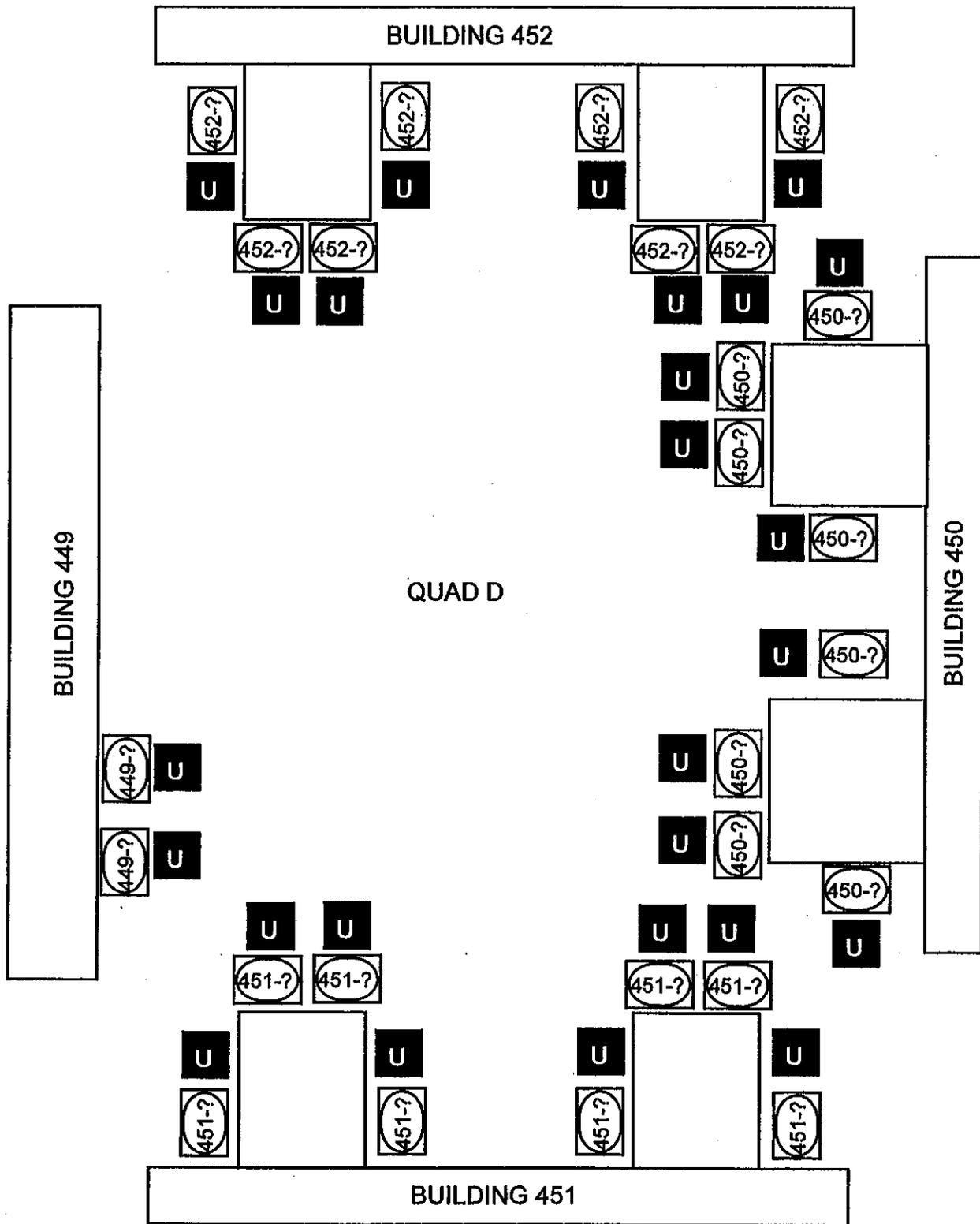
A view of the exterior wall of former mechanical room at Building 158. The highlighted area shows a possible entry point of the former heating oil piping.

2



A view of exterior wall and piping at Building 158 mechanical room facing Quad B courtyard. Sidewalk is cut and patched. Water line partially obscures the former heating oil piping (highlighted).

# QUAD D, HEATING OIL TANK SURVEY



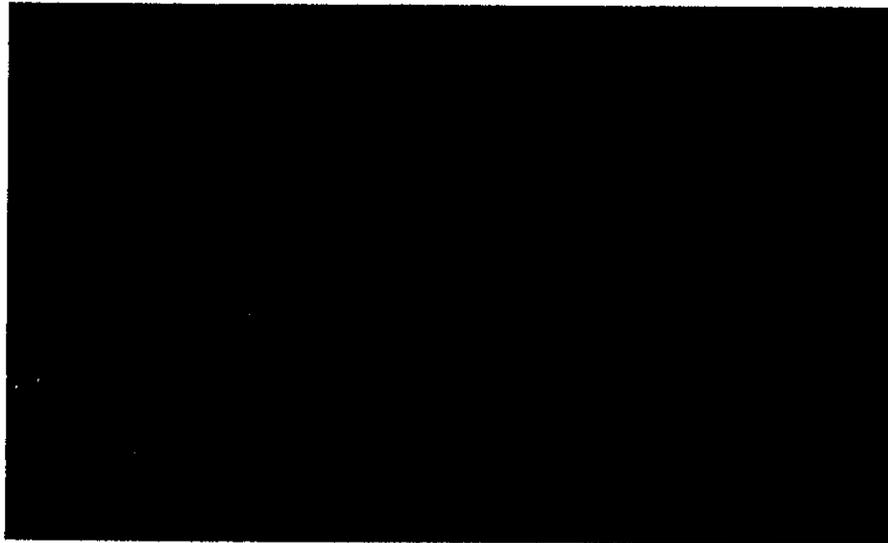
	Heating oil tank, Building # and tank # where documented, ? where number is undocumented		Heating oil tank was undocumented, however tank is or was likely present at location
	Heating oil tank was documented as closed in place		Heating oil tank was documented as removed

Quad D - Selected Photographs of Potential UST Locations

BUILDING 449

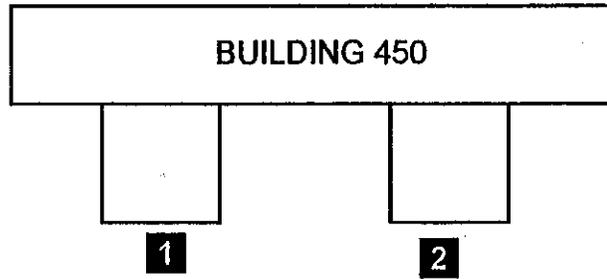
1

1



A view of sidewalk at Building 449. The metal covers may be the location of a former heating oil tank fill ports.

Quad D - Selected Photographs of Potential UST Locations



1



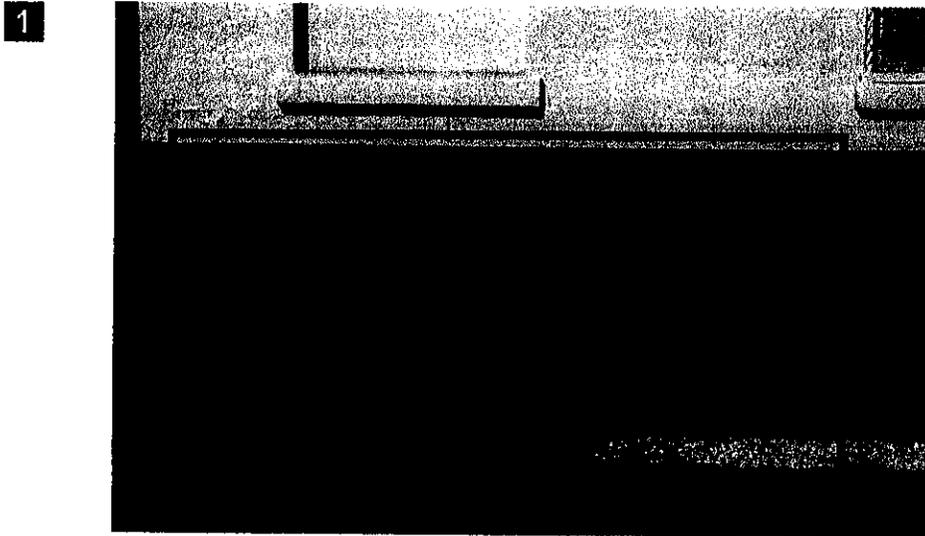
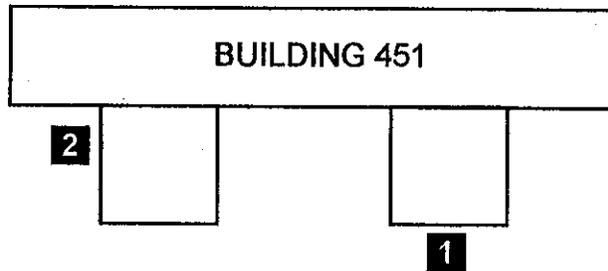
A view of the exterior piping at Building 450 mechanical room facing Quad D courtyard. The highlighted area appears to be an old connection to a former heating oil tank.

2

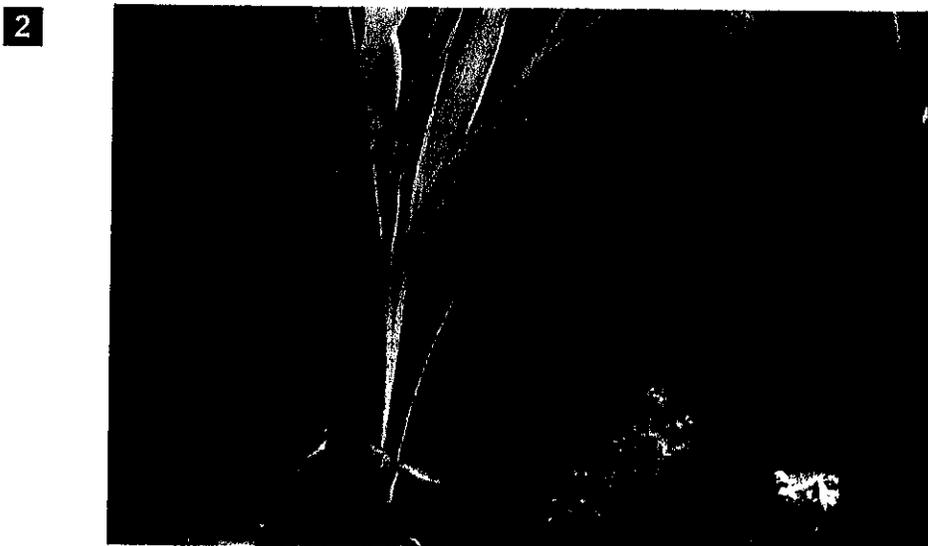


A view of exterior piping at Building 450 mechanical room facing Quad D courtyard. Sidewalk has been replaced. There may have been an excavation at this location.

Quad D - Selected Photographs of Potential UST Locations

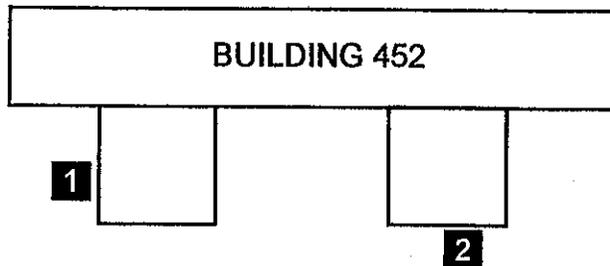


A view of the side wall at Building 451 mechanical room facing the Quad D courtyard. The wall has been resurfaced.

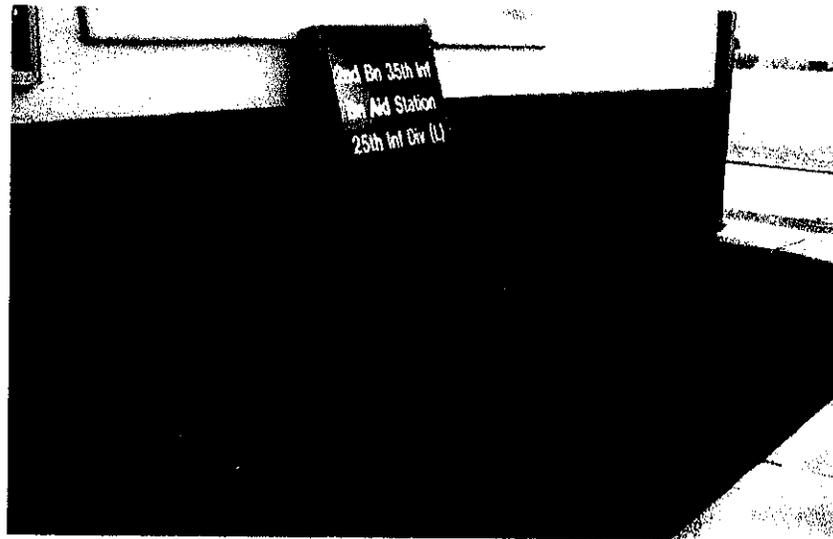


A view of an exterior wall at Building 451 mechanical room. The cut end of pipe may be a possible entry point for a former heating oil tank.

Quad D - Selected Photographs of Potential UST Locations

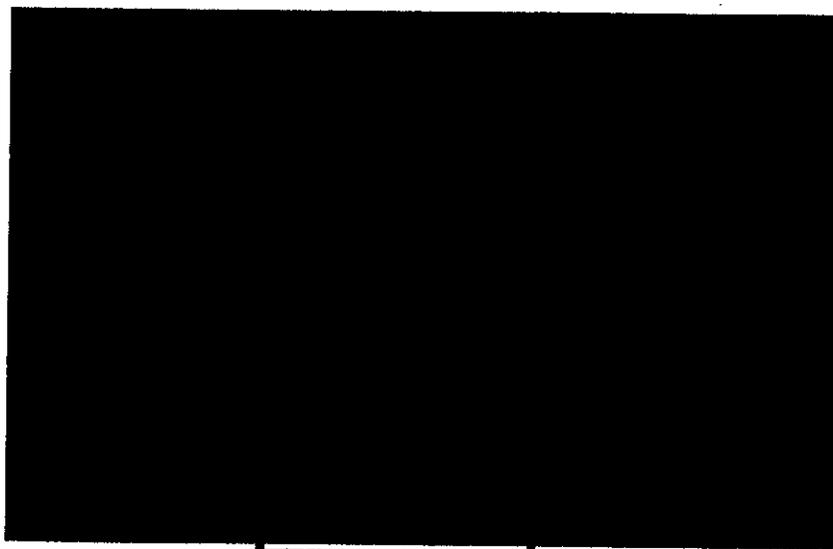


1



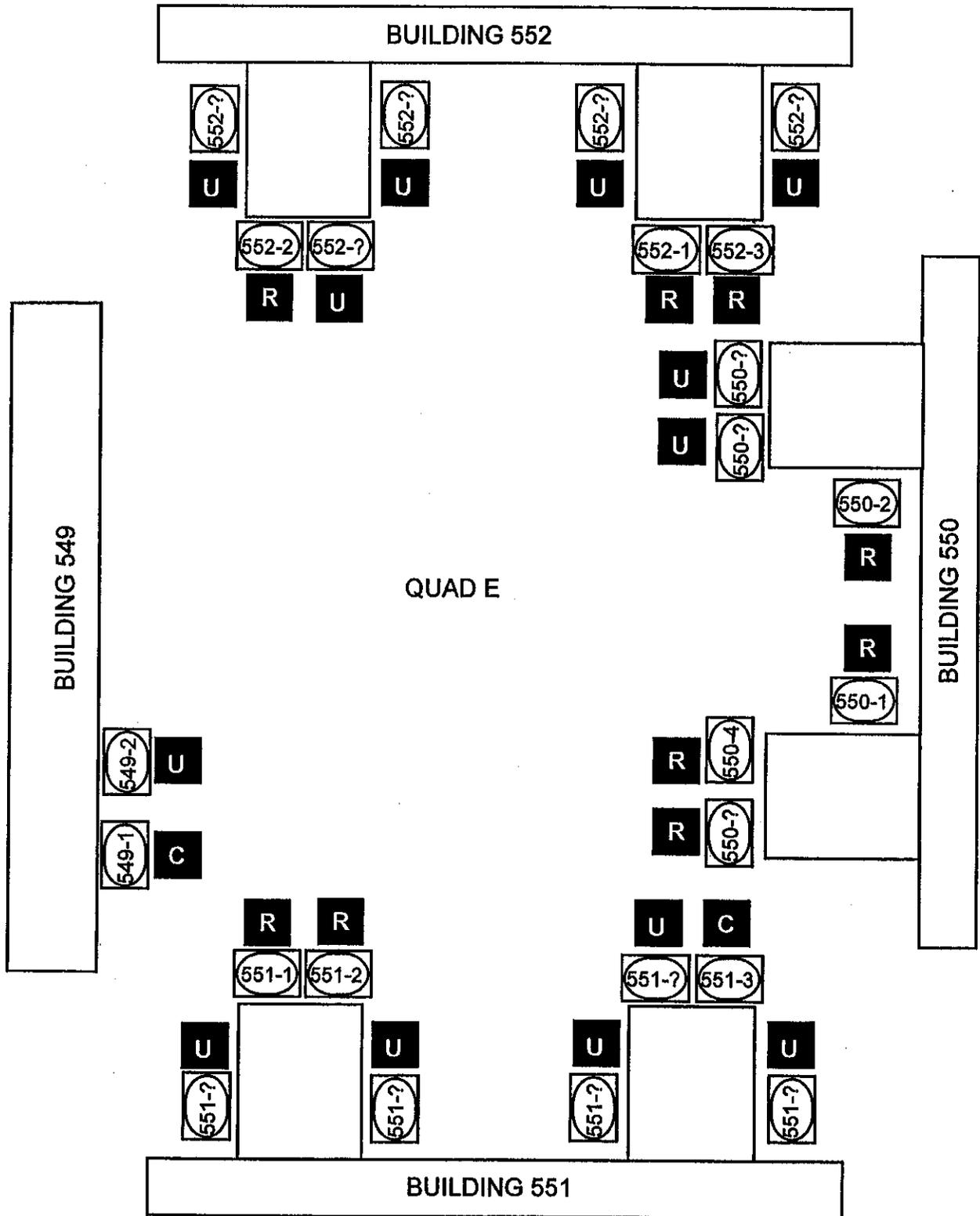
A view of exposed soil at Building 452. The highlighted pipe may be a possible fill port for a former heating oil tank.

2



A view of a side wall of Building 452 mechanical room. The capped end of pipe was a possible fill port for heating oil tank.

# QUAD E, HEATING OIL TANK SURVEY



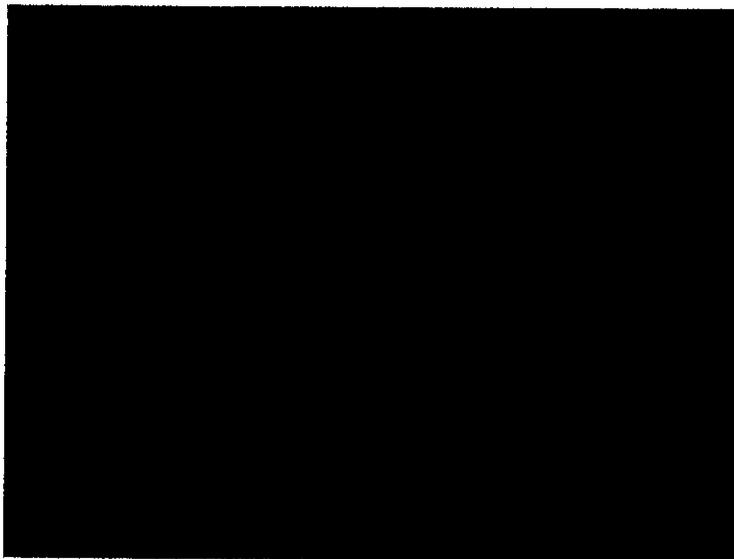
	Heating oil tank, Building # and tank # where documented, ? where number is undocumented		Heating oil tank was undocumented, however tank is or was likely present at location
	Heating oil tank was documented as closed in place		Heating oil tank was documented as removed

Quad E - Selected Photographs of Potential UST Locations

BUILDING 549

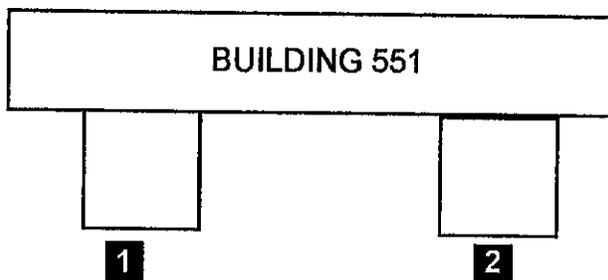
1

1

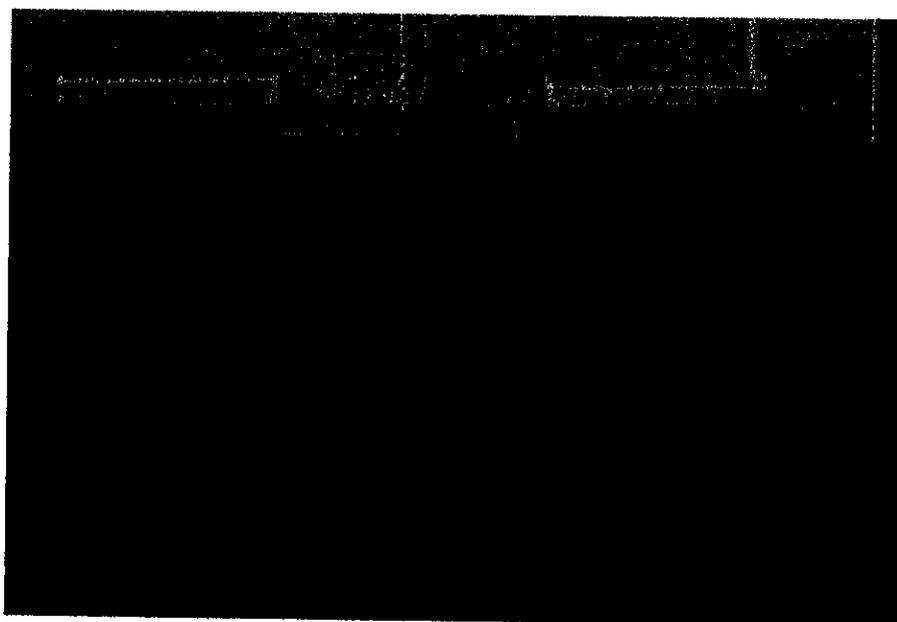


A view of exterior wall at Building 549 mechanical room. The capped end of pipe may have been connected to the former heating oil tank.

Quad E - Selected Photographs of Potential UST Locations

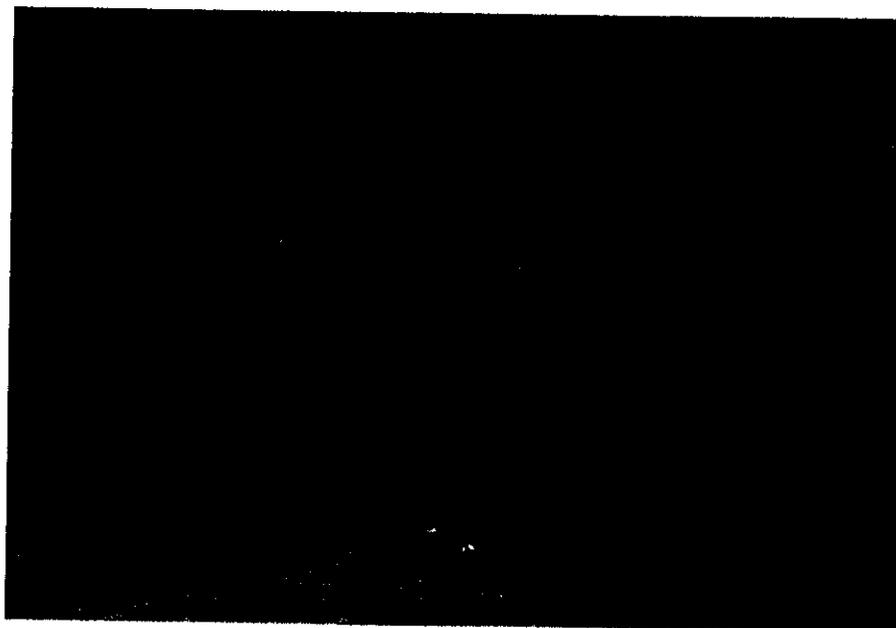


1



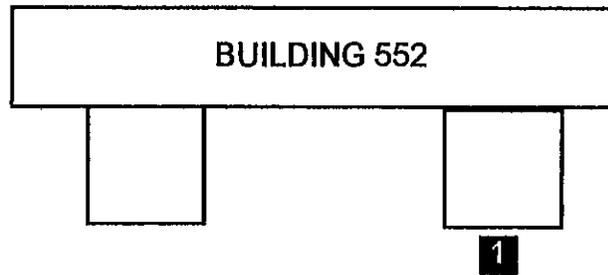
A view of side wall at Building 551 mechanical room facing Quad E courtyard. The highlighted area on the wall is extensively patched, and the sidewalk has been replaced.

2

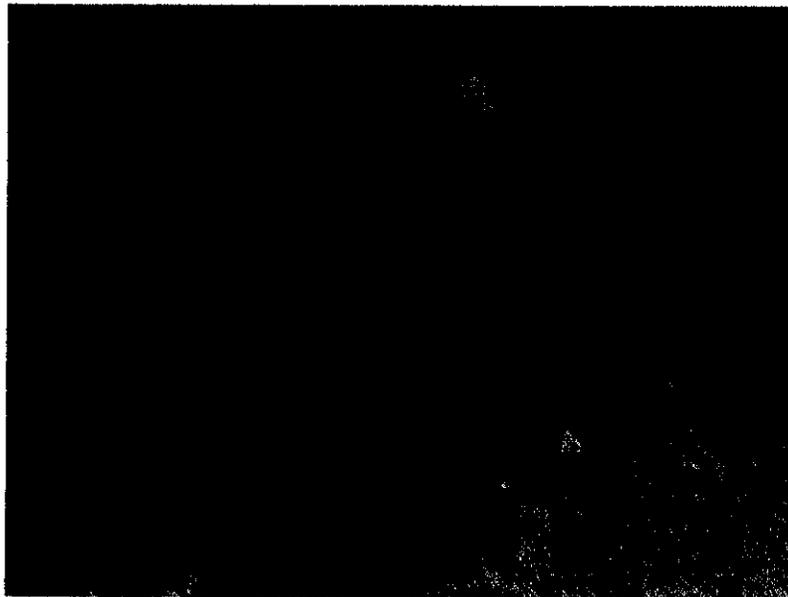


A view of exterior piping at Building 551 mechanical room. The piping next to the water line may have been a heating oil piping.

Quad E - Selected Photographs of Potential UST Locations

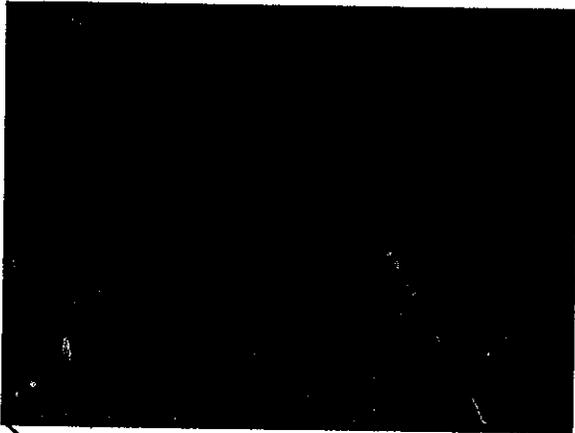


1



A view of the side wall at Building 552 mechanical room facing Quad E courtyard. The capped pipe next to the water line may have been a connection to the former heating oil tank.

# BUILDING 3004, HEATING OIL TANK SURVEY



Fill port is in place and visible under access hatch.

Room has been renovated, and has been used as office storage for several years. Presence of drains and piping indicate a boiler could have been present in the past.

Boiler, in use

3004-1

3004-?

Building 3004

ATTACHMENT 14

SECTION 13280A  
ASBESTOS ABATEMENT

## SECTION TABLE OF CONTENTS

## DIVISION 13 - SPECIAL CONSTRUCTION

## SECTION 13280A

## ASBESTOS ABATEMENT

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  - 1.3.2 Unexpected Discovery of Asbestos
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-- End of Section Table of Contents --

## SECTION 13280A

## ASBESTOS ABATEMENT

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- |            |   |
|------------|---|
| ANSI Z87.1 | (1989; Errata; Z87.1a) Occupational and Educational Eye and Face Protection             |
| ANSI Z88.2 | (1992) Respiratory Protection   |
| ANSI Z9.2  | (1979; R 1991) Fundamentals Governing the Design and Operation of Local Exhaust Systems |

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- |             |  |
|-------------|--|
| ASTM C 732  | (1995) Aging Effects of Artificial Weathering on Latex Sealants                            |
| ASTM D 1331 | (1989; R 1995) Surface and Interfacial Tension of Solutions of Surface-Active Agents       |
| ASTM D 4397 | (1996) Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications   |
| ASTM E 119  | (2000) Fire Tests of Building Construction and Materials                                   |
| ASTM E 1368 | (2000) Visual Inspection of Asbestos Abatement Projects                                    |
| ASTM E 736  | (1992) Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members |
| ASTM E 84   | (2000a) Surface Burning Characteristics of Building Materials                              |
| ASTM E 96   | (2000) Water Vapor Transmission of   |

## Materials

## COMPRESSED GAS ASSOCIATION (CGA)

CGA G-7 (1990) Compressed Air for Human Respiration  
 CGA G-7.1 (1997) Commodity Specification for Air

## HAWAII ADMINISTRATIVE RULES, TITLE II (HAR)

HAR Chapter 501 Asbestos Requirements  
 HAR Chapter 502 Asbestos Containing Materials in Schools  
 HAR Chapter 503 Fees for Asbestos Removal & Certification  
 HAR Chapter 504 Asbestos Abatement Certification Program

## NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH 84-100 (1984; Supple 1985, 1987, 1988 & 1990)  
 NIOSH Manual of Analytical Methods

## U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (1996) U.S. Army Corps of Engineers Safety  
 and Health Requirements Manual

## U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 340/1-90/018 (1990) Asbestos/NESHAP Regulated Asbestos  
 Containing Materials Guidance  
 EPA 340/1-90/019 (1990) Asbestos/NESHAP Adequately Wet  
 Guidance  
 EPA 560/5-85-024 (1985) Guidance for Controlling  
 Asbestos-Containing Materials in Buildings

## U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910 Occupational Safety and Health Standards  
 29 CFR 1926 Safety and Health Regulations for  
 Construction  
 40 CFR 61 National Emission Standards for Hazardous  
 Air Pollutants  
 40 CFR 763 Asbestos  
 42 CFR 84 Approval of Respiratory Protective Devices  
 49 CFR 107 Hazardous Materials Program Procedures

49 CFR 171	General Information, Regulations, and Definitions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 173	Shippers - General Requirements for Shipments and Packagings

UNDERWRITERS LABORATORIES (UL)

UL 586	(1996; Rev thru Aug 1999) High-Efficiency, Particulate, Air Filter Units
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1.2 DEFINITIONS

- a. Adequately Wet: A term defined in 40 CFR 61, Subpart M, and EPA 340/1-90/019 meaning to sufficiently mix or penetrate with liquid to prevent the release of particulate. If visible emissions are observed coming from asbestos-containing material (ACM), then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wetted.
- b. Aggressive Method: Removal or disturbance of building material by sanding, abrading, grinding, or other method that breaks, crumbles, or disintegrates intact asbestos-containing material (ACM).
- c. Amended Water: Water containing a wetting agent or surfactant with a surface tension of at least 29 dynes per square centimeter when tested in accordance with ASTM D 1331.
- d. Asbestos: Asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.
- e. Asbestos-Containing Material (ACM): Any materials containing more than one percent asbestos.
- f. Asbestos Fiber: A particulate form of asbestos, 5 micrometers or longer, with a length-to-width ratio of at least 3 to 1.
- g. Authorized Person: Any person authorized by the Contractor and required by work duties to be present in the regulated areas.
- h. Building Inspector: Individual who inspects buildings for asbestos and has EPA Model Accreditation Plan (MAP) "Building Inspector" training; accreditation required by 40 CFR 763, Subpart E, Appendix C.

- i. Certified Industrial Hygienist (CIH): An Industrial Hygienist certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.
- j. Class I Asbestos Work: Activities defined by OSHA involving the removal of thermal system insulation (TSI) and surfacing ACM.
- k. Class II Asbestos Work: Activities defined by OSHA involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos - containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastic. Certain "incidental" roofing materials such as mastic, flashing and cements when they are still intact are excluded from Class II asbestos work. Removal of small amounts of these materials which would fit into a glovebag may be classified as a Class III job.
- l. Class III Asbestos Work: Activities defined by OSHA that involve repair and maintenance operations, where ACM, including TSI and surfacing ACM, is likely to be disturbed. Operations may include drilling, abrading, cutting a hole, cable pulling, crawling through tunnels or attics and spaces above the ceiling, where asbestos is actively disturbed or asbestos-containing debris is actively disturbed.
- m. Class IV Asbestos Work: Maintenance and custodial construction activities during which employees contact but do not disturb ACM and activities to clean-up dust, waste and debris resulting from Class I, II, and III activities. This may include dusting surfaces where ACM waste and debris and accompanying dust exists and cleaning up loose ACM debris from TSI or surfacing ACM following construction.
- n. Clean room: An uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.
- o. Competent Person: In addition to the definition in 29 CFR 1926, Section .32(f), a person who is capable of identifying existing asbestos hazards as defined in 29 CFR 1926, Section .1101, selecting the appropriate control strategy, has the authority to take prompt corrective measures to eliminate them and has EPA Model Accreditation Plan (MAP) "Contractor/Supervisor" training; accreditation required by 40 CFR 763, Subpart E, Appendix C.
- p. Contractor/Supervisor: Individual who supervises asbestos abatement work and has EPA Model Accreditation Plan "Contractor/Supervisor" training; accreditation required by 40 CFR 763, Subpart E, Appendix C.
- q. Critical Barrier: One or more layers of plastic sealed over all openings into a regulated area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a

regulated area from migrating to an adjacent area.

- r. Decontamination Area: An enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.
- s. Demolition: The wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.
- t. Disposal Bag: A 6 mil thick, leak-tight plastic bag, pre-labeled in accordance with 29 CFR 1926, Section .1101, used for transporting asbestos waste from containment to disposal site.
- u. Disturbance: Activities that disrupt the matrix of ACM, crumble or pulverize ACM, or generate visible debris from ACM. Disturbance includes cutting away small amounts of ACM, no greater than the amount which can be contained in 1 standard sized glovebag or waste bag, not larger than 60 inches in length and width in order to access a building component.
- v. Equipment Room or Area: An area adjacent to the regulated area used for the decontamination of employees and their equipment.
- w. Employee Exposure: That exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.
- x. Fiber: A fibrous particulate, 5 micrometers or longer, with a length to width ratio of at least 3 to 1.
- y. Friable ACM: A term defined in 40 CFR 61, Subpart M and EPA 340/1-90/018 meaning any material which contains more than 1 percent asbestos, as determined using the method specified in 40 CFR 763, Subpart E, Appendix A, Section 1, Polarized Light Microscopy (PLM), that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent, as determined by a method other than point counting by PLM, the asbestos content is verified by point counting using PLM.
- z. Glovebag: Not more than a 60 by 60 inch impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through which material and tools may be handled.
- aa. High-Efficiency Particulate Air (HEPA) Filter: A filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.
- bb. Homogeneous Area: An area of surfacing material or thermal system insulation that is uniform in color and texture.

- cc. Industrial Hygienist: A professional qualified by education, training, and experience to anticipate, recognize, evaluate, and develop controls for occupational health hazards.
- dd. Intact: ACM which has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix. Removal of "intact" asphaltic, resinous, cementitious products does not render the ACM non-intact simply by being separated into smaller pieces.
- ee. Model Accreditation Plan (MAP): USEPA training accreditation requirements for persons who work with asbestos as specified in 40 CFR 763, Subpart E, Appendix C.
- ff. Modification: A changed or altered procedure, material or component of a control system, which replaces a procedure, material or component of a required system.
- gg. Negative Exposure Assessment: A demonstration by the Contractor to show that employee exposure during an operation is expected to be consistently below the OSHA Permissible Exposure Limits (PELs).
- hh. NESHAP: National Emission Standards for Hazardous Air Pollutants. The USEPA NESHAP regulation for asbestos is at 40 CFR 61, Subpart M.
- ii. Nonfriable ACM: A NESHAP term defined in 40 CFR 61, Subpart M and EPA 340/1-90/018 meaning any material containing more than 1 percent asbestos, as determined using the method specified in 40 CFR 763, Subpart E, Appendix A, Section 1, Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.
- jj. Nonfriable ACM (Category I): A NESHAP term defined in 40 CFR 61, Subpart E and EPA 340/1-90/018 meaning asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in 40 CFR 763, Subpart F, Appendix A, Section 1, Polarized Light Microscopy.
- kk. Nonfriable ACM (Category II): A NESHAP term defined in 40 CFR 61, Subpart E and EPA 340/1-90/018 meaning any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos, as determined using the methods specified in 40 CFR 763, Subpart F, Appendix A, Section 1, Polarized Light Microscopy, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- ll. Permissible Exposure Limits (PELs):
  - (1) PEL-Time weighted average(TWA): Concentration of asbestos not in excess of 0.1 fibers per cubic centimeter of air (f/cc) as an 8 hour time weighted average (TWA), as determined by the method

prescribed in 29 CFR 1926, Section .1101, Appendix A, or the current version of NIOSH 84-100 analytical method 7400.

(2) PEL-Excursion Limit: An airborne concentration of asbestos not in excess of 1.0 f/cc of air as averaged over a sampling period of 30 minutes as determined by the method prescribed in 29 CFR 1926, Section .1101, Appendix A, or the current version of NIOSH 84-100 analytical method 7400.

- mm. Regulated Area: An OSHA term defined in 29 CFR 1926, Section .1101 meaning an area established by the Contractor to demarcate areas where Class I, II, and III asbestos work is conducted; also any adjoining area where debris and waste from such asbestos work accumulate; and an area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limit.
- nn. Removal: All operations where ACM is taken out or stripped from structures or substrates, and includes demolition operations.
- oo. Repair: Overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM attached to structures or substrates. If the amount of asbestos so "disturbed" cannot be contained in 1 standard glovebag or waste bag, Class I precautions are required.
- pp. Spills/Emergency Cleanups: Cleanup of sizable amounts of asbestos waste and debris which has occurred, for example, when water damage occurs in a building, and sizable amounts of ACM are dislodged. A Competent Person evaluates the site and ACM to be handled, and based on the type, condition and extent of the dislodged material, classifies the cleanup as Class I, II, or III. Only if the material was intact and the cleanup involves mere contact of ACM, rather than disturbance, could there be a Class IV classification.
- qq. Surfacing ACM: Asbestos-containing material which contains more than 1% asbestos and is sprayed-on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.
- rr. Thermal system insulation (TSI) ACM: ACM which contains more than 1% asbestos and is applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain or water condensation.
- ss. Transite: A generic name for asbestos cement wallboard and pipe.
- tt. Worker: Individual (not designated as the Competent Person or a supervisor) who performs asbestos work and has completed asbestos worker training required by 29 CFR 1926, Section .1101, to include EPA Model Accreditation Plan (MAP) "Worker" training;

accreditation required by 40 CFR 763, Subpart E, Appendix C, if required by the OSHA Class of work to be performed or by the state where the work is to be performed.

### 1.3 DESCRIPTION OF WORK

The work covered by this section includes the removal of asbestos-containing materials (ACM) which are encountered during renovation activities associated with this project and describes procedures and equipment required to protect workers and occupants of the regulated area from contact with airborne asbestos fibers and ACM dust and debris. Activities include OSHA Class I, Class II work operations involving ACM. The work also includes containment, storage, transportation and disposal of the generated ACM wastes. More specific operational procedures shall be detailed in the required Accident Prevention Plan and its subcomponents, the Asbestos Hazard Abatement Plan and Activity Hazard Analyses required in paragraph SAFETY AND HEALTH PROGRAM AND PLANS.

#### 1.3.1 Abatement Work Tasks

The specific ACM to be abated is identified on the detailed plans and project drawings. A summary of work task data elements for each individual ACM abatement work task to include the appropriate RESPONSE ACTION DETAIL SHEET (item to be abated and methods to be used) and SET-UP DETAIL SHEETS (containment techniques to include safety precautions and methods) is included in Table 1, "Individual Work Task Data Elements" at the end of this section.

#### 1.3.2 Unexpected Discovery of Asbestos

For any previously untested building components suspected to contain asbestos and located in areas impacted by the work, the Contractor shall notify the Contracting Officer (CO) who will have the option of ordering up to 20 bulk samples to be obtained at the Contractor's expense and delivered to a laboratory accredited under the National Institute of Standards and Technology (NIST) "National Voluntary Laboratory Accreditation Program (NVLAP)" and analyzed by PLM at no additional cost to the Government. Any additional components identified as ACM that have been approved by the Contracting Officer for removal shall be removed by the Contractor and will be paid for by an equitable adjustment to the contract price under the CONTRACT CLAUSE titled "changes". Sampling activities undertaken to determine the presence of additional ACM shall be conducted by personnel who have successfully completed the EPA Model Accreditation Plan (MAP) "Building Inspector" training course required by 40 CFR 763, Subpart E, Appendix C.

### 1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-03 Product Data

Respiratory Protection Program; G, CEPOH-EC-E

Records of the respirator program.

Cleanup and Disposal; G, CEPOH-EC-E

Waste shipment records. Weigh bills and delivery tickets shall be furnished for information only.

Detailed Drawings; G, CEPOH-EC-E

Descriptions, detail project drawings, and site layout to include worksite containment area techniques as prescribed on applicable SET-UP DETAIL SHEETS, local exhaust ventilation system locations, decontamination units and load-out units, other temporary waste storage facility, access tunnels, location of temporary utilities (electrical, water, sewer) and boundaries of each regulated area.

Materials and Equipment

Manufacturer's catalog data for all materials and equipment to be used in the work, including brand name, model, capacity, performance characteristics and any other pertinent information. Test results and certificates from the manufacturer of encapsulants substantiating compliance with performance requirements of this specification. Material Safety Data Sheets for all chemicals to be used onsite in the same format as implemented in the Contractor's HAZARD COMMUNICATION PROGRAM. Data shall include, but shall not be limited to, the following items:

- a. High Efficiency Filtered Air (HEPA) local exhaust equipment
- b. Vacuum cleaning equipment
- c. Pressure differential monitor for HEPA local exhaust equipment
- d. Air monitoring equipment
- e. Respirators
- f. Personal protective clothing and equipment
  - (1) Coveralls
  - (2) Other work clothing
  - (3) Foot coverings
  - (4) Hard hats
  - (5) Eye protection
  - (6) Other items required and approved by Contractors Designated IH and Competent Person

- g. Glovebag
- h. Duct Tape
- i. Disposal Containers
  - (1) Disposal bags
- j. Sheet Plastic
  - (1) Polyethylene Sheet - General
- k. Wetting Agent
  - (1) Amended Water
  - (2) Removal encapsulant
- l. Strippable Coating
- m. Prefabricated Decontamination Unit
- n. Other items
  - o Material Safety Data Sheets (for all chemicals proposed)

Qualifications; G, CEPOH-EC-E

A written report providing evidence of qualifications for personnel, facilities and equipment assigned to the work.

Training Program

A copy of the written project site-specific training material as indicated in 29 CFR 1926, Section .1101 that will be used to train onsite employees. The training document shall be signed by the Contractor's Designated IH and Competent Person.

Medical Requirements; G

Physician's written opinion.

Encapsulants; G, CEPOH-EC-E

Certificates stating that encapsulants meet the applicable specified performance requirements.

SD-06 Test Reports

Exposure Assessment and Air Monitoring; G, CEPOH-EC-E

Initial exposure assessments, negative exposure assessments, air-monitoring results and documentation.

## Local Exhaust Ventilation

Pressure differential recordings.

Licenses, Permits and Notifications; CEPOH-EC-E

Licenses, permits, and notifications.

## SD-07 Certificates

Vacuum, Filtration and Ventilation Equipment

Manufacturer's certifications showing compliance with ANSI Z9.2 for:

- a. Vacuums.
- b. Water filtration equipment.
- c. Ventilation equipment.
- d. Other equipment required to contain airborne asbestos fibers.

## 1.5 QUALIFICATIONS

## 1.5.1 Written Qualifications and Organization Report

The Contractor shall furnish a written qualifications and organization report providing evidence of qualifications of the Contractor, Contractor's Project Supervisor, Designated Competent Person, supervisors and workers; Designated IH (person assigned to project and firm name); independent testing laboratory (including name of firm, principal, and analysts who will perform analyses); all subcontractors to be used including disposal transportation and disposal facility firms, subcontractor supervisors, subcontractor workers; and any others assigned to perform asbestos abatement and support activities. The report shall include an organization chart showing the Contractor's staff organization for this project by name and title, chain of command and reporting relationship with all subcontractors. The report shall be signed by the Contractor, the Contractor's onsite project manager, Designated Competent Person, Designated IH, designated testing laboratory and the principals of all subcontractors to be used. The Contractor shall include the following statement in the report: "By signing this report I certify that the personnel I am responsible for during the course of this project fully understand the contents of 29 CFR 1926, Section .1101, 40 CFR 61, Subpart M, and the federal, state and local requirements specified in paragraph SAFETY AND HEALTH PROGRAM AND PLANS for those asbestos abatement activities that they will be involved in."

## 1.5.2 Specific Requirements

The Contractor shall designate in writing, personnel meeting the following qualifications:

- a. Designated Competent Person: The name, address, telephone number, and resume of the Contractor's Designated Competent Person shall be provided. Evidence that the full-time Designated Competent Person is qualified in accordance with 29 CFR 1926, Sections .32 and .1101, has EPA Model Accreditation Plan (MAP) "Contractor/Supervisor" training accreditation required by 40 CFR 763, Subpart E, Appendix C, and is experienced in the administration and supervision of asbestos abatement projects, including exposure assessment and monitoring, work practices, abatement methods, protective measures for personnel, setting up and inspecting asbestos abatement work areas, evaluating the integrity of containment barriers, placement and operation of local exhaust systems, ACM generated waste containment and disposal procedures, decontamination units installation and maintenance requirements, site safety and health requirements, notification of other employees onsite, etc. The duties of the Competent Person shall include the following: controlling entry to and exit from the regulated area; supervising any employee exposure monitoring required by 29 CFR 1926, Section .1101; ensuring that all employees working within a regulated area wear the appropriate personal protective equipment (PPE), are trained in the use of appropriate methods of exposure control, and use the hygiene facilities and decontamination procedures specified; and ensuring that engineering controls in use are in proper operating conditions and are functioning properly. The Designated Competent Person shall be responsible for compliance with applicable federal, state and local requirements, the Contractor's Accident Prevention Plan and Asbestos Hazard Abatement Plan. The Designated Competent Person shall provide, and the Contractor shall submit, the "Contractor/Supervisor" course completion certificate and the most recent certificate for required refresher training with the employee "Certificate of Worker Acknowledgment" required by this paragraph. The Contractor shall submit evidence that this person has a minimum of 2 years of on-the-job asbestos abatement experience relevant to OSHA competent person requirements. The Designated Competent Person shall be onsite at all times during the conduct of this project.
- b. Project and Other Supervisors: The Contractor shall provide the name, address, telephone number, and resume of the Project Supervisor and other supervisors who have responsibility to implement the Accident Prevention Plan, including the Asbestos Hazard Abatement Plan and Activity Hazard Analyses, the authority to direct work performed under this contract and verify compliance, and have EPA Model Accreditation Plan (MAP) "Contractor/Supervisor" training accreditation required by 40 CFR 763, Subpart E, Appendix C. The Project Supervisor and other supervisors shall provide, and the Contractor shall submit, the "Contractor/Supervisor" course completion certificate and the most recent certificate for required refresher training with the employee "Certificate of Worker Acknowledgment" required by this paragraph. The Contractor shall submit evidence that the Project Supervisor has a minimum of 2 years of on-the-job asbestos abatement experience relevant to project supervisor

responsibilities and the other supervisors have a minimum of 2 years on-the-job asbestos abatement experience commensurate with the responsibilities they will have on this project.

- c. Designated Industrial Hygienist: The Contractor shall provide the name, address, telephone number, resume and other information specified below for the Industrial Hygienist (IH) selected to prepare the Contractor's Asbestos Hazard Abatement Plan, prepare and perform training, direct air monitoring and assist the Contractor's Competent Person in implementing and ensuring that safety and health requirements are complied with during the performance of all required work. The Designated IH shall be a person who is board certified in the practice of industrial hygiene or board eligible (meets all education and experience requirements) as determined and documented by the American Board of Industrial Hygiene (ABIH), has EPA Model Accreditation Plan (MAP) "Contractor/Supervisor" training accreditation required by 40 CFR 763, Subpart E, Appendix C, and has a minimum of 2 years of comprehensive experience in planning and overseeing asbestos abatement activities. The Designated IH shall provide, and the Contractor shall submit, the "Contractor/Supervisor" course completion certificate and the most recent certificate for required refresher training with the employee "Certificate of Worker Acknowledgment" required by this paragraph. The Designated IH shall be completely independent from the Contractor according to federal, state, or local regulations; that is, shall not be a Contractor's employee or be an employee or principal of a firm in a business relationship with the Contractor negating such independent status. A copy of the Designated IH's current valid ABIH certification, confirmation of eligibility in writing from the ABIH shall be included. The Designated IH shall visit the site at least 1 per week for the duration of asbestos activities and shall be available for emergencies. In addition, the Designated IH shall prepare, and the Contractor shall submit, the name, address, telephone numbers and resumes of additional IH's and industrial hygiene technicians (IHT) who will be assisting the Designated IH in performing onsite tasks. IHs and IHTs supporting the Designated IH shall have a minimum of 2 years of practical onsite asbestos abatement experience. The formal reporting relationship between the Designated IH and the support IHs and IHTs, the Designated Competent Person, and the Contractor shall be indicated.
- d. Asbestos Abatement Workers: Asbestos abatement workers shall meet the requirements contained in 29 CFR 1926, Section .1101, 40 CFR 61, Subpart M, and other applicable federal, state and local requirements. Worker training documentation shall be provided as required on the "Certificate of Workers Acknowledgment" in this paragraph.
- e. Worker Training and Certification of Worker Acknowledgment: Training documentation will be required for each employee who will perform OSHA Class I, Class II, Class III, or Class IV asbestos abatement operations. Such documentation shall be submitted on a

Contractor generated form titled "Certificate of Workers Acknowledgment", to be completed for each employee in the same format and containing the same information as the example certificate at the end of this section. Training course completion certificates (initial and most recent update refresher) required by the information checked on the form shall be attached.

- f. Physician: The Contractor shall provide the name, medical qualifications, address, telephone number and resume of the physician who will or has performed the medical examinations and evaluations of the persons who will conduct the asbestos abatement work tasks. The physician shall be currently licensed by the state where the workers will be or have been examined, have expertise in pneumoconiosis and shall be responsible for the determination of medical surveillance protocols and for review of examination/test results performed in compliance with 29 CFR 1926, Section .1101 and paragraph MEDICAL REQUIREMENTS. The physician shall be familiar with the site's hazards and the scope of this project.
  
- g. First Aid and CPR Trained Persons: The names of at least 2 persons who are currently trained in first aid and CPR by the American Red Cross or other approved agency shall be designated and shall be onsite at all times during site operations. They shall be trained in universal precautions and the use of PPE as described in the Bloodborne Pathogens Standard of 29 CFR 1910, Section .1030 and shall be included in the Contractor's Bloodborne Pathogen Program. These persons may perform other duties but shall be immediately available to render first aid when needed. A copy of each designated person's current valid First Aid and CPR certificate shall be provided.
  
- h. Independent Testing Laboratory: The Contractor shall provide the name, address and telephone number of the independent testing laboratory selected to perform the sample analyses and report the results. The testing laboratory shall be completely independent from the Contractor as recognized by federal, state or local regulations. Written verification of the following criteria, signed by the testing laboratory principal and the Contractor, shall be submitted:
  - (1) Phase contrast microscopy (PCM): The laboratory is fully equipped and proficient in conducting PCM of airborne samples using the methods specified by 29 CFR 1926, Section .1101, OSHA method ID-160, the most current version of NIOSH 84-100 Method 7400, the laboratory is currently judged proficient (classified as acceptable) in counting airborne asbestos samples by PCM by successful participation in each of the last 4 rounds in the American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing (PAT) Program; the names of the selected microscopists who will analyze airborne samples by PCM with verified documentation of their proficiency to conduct PCM analyses by being judged proficient in counting samples as current participating analysts in the AIHA PAT Program, and having

successfully completed the Asbestos Sampling and Analysis course (NIOSH 582 or equivalent) with a copy of course completion certificate provided; when the PCM analysis is to be conducted onsite, documentation shall be provided certifying that the onsite analyst meets the same requirements.

(2) Polarized light microscopy (PLM): The laboratory is fully equipped and proficient in conducting PLM analyses of suspect ACM bulk samples in accordance with 40 CFR 763, Subpart E, Appendix E; the laboratory is currently accredited by NIST under the NVLAP for bulk asbestos analysis and will use analysts (names shall be provided) with demonstrated proficiency to conduct PLM to include its application to the identification and quantification of asbestos content.

(3) PCM: The laboratory is fully equipped and each analyst (name shall be provided) possesses demonstrated proficiency in conducting PCM analysis of airborne samples using NIOSH 84-100 Method 7400 PCM.

- i. Disposal Facility, Transporter: The Contractor shall provide written evidence that the landfill to be used is approved for asbestos disposal by the USEPA and state and local regulatory agencies. Copies of signed agreements between the Contractor (including subcontractors and transporters) and the asbestos waste disposal facility to accept and dispose of all asbestos containing waste generated during the performance of this contract shall be provided. Qualifications shall be provided for each subcontractor or transporter to be used, indicating previous experience in transport and disposal of asbestos waste to include all required state and local waste hauler requirements for asbestos. The Contractor and transporters shall meet the DOT requirements of 49 CFR 171, 49 CFR 172, and 49 CFR 173 as well as registration requirements of 49 CFR 107 and other applicable state or local requirements. The disposal facility shall meet the requirements of 40 CFR 61, Sections .154 or .155, as required in 40 CFR 61, Section .150(b), and other applicable state or local requirements.

#### 1.5.3 Federal, State or Local Citations on Previous Projects

The Contractor and all subcontractors shall submit a statement, signed by an officer of the company, containing a record of any citations issued by Federal, State or local regulatory agencies relating to asbestos activities (including projects, dates, and resolutions); a list of penalties incurred through non-compliance with asbestos project specifications, including liquidated damages, overruns in scheduled time limitations and resolutions; and situations in which an asbestos-related contract has been terminated (including projects, dates, and reasons for terminations). If there are none, a negative declaration signed by an officer of the company shall be provided.

#### 1.6 REGULATORY REQUIREMENTS

In addition to detailed requirements of this specification, work performed

under this contract shall comply with EM 385-1-1, applicable federal, state, and local laws, ordinances, criteria, rules and regulations regarding handling, storing, transporting, and disposing of asbestos waste materials. This includes, but is not limited to, OSHA standards, 29 CFR 1926, especially Section .1101, 40 CFR 61, Subpart M and 40 CFR 763. Matters of interpretation of standards shall be submitted to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply. The following state and local laws, rules and regulations regarding demolition, removal, encapsulation, construction alteration, repair, maintenance, renovation, spill/emergency cleanup, housekeeping, handling, storing, transporting and disposing of asbestos material apply: .

#### 1.7 SAFETY AND HEALTH PROGRAM AND PLANS

The Contractor shall develop and submit a written comprehensive site-specific Accident Prevention Plan at least 30 days prior to the preconstruction conference. The Accident Prevention Plan shall address requirements of EM 385-1-1, Appendix A, covering onsite work to be performed by the Contractor and subcontractors. The Accident Prevention Plan shall incorporate an Asbestos Hazard Abatement Plan, and Activity Hazard Analyses as separate appendices into 1 site specific Accident Prevention Plan document. Any portions of the Contractor's overall Safety and Health Program that are referenced in the Accident Prevention Plan, e.g., respirator program, hazard communication program, confined space entry program, etc., shall be included as appendices to the Accident Prevention Plan. The plan shall take into consideration all the individual asbestos abatement work tasks identified in Table 1. The plan shall be prepared, signed (and sealed, including certification number if required), and dated by the Contractor's Designated IH, Competent Person, and Project Supervisor.

##### 1.7.1 Asbestos Hazard Abatement Plan Appendix

The Asbestos Hazard Abatement Plan appendix to the Accident Prevention Plan shall include, but not be limited to, the following:

- a. The personal protective equipment to be used;
- b. The location and description of regulated areas including clean and dirty areas, access tunnels, and decontamination unit (clean room, shower room, equipment room, storage areas such as load-out unit);
- c. Initial exposure assessment in accordance with 29 CFR 1926, Section .1101;
- d. Level of supervision;
- e. Method of notification of other employers at the worksite;
- f. Abatement method to include containment and control procedures;

- g. Interface of trades involved in the construction;
- h. Sequencing of asbestos related work;
- i. Storage and disposal procedures and plan;
- j. Type of wetting agent and asbestos encapsulant to be used;
- k. Location of local exhaust equipment;
- l. Air monitoring methods (personal, environmental and clearance);
- m. Bulk sampling and analytical methods (if required);
- n. A detailed description of the method to be employed in order to control the spread of ACM wastes and airborne fiber concentrations;
- o. Fire and medical emergency response procedures;
- p. The security procedures to be used for all regulated areas.

#### 1.7.2 Activity Hazard Analyses Appendix

Activity Hazard Analyses, for each major phase of work, shall be submitted and updated during the project. The Activity Hazard Analyses format shall be in accordance with EM 385-1-1 (Figure 1-1). The analysis shall define the activities to be performed for a major phase of work, identify the sequence of work, the specific hazards anticipated, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level. Work shall not proceed on that phase until the Activity Hazard Analyses has been accepted and a preparatory meeting has been conducted by the Contractor to discuss its contents with everyone engaged in the activities, including the onsite Government representatives. The Activity Hazard Analyses shall be continuously reviewed and, when appropriate, modified to address changing site conditions or operations.

#### 1.8 PRECONSTRUCTION CONFERENCE AND ONSITE SAFETY

The Contractor and the Contractor's Designated Competent Person, Project Supervisor, and Designated IH shall meet with the Contracting Officer prior to beginning work at a safety preconstruction conference to discuss the details of the Contractor's submitted Accident Prevention Plan to include the Asbestos Hazard Abatement Plan and Activity Hazard Analyses appendices. Deficiencies in the Accident Prevention Plan will be discussed and the Accident Prevention Plan shall be revised to correct the deficiencies and resubmitted for acceptance. Any changes required in the specification as a result of the Accident Prevention Plan shall be identified specifically in the plan to allow for free discussion and acceptance by the Contracting Officer, prior to the start of work. Onsite work shall not begin until the Accident Prevention Plan has been accepted. A copy of the written Accident Prevention Plan shall be maintained onsite. Changes and modifications to the accepted Accident Prevention Plan shall be made with the knowledge and concurrence of the Designated IH, the Project Supervisor, Designated

Competent Person, and the Contracting Officer. Should any unforeseen hazard become evident during the performance of the work, the Designated IH shall bring such hazard to the attention of the Project Supervisor, Designated Competent Person, and the Contracting Officer, both verbally and in writing, for resolution as soon as possible. In the interim, all necessary action shall be taken by the Contractor to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public, and the environment. Once accepted by the Contracting Officer, the Accident Prevention Plan, including the Asbestos Hazard Abatement Plan and Activity Hazard Analyses will be enforced as if an addition to the contract. Disregarding the provisions of this contract or the accepted Accident Prevention Plan will be cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified.

#### 1.9 SECURITY

Fenced and demarated shall be provided for each regulated area. A log book shall be kept documenting entry into and out of the regulated area. Entry into regulated areas shall only be by personnel authorized by the Contractor and the Contracting Officer. Personnel authorized to enter regulated areas shall be trained, be medically evaluated, and wear the required personal protective equipment for the specific regulated area to be entered.

#### 1.10 MEDICAL REQUIREMENTS

Medical requirements shall conform to 29 CFR 1926, Section .1101.

##### 1.10.1 Medical Examinations

Before being exposed to airborne asbestos fibers, workers shall be provided with a medical examination as required by 29 CFR 1926, Section .1101 and other pertinent state or local requirements. This requirement shall have been satisfied within the last 12 months. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos and within 30 calendar days before or after the termination of employment in such occupation. X-ray films of asbestos workers shall be identified to the consulting radiologist and medical record jackets shall be marked with the word "asbestos."

##### 1.10.1.1 Information Provided to the Physician

The Contractor shall provide the following information in writing to the examining physician:

- a. A copy of 29 CFR 1926, Section .1101 and Appendices D, E, G, and I;
- b. A description of the affected employee's duties as they relate to the employee's exposure;
- c. The employee's representative exposure level or anticipated exposure level;
- d. A description of any personal protective and respiratory equipment

used or to be used;

- e. Information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

#### 1.10.1.2 Written Medical Opinion

For each worker, a written medical opinion prepared and signed by a licensed physician indicating the following:

- a. Summary of the results of the examination.
- b. The potential for an existing physiological condition that would place the employee at an increased risk of health impairment from exposure to asbestos.
- c. The ability of the individual to wear personal protective equipment, including respirators, while performing strenuous work tasks under heat stress conditions.
- d. A statement that the employee has been informed of the results of the examination, provided with a copy of the results, informed of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure, and informed of any medical condition that may result from asbestos exposure.

#### 1.10.2 Medical and Exposure Records

Complete and accurate records shall be maintained of each employee's medical examinations, medical records, and exposure data, as required by 29 CFR 1910, Section .1910.20 and 29 CFR 1926, Section .1101 for a period of 50 years after termination of employment. Records of the required medical examinations and exposure data shall be made available, for inspection and copying, to the Assistant Secretary of Labor for Occupational Safety and Health (OSHA) or authorized representatives of the employee and an employee's physician upon request of the employee or former employee. A copy of the required medical certification for each employee shall be maintained on file at the worksite for review, as requested by the Contracting Officer or the representatives.

#### 1.11 TRAINING PROGRAM

##### 1.11.1 General Training Requirements

The Contractor shall establish a training program as specified by EPA Model Accreditation Plan (MAP), training requirements at 40 CFR 763, Subpart E, Appendix C, the State of HI, Title II, HAR Chapter 501, HAR Chapter 502, HAR Chapter 503, HAR Chapter 504, OSHA requirements at 29 CFR 1926, Section .1101(k)(1) and this specification. Contractor employees shall complete the required training for the type of work they are to perform and such training shall be documented and provided to the Contracting Officer as specified in paragraph QUALIFICATIONS.

### 1.11.2 Project Specific Training

Prior to commencement of work, each worker shall be instructed by the Contractor's Designated IH and Competent Person in the following project specific training:

- a. The hazards and health effects of the specific types of ACM to be abated;
- b. The content and requirements of the Contractor's Accident Prevention Plan to include the Asbestos Hazard Abatement Plan and Activity Hazard Analyses and site-specific safety and health precautions;
- c. Hazard Communication Program;
- d. Hands-on training for each asbestos abatement technique to be employed;
- e. Heat stress monitoring specific to this project;
- f. Air monitoring program and procedures;
- g. Medical surveillance to include medical and exposure record-keeping procedures;
- h. The association of cigarette smoke and asbestos-related disease;
- i. Security procedures;
- j. Specific work practice controls and engineering controls required for each Class of work in accordance with 29 CFR 1926, Section .1101.

### 1.12 RESPIRATORY PROTECTION PROGRAM

The Contractor's Designated IH shall establish in writing, and implement a respiratory protection program in accordance with 29 CFR 1926, Section .1101, 29 CFR 1910, Section .134, ANSI Z88.2, CGA G-7, CGA G-7.1 and DETAIL SHEET 12. The Contractor's Designated IH shall establish minimum respiratory protection requirements based on measured or anticipated levels of airborne asbestos fiber concentrations encountered during the performance of the asbestos abatement work. The Contractor's respiratory protection program shall include, but not be limited to, the following elements:

- a. The company policy, used for the assignment of individual responsibility, accountability, and implementation of the respiratory protection program.
- b. The standard operating procedures covering the selection and use of respirators. Respiratory selection shall be determined by the hazard to which the worker is exposed.
- c. Medical evaluation of each user to verify that the worker may be assigned to an activity where respiratory protection is required.

- d. Training in the proper use and limitations of respirators.
- e. Respirator fit-testing, i.e., quantitative, qualitative and individual functional fit checks.
- f. Regular cleaning and disinfection of respirators.
- g. Routine inspection of respirators during cleaning and after each use when designated for emergency use.
- h. Storage of respirators in convenient, clean, and sanitary locations.
- i. Surveillance of regulated area conditions and degree of employee exposure (e.g., through air monitoring).
- j. Regular evaluation of the continued effectiveness of the respiratory protection program.
- k. Recognition and procedures for the resolution of special problems as they affect respirator use (e.g., no facial hair that comes between the respirator face piece and face or interferes with valve function; prescription eye wear usage; contact lenses usage; etc.).
- l. Proper training in putting on and removing respirators.

#### 1.12.1 Respiratory Fit Testing

A qualitative or quantitative fit test conforming to 29 CFR 1926, Section 1101, Appendix C shall be conducted by the Contractor's Designated IH for each Contractor worker required to wear a respirator, and for the Contracting Officer and authorized visitors who enter a regulated area where respirators are required to be worn. A respirator fit test shall be performed for each worker wearing a negative-pressure respirator prior to initially wearing a respirator on this project and every 6 months thereafter. The qualitative fit tests may be used only for testing the fit of half-mask respirators where they are permitted to be worn, or of full-facepiece air purifying respirators where they are worn at levels at which half-facepiece air purifying respirators are permitted. If physical changes develop that will affect the fit, a new fit test for the worker shall be performed. Functional fit checks shall be performed by employees each time a respirator is put on and in accordance with the manufacturer's recommendation.

#### 1.12.2 Respirator Selection and Use Requirements

The Contractor shall provide respirators, and ensure that they are used as required by 29 CFR 1926, Section .1101 and in accordance with the manufacturer's recommendations. Respirators shall be jointly approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health (MSHA/NIOSH), or by NIOSH, under the provisions of 42 CFR 84, for use in environments containing airborne

asbestos fibers. Personnel who handle ACM, enter regulated areas that require the wearing of a respirator, or who are otherwise carrying out abatement activities that require the wearing of a respirator, shall be provided with approved respirators that are fully protective of the worker at the measured or anticipated airborne asbestos concentration level to be encountered. For air-purifying respirators, the particulate filter portion of the cartridges or canister approved for use in airborne asbestos environments shall be high-efficiency particulate air (HEPA). The initial respirator selection and the decisions regarding the upgrading or downgrading of respirator type shall be made by the Contractor's Designated IH based on the measured or anticipated airborne asbestos fiber concentrations to be encountered. Recommendations made by the Contractor's Designated IH to downgrade respirator type shall be submitted in writing to the Contracting Officer. The Contractor's Designated Competent Person in consultation with the Designated IH, shall have the authority to take immediate action to upgrade or downgrade respiratory type when there is an immediate danger to the health and safety of the wearer. Respirators shall be used in the following circumstances:

- a. During all Class I asbestos jobs.
- b. During all Class II work where the ACM is not removed in a substantially intact state.
- c. During all Class II and III work which is not performed using wet methods. Respirators need not be worn during removal of ACM from sloped roofs when a negative exposure assessment has been made and ACM is removed in an intact state.
- d. During all Class II and III asbestos jobs where the Contractor does not produce a negative exposure assessment.
- e. During all Class III jobs where TSI or surfacing ACM is being disturbed.
- f. During all Class IV work performed within regulated areas where employees performing other work are required to wear respirators.
- g. During all work where employees are exposed above the PEL-TWA or PEL-Excursion Limit.
- h. In emergencies

#### 1.12.3 Class I Work

The Contractor shall provide: (1) a tight-fitting, powered air purifying respirator equipped with high efficiency filters, or (2) a full-facepiece supplied air respirator operated in the pressure demand mode, equipped with HEPA egress cartridges, or (3) an auxiliary positive pressure self-contained breathing apparatus, for all employees within the regulated area where Class I work is being performed; provided that a negative exposure assessment has not been produced, and that the exposure level will not exceed 1 f/cc as an 8-hour time weighted average. A full-facepiece supplied air respirator, operated in the pressure demand mode, equipped

with an auxiliary positive pressure self-contained breathing apparatus shall be provided under such conditions, if the exposure assessment indicates exposure levels above 1 f/cc as an 8-hour time weighted average.

#### 1.12.4 Class II and III Work

The Contractor shall provide an air purifying respirator, other than a disposable respirator, equipped with high-efficiency filters whenever the employee performs Class II and III asbestos jobs where the Contractor does not produce a negative exposure assessment ; and Class III jobs where TSI or surfacing ACM is being disturbed.

#### 1.12.5 Sanitation

Employees who wear respirators shall be permitted to leave work areas to wash their faces and respirator facepieces whenever necessary to prevent skin irritation associated with respirator use.

#### 1.13 HAZARD COMMUNICATION PROGRAM

A hazard communication program shall be established and implemented in accordance with 29 CFR 1926, Section .59. Material safety data sheets (MSDSs) shall be provided for all hazardous materials brought onto the worksite. One copy shall be provided to the Contracting Officer and 1 copy shall be included in the Contractor's Hazard Communication Program.

#### 1.14 LICENSES, PERMITS AND NOTIFICATIONS

##### 1.14.1 General Legal Requirements

Necessary licenses, permits and notifications shall be obtained in conjunction with the project's asbestos abatement, transportation and disposal actions and timely notification furnished of such actions as required by federal, state, regional, and local authorities. The Contractor shall will notify the Regional Office of the USEPA and state's environmental protection agency responsible for asbestos air emissions and the Contracting Officer in writing, at least 10 days prior to the commencement of work, in accordance with 40 CFR 61, Subpart M, and state and local requirements to include the mandatory "Notification of Demolition and Renovation Record" form and other required notification documents. Notification shall be by Certified Mail, Return Receipt Requested. The Contractor shall furnish copies of the receipts to the Contracting Officer, in writing, prior to the commencement of work. Local fire department shall be notified 3 days before fire-proofing material is removed from a building and the notice shall specify whether or not the material contains asbestos. A copy of the rental company's written acknowledgment and agreement shall be provided as required by paragraph RENTAL EQUIPMENT. For licenses, permits, and notifications that the Contractor is responsible for obtaining, the Contractor shall pay any associated fees or other costs incurred.

##### 1.14.2 Litigation and Notification

The Contractor shall notify the Contracting Officer if any of the following

occur:

- a. The Contractor or any of the subcontractors are served with notice of violation of any law, regulation, permit or license which relates to this contract;
- b. Proceedings are commenced which could lead to revocation of related permits or licenses; permits, licenses or other Government authorizations relating to this contract are revoked;
- c. Litigation is commenced which would affect this contract;
- d. The Contractor or any of the subcontractors become aware that their equipment or facilities are not in compliance or may fail to comply in the future with applicable laws or regulations.

#### 1.15 PERSONAL PROTECTIVE EQUIPMENT

Three complete sets of personal protective equipment shall be made available to the Contracting Officer and authorized visitors for entry to the regulated area. Contracting Officer and authorized visitors shall be provided with training equivalent to that provided to Contractor employees in the selection, fitting, and use of the required personal protective equipment and the site safety and health requirements. Contractor workers shall be provided with personal protective clothing and equipment and the Contractor shall ensure that it is worn properly. The Contractor's Designated IH and Designated Competent Person shall select and approve all the required personal protective clothing and equipment to be used.

##### 1.15.1 Respirators

Respirators shall be in accordance with paragraph RESPIRATORY PROTECTION PROGRAM.

##### 1.15.2 Whole Body Protection

Personnel exposed to airborne concentrations of asbestos that exceed the PELs, or for all OSHA Classes of work for which a required negative exposure assessment is not produced, shall be provided with whole body protection and such protection shall be worn properly. The Contractor's Designated IH and Competent Person shall select and approve the whole body protection to be used. The Competent Person shall examine work suits worn by employees at least once per work shift for rips or tears that may occur during performance of work. When rips or tears are detected while an employee is working, rips and tears shall be immediately mended, or the work suit shall be immediately replaced. Disposable whole body protection shall be disposed of as asbestos contaminated waste upon exiting from the regulated area. Reusable whole body protection worn shall be either disposed of as asbestos contaminated waste upon exiting from the regulated area or be properly laundered in accordance with 29 CFR 1926, Section .1101.

Whole body protection used for asbestos abatement shall not be removed from the worksite by a worker to be cleaned. Recommendations made by the Contractor's Designated IH to downgrade whole body protection shall be submitted in writing to the Contracting Officer. The Contractor's

Designated Competent Person, in consultation with the Designated IH, has the authority to take immediate action to upgrade or downgrade whole body protection when there is an immediate danger to the health and safety of the wearer.

#### 1.15.2.1 Coveralls

Disposable-breathable coveralls with a zipper front shall be provided. Sleeves shall be secured at the wrists, and foot coverings secured at the ankles. See DETAIL SHEET 13.

#### 1.15.2.2 Gloves

Gloves shall be provided to protect the hands. Where there is the potential for hand injuries (i.e., scrapes, punctures, cuts, etc.) a suitable glove shall be provided and used.

#### 1.15.2.3 Foot Coverings

Cloth socks shall be provided and worn next to the skin. Footwear, as required by OSHA and EM 385-1-1, that is appropriate for safety and health hazards in the area shall be worn. Rubber boots shall be used in moist or wet areas. Reusable footwear removed from the regulated area shall be thoroughly decontaminated or disposed of as ACM waste. Disposable protective foot covering shall be disposed of as ACM waste. If rubber boots are not used, disposable foot covering shall be provided.

#### 1.15.2.4 Head Covering

Hood type disposable head covering shall be provided. In addition, protective head gear (hard hats) shall be provided as required. Hard hats shall only be removed from the regulated area after being thoroughly decontaminated.

#### 1.15.2.5 Protective Eye Wear

Eye protection provided shall be in accordance with ANSI Z87.1.

### 1.16 HYGIENE FACILITIES AND PRACTICES

The Contractor shall establish a decontamination area for the decontamination of employees, material and equipment. The Contractor shall ensure that employees enter and exit the regulated area through the decontamination area.

#### 1.16.1 Shower Facilities

Shower facilities, when provided, shall comply with 29 CFR 1910, Section .141(d)(3).

#### 1.16.2 3-Stage Decontamination Area

A temporary negative pressure decontamination unit that is adjacent and attached in a leak-tight manner to the regulated area shall be provided as described in SET-UP DETAIL SHEET Numbers 22 and 23. Utilization of

prefabricated units shall have prior approval of the Contracting Officer. The decontamination unit shall have an equipment room and a clean room separated by a shower that complies with 29 CFR 1910, Section .141 (unless the Contractor can demonstrate that such facilities are not feasible). Equipment and surfaces of containers filled with ACM shall be cleaned prior to removing them from the equipment room or area. Surfaces of the equipment room shall be wet wiped 2 times after each shift. Materials used for wet wiping shall be disposed of as asbestos contaminated waste. Two separate lockers shall be provided for each asbestos worker, one in the equipment room and one in the clean room. The Contractor shall provide a minimum of 2 showers. Instantaneous type in-line water heater may be incorporated at each shower head in lieu of hot water heater, upon approval by the Contracting Officer. Flow and temperature controls shall be located within the shower and shall be adjustable by the user. The wastewater pump shall be sized for 1.25 times the showerhead flow-rate at a pressure head sufficient to satisfy the filter head loss and discharge line losses. The pump shall supply a minimum 25 gpm flow with 35 ft. of pressure head. Used shower water shall be collected and filtered to remove asbestos contamination. Filters and residue shall be disposed of as asbestos contaminated material, per DETAIL SHEETS 9 and 14. Filtered water shall be discharged to the sanitary system. Wastewater filters shall be installed in series with the first stage pore size of 20 microns and the second stage pore size of 5 microns. The floor of the decontamination unit's clean room shall be kept dry and clean at all times. Water from the shower shall not be allowed to wet the floor in the clean room. Surfaces of the clean room and shower shall be wet-wiped 2 times after each shift change with a disinfectant solution. Proper housekeeping and hygiene requirements shall be maintained. Soap and towels shall be provided for showering, washing and drying. Any cloth towels provided shall be disposed of as ACM waste or shall be laundered in accordance with 29 CFR 1926, Section .1101.

#### 1.16.3 Load-Out Unit

A temporary load-out unit that is adjacent and connected to the regulated area shall be provided as described in DETAIL SHEET Number 25. Utilization of prefabricated units shall have prior approval of the Contracting Officer. The load-out unit shall be attached in a leak-tight manner to each regulated area. Surfaces of the load-out unit and access tunnel shall be adequately wet-wiped 2 times after each shift change. Materials used for wet wiping shall be disposed of as asbestos contaminated waste.

#### 1.16.4 Decontamination Area Entry Procedures

The Contractor shall ensure that employees entering the decontamination area through the clean room or clean area:

- a. Remove street clothing in the clean room or clean area and deposit it in lockers.
- b. Put on protective clothing and respiratory protection before leaving the clean room or clean area.
- c. Pass through the equipment room to enter the regulated area.

## 1.16.5 Decontamination Area Exit Procedures

The Contractor shall ensure that the following procedures are followed:

- a. Before leaving the regulated area, respirators shall be worn while employees remove all gross contamination and debris from their work clothing using a HEPA vacuum.
- b. Employees shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers (see Detail Sheets 9 and 14) for disposal and/or laundering.
- c. Employees shall not remove their respirators in the equipment room.
- d. Employees shall shower prior to entering the clean room. If a shower has not been located between the equipment room and the clean room or the work is performed outdoors, the Contractor shall ensure that employees engaged in Class I asbestos jobs: a) Remove asbestos contamination from their work suits in the equipment room or decontamination area using a HEPA vacuum before proceeding to a shower that is not adjacent to the work area; or b) Remove their contaminated work suits in the equipment room, without cleaning worksuits, and proceed to a shower that is not adjacent to the work area.
- e. After showering, employees shall enter the clean room before changing into street clothes.

## 1.16.6 Lunch Areas

The Contractor shall provide lunch areas in which the airborne concentrations of asbestos are below 0.01 f/cc.

## 1.16.7 Smoking

Smoking, if allowed by the Contractor, shall only be permitted in designated areas approved by the Contracting Officer.

## 1.17 REGULATED AREAS

All Class I, II, and III asbestos work shall be conducted within regulated areas. The regulated area shall be demarcated to minimize the number of persons within the area and to protect persons outside the area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, they shall demarcate the regulated area. Access to regulated areas shall be limited to authorized persons. The Contractor shall control access to regulated areas, ensure that only authorized personnel enter, and verify that Contractor required medical surveillance, training and respiratory protection program requirements are met prior to allowing entrance.

## 1.18 WARNING SIGNS AND TAPE

Warning signs and tape printed in English shall be provided at the regulated boundaries and entrances to regulated areas. The Contractor shall ensure that all personnel working in areas contiguous to regulated areas comprehend the warning signs. Signs shall be located to allow personnel to read the signs and take the necessary protective steps required before entering the area. Warning signs, as shown and described in DETAIL SHEET 11, shall be in vertical format conforming to 29 CFR 1910 and 29 CFR 1926, Section .1101, a minimum of 20 by 14 inches, and displaying the following legend in the lower panel:

DANGER  
ASBESTOS  
CANCER AND LUNG DISEASE HAZARD  
AUTHORIZED PERSONNEL ONLY  
RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

Spacing between lines shall be at least equal to the height of the upper of any two lines. Warning tape shall be provided as shown and described on DETAIL SHEET 11. Decontamination unit signage shall be as shown and described on DETAIL SHEET 15.

#### 1.19 WARNING LABELS

Warning labels shall be affixed to all asbestos disposal containers used to contain asbestos materials, scrap, waste debris, and other products contaminated with asbestos. Containers with preprinted warning labels conforming to requirements are acceptable. Warning labels shall be as described in DETAIL SHEET 14, shall conform to 29 CFR 1926, Section .1101 and shall be of sufficient size to be clearly legible displaying the following legend:

DANGER  
CONTAINS ASBESTOS FIBERS  
AVOID CREATING DUST  
CANCER AND LUNG DISEASE HAZARD

#### 1.20 LOCAL EXHAUST VENTILATION

Local exhaust ventilation units shall conform to ANSI Z9.2 and 29 CFR 1926, Section .1101. Filters on local exhaust system equipment shall conform to ANSI Z9.2 and UL 586. Filter shall be UL labeled.

#### 1.21 TOOLS

Vacuums shall be leak proof to the filter, equipped with HEPA filters, of sufficient capacity and necessary capture velocity at the nozzle or nozzle attachment to efficiently collect, transport and retain the ACM waste material. Power tools shall not be used to remove ACM unless the tool is equipped with effective, integral HEPA filtered exhaust ventilation capture and collection system, or has otherwise been approved for use by the Contracting Officer. Residual asbestos shall be removed from reusable tools prior to storage and reuse. Reusable tools shall be thoroughly decontaminated prior to being removed from regulated areas.

## 1.22 RENTAL EQUIPMENT

If rental equipment is to be used, written notification shall be provided to the rental agency, concerning the intended use of the equipment, the possibility of asbestos contamination of the equipment and the steps that will be taken to decontaminate such equipment. A written acceptance of the terms of the Contractor's notification shall be obtained from the rental agency.

## 1.23 AIR MONITORING EQUIPMENT

The Contractor's Designated IH shall approve air monitoring equipment to be used to collect samples. The equipment shall include, but shall not be limited to:

- a. High-volume sampling pumps that can be calibrated and operated at a constant airflow up to 16 liters per minute when equipped with a sampling train of tubing and filter cassette.
- b. Low-volume, battery powered, body-attachable, portable personal pumps that can be calibrated to a constant airflow up to approximately 3.5 liters per minute when equipped with a sampling train of tubing and filter cassette, and a self-contained rechargeable power pack capable of sustaining the calibrated flow rate for a minimum of 10 hours. The pumps shall also be equipped with an automatic flow control unit which shall maintain a constant flow, even as filter resistance increases due to accumulation of fiber and debris on the filter surface.
- c. Single use standard 25 mm diameter cassette, open face, 0.8 micron pore size, mixed cellulose ester membrane filters and cassettes with 50 mm electrically conductive extension cowl, and shrink bands, to be used with low flow pumps in accordance with 29 CFR 1926, Section .1101 for personal air sampling.
- d. Single use standard 25 mm diameter cassette, open face, 0.45 micron pore size, mixed cellulose ester membrane filters and cassettes with 50 mm electrically conductive cowl, and shrink bands, to be used with high flow pumps when conducting environmental area sampling using NIOSH 84-100 Methods 7400.
- e. Appropriate plastic tubing to connect the air sampling pump to the selected filter cassette.
- f. A flow calibrator capable of calibration to within plus or minus 2 percent of reading over a temperature range of minus 4 to plus 140 degrees F and traceable to a NIST primary standard.

## 1.24 EXPENDABLE SUPPLIES

### 1.24.1 Glovebag

Glovebags shall be provided as described in 29 CFR 1926, Section .1101 and SET-UP DETAIL SHEET 10. The glovebag assembly shall be 6 mil thick

plastic, prefabricated and seamless at the bottom with preprinted OSHA warning label.

#### 1.24.2 Duct Tape

Industrial grade duct tape of appropriate widths suitable for bonding sheet plastic and disposal container shall be provided.

#### 1.24.3 Disposal Containers

Leak-tight (defined as solids, liquids, or dust that cannot escape or spill out) disposal containers shall be provided for ACM wastes as required by 29 CFR 1926 Section .1101 and DETAIL SHEETS 9A, 9B, and 14.

#### 1.24.4 Disposal Bags

Leak-tight bags, 6 mil thick, shall be provided for placement of asbestos generated waste as described in DETAIL SHEET 9A.

#### 1.24.5 Sheet Plastic

Sheet plastic shall be polyethylene of 6 mil minimum thickness and shall be provided in the largest sheet size necessary to minimize seams, as indicated on the project drawings. Film shall be clear and conform to ASTM D 4397, except as specified below:

#### 1.24.6 Amended Water

Amended water shall meet the requirements of ASTM D 1331.

#### 1.24.7 Mastic Removing Solvent

Mastic removing solvent shall be nonflammable and shall not contain methylene chloride, glycol ether, or halogenated hydrocarbons. Solvents used onsite shall have a flash point greater than 140 degrees F.

#### 1.24.8 Leak-tight Wrapping

Two layers of 6 mil minimum thick polyethylene sheet stock shall be used for the containment of removed asbestos-containing components or materials such as reactor vessels, large tanks, boilers, insulated pipe segments and other materials too large to be placed in disposal bags as described in DETAIL SHEET 9B. Upon placement of the ACM component or material, each layer shall be individually leak-tight sealed with duct tape.

#### 1.24.9 Viewing Inspection Window

Where feasible, a minimum of 1 clear, 1/8 inch thick, acrylic sheet, 18 by 24 inches, shall be installed as a viewing inspection window at eye level on a wall in each containment enclosure. The windows shall be sealed leak-tight with industrial grade duct tape.

#### 1.24.10 Wetting Agents

Removal encapsulant (a penetrating encapsulant) shall be provided when conducting removal abatement activities that require a longer removal time or are subject to rapid evaporation of amended water. The removal encapsulant shall be capable of wetting the ACM and retarding fiber release during disturbance of the ACM greater than or equal to that provided by amended water. Performance requirements for penetrating encapsulants are specified in paragraph ENCAPSULANTS.

1.24.11 Strippable Coating

Strippable coating in aerosol cans shall be used to adhere to surfaces and to be removed cleanly by stripping, at the completion of work. This work shall only be done in well ventilated areas.

1.25 MISCELLANEOUS ITEMS

A sufficient quantity of other items, such as, but not limited to: scrapers, brushes, brooms, staple guns, tarpaulins, shovels, rubber squeegees, dust pans, other tools, scaffolding, staging, enclosed chutes, wooden ladders, lumber necessary for the construction of containments, UL approved temporary electrical equipment, material and cords, ground fault circuit interrupters, water hoses of sufficient length, fire extinguishers, first aid kits, portable toilets, logbooks, log forms, markers with indelible ink, spray paint in bright color to mark areas, project boundary fencing, etc., shall be provided.

PART 2 PRODUCTS

2.1 ENCAPSULANTS

Encapsulants shall conform to USEPA requirements, shall contain no toxic or hazardous substances and no solvent and shall meet the following requirements:

ALL ENCAPSULANTS

Requirement	Test Standard
Flame Spread - 25, Smoke Emission - 50	ASTM E 84
Combustion Toxicity Zero Mortality	Univ. of Pittsburgh Protocol
Life Expectancy, 20 yrs Accelerated Aging Test	ASTM C 732
Permeability, Minimum 0.4 perms	ASTM E 96

Additional Requirements for Lockdown Encapsulant

Requirement	Test Standard
Fire Resistance, Negligible affect on fire resistance rating over 3 hour test(Tested	ASTM E 119

## ALL ENCAPSULANTS

Requirement	Test Standard
with fireproofing over encapsulant applied directly to steel member)	
Bond Strength, 100 pounds of force/foot (Tests compatibility with cementitious and fibrous fireproofing)	ASTM E 736

## PART 3 EXECUTION

## 3.1 GENERAL REQUIREMENTS

Asbestos abatement work tasks shall be performed as shown on the detailed plans and drawings, as summarized in paragraph DESCRIPTION OF WORK and including Table 1 and the Contractor's Accident Prevention Plan, Asbestos Hazard Abatement Plan, and the Activity Hazard Analyses. The Contractor shall use the engineering controls and work practices required in 29 CFR 1926, Section .1101(g) in all operations regardless of the levels of exposure. Personnel shall wear and utilize protective clothing and equipment as specified. The Contractor shall not permit eating, smoking, drinking, chewing or applying cosmetics in the regulated area. All hot work (burning, cutting, welding, etc.) shall be conducted under controlled conditions in conformance with 29 CFR 1926, Section .352, Fire Prevention. Personnel of other trades, not engaged in asbestos abatement activities, shall not be exposed at any time to airborne concentrations of asbestos unless all the administrative and personal protective provisions of the Contractor's Accident Prevention Plan are complied with. Power to the regulated area shall be locked-out and tagged in accordance with 29 CFR 1910, and temporary electrical service with ground fault circuit interrupters shall be provided as needed. Temporary electrical service shall be disconnected when necessary for wet removal. The Contractor shall stop abatement work in the regulated area immediately when the airborne total fiber concentration: (1) equals or exceeds 0.01 f/cc, or the pre-abatement concentration, whichever is greater, outside the regulated area; or (2) equals or exceeds 1.0 f/cc inside the regulated area. The Contractor shall correct the condition to the satisfaction of the Contracting Officer, including visual inspection and air sampling. Work shall resume only upon notification by the Contracting Officer. Corrective actions shall be documented.

## 3.2 PROTECTION OF ADJACENT WORK OR AREAS TO REMAIN

Asbestos abatement shall be performed without damage to or contamination of adjacent work or area. Where such work or area is damaged or contaminated, as verified by the Contracting Officer using visual inspection or sample analysis, it shall be restored to its original condition or decontaminated by the Contractor at no expense to the Government, as deemed appropriate by the Contracting Officer. This includes inadvertent spill of dirt, dust or debris in which it is reasonable to conclude that asbestos may exist. When these spills occur, work shall stop in all effected areas immediately and the spill shall be cleaned. When satisfactory visual inspection and air

sampling analysis results are obtained and have been evaluated by the Contractor's Designated IH and the Contracting Officer, work shall proceed.

### 3.3 OBJECTS

#### 3.3.1 Removal of Mobile Objects

Mobile objects, furniture, and equipment will be removed from the area of work by the Government before asbestos abatement work begins.

### 3.4 BUILDING VENTILATION SYSTEM AND CRITICAL BARRIERS

Building ventilating systems supplying air into or returning air out of a regulated area shall be shut down and isolated by lockable switch or other positive means in accordance with 29 CFR 1910, Section .147. and isolated by airtight seals to prevent the spread of contamination throughout the system. Air-tight critical barriers shall be installed on building ventilating openings located inside the regulated area that supply or return air from the building ventilation system or serve to exhaust air from the building. The critical barriers shall consist of 2 layers of polyethylene. Edges to wall, ceiling and floor surfaces shall be sealed with industrial grade duct tape. Critical barriers shall be installed as shown on drawings and appended SET-UP DETAIL SHEETS.

### 3.5 PRECLEANING

Surfaces shall be cleaned by HEPA vacuum and adequately wet wiped prior to establishment of containment. The following surfaces, walls, grids, all horizontal and vertical surfaces shall be wiped down or HEPA vacuumed.

### 3.6 METHODS OF COMPLIANCE

#### 3.6.1 Mandated Practices

The Contractor shall employ proper handling procedures in accordance with 29 CFR 1926 and 40 CFR 61, Subpart M, and the specified requirements. The specific abatement techniques and items identified shall be detailed in the Contractor's Asbestos Hazard Abatement Plan including, but not limited to, details of construction materials, equipment, and handling procedures. The Contractor shall use the following engineering controls and work practices in all operations, regardless of the levels of exposure:

- a. Vacuum cleaners equipped with HEPA filters to collect debris and dust containing ACM.
- b. Wet methods or wetting agents to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup; except where it can be demonstrated that the use of wet methods is unfeasible due to, for example, the creation of electrical hazards, equipment malfunction, and in roofing.
- c. Prompt clean-up and disposal in leak-tight containers of wastes and debris contaminated with asbestos.

- d. Inspection and repair of polyethylene in work and high traffic areas.
- e. Cleaning of equipment and surfaces of containers filled with ACM prior to removing them from the equipment room or area.

#### 3.6.2 Control Methods

The Contractor shall use the following control methods to comply with the PELs:

- a. Local exhaust ventilation equipped with HEPA filter dust collection systems;
- b. Enclosure or isolation of processes producing asbestos dust;
- c. Ventilation of the regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter;
- d. Use of other work practices and engineering controls;
- e. Where the feasible engineering and work practice controls described above are not sufficient to reduce employee exposure to or below the PELs, the Contractor shall use them to reduce employee exposure to the lowest levels attainable by these controls and shall supplement them by the use of respiratory protection that complies with paragraph, RESPIRATORY PROTECTION PROGRAM.

#### 3.6.3 Unacceptable Practices

The following work practices and engineering controls shall not be used for work related to asbestos or for work which disturbs ACM, regardless of measured levels of asbestos exposure or the results of initial exposure assessments:

- a. High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.
- b. Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.
- c. Dry sweeping, shoveling, or other dry clean-up of dust and debris containing ACM.
- d. Employee rotation as a means of reducing employee exposure to asbestos.

#### 3.6.4 Class I Work Procedures

In addition to requirements of paragraphs Mandated Practices and Control

Methods, the following engineering controls and work practices shall be used:

- a. A Competent Person shall supervise the installation and operation of the control system.
- b. For jobs involving the removal of more than 25 feet or 10 square feet of TSI or surfacing material, the Contractor shall place critical barriers over all openings to the regulated area.
- c. HVAC systems shall be isolated in the regulated area by sealing with a double layer of plastic or air-tight rigid covers.
- d. Impermeable dropcloths ( 6 mil or greater thickness) shall be placed on surfaces beneath all removal activity.
- e. Objects within the regulated area shall be handled as specified in paragraph OBJECTS.
- f. Where a negative exposure assessment has not been provided or where exposure monitoring shows the PEL was exceeded, the regulated area shall be ventilated to move contaminated air away from the employee's breathing zone toward a HEPA unit or collection device.

#### 3.6.5 Specific Control Methods for Class I Work

In addition to requirements of paragraph Class I Work Procedures, Class I asbestos work shall be performed using the control methods identified in the subparagraphs below.

##### 3.6.5.1 Negative Pressure Enclosure (NPE) System

The NPE system shall be as shown in SETUP DETAIL SHEET 3, 4, 8. The system shall provide at least 4 air changes per hour inside the containment. The local exhaust unit equipment shall be operated 24 hours per day until the containment is removed, and shall be leak-proof to the filter and equipped with HEPA filters. Air movement shall be directed away from the employees and toward a HEPA filtration device. The NPE shall be smoke tested for leaks at the beginning of each shift. Local exhaust equipment shall be sufficient to maintain a minimum pressure differential of minus 0.02 inch of water column relative to adjacent, unsealed areas. Pressure differential shall be monitored continuously, 24 hours per day, with an automatic manometric recording instrument. Pressure differential recordings shall be provided daily on the same day collected. Readings shall be reviewed by the Contractor's Designated Competent Person and IH prior to submittal. The Contracting Officer shall be notified immediately if the pressure differential falls below the prescribed minimum. The building ventilation system shall not be used as the local exhaust system for the regulated area. The local exhaust system shall terminate outdoors unless an alternate arrangement is allowed by the Contract Officer. All filters used shall be new at the beginning of the project and shall be periodically changed as necessary and disposed of as ACM waste.

### 3.6.5.2 Glovebag Systems

Glovebag systems shall be as shown in SETUP DETAIL SHEET 10. The glovebag system shall be used to remove ACM from straight runs of piping and elbows and other connections. Glovebags shall be used without modification and shall be smoke-tested for leaks and any leaks sealed prior to use. Glovebags shall be installed to completely cover the circumference of pipe or other structures where the work is to be done. Glovebags shall be used only once and shall not be moved. Glovebags shall not be used on surfaces that have temperatures exceeding 150 degrees F. Prior to disposal, glovebags shall be collapsed by removing air within them using a HEPA vacuum. Before beginning the operation, loose and friable material adjacent to the glovebag operation shall be wrapped and sealed in 2 layers of plastic or otherwise rendered intact. At least 2 persons shall perform Class I glovebag removal. Asbestos regulated work areas shall be established as specified and shown on detailed drawings and plans for glovebag abatement. Designated boundary limits for the asbestos work shall be established with rope or other continuous barriers and all other requirements for asbestos control areas shall be maintained, including area signage and boundary warning tape as specified in SET-UP DETAIL SHEET 11.

- a. In addition to requirements for negative pressure glovebag systems above, the Contractor shall attach HEPA vacuum systems or other devices to the bag to prevent collapse during removal of ACM from straight runs of piping and elbows and other connections.
- b. The negative pressure glove boxes used to remove ACM from pipe runs shall be fitted with gloved apertures and a bagging outlet and constructed with rigid sides from metal or other material which can withstand the weight of the ACM and water used during removal. A negative pressure shall be created in the system using a HEPA filtration system. The box shall be smoke tested for leaks prior to each use.

### 3.6.6 Class II Work

In addition to the requirements of paragraphs Mandated Practices and Control Methods, the following engineering controls and work practices shall be used:

- a. A Competent Person shall supervise the work.
- b. For indoor work, critical barriers shall be placed over all openings to the regulated area.
- c. Impermeable dropcloths shall be placed on surfaces beneath all removal activity.

### 3.6.7 Specific Control Methods for Class II Work

In addition to requirements of paragraph Class II Work, Class II work shall be performed using the following methods:

#### 3.6.7.1 Vinyl and Asphalt Flooring Materials

When removing vinyl and asphalt flooring materials which contain ACM, the Contractor shall use the following practices as shown in RESPONSE ACTION DETAIL SHEET 57, 58. Resilient sheeting shall be removed by adequately wet methods. Tiles shall be removed intact (if possible); wetting is not required when tiles are heated and removed intact. Flooring or its backing shall not be sanded. Scraping of residual adhesive and/or backing shall be performed using wet methods. Mechanical chipping is prohibited unless performed in a negative pressure enclosure. Dry sweeping is prohibited. The Contractor shall use vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) to clean floors.

#### 3.6.7.2 Roofing Material

When removing roofing materials which contain ACM as described in 29 CFR 1926, Section .1101(g)(8)(ii), the Contractor shall use the following practices as shown in RESPONSE ACTION DETAIL SHEET 74. Roofing material shall be removed in an intact state. Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards. When removing built-up roofs, with asbestos-containing roofing felts and an aggregate surface, using a power roof cutter, all dust resulting from the cutting operations shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along the cut line. Asbestos-containing roofing material shall not be dropped or thrown to the ground, but shall be lowered to the ground via covered, dust-tight chute, crane, hoist or other method approved by the Contracting Officer. Any ACM that is not intact shall be lowered to the ground as soon as practicable, but not later than the end of the work shift. While the material remains on the roof it shall be kept wet or placed in an impermeable waste bag or wrapped in plastic sheeting. Intact ACM shall be lowered to the ground as soon as practicable, but not later than the end of the work shift. Unwrapped material shall be transferred to a closed receptacle precluding the dispersion of dust. Critical barriers shall be placed over roof level heating and ventilation air intakes.

#### 3.6.7.3 Cementitious Siding and Shingles or Transite Panels

When removing cementitious asbestos-containing transite panels the Contractor shall use the following practices shown in RESPONSE ACTION DETAIL SHEET 81. Intentionally cutting, abrading or breaking, transite panels is prohibited. Each panel or shingle shall be sprayed with amended water prior to removal. Nails shall be cut with flat, sharp instruments. Unwrapped or unbagged panels or shingles shall be immediately lowered to the ground via covered dust-tight chute, crane or hoist, or placed in an impervious waste bag or wrapped in plastic sheeting and lowered to the ground no later than the end of the work shift.

#### 3.6.7.4 Other Class II Jobs

The Contractor shall use the following work practices when performing Class II removal of caulking and duct adhesive ACM: The material shall be thoroughly wetted with amended water prior and during its removal. The material shall be removed in an intact state. Cutting, abrading or

breaking the material is prohibited. The ACM removed shall be immediately bagged or wrapped.

### 3.6.8 Alternative Methods for Roofing Materials and Asphaltic Wrap

The Contractor shall use the following engineering controls and work practices when removing, repairing, or maintaining intact pipeline asphaltic wrap, or roof cements, mastics, coatings, or flashings which contain asbestos fibers encapsulated or coated by bituminous or resinous compounds. If during the course of the job the material does not remain intact, the Contractor shall use the procedures described in paragraph Roofing Material. Before work begins, and as needed during the job, the Designated Competent Person shall conduct an inspection and determine that the roofing material is intact and will likely remain intact. The material shall not be sanded, abraded, or ground. Manual methods which would render the material non-intact shall not be used. Roofing material shall not be dropped or thrown to the ground but shall be lowered via covered, dust-tight chute, crane, hoist or other method approved by the Contracting Officer. All such material shall be removed from the roof as soon as practicable, but not later than the end of the work shift. Removal or disturbance of pipeline asphaltic wrap shall be performed using wet methods.

### 3.6.9 Cleaning After Asbestos Removal

After completion of all asbestos removal work, surfaces from which ACM has been removed shall be wet wiped or sponged clean, or cleaned by some equivalent method to remove all visible residue. Run-off water shall be collected and filtered through a dual filtration system. A first filter shall be provided to remove fibers 20 micrometers and larger, and a final filter provided that removes fibers 5 micrometers and larger. After the gross amounts of asbestos have been removed from every surface, remaining visible accumulations of asbestos on floors shall be collected using plastic shovels, rubber squeegees, rubber dustpans, and HEPA vacuum cleaners as appropriate to maintain the integrity of the regulated area. When TSI and surfacing material has been removed, workmen shall use HEPA vacuum cleaners to vacuum every surface. Surfaces or locations which could harbor accumulations or residual asbestos dust shall be checked after vacuuming to verify that no asbestos-containing material remains; and shall be re-vacuumed as necessary to remove the ACM.

### 3.6.10 Class I Asbestos Work Response Action Detail Sheets

The following Class I Asbestos Work Response Action Detail Sheet is specified on Table 1 for each individual work task to be performed:

- a. Pipe Insulation (Using a Glovebag): See Sheet 87
- b. Horizontal Pipe Insulation (Using a Containment Area): See Sheet 88
- c. Pipe and Fitting Insulation (using Glovebag): See Sheet 86
- d. Duct Insulation: See Sheet 101.

### 3.6.11 Class II Asbestos Work Response Action Detail Sheets

The following Class II Asbestos Work Response Action Detail Sheet is specified on Table 1 for each individual work task to be performed:

- a. Interior Asbestos Cement, Fiberboard and Drywall Panels: See Sheet 48
- b. Vinyl or Vinyl Asbestos Tile Adhered to Concrete Floor System by Asbestos-Containing Adhesive: See Sheet 56
- c. Vinyl Asbestos Tile Adhered to Concrete Floor System by Asbestos Containing Adhesive: See Sheet 57
- d. Vinyl Asbestos Tile Adhered to Concrete Floor System by Asbestos Free Adhesive: See Sheet 58
- e. Carpeting (Asbestos-Containing or Contaminated): See Sheet 65
- f. Miscellaneous Asbestos-Containing Materials: See Sheet 45
- g. Built-Up Roofing and Flashing: See Sheet 74
- h. Asbestos Cement Siding: See Sheet 81

### 3.7 FINAL CLEANING AND VISUAL INSPECTION

Upon completion of abatement, the regulated area shall be cleaned by collecting, packing, and storing all gross contamination; see SET-UP DETAIL SHEETS 9 and 14. A final cleaning shall be performed using HEPA vacuum and wet cleaning of all exposed surfaces and objects in the regulated area. Upon completion of the cleaning, the Contractor shall conduct a visual pre-inspection of the cleaned area in preparation for a final inspection before final air clearance monitoring and recleaning, as necessary. Upon completion of the final cleaning, the Contractor and the Contracting Officer shall conduct a final visual inspection of the cleaned regulated area in accordance with ASTM E 1368 and document the results on the Final Cleaning and Visual Inspection as specified on the SET-UP DETAIL SHEET 19. If the Contracting Officer rejects the clean regulated area as not meeting final cleaning requirements, the Contractor shall reclean as necessary and have a follow-on inspection conducted with the Contracting Officer. Recleaning and follow-up reinspection shall be at the Contractor's expense.

### 3.8 LOCKDOWN

Prior to removal of plastic barriers and after clean-up of gross contamination and final visual inspection, a post removal (lockdown) encapsulant shall be spray applied to ceiling, walls, floors, and other surfaces in the regulated area.

### 3.9 EXPOSURE ASSESSMENT AND AIR MONITORING

#### 3.9.1 General Requirements For Exposure

Exposure assessment, air monitoring and analysis of airborne concentration of asbestos fibers shall be performed in accordance with 29 CFR 1926, Section .1101, the Contractor's air monitoring plan, and as specified. Personal exposure air monitoring (collected at the breathing zone) that is representative of the exposure of each employee who is assigned to work within a regulated area shall be performed by the Contractor's Designated IH.

Breathing zone samples shall be taken for at least 25 percent of the workers in each shift, or a minimum of 2, whichever is greater. Air monitoring results at the 95 percent confidence level shall be calculated as shown in Table 2 at the end of this section. The Contractor shall provide an onsite independent testing laboratory with qualified analysts and appropriate equipment to conduct sample analyses of air samples using the methods prescribed in 29 CFR 1926, Section .1101, to include NIOSH 84-100 Method 7400. Preabatement and abatement environmental air monitoring shall be performed by the Contractor's Designated IH. Final clearance environmental air monitoring, shall be performed by the Contractor's Designated IH. Environmental and final clearance air monitoring shall be performed using NIOSH 84-100 Method 7400 (PCM). For environmental and final clearance, air monitoring shall be conducted at a sufficient velocity and duration to establish the limit of detection of the method used at 0.005 f/cc. Confirmation of asbestos fiber concentrations (asbestos f/cc) from environmental and final clearance samples collected and analyzed by NIOSH 84-100 Method 7400 (total f/cc). For all Contractor required environmental or final clearance air monitoring, confirmation of asbestos fiber concentrations, using NIOSH 84-100 Method 7402, shall be at the Contractor's expense. Monitoring may be duplicated by the Government at the discretion of the Contracting Officer. Results of breathing zone samples shall be posted at the job site and made available to the Contracting Officer. The Contractor shall maintain a fiber concentration inside a regulated area less than or equal to 0.1 f/cc expressed as an 8 hour, time-weighted average (TWA) during the conduct of the asbestos abatement. If fiber concentration rises above 0.1 f/cc, work procedures shall be investigated with the Contracting Officer to determine the cause. At the discretion of the Contracting Officer, fiber concentration may exceed 0.1 f/cc but shall not exceed 1.0 f/cc expressed as an 8-hour TWA. The Contractor's workers shall not be exposed to an airborne fiber concentration in excess of 1.0 f/cc, as averaged over a sampling period of 30 minutes. Should either an environmental concentration of 1.0 f/cc expressed as an 8-hour TWA or a personal excursion concentration of 1.0 f/cc expressed as a 30-minute sample occur inside a regulated work area, the Contractor shall stop work immediately, notify the Contracting Officer, and implement additional engineering controls and work practice controls to reduce airborne fiber levels below prescribed limits in the work area. Work shall not restart until authorized by the Contracting Officer.

### 3.9.2 Initial Exposure Assessment

The Contractor's Designated IH shall conduct an exposure assessment immediately before or at the initiation of an asbestos abatement operation to ascertain expected exposures during that operation. The assessment shall be completed in time to comply with the requirements which are triggered by exposure data or the lack of a negative exposure assessment, and to provide information necessary to assure that all control systems planned are appropriate for that operation. The assessment shall take into

consideration both the monitoring results and all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the Contractor which indicate the levels of airborne asbestos likely to be encountered on the job. For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of PELs, or otherwise makes a negative exposure assessment, the Contractor shall presume that employees are exposed in excess of the PEL-TWA and PEL-Excursion Limit.

### 3.9.3 Negative Exposure Assessment

The Contractor shall provide a negative exposure assessment for the specific asbestos job which will be performed. The negative exposure assessment shall be provided within 2 days of the initiation of the project and conform to the following criteria:

- a. Objective Data: Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the PEL-TWA and PEL-Excursion Limit under those work conditions having the greatest potential for releasing asbestos.
- b. Prior Asbestos Jobs: Where the Contractor has monitored prior asbestos jobs for the PEL and the PEL-Excursion Limit within 12 months of the current job, the monitoring and analysis were performed in compliance with asbestos standard in effect; the data were obtained during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the Contractor's current operations; the operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current job; and these data show that under the conditions prevailing and which will prevail in the current workplace, there is a high degree of certainty that the monitoring covered exposure from employee exposures will not exceed the PEL-TWA and PEL-Excursion Limit.
- c. Initial Exposure Monitoring: The results of initial exposure monitoring of the current job, made from breathing zone air samples that are representative of the 8-hour PEL-TWA and 30-minute short-term exposures of each employee. The monitoring covered exposure from operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

### 3.9.4 Preabatement Environmental Air Monitoring

Preabatement environmental air monitoring shall be established 1 day prior to the masking and sealing operations for each regulated area to determine background concentrations before abatement work begins. As a minimum, preabatement air samples shall be collected using NIOSH 84-100 Method 7400,

PCM at these locations: outside the building; inside the building, but outside the regulated area perimeter; and inside each regulated work area. One sample shall be collected for every 2000 square feet of floor space. At least 2 samples shall be collected outside the building: at the exhaust of the HEPA unit; and downwind from the abatement site. The PCM samples shall be analyzed within 24 hours; and if any result in fiber concentration greater than 0.01 f/cc, asbestos fiber concentration shall be confirmed using NIOSH 84-100 Method 7402 (TEM).

### 3.9.5 Environmental Air Monitoring During Abatement

Until an exposure assessment is provided to the Contracting Officer, environmental air monitoring shall be conducted at locations and frequencies that will accurately characterize any evolving airborne asbestos fiber concentrations. The assessment shall demonstrate that the product or material containing asbestos minerals, or the abatement involving such product or material, cannot release airborne asbestos fibers in concentrations exceeding 0.01 f/cc as a TWA under those work conditions having the greatest potential for releasing asbestos. The monitoring shall be at least once per shift at locations including, but not limited to, close to the work inside a regulated area; preabatement sampling locations; outside entrances to a regulated area; close to glovebag operations; representative locations outside of the perimeter of a regulated area; inside clean room; and at the exhaust discharge point of local exhaust system ducted to the outside of a containment (if used). If the sampling outside regulated area shows airborne fiber levels have exceeded background or 0.01 f/cc, whichever is greater, work shall be stopped immediately, and the Contracting Officer notified. The condition causing the increase shall be corrected. Work shall not restart until authorized by the Contracting Officer.

### 3.9.6 Final Clearance Air Monitoring

Prior to conducting final clearance air monitoring, the Contractor and the Contracting Officer shall conduct a final visual inspection of the regulated area where asbestos abatement has been completed. The final visual inspection shall be as specified in SET-UP DETAIL SHEET 19. Final clearance air monitoring shall not begin until acceptance of the Contractor's final cleaning by the Contracting Officer. The Contractor's Designated IH shall conduct final clearance air monitoring using aggressive air sampling techniques as defined in EPA 560/5-85-024 or as otherwise required by federal or state requirements. The sampling and analytical method used will be NIOSH 84-100 Method 7400 (PCM).

#### 3.9.6.1 Final Clearance Requirements, NIOSH PCM Method

For PCM sampling and analysis using NIOSH 84-100 Method 7400, the fiber concentration inside the abated regulated area, for each airborne sample, shall be less than 0.01 f/cc. The abatement inside the regulated area is considered complete when every PCM final clearance sample is below the clearance limit. If any confirmation sample result is greater than 0.01 asbestos f/cc, abatement is incomplete and cleaning shall be repeated. Upon completion of any required recleaning, resampling with results to meet the above clearance criteria shall be done.

### 3.9.6.2 Air Clearance Failure

If clearance sampling results fail to meet the final clearance requirements, the Contractor shall pay all costs associated with the required recleaning, resampling, and analysis, until final clearance requirements are met.

### 3.9.7 Air-Monitoring Results and Documentation

Air sample fiber counting shall be completed and results provided within 24 hours (breathing zone samples), and 24 hours (environmental/clearance monitoring) after completion of a sampling period. The Contracting Officer shall be notified immediately of any airborne levels of asbestos fibers in excess of established requirements. Written sampling results shall be provided within 5 working days of the date of collection. The written results shall be signed by testing laboratory analyst, testing laboratory principal and the Contractor's Designated IH. The air sampling results shall be documented on a Contractor's daily air monitoring log. The daily air monitoring log shall contain the following information for each sample:

- a. Sampling and analytical method used;
- b. Date sample collected;
- c. Sample number;
- d. Sample type: BZ = Breathing Zone (Personal), P = Preabatement, E = Environmental, C = Abatement Clearance;
- e. Location/activity/name where sample collected;
- f. Sampling pump manufacturer, model and serial number, beginning flow rate, end flow rate, average flow rate (L/min);
- g. Calibration date, time, method, location, name of calibrator, signature;
- h. Sample period (start time, stop time, elapsed time (minutes));
- i. Total air volume sampled (liters);
- j. Sample results (f/cc and S/mm square) if EPA methods are required for final clearance;
- k. Laboratory name, location, analytical method, analyst, confidence level. In addition, the printed name and a signature and date block for the Industrial Hygienist who conducted the sampling and for the Industrial Hygienist who reviewed the daily air monitoring log verifying the accuracy of the information.

### 3.10 CLEARANCE CERTIFICATION

When asbestos abatement is complete, ACM waste is removed from the

regulated areas, and final clean-up is completed, the Contracting Officer will certify the areas as safe before allowing the warning signs and boundary warning tape to be removed. After final clean-up and acceptable airborne concentrations are attained, but before the HEPA unit is turned off and the containment removed, the Contractor shall remove all pre-filters on the building HVAC system and provide new pre-filters. The Contractor shall dispose of such filters as asbestos contaminated materials. HVAC, mechanical, and electrical systems shall be re-established in proper working order. The Contractor and the Contracting Officer shall visually inspect all surfaces within the containment for residual material or accumulated debris. The Contractor shall reclean all areas showing dust or residual materials. The Contracting Officer will certify in writing that the area is safe before unrestricted entry is permitted. The Government will have the option to perform monitoring to certify the areas are safe before entry is permitted.

### 3.11 CLEANUP AND DISPOSAL

#### 3.11.1 Title to ACM Materials

ACM material resulting from abatement work, except as specified otherwise, shall become the property of the Contractor and shall be disposed of as specified and in accordance with applicable federal, state and local regulations.

#### 3.11.2 Collection and Disposal of Asbestos

All ACM waste shall be collected and including contaminated wastewater filters, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing, shall be collected and placed in leak-tight containers such as double plastic bags (see DETAIL SHEET 9A); sealed double wrapped polyethylene sheet (see DETAIL 9B); or other approved containers. Waste within the containers shall be wetted in case the container is breached. Asbestos-containing waste shall be disposed of at an EPA, state and local approved asbestos landfill, off Government property. For temporary storage, sealed impermeable containers shall be stored in an asbestos waste load-out unit or in a storage/transportation conveyance (i.e., dumpster, roll-off waste boxes, etc.) in a manner acceptable to and in an area assigned by the Contracting Officer. Procedure for hauling and disposal shall comply with 40 CFR 61, Subpart M, state, regional, and local standards.

#### 3.11.3 Scale Weight Measurement

Scales used for measurement shall be public scales. Weighing shall be at a point nearest the work at which a public scale is available. Scales shall be standard truck scales of the beam type; scales shall be equipped with the type registering beam and an "over and under" indicator; and shall be capable of accommodating the entire vehicle. Scales shall be tested, approved and sealed by an inspector of the State of HI. Scales shall be calibrated and resealed as often as necessary and at least once every three months to ensure continuous accuracy. Vehicles used for hauling ACM shall be weighed empty daily at such time as directed and each vehicle shall bear a plainly legible identification mark.

#### 3.11.4 Weigh Bill and Delivery Tickets

Copies of weigh bills and delivery tickets shall be submitted to the Contracting Officer during the progress of the work. The Contractor shall furnish the Contracting Officer scale tickets for each load of ACM weighed and certified. These tickets shall include tare weight; identification mark for each vehicle weighed; and date, time and location of loading and unloading. Tickets shall be furnished at the point and time individual trucks arrive at the worksite. A master log of all vehicle loading shall be furnished for each day of loading operations. Before the final statement is allowed, the Contractor shall file with the Contracting Officer certified weigh bills and/or certified tickets and manifests of all ACM actually disposed by the Contractor for this contract.

#### 3.11.5 Asbestos Waste Shipment Record

The Contractor shall complete and provide the Contracting Officer final completed copies of the Waste Shipment Record for all shipments of waste material as specified in 40 CFR 61, Subpart M and other required state waste manifest shipment records, within 3 days of delivery to the landfill.

Each Waste Shipment Record shall be signed and dated by the [Contractor] [Contracting Officer], the waste transporter and disposal facility operator.

TABLE 1

## INDIVIDUAL WORK TASK DATA ELEMENTS

Sheet 1 of 1

There is a separate data sheet for each individual work task.

1. WORK TASK DESIGNATION NUMBER: 01\_\_\_\_\_
2. LOCATION OF WORK TASK: Bldg 549 (Quad E), 550, 551, and 552\_\_\_\_\_
3. BRIEF DESCRIPTION OF MATERIAL TO BE ABATED: Cement panels, caulking pipe insulation, floor tile and masatic plaster, window glazing, pipe adhesive, duct insulation, asphalt roof
  - a. Type of Asbestos: Chrysotile \_\_\_\_\_
  - b. Percent asbestos content: 2-35%\_\_\_\_\_
4. ABATEMENT TECHNIQUE TO BE USED: wet method\_\_\_\_\_
5. OSHA ASBESTOS CLASS DESIGNATION FOR WORK TASK: I and II\_\_\_\_\_
6. EPA NESHAP FRIABILITY DESIGNATION FOR WORK TASK  
Friable  Non-friable Category I   
Non-friable Category II\_\_\_\_\_
7. FORM \_\_\_\_\_ and CONDITION OF ACM: GOOD\_\_\_\_\_ FAIR\_\_\_\_\_ POOR\_\_\_\_\_
8. QUANTITY: METERS\_\_\_\_\_, SQUARE METERS\_\_\_\_\_
- 8a. QUANTITY: LINEAR FT.\_\_\_\_\_, SQUARE FT.\_\_\_\_\_
9. RESPONSE ACTION DETAIL SHEET NUMBER FOR WORK TASK: 90,060\_\_\_\_\_
10. SET-UP DETAIL SHEET NUMBERS  
FOR WORK TASK 3, 4, 8, 9a, 9b, 10, 11, 12, 13, 14, 15, 18, 19, 22, 23, 25, 45, 48, 57, 58, 65, 74, 87 and 88.

## NOTES:

- (1) Numeric sequence of individual work tasks (1,2,3,4, etc.) for each regulated area. Each category of EPA friability/OSHA class has a separate task.
- (2) Specific location of work (building, floor, area, e.g., Building 1421, 2nd Floor, Rm 201)
- (3) A description of material to be abated (example: horizontal pipe, cement wall panels, tile, stucco, etc.) type of asbestos (chrysotile, amosite, crocidolite, etc.); and % asbestos content.
- (4) Technique to be used: Removal = REM; Encapsulation = ENCAP; Encasement = ENCAS; Enclosure = ENCL; Repair = REP.
- (5) Class designation: Class I, II, III, or IV (OSHA designation).
- (6) Friability of materials: Check the applicable EPA NESHAP friability designation.
- (7) Form: Interior or Exterior Architectural = IA or EA; Mechanical/Electrical = ME.  
Condition: Good = G; Fair = F; Poor = P.
- (8) Quantity of ACM for each work task in meters or square meters.
- (8a) Quantity of ACM for each work task in linear feet or square feet.
- (9) Response Action Detail Sheet specifies the material to be abated and the methods to be used. There is only one Response Action Detail Sheet for each abatement task.

TABLE 1

## INDIVIDUAL WORK TASK DATA ELEMENTS

- (10) Set-up Detail Sheets indicate containment and control methods used in support of the response action (referenced in the selected Response Action Detail Sheet).

TABLE 2

FORMULA FOR CALCULATION OF THE 95 PERCENT CONFIDENCE LEVEL  
(Reference: NIOSH 7400)

---

$$\text{Fibers/cc(01.95 percent CL)} = X + [(X) * (1.645) * (CV)]$$

Where:  $X = ((E)(AC))/((V)(1000))$

$$E = ((F/Nf) - (B/Nb))/Af$$

CV = The precision value; 0.45 shall be used unless the analytical laboratory provides the Contracting Officer with documentation (Round Robin Program participation and results) that the laboratory's precision is better.

AC = Effective collection area of the filter in square millimeters

V = Air volume sampled in liters

E = Fiber density on the filter in fibers per square millimeter

F/Nf = Total fiber count per graticule field

B/Nb = Mean field blank count per graticule field

Af = Graticule field area in square millimeters

$$\text{TWA} = C1/T1 + C2/T2 = Cn/Tn$$

Where: C = Concentration of contaminant

T = Time sampled.

TABLE 3  
 NIOSH METHOD 7400  
 PCM ENVIRONMENTAL AIR SAMPLING PROTOCOL (NON-PERSONAL)

Sample Location	Minimum No. of Samples	Filter Pore Size (Note 1)	Min. Vol. (Note 2) (Liters)	Sampling Rate (liters/min.)
Inside Abatement Area	0.5/140 Square Meters (Notes 3 & 4)	0.45 microns	3850	2-16
Each Room in 1 Abatement Area Less than 140 Square meters		0.45 microns	3850	2-16
Field Blank	2	0.45 microns	0	0
Laboratory Blank	1	0.45 microns	0	0

## Notes:

1. Type of filter is Mixed Cellulose Ester.
2. Ensure detection limit for PCM analysis is established at 0.005 fibers/cc.
3. One sample shall be added for each additional 140 square meters. (The corresponding I-P units are 5/1500 square feet).
4. A minimum of 5 samples are to be taken per abatement area, plus 2 field blanks.

TABLE 4

EPA AHERA METHOD: TEM AIR SAMPLING PROTOCOL

Location Sampled	Minimum No. of Samples	Filter Pore Size	Min. Vol. (Liters)	Sampling Rate (liters/min.)
Inside Abatement Area	5	0.45 microns	1500	2-16
Outside Abatement Area	5	0.45 microns	1500	2-16
Field Blank	2	0.45 microns	0	0
Laboratory Blank	1	0.45 microns	0	0

## Notes:

1. Type of filter is Mixed Cellulose Ester.
2. The detection limit for TEM analysis is 70 structures/square mm.

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

PROJECT NAME \_\_\_\_\_ CONTRACT NO. \_\_\_\_\_  
 PROJECT ADDRESS \_\_\_\_\_  
 CONTRACTOR FIRM NAME \_\_\_\_\_  
 EMPLOYEE'S NAME \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_,  
 (Print) (Last) (First) (MI)

Social Security Number: \_\_\_\_\_-\_\_\_\_\_-\_\_\_\_\_,

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH TYPES OF LUNG DISEASE AND CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS, THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NONSMOKING PUBLIC.

Your employer's contract for the above project requires that you be provided and you complete formal asbestos training specific to the type of work you will perform and project specific training; that you be supplied with proper personal protective equipment including a respirator, that you be trained in its use; and that you receive a medical examination to evaluate your physical capacity to perform your assigned work tasks, under the environmental conditions expected, while wearing the required personal protective equipment. These things are to be done at no cost to you. By signing this certification, you are acknowledging that your employer has met these obligations to you. The Contractor's Designated Industrial Hygienist will check the block(s) for the type of formal training you have completed. Review the checked blocks prior to signing this certification.

FORMAL TRAINING:

\_\_\_\_\_ a. For Competent Persons and Supervisors: I have completed EPA's Model Accreditation Program (MAP) training course, "Contractor/Supervisor", that meets this State's requirements.

b. For Workers:

\_\_\_\_\_ (1) For OSHA Class I work: I have completed EPA's MAP training course, "Worker", that meets this State's requirements.

\_\_\_\_\_ (2) For OSHA Class II work (where there will be abatement of more than one type of Class II materials, i.e., roofing, siding, floor tile, etc.): I have completed EPA's MAP training course, "Worker", that meets this State's requirements.

(3) For OSHA Class II work (there will only be abatement of one type of Class II material):

\_\_\_\_\_ (a) I have completed an 8-hour training class on the elements of 29 CFR 1926, Section .1101(k)(9)(viii), in addition to the specific work practices and engineering controls of 29 CFR 1926, Section .1101(g) and hands-on training.

\_\_\_\_\_ (b) I have completed EPA's MAP training course, "Worker", that meets this State's requirements.

\_\_\_\_\_ (4) For OSHA Class III work: I have completed at least a 16-hour course consistent with EPA requirements for training of local education agency maintenance and custodial staff at 40 CFR 763, Section .92(a)(2) and

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

the elements of 29 CFR 1926, Section .1101(k)(9)(viii), in addition to the specific work practices and engineering controls at 29 CFR 1926, Section .1101, and hands-on training.

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

\_\_\_\_\_ (5) For OSHA Class IV work: I have completed at least a 2-hr course consistent with EPA requirements for training of local education agency maintenance and custodial staff at 40 CFR 763, (a)(1), and the elements of 29 CFR 1926, Section .1101(k)(9)(viii), in addition to the specific work practices and engineering controls at 29 CFR 1926, Section .1101(g) and hands-on training.

\_\_\_\_\_ c. Workers, Supervisors and the Designated Competent Person: I have completed annual refresher training as required by EPA's MAP that meets this State's requirements.

PROJECT SPECIFIC TRAINING:

\_\_\_\_\_ I have been provided and have completed the project specific training required by this Contract. My employer's Designated Industrial Hygienist and Designated Competent Person conducted the training.

RESPIRATORY PROTECTION:

\_\_\_\_\_ I have been trained in accordance with the criteria in the Contractor's Respiratory Protection program. I have been trained in the dangers of handling and breathing asbestos dust and in the proper work procedures and use and limitations of the respirator(s) I will wear. I have been trained in and will abide by the facial hair and contact lens use policy of my employer.

RESPIRATOR FIT-TEST TRAINING:

\_\_\_\_\_ I have been trained in the proper selection, fit, use, care, cleaning, maintenance, and storage of the respirator(s) that I will wear. I have been fit-tested in accordance with the criteria in the Contractor's Respiratory Program and have received a satisfactory fit. I have been assigned my individual respirator. I have been taught how to properly perform positive and negative pressure fit-check upon donning negative pressure respirators each time.

MEDICAL EXAMINATION:

\_\_\_\_\_ I have had a medical examination within the last twelve months which was paid for by my employer. The examination included: health history, pulmonary function tests, and may have included an evaluation of a chest x-ray. A physician made a determination regarding my physical capacity to perform work tasks on the project while wearing personal protective equipment including a respirator. I was personally provided a copy and informed of the results of that examination. My employer's Industrial Hygienist evaluated the medical certification provided by the physician and checked the appropriate blank below. The physician determined that there:

\_\_\_\_\_ were no limitations to performing the required work tasks.  
 \_\_\_\_\_ were identified physical limitations to performing the required work tasks.

Date of the medical examination \_\_\_\_\_

Employee Signature \_\_\_\_\_ date \_\_\_\_\_

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

Contractor's Industrial

Hygienist Signature \_\_\_\_\_ date \_\_\_\_\_

-- End of Section --

ATTACHMENT 15

SECTION 13282N  
LEAD IN CONSTRUCTION

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## DIVISION 13 - SPECIAL CONSTRUCTION

## SECTION 13282N

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## SECTION 13282N

## LEAD IN CONSTRUCTION

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z88.2 (1992) Respiratory Protection

## U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1926.103	Respiratory Protection
29 CFR 1926.21	Safety Training and Education
29 CFR 1926.33	Access to Employee Exposure and Medical Records
29 CFR 1926.55	Gases, Vapors, Fumes, Dusts, and Mists
29 CFR 1926.59	Hazard Communication
29 CFR 1926.62	Lead
29 CFR 1926.65	Hazardous Waste Operations and Emergency Response
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and

	Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 745	Lead-Based Paint Poisoning Prevention in Certain Residential Structures
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 178	Specifications for Packagings

HAWAII OCCUPATIONAL SAFETY AND HEALTH (HIOSH)

HIOSH 12-148	Lead in Construction
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U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

HUD 6780	(1995; Errata Aug 1996; Rev Ch. 7 - 1997) Guidelines for the Avaluation and Control of Lead-Based Paint Hazards in Housing
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UNDERWRITERS LABORATORIES (UL)

UL 586	(1996; Rev thru Aug 1999) High-Efficiency, Particulate, Air Filter Units
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1.2 DEFINITIONS

1.2.1 Action Level

Employee exposure, without regard to use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air averaged over an 8 hour period.

1.2.2 Area Sampling

Sampling of lead concentrations within the lead control area and inside the physical boundaries which is representative of the airborne lead concentrations but is not collected in the breathing zone of personnel (approximately 5 to 6 feet above the floor).

1.2.3 Competent Person (CP)

As used in this section, refers to a person employed by the Contractor who is trained in the recognition and control of lead hazards in accordance with current federal, State, and local regulations and has the authority to take prompt corrective actions to control the lead hazard. A Certified Industrial Hygienist (CIH) certified by the American Board of Industrial Hygiene or a Certified Safety Professional (CSP) certified by the Board of

Certified Safety Professionals is the best choice.

#### 1.2.4 Contaminated Room

Refers to a room for removal of contaminated personal protective equipment (PPE).

#### 1.2.5 Decontamination Shower Facility

That facility that encompasses a clean clothing storage room, and a contaminated clothing storage and disposal rooms, with a shower facility in between.

#### 1.2.6 High Efficiency Particulate Arrestor (HEPA) Filter Equipment

HEPA filtered vacuuming equipment with a UL 586 filter system capable of collecting and retaining lead-contaminated particulate. A high efficiency particulate filter demonstrates at least 99.97 percent efficiency against 0.3 micron or larger size particles.

#### 1.2.7 Lead

Metallic lead, inorganic lead compounds, and organic lead soaps. Excludes other forms of organic lead compounds.

#### 1.2.8 Lead Control Area

A system of control methods to prevent the spread of lead dust, paint chips or debris to adjacent areas that may include temporary containment, floor or ground cover protection, physical boundaries, and warning signs to prevent unauthorized entry of personnel. HEPA filtered local exhaust equipment may be used as engineering controls to further reduce personnel exposures or building/outdoor environmental contamination.

#### 1.2.9 Lead Permissible Exposure Limit (PEL)

Fifty micrograms per cubic meter of air as an 8 hour time weighted average as determined by 29 CFR 1926.62. If an employee is exposed for more than eight hours in a work day, the PEL shall be determined by the following formula:

$$\text{PEL (micrograms/cubic meter of air)} = 400/\text{No. hrs worked per day}$$

#### 1.2.10 Material Containing Lead/Paint with Lead (MCL/PWL)

Any material, including paint, which contains lead as determined by the testing laboratory using a valid test method. The requirements of this section does not apply if no detectable levels of lead are found using a quantitative method for analyzing paint or MCL using laboratory instruments with specified limits of detection (usually 0.01%). An X-Ray Fluorescence (XRF) instrument is not considered a valid test method.

#### 1.2.11 Personal Sampling

Sampling of airborne lead concentrations within the breathing zone of an employee to determine the 8 hour time weighted average concentration in accordance with 29 CFR 1926.62. Samples shall be representative of the employees' work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders, with a radius of      and centered at the nose or mouth of an employee.

#### 1.2.12 Physical Boundary

Area physically roped or partitioned off around lead control area to limit unauthorized entry of personnel.

### 1.3 DESCRIPTION

#### 1.3.1 Description of Work

Construction activities impacting PWL or material containing lead which are covered by this specification include the demolition and/or removal of material containing lead in fair condition, located on walls (horizontal and vertical), ceiling, floors, fixtures, piping, etc. and as indicated on the drawings developed by AE Contractor.

#### 1.3.2 Coordination with Other Work

The contractor shall coordinate with work being performed in adjacent areas. Coordination procedures shall be explained in the Plan and shall describe how the Contractor will prevent lead exposure to other contractors and/or Government personnel performing work unrelated to lead activities.

### 1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

#### SD-01 Preconstruction Submittals

Occupational and Environmental Assessment Data Report (if objective data is used to justify excluding the initial occupational exposure assessment); G

Lead Compliance Plan including CP approval (signature, date, and certification number); G

Competent Person qualifications; G

Training Certification of workers and supervisors; G

lead waste management plan; G

written evidence that TSD is approved for lead disposal; G

Certification of Medical Examinations; G

SD-06 Test Reports

sampling results; G

Occupational and Environmental Assessment Data Report; G

SD-07 Certificates

Testing laboratory qualifications; G

Occupant Notification; G

Third party consultant qualifications; G

Clearance Certification; G

SD-11 Closeout Submittals

Completed and signed hazardous waste manifest from treatment or disposal facility; G

Waste turn-in documents or weight tickets for non-hazardous wastes that are disposed of at sanitary or construction and demolition landfills; G

1.5 QUALITY ASSURANCE

1.5.1 Qualifications

1.5.1.1 Competent Person (CP)

Submit name, address, and telephone number of the CP selected to perform responsibilities specified in paragraph entitled "Competent Person (CP) Responsibilities." Provide documented construction project-related experience with implementation of OSHA's Lead in Construction standard (29 CFR 1926.62) which shows ability to assess occupational and environmental exposure to lead, experience with the use of respirators, personal protective equipment and other exposure reduction methods to protect employee health. Submit proper documentation that the CP is trained and certified in accordance with federal, State, and local laws. The competent person shall be a EPA certified lead-based paint abatement Supervisor/Project Designer.

1.5.1.2 Training Certification

Submit a certificate for each worker and supervisor, signed and dated by the accredited training provider, stating that the employee has received the required lead training specified in 29 CFR 1926.62(1) and is certified to perform or supervise deleading, lead removal or demolition activities.

#### 1.5.1.3 Testing Laboratory

Submit the name, address, and telephone number of the testing laboratory selected to perform the air and wipe analysis, testing, and reporting of airborne concentrations of lead. Use a laboratory participating in the EPA National Lead Laboratory Accreditation Program (NLLAP) by being accredited by either the American Association for Laboratory Accreditation (A2LA) or the American Industrial Hygiene Association (AIHA) and that is successfully participating in the Environmental Lead Proficiency Analytical Testing (ELPAT) program to perform sample analysis. Laboratories selected to perform blood lead analysis shall be OSHA approved.

#### 1.5.1.4 Third Party Consultant Qualifications

Submit the name, address and telephone number of the third party consultant selected to perform the wipe sampling for determining concentrations of lead in dust. Submit proper documentation that the consultant is trained and certified as an inspector technician or inspector/risk assessor by the USEPA authorized State (or local) certification and accreditation program.

#### 1.5.2 Requirements

##### 1.5.2.1 Competent Person (CP) Responsibilities

- a. Verify training meets all federal, State, and local requirements.
- b. Review and approve Lead Compliance Plan for conformance to the applicable referenced standards.
- c. Continuously inspect PWL or MCL work for conformance with the approved plan.
- d. Perform (or oversee performance of) air sampling. Recommend upgrades or downgrades (whichever is appropriate based on exposure) on the use of PPE (respirators included) and engineering controls.
- e. Ensure work is performed in strict accordance with specifications at all times.
- f. Control work to prevent hazardous exposure to human beings and to the environment at all times.
- g. Supervise final cleaning of the lead control area, take clearance wipe samples if necessary; review clearance sample results and make recommendations for further cleaning.
- h. Certify the conditions of the work as called for elsewhere in this specification.

##### 1.5.2.2 Lead Compliance Plan

Submit a detailed job-specific plan of the work procedures to be used in the disturbance of PWL or MCL. The plan shall include a sketch showing the

location, size, and details of lead control areas, critical barriers, physical boundaries, location and details of decontamination facilities, viewing ports, and mechanical ventilation system. Include a description of equipment and materials, work practices, controls and job responsibilities for each activity from which lead is emitted. Include in the plan, eating, drinking, smoking, hygiene facilities and sanitary procedures, interface of trades, sequencing of lead related work, collected waste water and dust containing lead and debris, air sampling, respirators, personal protective equipment, and a detailed description of the method of containment of the operation to ensure that lead is not released outside of the lead control area. Include site preparation, cleanup and clearance procedures. Include occupational and environmental sampling, training and strategy, sampling and analysis strategy and methodology, frequency of sampling, duration of sampling, and qualifications of sampling personnel in the air sampling portion of the plan. Include a description of arrangements made among contractors on multicontractor worksites to inform affected employees and to clarify responsibilities to control exposures.

The plan shall be developed by a EPA certified planner/project designer.

#### 1.5.2.3 Occupational and Environmental Assessment Data Report

If initial monitoring is necessary, submit occupational and environmental sampling results to the Contracting Officer within three working days of collection, signed by the testing laboratory employee performing the analysis, the employee that performed the sampling, and the CP.

- a. The initial monitoring shall represent each job classification, or if working conditions are similar to previous jobs by the same employer, provide previously collected exposure data that can be used to estimate worker exposures per 29 CFR 1926.62. The data shall represent the worker's regular daily exposure to lead for stated work.
- b. Submit worker exposure data gathered during the task based trigger operations of 29 CFR 1926.62 with a complete process description. This includes manual demolition, manual scraping, manual sanding, heat gun, power tool cleaning, rivet busting, cleanup of dry expendable abrasives, abrasive blast enclosure removal, abrasive blasting, welding, cutting and torch burning where lead containing coatings are present.
- c. The initial assessment shall determine the requirement for further monitoring and the need to fully implement the control and protective requirements including the lead compliance plan per 29 CFR 1926.62.

#### 1.5.2.4 Medical Examinations

Initial medical surveillance as required by 29 CFR 1926.62 shall be made available to all employees exposed to lead at any time (1 day) above the action level. Full medical surveillance shall be made available to all employees on an annual basis who are or may be exposed to lead in excess of the action level for more than 30 days a year or as required by 29 CFR 1926.62. Adequate records shall show that employees meet the medical surveillance requirements of 29 CFR 1926.33, 29 CFR 1926.62 and 29 CFR

1926.103. Provide medical surveillance to all personnel exposed to lead as indicated in 29 CFR 1926.62. Maintain complete and accurate medical records of employees for the duration of employment plus 30 years.

#### 1.5.2.5 Training

Train each employee performing work that disturbs lead, who performs MCL/PWL disposal, and air sampling operations prior to the time of initial job assignment and annually thereafter, in accordance with 29 CFR 1926.21, 29 CFR 1926.62, HIOSH 12-148 and local regulations where appropriate.

#### 1.5.2.6 Respiratory Protection Program

a. Provide each employee required to wear a respirator a respirator fit test at the time of initial fitting and at least annually thereafter as required by 29 CFR 1926.62.

b. Establish and implement a respiratory protection program as required by ANSI Z88.2, 29 CFR 1926.103, 29 CFR 1926.62, and 29 CFR 1926.55.

#### 1.5.2.7 Hazard Communication Program

Establish and implement a Hazard Communication Program as required by 29 CFR 1926.59.

#### 1.5.2.8 Lead Waste Management

The Lead Waste Management Plan shall comply with applicable requirements of federal, State, and local hazardous waste regulations. and address:

a. Identification and classification of wastes associated with the work.

b. Estimated quantities of wastes to be generated and disposed of.

c. Names and qualifications of each contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location and operator and a 24-hour point of contact. Furnish two copies of USEPA manifests and USEPA Identification numbers.

d. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes.

e. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.

f. Spill prevention, containment, and cleanup contingency measures including a health and safety plan to be implemented in accordance with 29 CFR 1926.65.

g. Work plan and schedule for waste containment, removal and disposal. Proper containment of the waste includes using acceptable waste containers (e.g., 55-gallon drums) as well as proper marking/labeling of the containers. Wastes shall be cleaned up and containerized daily.

h. Include any process that may alter or treat waste rendering a hazardous waste non hazardous.

i. Unit cost for hazardous waste disposal according to this plan.

#### 1.5.2.9 Environmental, Safety and Health Compliance

In addition to the detailed requirements of this specification, comply with laws, ordinances, rules, and regulations of federal, State, and local authorities regarding lead. Comply with the applicable requirements of the current issue of 29 CFR 1926.62. Submit matters regarding interpretation of standards to the Contracting Officer for resolution before starting work. Where specification requirements and the referenced documents vary, the most stringent requirement shall apply.

Licensing and certification in the state of HI is required.

#### 1.5.3 Pre-Construction Conference

Along with the CP, meet with the Contracting Officer to discuss in detail the Lead Waste Management Plan and the Lead Compliance Plan, including procedures and precautions for the work.

### 1.6 EQUIPMENT

#### 1.6.1 Respirators

Furnish appropriate respirators approved by the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services, for use in atmospheres containing lead dust, fume and mist. Respirators shall comply with the requirements of 29 CFR 1926.62.

#### 1.6.2 Special Protective Clothing

Furnish personnel who will be exposed to lead-contaminated dust with proper disposable protective whole body clothing, head covering, gloves, eye, and foot coverings as required by 29 CFR 1926.62. Furnish proper disposable plastic or rubber gloves to protect hands. Reduce the level of protection only after obtaining approval from the CP.

#### 1.6.3 Rental Equipment Notification

If rental equipment is to be used during PWL or MCL handling and disposal, notify the rental agency in writing concerning the intended use of the equipment.

#### 1.6.4 Vacuum Filters

UL 586 labeled HEPA filters.

#### 1.6.5 Equipment for Government Personnel

Furnish the Contracting Officer with two complete sets of personal protective equipment (PPE) daily, as required herein, for entry

into and inspection of the lead removal work within the lead controlled area. Personal protective equipment shall include disposable whole body covering, including appropriate foot, head, eye, and hand protection. PPE shall remain the property of the Contractor. The Government will provide respiratory protection for the Contracting Officer.

## 1.7 PROJECT/SITE CONDITIONS

### 1.7.1 Protection of Existing Work to Remain

Perform work without damage or contamination of adjacent areas. Where existing work is damaged or contaminated, restore work to its original condition or better as determined by the Contracting Officer.

## PART 2 PRODUCTS (Not used)

## PART 3 EXECUTION

### 3.1 PREPARATION

#### 3.1.1 Protection

##### 3.1.1.1 Notification

a. Notify the Contracting Officer 30 days prior to the start of any lead work.

##### 3.1.1.2 Lead Control Area

a. Physical Boundary - Provide physical boundaries around the lead control area by roping off the area designated in the work plan or providing curtains, portable partitions or other enclosures to ensure that lead will not escape outside of the lead control area.

b. Warning Signs - Provide warning signs at approaches to lead control areas. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area. Signs shall comply with the requirements of 29 CFR 1926.62.

##### 3.1.1.3 Furnishings

The Government will remove furniture and equipment from the building before lead work begins.

##### 3.1.1.4 Heating, Ventilating and Air Conditioning (HVAC) Systems

Shut down, lock out, and isolate HVAC systems that supply, exhaust, or pass through the lead control areas. Seal intake and exhaust vents in the lead control area with 6 mil plastic sheet and tape. Seal seams in HVAC components that pass through the lead control area. Provide temporary HVAC system for areas in which HVAC has been shut down outside the lead control area.

#### 3.1.1.5 Decontamination Shower Facility

Provide clean and contaminated change rooms and shower facilities in accordance with this specification and 29 CFR 1926.62.

#### 3.1.1.6 Eye Wash Station

Where eyes may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes shall be provided within the work area.

#### 3.1.1.7 Mechanical Ventilation System

a. To the extent feasible, use local exhaust ventilation or other collection systems, approved by the CP. Local exhaust ventilation systems shall be evaluated and maintained in accordance with 29 CFR 1926.62.

b. Vent local exhaust outside the building and away from building ventilation intakes or ensure system is connected to HEPA filters.

c. Use locally exhausted, power actuated tools or manual hand tools.

#### 3.1.1.8 Personnel Protection

Personnel shall wear and use protective clothing and equipment as specified herein. Eating, smoking, or drinking or application of cosmetics is not permitted in the lead control area. No one will be permitted in the lead control area unless they have been appropriately trained and provided with protective equipment.

### 3.2 ERECTION

#### 3.2.1 Lead Control Area Requirements

Establish a lead control area by completely establishing barriers and physical boundaries around the area or structure where PWL or MCL removal operations will be performed.

Full containment - Contain removal operations by the use of critical barriers and HEPA filtered exhaust, a negative pressure enclosure system with decontamination facilities and with HEPA filtered exhaust if required by the CP. For containment areas larger than 1,000 square feet install a minimum of two 18 inch square viewing ports. Locate ports to provide a view of the required work from the exterior of the enclosed contaminated area. Glaze ports with laminated safety glass.

### 3.3 APPLICATION

#### 3.3.1 Lead Work

Perform lead work in accordance with approved Lead Compliance Plan. Use procedures and equipment required to limit occupational exposure and environmental contamination with lead when the work is performed in

accordance with 29 CFR 1926.62 or 40 CFR 745, and as specified herein. Dispose of all PWL or MCL and associated waste in compliance with federal, State, and local requirements.

### 3.3.2 Paint with Lead or Material Containing Lead Removal

Manual or power sanding or grinding of lead surfaces or materials is not permitted unless tools are equipped with HEPA attachments or wet methods. The dry sanding or grinding of surfaces that contain lead is prohibited. Provide methodology for removing lead in the Lead Compliance Plan. Select lead removal processes to minimize contamination of work areas outside the control area with lead-contaminated dust or other lead-contaminated debris or waste and to ensure that unprotected personnel are not exposed to hazardous concentrations of lead. Describe this removal process in the Lead Compliance Plan.

#### 3.3.2.1 Paint with Lead or Material Containing Lead - Indoor Removal

Perform manual in the lead control areas using enclosures, barriers or containments and powered locally exhausted tools. Collect residue debris for disposal in accordance with federal, State, and local requirements.

#### 3.3.2.2 Paint with Lead or Material Containing Lead - Outdoor Removal

Perform outdoor removal as indicated in federal, State, and local regulations and in the Lead Compliance Plan. The worksite preparation (barriers or containments) shall be job dependent and presented in the Lead Compliance Plan.

### 3.3.3 Personnel Exiting Procedures

Whenever personnel exit the lead-controlled area, they shall perform the following procedures and shall not leave the work place wearing any clothing or equipment worn in the control area:

- a. Vacuum all clothing before entering the contaminated change room.
- b. Remove protective clothing in the contaminated change room, and place them in an approved impermeable disposal bag.
- c. Shower.
- c. Wash hands and face at the site, don appropriate disposable or uncontaminated reusable clothing, move to an appropriate shower facility, shower.
- d. Change to clean clothes prior to leaving the clean clothes storage area.

### 3.4 FIELD QUALITY CONTROL

#### 3.4.1 Tests

##### 3.4.1.1 Air and Wipe Sampling

Conduct sampling for lead in accordance with 29 CFR 1926.62 and as specified herein. Air and wipe sampling shall be directed or performed by the CP.

- a. The CP shall be on the job site directing the air and wipe sampling and inspecting the PWL or MCL removal work to ensure that the requirements of the contract have been satisfied during the entire PWL or MCL operation.
- b. Collect personal air samples on employees who are anticipated to have the greatest risk of exposure as determined by the CP. In addition, collect air samples on at least twenty-five percent of the work crew or a minimum of two employees, whichever is greater, during each work shift.
- c. Submit results of air samples, signed by the CP, within 72 hours after the air samples are taken.
- d. Conduct area air sampling daily, on each shift in which lead-based paint removal operations are performed, in areas immediately adjacent to the lead control area. Sufficient area monitoring shall be conducted to ensure unprotected personnel are not exposed at or above 30 micrograms per cubic meter of air. If 30 micrograms per cubic meter of air is reached or exceeded, stop work, correct the condition(s) causing the increased levels. Notify the Contracting Officer immediately. Determine if condition(s) require any further change in work methods. Removal work shall resume only after the CP and the Contracting Officer give approval.
- e. Before any work begins, a third party consultant shall collect and analyze baseline wipe and soil samples in accordance with methods defined by federal, State, and local standards inside and outside of the physical boundary to assess the degree of dust contamination in the facility prior to lead disturbance or removal.
- f. Surface Wipe Samples - Collect surface wipe samples on floors at a location no greater than 10 feet outside the lead control area at a frequency of once per day while lead removal work is conducted in occupied buildings. Surface wipe results shall meet criteria in paragraph "Clearance Certification.

#### 3.4.1.2 Sampling After Removal

After the visual inspection, conduct soil sampling if bare soil is present during external removal operations and collect wipe and soil samples according to the HUD protocol contained in HUD 6780 to determine the lead content of settled dust in micrograms per square meter foot of surface area and parts per million (ppm) or for soil.

#### 3.4.1.3 Testing of Material Containing Lead Residue

Test residue in accordance with 40 CFR 261 for hazardous waste.

### 3.5 CLEANING AND DISPOSAL

#### 3.5.1 Cleanup

Maintain surfaces of the lead control area free of accumulations of dust and debris. Restrict the spread of dust and debris; keep waste from being distributed over the work area. Do not dry sweep or use pressurized air to clean up the area. At the end of each shift and when the lead operation has been completed, clean the controlled area of visible contamination by vacuuming with a HEPA filtered vacuum cleaner, wet mopping the area and wet wiping the area as indicated by the Lead Compliance Plan. Reclean areas showing dust or debris. After visible dust and debris is removed, wet wipe and HEPA vacuum all surfaces in the controlled area. If adjacent areas become contaminated at any time during the work, clean, visually inspect, and then wipe sample all contaminated areas. The CP shall then certify in writing that the area has been cleaned of lead contamination before clearance testing.

##### 3.5.1.1 Clearance Certification

The CP shall certify in writing that air samples collected outside the lead control area during paint removal operations are less than 30 micrograms per cubic meter of air; the respiratory protection used for the employees was adequate; the work procedures were performed in accordance with 29 CFR 1926.62; and that there were no visible accumulations of material and dust containing lead left in the work site. Do not remove the lead control area or roped off boundary and warning signs prior to the Contracting Officer's acknowledgement of receipt of the CP certification.

The third party consultant shall certify surface wipe sample results collected inside and outside the work area are less than 200 micrograms per square foot on floors or horizontal surfaces.

Clear the lead control area in industrial facilities of all visible dust and debris.

For exterior work, soil samples taken at the exterior of the work site shall be used to determine if soil lead levels had increased at a statistically significant level (significant at the 95 percent confidence limit) from the soil lead levels prior to the operation. If soil lead levels either show a statistically significant increase above soil lead levels prior to work or soil lead levels above any applicable federal or state standard for lead in soil, the soil shall be remediated.

#### 3.5.2 Disposal

a. All material, whether hazardous or non-hazardous shall be disposed in accordance with all laws and provisions and all federal, State or local regulations. Ensure all waste is properly characterized. The result of each waste characterization (TCLP for RCRA materials) will dictate disposal requirements.

b. Contractor is responsible for segregation of waste. Collect lead-contaminated waste, scrap, debris, bags, containers, equipment,

and lead-contaminated clothing that may produce airborne concentrations of lead particles. Label the containers in accordance with 29 CFR 1926.62 and 40 CFR 261.

c. Dispose of lead-contaminated material classified as hazardous waste at an EPA or State approved hazardous waste treatment, storage, or disposal facility off Government property.

d. Store waste materials in U.S. Department of Transportation (49 CFR 178) approved 55 gallon drums. Properly label each drum to identify the type of waste (49 CFR 172) and the date the drum was filled. For hazardous waste, the collection drum requires marking/labeling in accordance with 40 CFR 262 during the accumulation/collection timeframe. The Contracting Officer or an authorized representative will assign an area for interim storage of waste-containing drums. Do not store hazardous waste drums in interim storage longer than 90 calendar days from the date affixed to each drum.

e. Handle, store, transport, and dispose lead or lead-contaminated waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and 40 CFR 265. Comply with land disposal restriction notification requirements as required by 40 CFR 268.

#### 3.5.2.1 Disposal Documentation

Submit written evidence to demonstrate the hazardous waste treatment, storage, or disposal facility (TSD) is approved for lead disposal by the EPA, State or local regulatory agencies. Submit one copy of the completed hazardous waste manifest, signed and dated by the initial transporter in accordance with 40 CFR 262. Contractor shall provide a certificate that the waste was accepted by the disposal facility. Provide turn-in documents or weight tickets for non-hazardous waste disposal.

#### 3.5.2.2 Payment for Hazardous Waste

Payment for disposal of hazardous and non-hazardous waste will not be made until a signed copy of the manifest from the treatment or disposal facility certifying the amount of lead-containing materials or non-hazardous waste delivered is returned and a copy is furnished to the Government.

-- End of Section --

ATTACHMENT 16

SECTION 13286N  
HANDLING OF LIGHTING BALLAST AND LAMPS  
CONTAINING PCBs AND MERCURY

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DIVISION 13 - SPECIAL CONSTRUCTION

13286N

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13286N

## HANDLING OF LIGHTING BALLASTS AND LAMPS CONTAINING PCBs AND MERCURY

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.1000	Air Contaminants
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Generators of Hazardous Waste
40 CFR 263	Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal FacilitiesRef Title
40 CFR 268	Land Disposal Restrictions
40 CFR 270	EPA Administered Permit Programs: The Hazardous Waste Program
40 CFR 273	Standards For Universal Waste Management
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use ProhibitionsRef Title
49 CFR 178	Shipping Container Specification

## 1.2 REQUIREMENTS

Removal and disposal of PCB containing lighting ballasts and associated mercury-containing lamps. Contractor may encounter leaking PCB ballasts.

### 1.3 DEFINITIONS

#### 1.3.1 Certified Industrial Hygienist (CIH)

A industrial hygienist hired by the contractor shall be certified by the American Board of Industrial Hygiene.

#### 1.3.2 Leak

Leak or leaking means any instance in which a PCB article, PCB container, or PCB equipment has any PCBs on any portion of its external surface.

#### 1.3.3 Lamps

Lamp, also referred to as "universal waste lamp", is defined as the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Examples of common universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps.

#### 1.3.4 Polychlorinated Biphenyls (PCBs)

PCBs as used in this specification shall mean the same as PCBs, PCB containing lighting ballast, and PCB container, as defined in 40 CFR 761, Section 3, Definitions.

#### 1.3.5 Spill

Spill means both intentional and unintentional spills, leaks, and other uncontrolled discharges when the release results in any quantity of PCBs running off or about to run off the external surface of the equipment or other PCB source, as well as the contamination resulting from those releases.

#### 1.3.6 Universal Waste

Universal Waste means any of the following hazardous wastes that are managed under the universal waste requirements 40 CFR 273:

- (1) Batteries as described in Sec. 273.2 of this chapter;
- (2) Pesticides as described in Sec. 273.3 of this chapter;
- (3) Thermostats as described in Sec. 273.4 of this chapter; and
- (4) Lamps as described in Sec. 273.5 of this chapter.

### 1.4 QUALITY ASSURANCE

#### 1.4.1 Regulatory Requirements

Perform PCB related work in accordance with 40 CFR 761. Perform mercury-containing lamps storage and transport in accordance with 40 CFR 261, 40 CFR 264, 40 CFR 265, 40 CFR 273.

#### 1.4.2 Training

Certified industrial hygienist (CIH) shall instruct and certify the training of all persons involved in the removal of PCB containing lighting ballasts and mercury-containing lamps. The instruction shall include: The dangers of PCB and mercury exposure, decontamination, safe work practices, and applicable OSHA and EPA regulations. The CIH shall review and approve the PCB and Mercury-Containing Lamp Removal Work Plans.

#### 1.4.3 Regulation Documents

Maintain at all times one copy each at the office and one copy each in view at the job site of 29 CFR 1910.1000, 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 265, 40 CFR 268, 40 CFR 270, 40 CFR 273 and of the Contractor removal work plan and disposal plan for PCB and for associated mercury-containing lamps.

#### 1.5 SUBMITTALS

Submit the following in accordance with Section 01330, "Submittal Procedures."

##### SD-07 Certificates

Qualifications of CIH; G

Training Certification; G

PCB and Lamp Removal Work Plan; G

PCB and Lamp Disposal Plan; G

##### SD-11 Closeout Submittals

Transporter certification of notification to EPA of their PCB waste activities and EPA ID numbers; G

Certification of Decontamination

Certificate of Disposal and/or recycling. Submit to the Government before application for payment within 30 days of the date that the disposal of the PCB and mercury-containing lamp waste identified on the manifest was completed.

DD Form 1348-1

Testing results

#### 1.6 ENVIRONMENTAL REQUIREMENTS

Use special clothing:

- a. Disposable gloves (polyethylene)
- b. Eye protection

c. PPE as required by CIH

#### 1.7 SCHEDULING

Notify the Contracting Officer 20 days prior to the start of PCB and mercury-containing lamp removal work.

#### 1.8 QUALITY ASSURANCE

##### 1.8.1 Qualifications of CIH

Submit the name, address, and telephone number of the Industrial Hygienist selected to perform the duties in paragraph entitled "Certified Industrial Hygienist." Submit training certification that the Industrial Hygienist is certified, including certification number and date of certification or re certification.

##### 1.8.2 PCB and Lamp Removal Work Plan

Submit a job-specific plan within 20 calendar days after award of contract of the work procedures to be used in the removal, packaging, and storage of PCB-containing lighting ballasts and associated mercury-containing lamps. Include in the plan: Requirements for Personal Protective Equipment (PPE), spill cleanup procedures and equipment, eating, smoking and restroom procedures. The plan shall be approved and signed by the Certified Industrial Hygienist. Obtain approval of the plan by the Contracting Officer prior to the start of PCB and/or lamp removal work.

##### 1.8.3 PCB and Lamp Disposal Plan

Submit a PCB and lamp Disposal Plan with 30 calendar days after award of contract. The PCB and Lamp Disposal Plan shall comply with applicable requirements of federal, state, and local PCB and Universal waste regulations and address:

- a. Estimated quantities of wastes to be generated, disposed of, and recycled.
- b. Names and qualifications of each Contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location. Furnish two copies of EPA and state PCB and mercury-containing lamp waste permit applications and EPA identification numbers, as required.
- c. Names and qualifications (experience and training) of personnel who will be working on-site with PCB and mercury-containing lamp wastes.
- d. Spill prevention, containment, and cleanup contingency measures to be implemented.
- e. Work plan and schedule for PCB and mercury-containing lamp waste removal, containment, storage, transportation, disposal and or

recycling. Wastes shall be cleaned up and containerize daily.

## PART 2 PRODUCTS

Not used.

## PART 3 EXECUTION

### 3.1 WORK PROCEDURE

Furnish labor, materials, services, and equipment necessary for the removal of PCB containing lighting ballasts, associated mercury-containing fluorescent lamps, and high intensity discharge (HID) lamps in accordance with local, state, or federal regulations. Do not expose PCBs to open flames or other high temperature sources since toxic decomposition by-products may be produced. Do not brake mercury containing fluorescent lamps or high intensity discharge lamps.

#### 3.1.1 Work Operations

Ensure that work operations or processes involving PCB or PCB-contaminated materials are conducted in accordance with 40 CFR 761, 40 CFR 262 40 CFR 263, and the applicable requirements of this section, including but not limited to:

- a. Obtaining suitable PCB and mercury-containing lamp storage sites.
- b. Notifying Contracting Officer prior to commencing the operation.
- c. Reporting leaks and spills to the Contracting Officer.
- d. Cleaning up spills.
- e. Inspecting PCB and PCB-contaminated items and waste containers for leaks and forwarding copies of inspection reports to the Contracting Officer.
- f. Maintaining inspection, inventory and spill records.

### 3.2 PCB SPILL CLEANUP REQUIREMENTS

#### 3.2.1 PCB Spills

Immediately report to the Contracting Officer any PCB spills.

#### 3.2.2 PCB Spill Control Area

Rope off an area around the edges of a PCB leak or spill and post a "PCB Spill Authorized Personnel Only" caution sign. Immediately transfer leaking items to a drip pan or other container.

#### 3.2.3 PCB Spill Cleanup

40 CFR 761, subpart G. Initiate cleanup of spills as soon as possible, but

no later than 24 hours of its discovery. Mop up the liquid with rags or other conventional absorbent. The spent absorbent shall be properly contained and disposed of as solid PCB waste.

#### 3.2.4 Records and Certification

Document the cleanup with records of decontamination in accordance with 40 CFR 761, Section 125, Requirements for PCB Spill Cleanup. Provide test results of cleanup and certification of decontamination.

### 3.3 REMOVAL

#### 3.3.1 Ballasts

As ballast are removed from the lighting fixture, inspect label on ballast. Ballasts without a "No PCB" label shall be assumed to contain PCBs and containerized and disposed of as required under paragraphs STORAGE FOR DISPOSAL and DISPOSAL. If there are less than 1600 "No PCB" labeled lighting ballasts dispose of them as normal demolition debris. If there are more than 1600 "No PCB" labeled ballasts, establish whether the "No PCB" labeled ballasts contain diethylhexyl phthalate (DEHP) either by test or by checking with the ballast manufacturer indicated on the label. Submit testing results and/or written confirmation from the manufacturer to the Contracting Officer. If the ballasts do not contain DEHP, dispose of them as normal construction debris. If they do contain DEHP, dispose of them as hazardous material in accordance with Federal, State, and local regulations. As a basis of bid assume ballasts with "No PCB" labels do not contain DEHP and may disposed of as normal construction debris. If 1600 or more DEHP ballasts are disposed of in a 24 hour period, notify the National Response Team at 800-424-8802.

#### 3.3.2 Lighting Lamps

Remove lighting tubes/lamps from the lighting fixture and carefully place (unbroken) into appropriate containers (original transport boxes or equivalent). In the event of a lighting tube/lamp breaking, sweep and place waste in double plastic taped bags and dispose of as universal waste as specified herein.

### 3.4 STORAGE FOR DISPOSAL

#### 3.4.1 Storage Containers for PCBs

49 CFR 178. Store PCB in containers approved by DOT for PCB.

#### 3.4.2 Storage Containers for lamps

Store mercury containing lamps in appropriate DOT containers. The boxes shall be stored and labeled for transport in accordance with 40 CFR 273.

#### 3.4.3 Labeling of Waste Containers

Label with the following:

- a. Date the item was placed in storage and the name of the cognizant activity/building.
- b. "Caution Contains PCB," conforming to 40 CFR 761, CFR Subpart C. Affix labels to PCB waste containers.
- c. Label mercury-containing lamp waste in accordance with 40 CFR 273. Affix labels to all lighting waste containers.

### 3.5 DISPOSAL

Dispose of off Government property in accordance with EPA, DOT, and local regulations at a permitted site.

#### 3.5.1 Identification Number

Federal regulations 40 CFR 761, and 40 CFR 263 require that generators, transporters, commercial storers, and disposers of PCB waste possess U.S. EPA identification numbers. The contractor shall verify that the activity has a U.S. EPA generator identification number for use on the Uniform Hazardous Waste manifest. If not, the contractor shall advise the activity that it must file and obtain an I.D. number with EPA prior to commencement of removal work. For mercury containing lamp removal, Federal regulations 40 CFR 273 require that large quantity handlers of Universal waste (LQHUW) must provide notification of universal waste management to the appropriate EPA Region (or state director in authorized states), obtain an EPA identification number, and retain for three years records of off-site shipments of universal waste. The contractor shall verify that the activity has a U.S. EPA generator identification number for use on the Universal Waste manifest. If not, the contractor shall advise the activity that it must file and obtain an I.D. number with EPA prior to commencement of removal work.

#### 3.5.2 Transporter Certification

Comply with disposal and transportation requirements outlined in 40 CFR 761 and 40 CFR 263. Before transporting the PCB waste, sign and date the manifest acknowledging acceptance of the PCB waste from the Government. Return a signed copy to the Government before leaving the job site. Ensure that the manifest accompanies the PCB waste at all times. Submit transporter certification of notification to EPA of their PCB waste activities (EPA Form 7710-53).

##### 3.5.2.1 Certificate of Disposal and/or Recycling

40 CFR 761. Certificate for the PCBs and PCB items disposed shall include:

- a. The identity of the disposal and or recycling facility, by name, address, and EPA identification number.
- b. The identity of the PCB waste affected by the Certificate of Disposal including reference to the manifest number for the shipment.

- c. A statement certifying the fact of disposal and or recycling of the identified PCB waste, including the date(s) of disposal, and identifying the disposal process used.
- d. A certification as defined in 40 CFR 761.

-- End of Section --

ATTACHMENT 17

DIVISION 01 - GENERAL REQUIREMENTS

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### DIVISION 01 - GENERAL REQUIREMENTS

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## SECTION 01012

### DESIGN AFTER AWARD

#### 1.0 GENERAL

1.1 The Contractor shall propose a schedule for the number and composition of the design submittal phases. As a minimum, design submittals are required at the preliminary (50%), pre-final (90%) and final (100%). The requirements of each design stage are listed hereinafter. The Contractor shall reflect the number and schedules for the design submittals phases in the progress charts. As a maximum, the 50%, 90% and 100% shall be made into one consolidated package, which includes each of the thirteen (13) major categories listed in Paragraph, "Contents of 50% Design Submittal," the Building Interior Design, and long lead item submittals.

1.2 "Fast-tracking" is not allowed. The Contractor will not be allowed to proceed with construction until the Contracting Officer approves the 100% final design submittal.

#### 2.0 DESIGNER OF RECORD

The Contractor shall identify a Designer of Record ("DOR") for each area of design. All design disciplines shall be accounted for by listed, registered Designer(s) of Record. Each DOR shall be responsible for ensuring integrity of their design and design integration in all construction submittals and extensions to design developed by others, such as the constructor, subcontractors or suppliers. The DOR shall review and approve all construction submittals and extensions to design, in accordance with the procedures, described in Section 01330 SUBMITTALS. Each DOR shall be responsible for the responses to "Requests for Information" (RFI's), applicable to their area of design responsibility. Each DOR shall stamp, sign, and date all design drawings under their responsible discipline at each design submittal stage (see Contract clause - "REGISTRATION OF DESIGNERS") and all submittals under their responsible discipline, in accordance with the submittal review procedures. The DOR shall sign-off on all applicable RFI responses. "

#### 3.0 DEFINITION OF DESIGN SUBMITTALS

3.1 **PRELIMINARY CONFORMANCE REVIEW SUBMITTAL (50%).** The review of this submittal is primarily to insure that the contract documents and design analysis are proceeding in a timely manner and that the design criteria is being corrected interpreted. The submittal shall consist of the following:

1. Design Analysis, developed to 50%
2. 50% complete drawings
3. Outline Specifications
4. Environmental permits, as required. When environmental permits are not required, the Contractor shall provide a statement with justification to that effect.

3.2 **PRE-FINAL REVIEW SUBMITTAL (90%).** Hard copies and CADD drawings. The review of this submittal is to insure that the design is in accordance with directions provided the Contractor during the design process as well as the 50% submittal. The Contractor shall submit the following documents for Pre-final Design Review:

3.2.1. Design Analysis. The Design Analysis submitted for pre-final Design Review shall be in its final form. The Design Analysis shall include all backup material previously submitted and revised as necessary. All design calculations shall be included. The Design Analysis shall contain all explanatory material giving the design rationale for any design decisions, which would not be obvious to an engineer reviewing the Final Drawings and Specifications.

3.2.2. Drawings. The Contract Drawings submitted for pre-final Design Review shall include the drawings previously submitted which have been revised and completed as necessary. The Contractor is expected to have completed all of his coordination checks and have the drawings in a design complete condition. The drawings shall be complete at this time including the incorporation of any design review comments generated by the previous design review. The drawings shall contain all the details necessary to assure a clear understanding of the work throughout construction. Shop drawings will not be considered as design drawings. All design shall be shown on design drawings prior to submittal of shop drawings.

3.2.3. Specifications. The Draft Specifications on all items of work submitted for pre-final Design Review shall consist of legible marked-up specification sections.

3.2.4. Preliminary Conformance Review Submittal Annotated Review Comments (50%). Submittal review comments and responses.

3.3 **FINAL DESIGN SUBMITTAL (100%).** Hard copies and CADD drawings. The review of this submittal is to insure that the design is in accordance with directions provided the Contractor during the design process as well as the 50% submittal. The Contractor shall submit the following documents for Final Design Review:

3.3.1 Final Design Submittal, 1<sup>st</sup> Backcheck (100%). Hard copies and CADD drawings.

3.3.2 Final Design Submittal. 2<sup>nd</sup> Backcheck (a second backcheck submittal will be made if all of the comments were not satisfactorily resolved in the 1<sup>st</sup> Backcheck submittal as determined by the Contracting Officer). Note that additional backchecks will be required until all of the comments have been satisfactorily resolved.

3.3.3 Design Analysis, in final 100% complete form.

3.3.4 100% complete drawings.

3.3.4 Final typed specifications.

3.3.5 Environmental permits. When environmental permits are not required, the Contractor shall provide a statement with justification to that effect.

3.3.6 Pre-final Design (90%) Submittal review comments and responses.

3.3.7 Electronic Submission: All CADD files in native MicroStation Version 8 or latest format, as well as all prepared technical specifications shall be provided on CD-ROM. Two copies are required.

### 3.4 **COMPREHENSIVE INTERIOR DESIGN**

3.4.1 Definition. The Comprehensive Interior Design (CID) shall involve the selection and sampling of all applied finishes including material, color, texture and patterns necessary to complete the building's interior architectural features. The CID shall meet all requirements addressed in SOW CH 14, Comprehensive Interior Design.

3.4.2 Samples. Present architectural finish samples in orderly arrangements according to like rooms/areas receiving like finish. Each like room receiving like finishes will be noted as a Color Scheme. Each Color Scheme shall have a written description of material used. This written description shall use the same material abbreviations and notes that appear on the Room Finish Schedule and Legend in the contract drawings. Present pre-wired workstation finishes on a color board separate from the architectural finishes. Submit the CID binders concurrently with the architectural design submittals.

3.4.3 Preliminary Submittals. The Contractor shall submit three complete sets of the initial CID package. The design philosophy shall use a warm neutral background color with appropriate accent colors. All CID proposals shall be reviewed and approved by the Government. The Interior Designer shall revise the CID binders after each review and update the CID to satisfy review comments. Each submittal will follow this method of review until the Government approves the completed CID package.

3.4.4 Government Approval. Government approval will be sought from the Honolulu Engineer District, which is the District Authority Having Jurisdiction (DAHJ). The DAHJ will be consulted for all interpretations of Comprehensive Interior Design (CID) to be used in this project through the Contracting Officer. The Contractor shall direct all questions, interpretations and clarifications to the Contracting Officer. All requests for information by the Contractor shall be submitted to the Contracting Officer in writing with the appropriate sketches, basis for waiver, specific question and any other information deemed necessary by the DAHJ. In general, a minimum of seven (7) calendar days is required by the DAHJ to respond to all inquiries. The seven days will start from the day of receipt by the Contracting Officer. In the event interpretation or approval is required from HQUSACE, an additional seven (7) calendar days will normally be required.

3.4.5 Final Submittal. After approval of the Preliminary Submittal, the Contractor shall submit three (3) complete sets of the approved and final Comprehensive Interior Design package. Once the Contractor has submitted the CID and the Government has approved the submittal, all materials, finishes, colors, textures and pattern submitted and approved for this project are then considered as part of the contract and the Contractor shall furnish all approved CID finishes. No deviations will be considered.

3.4.6 Format. Submit all CID information and samples on 8 1/2"x 11" modules. Place the project title, base, architectural firm, page number and date on the bottom of each page or module.

3.4.6.1 The module shall support and anchor all samples. Anchor large or heavy samples with mechanical fasteners, Velcro, double-sided foam tape or contact cement. Rubber cement or glue will not be acceptable.

3.4.6.2 Assemble the 8 1/2" x 11" pages and modules in a 3" D-ring binder. Holes for placement of the modules in the binder shall be 3/8" in diameter. Each binder shall be identified on the outside spine and front cover by title, project number, percentage phase and date.

3.4.6.3 Material and finish samples shall indicate true pattern, color and texture.

3.4.6.4 Where paint manufacturers color names and numbers are used indicated the finish of the paint such as gloss, semi-gloss, flat and so on.

3.4.6.5 Signage may include emblems, striping, letters, numbers and logos. The interior designer shall consider visual appearance, organization, location, structural supports (if required) and relation to other base graphics. Indicate on a separate signage sheet the location and message for all signage. Submit a sample of the signage material finish and color with the structural finishes.

3.4.6.6 No photographs or colored photocopies of materials will be accepted or approved.

3.4.7 CID Binder. The CID Binder shall include the following information at each design submittal in this order:

=====

**SEQUENCE OF CID SUBMITTAL**

1. Title page
2. Table of contents
3. Design objectives - A statement of design objectives explaining the interior design philosophy of the facility shall be provided in the CID. Design objectives and the proposed method of accomplishing the objectives. Shall cover, when applicable, energy efficiency, safety, health, maintenance, image, personal performance of occupants and functional flexibility.
4. Interior floor plan
5. Interior sample finish boards  
  
Scheme A  
Scheme B  
Scheme C

Example all restrooms could be noted as color scheme "A", all general open office finishes could be noted as color scheme "B" and the main lobby could be noted as color scheme "C".

6. Room finish schedule
  7. Signage
  8. Signage plan
  9. Pre-wired workstation composite floor plans
  10. Pre-wired workstation typical - elevations and component inventory.
  11. Pre-wired workstation panel identification plan with electrical outlet placement including base feed.
  12. Plan must show suitability of proposed space to suit the furniture to be provided.
- =====

#### 4.0 QUANTITY OF DESIGN SUBMITTALS

4.1 General. The documents, which the Contractor shall submit to the Government for each submittal, are listed and generally described hereinafter.

##### DISTRIBUTION

Activity and Address	Drawing Size <Full>	Drawing Size <Half>	Color Boards**
U.S. Army Corp. of Engineers Honolulu Engineering District Bldg. 230, Room 318 Ft. Shafter, HI 96858 Attn: CEPOH-PP-A / Kenneth Cabalce	4	3	1
U.S. Army Corp. of Engineers Honolulu Engineering District Schofield Barracks, HI Attn: CEPOH-EC-S	2	2	1
U.S. Army Corp. of Engineers Honolulu Engineering District Bldg. 230, Room Ft. Shafter, HI 96858 Attn: CEPOH-EC-T	4	2	1
U.S. Army Corp. of Engineers Honolulu Engineering District Bldg. 230, Room Ft. Shafter, HI 96858 Attn: CEPOH-EC-D	2	2	1
U.S. Army Corp. of Engineers Honolulu Engineering District Bldg. 220, Room Ft. Shafter, HI 96858 Attn: CEPOH-EC-E	1	1	
3 <sup>rd</sup> Brigade Commander Schofield Barracks, HI	2	1	1
Director of Public Works U.S. Army Garrison, Hawaii Attn: Michael Kumabe WAAF, Schofield Barracks, HI 96857-5013	4	2	1

DISTRIBUTION

Activity and Address	Drawing Size <Full>	Drawing Size <Half>	Color Boards**
Directorate of Information Management U.S. Army Garrison, Hawaii Attn: Thomas Weber Fort Shafter, HI	2	2	
Military Police Battalion, Hawaii Attn: Harold Evans Helemano Military Reservation, HI	1	1	
State Historic Preservation Office Honolulu, HI		3	
Army Community of Excellence, Services Fort Lee, VA	1	1	
U.S. Army Information System Engineering Command Fort Detrick, MD	1	1	
U.S. Army Installation Management Agency Pacific Regional Office Fort Shafter, HI		1	

\*\* Color boards shall be submitted with the 100% building submittal only.

**5.0 MAILING OF DESIGN SUBMITTALS**

5.1 General. Mail all design submittals to the Government during design and construction, using an overnight mailing service. The Government will furnish the Contractor addresses where each copy shall be mailed to after award of the contract. The submittals shall be mailed to the addresses listed in para. 4.1 Distribution.

5.2 Transmittal Letter. Each design submittal shall have a transmittal letter accompanying it indicating the date, design percentage, type of submittal, list of items submitted, transmittal number and point of contact with telephone number.

**6.0 COORDINATION**

6.1 Written Records. The Contractor shall prepare a written record of each design site visit, meeting, or conference, either telephonic or personal, and furnish within five (5) working days copies to the Contracting Officer and all parties involved. The written record shall include subject, names of

participants, outline of discussion, and recommendation or conclusions. Number each written record for the particular project under design in consecutive order.

6.2 Design Needs List. Throughout the life of his contract the Contractor shall furnish the COR a monthly "needs" list for design related items. This list shall itemize in an orderly fashion design data required by the Contractor to advance the design in a timely manner. Each list shall include a sequence number, description of action item, name of the individual or agency responsible for satisfying the action item and remarks. The list will be maintained on a continuous basis with satisfied action items checked off and new action items added as required. Once a request for information is initiated, that item shall remain on the list until the requested information has been furnished or otherwise resolved. Copies of the list will be mailed to both the Administrative Contracting Officer and the agencies tasked with supplying the information.

## 7.0 GOVERNMENT REVIEW

7.1 Design Schedule. Within 30 days after Notice to Proceed, the Contractor shall submit, for approval, a complete design schedule with all submittals and review times indicated in calendar dates. The Contractor shall update this schedule monthly. No design submittals will be reviewed or evaluated until after receipt and acceptance of the proposed design/review schedule.

7.2 Government Review Period. After receipt, the Government will be allowed thirty (30) calendar days to review and comment on each design submittal. The review will be for conformance with the technical requirements of the solicitation and the Successful Offeror's (Contractor's) RFP proposal. If the Contractor disagrees technically with any comment or comments and does not intend to comply with the comment, he must clearly outline, with ample justification, the reasons for noncompliance within seven (7) calendar days after receipt of these comments in order that the comment can be resolved. The Contractor shall provide and respond to all comments in DrChecks. The Contractor is cautioned in that if he believes the action required by any comment exceeds the requirements of this contract, that he should take no action and notify the COR in writing immediately. Review conferences will be held for each design submittal at a location to be furnished by the Contractor. The Contractor shall bring the personnel that developed the design submittal to the review conference. These conferences will take place the week after the receipt of the comments by the Contractor.

7.3 All documents submitted will be reviewed by the Government. Review comments will be issued to the A-E, indicating changes or other action required. All revisions shall be incorporated into the documents as required by review comments unless adequate justification is furnished to the Government indicating reason such actions or changes constitutes a change in the scope of work of this task order.

7.4 All review comments shall be resolved and annotated with the intended actions by the A-E. In cases of unsatisfactory compliance or resolution of comments, design documents will be returned to the A-E for correction.

7.5 DrChecks. After award of the task order, the A-E shall contact Resource Center Enterprises (1-800-428-4357) to register their firm and all sub-consultants in DrChecks (electronic government review system). Each firm will receive a registration key. Once the key is received, any individual from that firm will be able to register in DrChecks. The A-E will be responsible for accessing DrChecks to obtain review comments and provide annotated responses for this project at [www.projnet.org](http://www.projnet.org). The A-E shall check and incorporate any applicable Honolulu District Design Quality Lessons learned (DQLL) into the design of this project.

7.6 Post review conference action. Copies of comments, annotated with comment action agreed on, will be made available to all parties before the conference adjourns. Unresolved problems will be resolved by immediate follow-on action at the end of conferences. Valid comments will be incorporated. After receipt of final (100%) corrected building design documents upon incorporation of backcheck comments the contractor may proceed with site and building development activities within

the parameters set forth in the contract and accepted design submittal. The Government, however, reserves the right to disapprove design document submittals if comments are significant (in the opinion of the Government, it does not comply with the contract documents nor the level of quality implied). If pre-final or final submittal(s) are incomplete or deficient, and require correction by the Contractor and re-submittal for review, the cost of rehandling and reviewing will be deducted from payment due the Contractor at the rate of \$ 5,000.00 per submittal.

## 8.0 DESIGN ANALYSIS

8.1 Media and Format. Present the design analysis on 8-1/2-inch by 11-inch paper except that larger sheets may be used when required for graphs or other special calculation forms. All sheets shall be in reproducible form. The material may be typewritten, hand lettered, handwritten, or a combination thereof, provided it is legible. Side margins shall be 1-inch minimum to permit side binding and head to head printing. Bottom margins shall be 1-1/4-inches, with page numbers centered 1 inch from the bottom.

8.2 Organization. Assign the several parts and sheets of the design analysis a sequential binding number and bind them under a cover indicating the name of the facility and project number, if applicable. The title page shall carry the designation of the submittal being made. The complete design analysis presented for final review with the final drawings and specifications shall carry the designation "FINAL DESIGN ANALYSIS" on the title page.

8.3 Design Calculations. Design calculations are a part of the design analysis. When they are voluminous, bind them separately from the narrative part of the design analysis. Present the design calculations in a clean and legible form incorporating a title page and index for each volume. Furnish a table of contents, which shall be an index of the indices, when there is more than one volume. Identify the source of loading conditions, supplementary sketches, graphs, formulae, and references. Explain all assumptions and conclusions. Calculation sheets shall carry the names or initials of the author and the checker and the dates of calculations and checking. No portion of the calculations shall be computed and checked by the same person.

8.4 Automatic Data Processing Systems (ADPS). When ADPS are used to perform design calculations, the design analysis shall include descriptions of the computer programs used and copies of the ADPS input data and output summaries. When the computer output is large, it may be divided into volumes at logical division points. Precede each set of computer printouts by an index and by a description of the computation performed. If several sets of computations are submitted, a general table of contents in addition to the individual indices shall accompany them. Preparation of the description, which must accompany each set of ADPS printouts, shall include the following:

1. Explain the design method, including assumptions, theories, and formulae.
2. Include applicable diagrams, adequately identified.
3. State exactly the computation performed by the computer.
4. Provide all necessary explanations of the computer printout format, symbols, and abbreviations.
5. Use adequate and consistent notation.
6. Provide sufficient information to permit manual checks of the results.

## 9.0 DRAWINGS

9.1 General. Prepare all drawings on Computer-Aided Design and Drafting (CADD) so that they are well-arranged and placed for ready reference and so that they present complete information. The Contractor shall prepare the drawings with the expectation that the Corps of Engineers, in the role of supervision, will be able to construct the facility without any additional assistance from the Contractor. Drawings shall be complete, unnecessary work such as duplicate views, notes and lettering, and repetition of details shall not be permitted. Do not show standard details not applicable to the project, and minimize unnecessary wasted space. Do not include details of standard products or items, which

are adequately covered by specifications on the drawings. Each Design Discipline shall provide a complete list of abbreviations and symbols used in their respective drawings. Detail the drawings such that conformance with the RFP can be checked and to the extent that shop drawings can be checked. Do not use shop drawings as design drawings. The design documents shall consist of drawings on a 36" x 24" format. The Contractor shall use standard Corps of Engineers title blocks and borders on all drawings. Submit an index of drawings with each submittal. The COR will furnish the Contractor file, drawing, and specification numbers for inclusion in the title blocks of the drawings.

9.2 Methods and Format. Create all drawings using CADD methods in MicroStation format. Save all Design Complete CADD files as MicroStation 8.0 or latest. The Contractor shall use EM 1110-1-1807 Standards Manual for U.S. Army Corps of Engineers Computer-Aided Design and Drafting (CADD) Systems as guidance to for standard details, cell libraries, title blocks, and layer/level assignments. Drawing features not addressed in EM 1110-1-1807 shall conform to drafting standards.

9.3 Use of Standard Fonts. Only standard fonts provided by MicroStation shall be used in the creation of CADD files. No fonts created by third parties or the designers are permitted.

9.4 Use of Reference Files. The uses of Reference files and Xrefs during the design stage are up to the discretion of the designers. All CADD files at Design Complete submittal shall be free standing, independent files, and not supported by reference files. All Reference files (MicroStation) shall be removed at Design Complete submittal.

9.5 Submittal Media. Submit all Design Complete CADD files on the following media.

-Read/Write CD-ROM Disk

## 10.0 SPECIFICATIONS

10.1 General. The Contractor shall submit marked-up and final specifications as required. The specifications may be any one of the major, well known master guide specification sources such as MASTERSPEC from the American Institute of Architects, SPECTEXT from Construction Specification Institute or Unified Facilities Guide Specifications (UFGS), etc. unless otherwise required. Use only one source for the project unless otherwise required. Edit the specifications for this project and submit in marked-up or redlined draft version at the Pre-Final Review submittal stage. If the design is based on a specific product, the specification shall consist of the important features of the product. The specification shall be detailed enough such that another product meeting the specification could be substituted and it would not adversely impact the project. After incorporation of comments, submit a final, design complete specification package. Delete all marked-out or redlined text and type in all inserted text.

10.2 Submittal Register. Develop the submittal requirements during construction during the design phase of the contract, by producing a Contractor Submittal Register during design. Attach a submittal register to each section of the specifications for the submittal requirements of that section. Prepare the Submittal Register on ENG Form 4288 using Specsintact or an Excel spreadsheet in the format provided by the Government. The Contractor shall be responsible for listing all required submittals necessary to insure the project requirements are complied with. The Register shall identify submittal items such as shop drawings, manufacturer's literature, certificates of compliance, material samples, guarantees, test results, etc that the Contractor shall submit for review and/or approval action during the life of the construction contract. The Contractor shall place all the Submittal Register pages in an appendix of the final specifications.

## 11. CONTENTS OF 50% DESIGN SUBMITTAL

The 50% design submittals shall contain as a minimum, the following:

11.1 Paving, Grading and Drainage

11.1.1 Explanation of objectives and factors influencing siting decisions.

General overview of major site features planned, such as building orientation, drainage patterns, parking provisions, traffic circulation, provisions for the handicapped, security requirements, etc. Rationale for locating major site elements. Set back requirements or specific clearance requirements. Locations of borrow and spoil areas.

11.1.2 Requirements for flood protection. Selected storm drainage plan with respect to existing storm drainage system. Alternate schemes considered in arriving at selected plan. Disposition of storm water collected in the new system. Planned connections to the existing storm drainage system. Handling of roof runoff. Features and locations of special drainage structures. Types of materials to be specified for each installation. Selected design values to be used in the storm drainage calculations such as surface runoff coefficient, retardance coefficient, infiltration rate, and rainfall intensity based on a 10-year storm frequency. Design flood frequency and minimum elevation to provide flood protection. Planned finished floor elevations.

11.1.3 Slope stability analysis (cut and fill) and justification for any slopes steeper than 3:1 for cohesive soils and 4:1 for cohesionless soils.

11.1.4 Pavement design analysis shall include design method and all pertinent data including traffic types, volumes, soils data and any other data used to design the pavement structures. Flexible Pavements--required thickness of base and pavement based on the pavement design and established subgrade CBR. Rigid Pavements--required thickness of nonreinforced concrete pavement and the established modulus of subgrade reaction.

11.1.5 Traffic volume and type. Particular AASHTO design vehicles for which turning movements are to be provided for and corresponding minimum turning radius.

11.1.6 Requirements for curbs, sidewalks, guardrails, traffic signs, markings, fencing, etc. Intersections or connections to existing roads and streets. Traffic routing during construction.

11.1.7 Site plan (geometry) and grading and drainage plan.

11.1.8 An overall site plan on one drawing showing all paving, grading and drainage.

11.1.9 Permit applications.

11.2 Geotechnical. A geotechnical report and design analysis.

11.3 Water Supply and Sanitary Sewage.

11.3.1 Design narrative and design calculations for the water supply and wastewater systems relating to this project. Include an analysis of the existing water distribution system capability to supply sufficient quantity at adequate pressures for fire protection. If the existing water distribution system is inadequate, provide the design solution to augment the water supply to meet the fire protection requirements. Design for wastewater systems shall show sewage flows, pipe sizes, routing, elevations, pump type and capacities, wet well sizing, etc. The Contractor shall present an analysis presenting proposed corrections of deficiencies or confirming the adequacy of the existing water supply system to support the proposed building.

11.3.2 Drawings developed to the point of showing in plan the anticipated systems and layout. Rough details of pumping systems or other features requiring detail drawings.

11.3.3 Anticipated permit requirements for water and wastewater features.

11.3.4 Lawn and Landscaping Irrigation System.

The design submittal shall include drawings clearly showing the piping layout and location of sprinkler heads coordinated with the landscaping plan, control valves, backflow preventers, rain check switches, controllers, etc. Indicate buildings, walks, shrubbery, trees, and other obstacles that might interfere with the proper operation of the sprinkler system. A design analysis calculating the pressures at each sprinkler head for the capacity and radius of throw is required. Details of the sprinkler head installation, valve boxes, and other irrigation appurtenances shall be submitted.

#### 11.4 Landscape, Planting and Turfing.

11.4.1 The landscape planting design narrative shall describe the analysis of existing site conditions, including an indication of existing plant materials that are to remain on the site. The statement of concept shall indicate specific site problems related to proposed development and the rationale for proposed plant locations. The narrative shall also include a list of suggested types and sizes of plant materials which are to be used, based upon the designated functional and visual criteria.

11.4.2 The concept drawings shall be prepared at a scale which corresponds with the site layout and grading plans and, likewise, shall include reference coordinates, north arrows, graphic scales and appropriate legends. An overall planting layout shall be developed and shall include enlarged detail plans of specific areas, as needed, to clarify requirements. The proposed layout shall indicate shade trees, evergreen trees, flowering trees, shrub masses, etc., according to designated functional and visual locations of planting. A legend which also indicates sizes of plants recommended for each of the above categories shall be included. The drawings and all subsequent plans shall indicate existing and proposed buildings, paved areas, signs, light standards, transformers, dumpster areas, storm drainage system, and other structures and utilities.

#### 11.5 Architectural

11.5.1 Design narrative shall provide a summary of functional space relationships, as well as circulation. There shall also be a general statement for the rationale behind the major design decisions.

11.5.2 Plans shall indicate dimensions, columns lines, and detail references. Toilets and other specialized areas shall be drawn to ¼" scale and shall show any needed interior features.

11.5.3 Finish schedule shall indicate material, finishes, colors and any special interior design features such as soffits, fascias, and lighting troughs, etc.

11.5.4 All required equipment shall be shown on the drawings with an equipment list.

11.5.5 List any special graphics requirements that will be provided.

11.5.6 Schedules shall be provided for both doors and windows. These schedules shall indicate sizes, types, and details for all items shown on floor plans.

11.5.7 Hardware sets using Builders Hardware Manufacturers Association Inc. (BHMA) designations.

11.5.8 Composite floor plan showing all prewired workstations or kitchen equipment. Also show typical elevations of each type of workstation or equipment.

11.5.9 Comprehensive Interior Design (CID) package.

11.5.10 List all references used in the design including but not limited to Government design documents and industry standards.

11.5.11 Specifications: The architectural work for the project shall be constructed in accordance with Unified Facilities Guide Specifications (UFGS). Edited UFGS specification sections shall clearly

indicate design intent including products and execution to be provided.

#### 11.6. Structural Design.

11.6.1 State the live loads to be used for design. Include roof and floor loads; wind loads, lateral earth pressure loads, seismic loads, etc., as applicable.

11.6.2 Describe the method of providing lateral stability for the structural system to meet seismic and wind load requirements. Include sufficient calculations to verify the adequacy of the method.

11.6.3 Furnish calculations for all principal roof, floor, and foundation members.

11.6.4 This submittal shall include drawings showing roof and floor framing plans as applicable. Principal members will be shown on the plans. A foundation plan shall also be furnished showing main footings and grade beams where applicable. Where beam, column, and footing schedules are used, show schedules and fill in sufficient items to indicate method to be used. Typical sections shall be furnished for roof, floor, and foundation conditions. Structural drawings for proposals and submittals shall be separate from architectural drawings.

11.6.5 Provide any computer analyses used shall be widely accepted, commercially available programs or complete documentation.

11.6.6 Antiterrorism/Force Protection (AT/FP) and Seismic Evaluation and Rehabilitation. The design analysis provided in the proposal submission shall be further developed. Complete the Government-furnished designs on AT/FP and seismic hazards mitigation, and provide detailed drawings reflecting the completed designs. Designs shall be stamped by a structural engineer licensed in the U.S.

11.6.7 A narrative description and supporting calculations shall show structural adequacy of existing structure to support new live loads. If existing floor systems will require strengthening to maintain structural integrity, provide an analysis and complete and detailed drawings showing the work.

#### 11.7 Specific Mechanical and Plumbing Requirements:

11.7.1 List all references used in the design including Government design documents and industry standards.

11.7.2 Provide justification and brief description of the types of equipment, fixtures and piping materials proposed for use. Descriptions shall include narrative and catalog cuts.

11.7.3 Prepare detail calculations for systems such as sizing of air conditioning systems, heat recovery system, gas hot water heater and piping, and storage tanks.

11.7.3.1 Include computations for sizing equipment, air duct design, and U-factors for ceilings, roofs and exterior walls and floors. Contractor shall employ commercially available energy analysis techniques to determine the energy performance of all passive systems and features. Use of hourly energy load computer simulation (e.g., HAP, Trace, TRNSYS, DOE 2.1 Blast, etc.) is required. These calculations can be used to size the mechanical systems. Based on the results of calculations, provide a complete list of the materials and equipment proposed for heating and plumbing, with the manufacturer's published cataloged product installation specifications and roughing-in data. The heating and cooling equipment data shall include the manufacturer's wiring diagrams, installation specifications, ARI certification, and the standard warranty for the equipment.

11.7.4 include drawings of all areas including air conditioning, hot water, cold water, waste and vent piping. Drawings shall include plans, sections, piping isometric diagrams, control diagrams, DDC points list, sequence of operation, schedules and details. Minimum of 1:100 scale shall be used on all

plan drawings, and building sections. Detailed drawings shall be minimum 1:50 scale. Detailed drawings shall be provided for all mechanical spaces including, but not limited to, toilet areas, mechanical rooms, chiller plant, hot water plant and fire pump building. Minimum drawing requirements are as follows:

- Room designations.
- Mechanical legend and applicable notes.
- Location of all ductwork or piping
- Location and capacity of all terminal units (i.e., registers, diffusers, grilles, variable air volume boxes).
- Exhaust fan and range hood location.
- Size of all ductwork 400 mm (16 in.) or larger in any dimension and piping 100 mm (4 in.) or larger
- Location of heating/cooling plant (i.e., boiler, chiller, cooling tower, etc).
- Location of all air handling equipment.
- Return air paths (i.e., undercut doors, transfer grilles).
- Flue piping size and location.
- Fixture schedule and designations
- Location of utility entrances.
- Waste and water pipe location and size.
- Details of any building penetration (i.e. louvers, penthouses, powered roof ventilators, vents, etc.)

11.7.4.1 Equipment Schedule: Complete equipment Schedules shall be provided. Schedule shall include at minimum:

- Capacity
- Electrical characteristics
- Efficiency (if applicable)
- Manufacturer's name
- Optional features to be provided
- Physical size
- Weight

11.7.6 Specifications: The mechanical and plumbing work for the project shall be constructed in accordance with Unified Facilities Guide Specifications (UFGS). Edited UFGS specification sections shall clearly indicate design intent including products and execution to be provided.

## 11.8 Fire Protection

11.8.1 Design documents: All Fire Protection Design documents shall be in accordance with ER 1110-345-700 and are required to be submitted for approval prior to start of construction. Fire protection symbols in NFPA 170 shall be used. See Scope of work, Chapter 12 for acronym definitions used in this paragraph.

11.8.2 Fire Protection Analysis is required to be submitted in accordance with UFC 1-200-01 and UFC 3-600-1. Requirement must be stated with what is being provided in the project to meet this requirement. Include proposal submittal and the following: Hydraulic analysis and node sketch for all sprinkler systems to be installed in all buildings in accordance with FSC and UFC. Calculations confirming the adequacy of the existing water supply shall be provided. Hydrant flow test is required and flow data shall be submitted. Hydrant flow test shall be performed with the Schofield Barracks Water Treatment Plant clearwell pumps off. Calculations for any fire pump and tank shall be provided. Locations of all fire pumps and tanks shall be shown. All IBC allowable area, allowable height, construction type to be used and location on property requirements shall be submitted. Fire alarm system type (addressable) to be discussed. Discussion of all the life safety requirements of LSC shall be included.

11.8.3 Fire Protection Drawings:

11.8.3.1 General: Minimum of 1:100 scale shall be used on all plan drawings, and building sections. Drawings shall show fire alarm systems, sprinkler system and life safety requirements (fire barriers, exits, etc.). Detail drawings shall be minimum 1:50 scale. Minimum drawing requirements are as follows:

11.8.3.2 Automatic Fire Sprinkler system: Sprinkler head plans, attic plans, building sections, sprinkler riser with shutoff valve and tamper switch, alarm check valve, preaction/deluge valve, local alarm gong, flow/pressure switch, wall penetrations, fire rated wall penetrations, fire department connection locations, and sprinkler design parameters (occupancy hazard for each room, minimum sprinkler density to be used for each occupancy hazard, minimum design area, most hydraulically remote area, sprinklered areas). Detail fire pump plans, sections, isometric diagram of the fire pump system, tank plans, tank sections, tank details and piping layout and details.

11.8.3.3 Fire alarm system: Plans showing location of all initiation devices (manual pull stations, duct smoke detectors, sprinkler flow switches, smoke detectors, magnetic door holders), visible/audible notification appliances, supervisory devices (tamper switches, low pressure switches), fire alarm panel, fire alarm exterior annunciator, and fire alarm diagram.

11.8.3.4 Life Safety: All fire rated walls shall be shown where they begin and where they end. All fire rated shafts, stairs, vertical openings, seismic joints shall be shown. Fire rated doors, fire rated door frames, fire rated windows and window frames, door hardware, fire dampers, and smoke dampers are to be shown with the appropriate fire rating in hours.

11.8.3.5 IBC requirements: Site plan showing the location of the project buildings in relation to other existing buildings, roads, parking lots, fuel tanks, water tanks, electric poles, exterior power lines.

11.8.3.6 Means of egress lighting and LED type exit signs meeting LSC shall be shown on the plans.

#### 11.8.4 Specifications.

11.8.4.1 General requirements: The fire protection work for the project shall be constructed in accordance with Unified Facilities Guide Specifications (UFGS) sections 13920 Fire Pumps, 13930 Wet Pipe Sprinkler System, Fire Protection, 13945 Preaction/Deluge Sprinkler System, Fire Protection, 13851 Fire Detection and Alarm System Addressable, and 7840 Firestopping. Edited UFGS specification sections shall be used and revised in accordance with the restrictions in ER 1110-345-700, Appendix D and the following:

11.8.4.2 Sprinkler systems: No plastic piping or fittings, and "T drill method" are allowed. Sprinkler system design area, density and hydrant demand shown in 1008C shall be followed. Sway bracing and branch restraints are required. Government Shop drawing submittal approval and preparer approval is required.

11.8.4.3 Fire alarm systems: Class A looped fire alarm system is required. "T taps" are prohibited. Fire Protection Engineer qualification approval, Fire Protection Engineer shop drawing approval and fire alarm shop drawing submittal approval by the Government are required. Modify the operations paragraph to meet the Attachment Fire Alarm Control Matrix control sequence.

11.8.4.4 Firestopping, fire dampers, fire rated doors/door frames, smoke dampers, and exit signs, must be submitted for Government approval.

#### 11.9 Interior Electrical System

11.9.1 The power riser or one-line diagram shall be essentially complete except for finalization of conduit and wire sizes.

11.9.2 Panelboards, switchboards, switchgear, motor control centers, and all other utilization

equipment shall be located on the floor plans. Schedules for applicable equipment shall be provided. The schedules shall include all pertinent information to fully describe the equipment. Elevations for free standing equipment shall be provided but need not be entirely finalized.

11.9.3 Details of the layouts for electrical closets and rooms shall be shown.

11.9.4 Receptacles and light fixture layouts (wiring not required at this stage) shall be shown for all rooms.

11.9.5 Areas where nonlinear loads will be encountered shall be identified. Per the requirements of paragraphs 4c and 4g of ETL 1110-3-403, the use of 75 degree C. (minimum) conductors is required. Branch circuits serving eight-wire systems furniture or groups of nonlinear loads shall be 3#12, 1#10 N., 1#12 GND. and 1#12 Isolated GND. Feeders serving panelboards with nonlinear loads shall have the neutral conductor ampacity based on at least 1.73 times the ampacity of the phase conductors. The neutral bus in the panelboards shall have the same criteria. The simplest way to accomplish the upsizing of the neutral conductor is to provide double ampacity neutrals or parallel conductors in sizes permitted by the National Electrical Code.

11.9.6 A completed fixture schedule shall be included on the drawings.

11.9.7 All removals shall be shown on demolition plans.

11.9.8 Describe energy conservation measures and/or techniques that are being incorporated into the design.

#### 11.10 Exterior Electrical Distribution System

11.10.1 In a narrative, clearly describe the electrical distribution system and state the changes to be made to the existing system to accommodate this project. State any deficiencies to be corrected and provide a description of all new work being performed.

11.10.2 State the electrical characteristics of the power supply from the service point to the main service equipment.

11.10.3 Indicate the type, number, voltage rating and connections, and kVA rating of all transformers provided.

11.10.4 State the type of conductor to be used and provide a justification for its use.

11.10.5 Include a statement describing the criteria used for the exterior design such as primary and secondary voltage drop. Describe the physical characteristics of both the underground and overhead power lines. Provide the short circuit current available at the site and state the source of this value.

11.10.6 Include a description of all exterior lighting systems included in the design. Identify the fixture types, poles and design lighting levels. Provide point-to-point calculations showing that all design levels have been achieved.

11.10.7 The exterior electrical design drawings shall show all poles (lighting), underground conductors, manholes, handholes, ductbanks, and all pertinent components identified on the site plans.

11.10.8 All removals shall be shown on demolition plans.

#### 11.11. Electronic Systems

##### Public Address System

Telecommunications System  
Cable Television System  
Intrusion Detection  
Personal Alert (Mass Notification) System

Provide a descriptive narrative of all electronic systems that are required for this project. The design analysis shall include all calculations required to support design decisions and estimates at this stage of design. The analysis shall include specific criteria furnished, conference minutes and cost analyses of all systems considered.

11.11.1. Show location of telecommunications outlets (including pay phones) on the plans. Include legend and symbol definition to indicate height above finished floor. Show a Telecommunication Conduit System Riser Diagram.

11.11.2. Verification of the validity of any existing drawings and/or any other data furnished by the Government shall be the responsibility of the engineering services firm.

11.11.3. Provide a statement describing the extent of any exterior work such as telecommunication lines, cable television (TV) distribution cables, duct banks, etc., outside of 5 feet from the building line.

11.11.4. Exterior work to be shown on electrical site plan:

Existing and new telecommunications and cable television service lines, both overhead and underground, shall be properly identified.  
Show removals and relocations, if any.

11.11.5. Show the location of all electronic system panels, devices, outlets, etc., on the floor plans. Show the proposed riser diagrams for all systems. Provide a complete symbol legend for all devices or equipment shown on the plans. For work requiring removals or demolition, the designer shall show how demolition work is to be done.

11.12. Submit outline specifications unless otherwise indicated above.

11.13. Submit the SPIRIT rating sheet for sustainable level compliance as indicated in the SOW.

## 12.0 **CONTENTS OF 90% DESIGN SUBMITTAL**

12.1 General: The pre-final (90%) drawings are an extension of the reviewed 50% drawings and are to include the 50% comments and responses.

12.1.2 Design Analysis. The pre-final Fire Protection and Life Safety Analysis shall be included in the Design Analysis. The design analysis is an extension of the reviewed 50% design analysis and supports and verifies the design complies with the requirements of the project.

12.1.3 Drawings. The pre-final (90%) drawings are an extension of the review 50% drawings and include all revisions incorporated from the 50% review comments.

12.1.4. Provide pre-final (90%) marked up specifications. The Contractor shall submit all specification sections to be used clearly indicating what products and execution to be used in the final design.

12.1.5 Comment Response Package: Complete package showing all comments from all previous reviews and the respective response and disposition.

12.2 The site/utility portion of the 90% design submittal shall contain as a minimum, the following:

12.2.1 General Narratives:

12.2.1.1 Site/Layout: Explanation of objectives and factors influencing siting decisions. General overview of major site features planned, such as building orientation, drainage patterns, parking provisions, traffic circulation, provisions for the handicapped, security requirements, etc. Rationale for locating major site elements. Set back requirements or specific clearance requirements. Locations of borrow and spoil areas.

12.2.1.2 Utility Systems: Design narrative for the water supply, storm drainage, wastewater, electrical, and telecommunications systems relating to this project. Include an analysis of the existing distribution systems capability to supply sufficient quantity at adequate levels. If the existing distribution systems are inadequate, provide the design solution to augment the systems to provide the requirements for the new facilities.

12.2.2 All drawings included in the required technical data for the proposal submission (see SECTION 01010: STATEMENT OF WORK), shall be developed to 90 percent completion. In addition to the individual utility plans, submit a combined utility plan drawn to the same scale as the individual utility plans.

12.2.2.1 General Site Layout: Label and tie down locations of new site elements (buildings, walks, curbs, new pavements surfaces, gutters, parking, trash enclosures, bicycle racks, etc.) Scale shall be included.

12.2.2.2 Site Grading and Drainage Plans: Show locations of all sediment basins, diversion ditches, and other erosion control structures. Indicate the approximate drainage areas each will service. Indicate the materials, construction and capacity of each structure. Include limits of landscaping and seeded areas. Provide building grade sections (at least one view per axis of building(s) and extended through grading limits). General site grading and drainage shall be indicated by contour lines with an interval of not more than approximately 0.5 m [1.5 feet].

12.2.2.3 Road Alignment Plans: Scale shall be no greater than as indicated in SECTION 01010: STATEMENT OF WORK and profiles showing pavement and shoulder widths, azimuths and curve data, limits of grading, and erosion control. The materials to be used shall be indicated.

12.2.2.4 Traffic Control Plan: Traffic routing and signage shall be in accordance with The Manual on Uniform Traffic Control Devices for Streets and Highways, U.S. Department of Transportation, Federal Highways Administration.

12.2.2.5 Sanitary Sewer and Water Plan: Scale shall be as indicated in SECTION 01010: STATEMENT OF WORK and profiles showing location and elevation of pipe, thrust blocks, manholes, valves connections, etc. Materials and construction of pipes, valves, valve boxes, sewage treatment systems and appurtenances shall be indicated. Specifications shall be provided.

12.2.2.6 Electrical Plan Requirements:

12.2.2.6.1 Required diagrams and details on Site Electrical and Telecommunications Drawings.

12.2.2.6.1.a. Off-Site Electrical and Telecommunications Distribution Plans:

12.2.2.6.1.b. Off-Site Primary Circuit Routing Plans:

12.2.2.6.1.c. Off-Site One Line Diagrams

12.2.2.6.1.d. Off-Site Details.

12.2.2.6.1.e. On-Site Electrical and Telecommunications Distribution Plans:

12.2.2.6.1.f. On-Site One Line Diagrams

12.2.2.6.1.g. On-Site Distribution Transformer Schedule: Provide with the following headings:

Transformer Designation. Transformer Size (KVA). Building(s) Served.

Primary Phase(s) and Circuit to which connected.

12.2.2.6.1.h. Details shall include but not limited to poles, manholes, handholes, ductbanks, site

lighting poles, trenching, pad-mounted transformers and switches, etc. Calculations shall support all new manhole and handhole locations.

12.2.2.6.2 See Chapter 9, Electrical Systems, for other design requirements.

12.2.2.7 Specifications: Provide pre-final draft marked-up specifications, which include all sections, which apply to site/utility work.

12.2.2.8 Design Analysis: Design analysis shall include design calculations fully developed to support the design of the site and utility systems included in this submittal.

12.2.2.9 Geotechnical: Soils analysis and geotechnical report. Geotechnical information must be provided to support all assumptions and design parameters utilized in the presented site/utility design as applicable.

12.3 The building and landscaping portion of the 90% design submittal shall contain as a minimum, the following:

12.3.1 Landscaping and Irrigation System: The design submittal shall include drawings clearly showing the piping layout and location of sprinkler heads coordinated with the landscaping plan, control valves, backflow preventers, rain check switches, controllers, etc. Indicate buildings, walks, shrubbery, trees, and other obstacles that might interfere with the proper operation of the sprinkler system. A design analysis calculating the pressures at each sprinkler head for the capacity and radius of throw is required. Details of the sprinkler head installation, valve boxes, and other irrigation appurtenances shall be submitted.

12.3.2 Landscape, Planting and Turfing

12.3.2.1 The landscape planting design narrative shall describe the analysis of existing site conditions, including an indication of existing plant materials that are to remain on the site. The statement of concept shall indicate specific site problems related to proposed development and the rationale for proposed plant locations. The narrative shall also include a list of suggested types and sizes of plant materials, which are to be used, based upon the designated functional and visual criteria.

12.3.2.2 The drawings shall be prepared at a scale which corresponds with the site layout and grading plans and, likewise, shall include reference coordinates, north arrows, graphic scales and appropriate legends. An overall planting layout shall be developed and shall include enlarged detail plans of specific areas, as needed, to clarify requirements. The proposed layout shall indicate shade trees, evergreen trees, flowering trees, shrub masses, etc., according to designated functional and visual locations of planting. A legend that also indicates sizes of plants recommended for each of the above categories shall be included. The drawings and all subsequent plans shall indicate existing and proposed buildings, paved areas, signs, light standards, transformers, dumpster areas, storm drainage system, and other structures and utilities.

12.3.3 Architectural

12.3.3.1 The architectural analysis, drawings and specifications shall include the 50% submittal with corrections incorporated including the annotated comments indicating what corrections were done on the 50% submittal based on comments on the 50% submittal. Architectural specifications must be complete with all edits incorporated in the specification text.

12.3.3.2 Details: Complete Construction details, sections, interior elevations, exterior elevations, etc., shall be provided to describe the methods and materials of design.

12.3.3.3 Pre-wired workstation composite floor plans. Pre-wired workstation typicals - elevations and

component inventory. Pre-wired workstation panel identification plan with electrical outlet placement including base feed.

12.3.3.4 Comprehensive Interior Design package shall include the 50% submittal with corrections incorporated including the annotated comments indicating what corrections were done on the 50% submittal.

#### 12.3.4 Structural Systems

12.3.4.1 State the live loads to be used for design. Include roof and floor loads; wind loads, lateral earth pressure loads, seismic loads, etc., as applicable.

12.3.4.2 Describe the method of providing lateral stability for the structural system to meet seismic and wind load requirements. Include sufficient calculations to verify the adequacy of the method.

12.3.4.3 Furnish calculations for all principal roof, floor, and foundation members.

12.3.4.4 This submittal shall include drawings showing roof and floor framing plans as applicable. Principal members will be shown on the plans. A foundation plan shall also be furnished showing main footings and grade beams where applicable. Where beam, column, and footing schedules are used, show schedules and fill in sufficient items to indicate method to be used. Show typical bar bending diagram if applicable. Typical sections shall be furnished for roof, floor, and foundation conditions. Structural drawings for proposals and submittals shall be separate from architectural drawings.

12.3.4.5 Provide any computer analyses used shall be widely accepted, commercially available programs and complete documentation of the input and output of the program.

12.3.4.6 Provide complete seismic analyses for all building structural components. Seismic calculations shall clearly demonstrate compliance with all requirements set forth in the Statement of Work.

#### 12.3.5 Specific Mechanical and Plumbing Requirements:

12.3.5.1 The mechanical and plumbing analysis, drawings and specifications shall include the 50% submittal with corrections incorporated including the annotated comments indicating what corrections were done on the 50% submittal based on comments on the 50% submittal. Mechanical and plumbing specifications must be complete with all edits incorporated in the specification text.

12.3.5.2 Details: Construction details, sections, elevations, etc., shall be provided where required for clarification of methods and materials of design. All roof and exterior wall penetrations shall be detailed on the drawings.

12.3.6 Fire Protection: The Fire protection analysis, drawings and specifications shall include 50% submittal with corrections incorporated including the annotated comments indicating what corrections were done on the 50% submittal based on comments on the 50% submittal. Fire protection specifications must be complete with all edits incorporated in the specification text.

#### 12.3.7 Electrical and Electronic Systems Requirements

12.3.7.1 The Electrical and Electronic systems design analysis, drawings, and specifications shall include the 50% submittal with corrections incorporated, including the annotated comments indicating what corrections were done on the 50% submittal based on comments on the 50% submittal. All requirements specified in the 50% submittal must be developed and completed to this 90% stage.

12.3.7.2 Electrical and Electronics Floor Plans. The floor plans shall show all principle architectural

features of the building, which will affect the electrical design. The floor plans shall also show (but not limited to) the following:

- Room designations.
- Electrical legend and applicable notes.
- Lighting fixtures, properly identified.
- Location of smoke detectors and fire alarm devices
- Location of telecommunication and cable TV outlets.
- Location of all electronic systems devices
- Switches for control of lighting.
- Receptacles.
- Location and designation of panel boards. Plans should clearly indicate type of mounting required (flush or surface) and be reflected accordingly in specifications. Service entrance (conduit and main disconnect).
- Location, designation and rating of motors and/or equipment which requires electrical service. Show method of termination and/or connection to motors and/or equipment. Show necessary junction boxes, disconnects, controllers (approximate only), conduit stubs, and receptacles required to serve the motor and/or equipment.
- All circuit wiring and cables (number and sizes)
- All conduit runs and sizes
- All riser and one line diagrams
- All other electrical and electronic equipment

12.3.7.3. Building Riser Diagram (from pad-mounted transformer to unit load center panel board): Indicate the types and sizes of electrical equipment and wiring. Include grounding and metering requirements.

12.3.7.4. Load Center and Panelboard Schedule(s): Schedule shall indicate the following information:

- Load Center/Panelboard Characteristics (Panel Designation, Voltage, Phase, Wires, Main Breaker Rating and Mounting)
- Branch Circuit Designations.
- Load Designations.
- Circuit Breaker Characteristics. (Number of Poles, Trip Rating, AIC Rating)
- Branch Circuit Connected Loads (AMPS).
- Special Features.

12.3.7.5 Lighting Fixture Schedule: (Schedule shall indicate the following information:)

- Fixture Designation.
- General Fixture Description.
- Number and Type of Lamp(s).
- Type of Mounting.
- Voltage
- Special Features.

12.3.7.6. Details: Details of all light fixtures shall be provided. Construction details, sections, elevations, etc., shall be provided where required for clarification of methods and materials of design.

12.3.7.7 Electrical and Electronic systems specifications must be complete with all mark-ups and edits incorporated in the specification text.

12.3.7.8 Design analysis and calculations for the electrical systems shall be prepared by a licensed professional engineer with experience and shall be stamped as such. The design analysis shall be separately bound, in one or more volumes. The design analysis shall include all calculations required to support design decisions, including (but not limited to) lighting calculations, voltage drop

calculations, load calculations (for transformers, conductor sizes, circuit breaker sizes, panelboard sizes, etc.), and short circuit calculations. The analysis shall also include specific criteria furnished, conference minutes, and cost analyses of all systems considered. Show functional and engineering criteria, design information, and calculations applicable to the project. The analysis shall be organized in a format appropriate for review, approval, and record purposes. The design calculations shall indicate methods and references identified, and shall explain assumptions and conclusions.

12.3.7.9. Voltage Drop (VD) Calculations: Provide voltage drop calculations of primary feeders, site lighting circuits, service laterals, feeder conductors, and selected branch circuits over 31m (100 ft) in length. Maximum allowable voltage drop for site lighting and service laterals is 3%. The combined voltage drop for the service laterals, unit feeders, and branch circuit cannot exceed 5%.

12.3.7.10 See Chapter 9, Electrical Systems, for other design requirements.

12.3.8 Kitchen Requirements: List all references used in the design including Government design documents and industry standards. Provide justification and brief description of the types of equipment, fixtures and piping materials proposed for use. Descriptions shall include narrative and catalog cuts. Prepare detail calculations for systems such as sizing of makeup air systems, exhaust systems, refrigeration equipment, kitchen equipment and gas piping. List of the materials and equipment proposed shall include the manufacturer's published cataloged product installation specifications and roughing-in data. The data shall include the manufacturer's wiring diagrams, installation specifications, certifications, and the standard warranty for the equipment. Include drawings of all areas. Drawings shall include plans, sections, piping isometric diagrams, control diagrams, sequence of operation, schedules and details. Minimum of 1:50 scale shall be used on all plan drawings, and building sections. The kitchen work for the project shall be constructed in accordance with Unified Facilities Guide Specifications (UFGS). Edited UFGS specification sections shall clearly indicate design intent including products and execution to be provided.

12.3.9 Sustainable Design: Provide a completed SPiRiT checklist to show compliance with the level indicated in the SOW and incorporated comments on the previous design submittal.

### **13.0 CONTENTS OF 100% DESIGN SUBMITTAL**

13.1 General: A complete set of construction documents plans and specifications at the same level of detail as if the project were to be bid including a complete list of equipment, fixtures and materials to be used. The final (100%) drawings are an extension of the reviewed 90% drawings and are to include the 90% comments and responses. All details shall be shown on the drawings.

13.1.2 Complete design analysis for all design disciplines. The final Fire Protection and Life Safety Analysis shall be included in the Design Analysis. The design analysis is an extension of the reviewed 90% design analysis and supports and verifies the design complies with the requirements of the project.

13.1.3 The Final (100%) drawings are an extension of the review 90% drawings and include all revisions incorporated from the 90% review comments. Drawings shall be 100% complete, signed and sealed by the designer of record.

13.1.3. Provide Final (100%) specifications. The Contractor shall make final identification of all materials at this stage.

13.1.3 Comment Response Package: Complete package showing all comments from all previous reviews and the respective response and disposition.

13.1.3 Additional Requirements.

- a. Compliance Certification

(1) The Contractor shall certify that the features and standards offered in its submittals meet or exceed the corresponding mandatory features and standards stated in the Scope of Work. A certification to this effect shall be included on the title sheet of each submittal made under this section. The certification shall be signed by the person(s) authorized to bind the offeror under the offer, or by persons who have been delegated, in writing such authorization.

(2) The parties understand that, at the time of award, all features and standards proposed in the Contractor's accepted offer, including the mandatory requirements of the RFP, as amended by the Contractor's accepted offer, become binding upon both the Government and the Contractor. Deviations from the features and standards of the accepted offer, including deviations from the RFP's mandatory requirements, as amended by the accepted offer, may be approved by the Contracting Officer upon written application by the Contractor and agreement as to good and sufficient consideration by the parties, reflected in an equitable adjustment to the contract price.

b. Field Inspection. The Contractor shall verify field conditions, which are significant to design, by field inspection, researching and obtaining all necessary as-built drawings and reproducing them for his own use as necessary, and discussing status with knowledgeable personnel. The information shall be reflected in the design documents.

c. Additional Topographic Information. The Government has supplied all or a majority of the topographic information required for the project as part of the topographic survey sheets provided in the Request for Proposals drawings. Any additional topographic information required by the Contractor for design after award of the contract shall be procured and paid for by the successful Proposer.

d. Soil and Foundation Report. A final and complete soil and foundation report shall be furnished by the Contractor in accordance with Site Engineering Section of the Statement of Work.

13.2 The building and landscaping design portion of the 100% design submittal shall contain, as a minimum, the following items for all submittals:

13.2.1 Landscape and Planting Final design drawing(s) shall include a complete schedule of plant materials which indicates their botanical and common names, plan symbols, quantities, sizes, condition furnished, and pertinent remarks. The drawings shall be prepared at a scale that corresponds with the site layout and grading plans and, likewise, shall include reference coordinates, north arrows, graphic scales and appropriate legends. An overall planting layout shall be developed and shall include enlarged detail plans of specific areas as needed, to clarify requirements. Final design drawings, indicating proposed plants by a (+) mark for the plant location and a circle which is scaled at approximately 2/3 the ultimate growth spread (diameter) of plants, shall also include a complete schedule of plant materials which indicates botanical and common names, plan symbols, quantities, sizes, condition furnished, and pertinent remarks. Final drawings shall also include the basic details for installation of tree, shrub, and ground cover planting, as well as any other applicable details for clarification of specific project requirements.

13.2.2 Architectural

13.2.3.1 The architectural analysis, drawings and specifications shall include the 90% submittal with corrections incorporated including the annotated comments indicating what corrections were done on the 50% submittal based on comments on the 90% submittal. Architectural specifications must be complete with all edits incorporated in the specification text.

13.2.3.2 All architectural drawings shall be coordinated with the other engineering disciplines. Ensure that the plans are in compliance with the applicable codes. It will be the Contractor's responsibility to implement the comments generated from any design review submittal as well as verify the consistency between plans and specification. The evaluation of the Contractor's submittals shall be based on

degree to which the submittal meet the requirements set forth in this document and the specifications.

13.2.3.4 Comprehensive Interior Design package shall include the 90% submittal with corrections incorporated including the annotated comments indicating what corrections were done on the 90% submittal.

#### 13.2.4 Structural Design

13.2.4.1 Furnish complete checked calculations for all structural members. Incorporate any changes required by comments on 90% Design Submittal.

13.2.4.2 Prior to this submittal, structural drawings shall be coordinated with all other design disciplines.

13.2.4.3 The final structural drawings shall contain the following information as a set of general notes:

The allowable soil bearing value.

The design stresses of structural materials used.

The design live loads used in the design of various portions of the structures.

The design wind speed.

The seismic acceleration coefficients, seismic use group, and performance level criteria used in design.

13.2.4.4 All structural drawings and calculations shall be checked and stamped by the designer of record (a registered Professional Engineer).

#### 13.2.5 Specific Mechanical and Plumbing Requirements:

13.2.5.1 The mechanical and plumbing analysis, drawings and specifications shall include the 90% submittal with corrections incorporated including the annotated comments indicating what corrections were done on the 90% submittal based on comments on the 90% submittal. Mechanical and plumbing specifications must be complete with all editions incorporated in the specification text.

13.2.5.2 In addition to items submitted in the paragraph 11.4.7.1, the drawings shall be revised to include:

Double line ductwork

Double line piping for all piping 100 mm (4 in.) or larger on 1:50 drawings

Double line piping for all piping 200 mm (8 in.) or larger on 1:100 drawings

Thermostat locations

Size of all ductwork

Size of all piping

All details

13.2.5.3 Details: Construction details, sections, elevations, etc., shall be provided where required for clarification of methods and materials of design. All roof and exterior wall penetrations shall be detailed on the drawings.

13.2.6. Fire Protection: The Fire protection analysis, drawings and specifications shall include 90% submittal with corrections incorporated including the annotated comments indicating what corrections were done on the 90% submittal based on comments on the 90% submittal. Fire protection specifications must be complete with all editions incorporated in the specification text.

#### 13.2.7 Specific Electrical and Electronic Requirements:

13.2.7.1 The Electrical and Electronic systems design analysis, drawings, and specifications shall

include the 90% submittal with corrections incorporated, including the annotated comments indicating what corrections were done on the 90% submittal based on comments on the 90% submittal. All requirements specified in the 90% submittal must be developed and completed to this 100% stage.

13.2.8 Kitchen Requirements: The kitchen design analysis, drawings and specifications shall include the 90% submittal with corrections incorporated including the annotated comments indicating what corrections were done on the 90% submittal based on comments on the 90% submittal. Mechanical and plumbing specifications must be complete with all editions incorporated in the specification text.

13.2.9 Specifications: Provide final specifications. The Contractor shall make final identification of all materials and finishes at this stage.

13.2.10 Sustainable Design: Provide a revised completed SPiRiT checklist to show compliance with the silver level of the SpiRiT checklist due to changes in the design from the 90% submittal to the 100% submittal.

#### 14.0 DESIGN RELATED PRODUCTS

14.1 Architectural Renderings: Contractor shall provide the original and three copies of each ground level perspective artist's renderings of completed typical facilities with walks, parking, and landscaping. Renderings shall be no smaller than 14" x 18" or larger than 28" x 36", multi-colored, and shall be suitably titled, matted, and framed.

14.2 DD Form 1354: Three (3) sets of DD Form 1354, Transfer and Acceptance of Military Real Property shall be prepared in accordance with ER 415-345-38 and submitted to the Contracting Officer.

14.3 Reproduction: Upon Government approval of 100% design documents, the original will be returned to the Contractor for reproduction purposes. The Contractor will be responsible for his own reproduction as well as reproduction for Government use. The Government will require the same number of copies of the plans and specifications as were required for the review stages, no color boards will be required. The originals will be retained by the Contractor for recording of as-built conditions. Upon completion of the project, the original design documents corrected to reflect as-built conditions will be supplied to the Government.

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## SECTION 01312

## QUALITY CONTROL SYSTEM (QCS)

## PART 1 GENERAL

## 1.1 GENERAL

The Government will use the Resident Management System for Windows (RMS-W) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS-Windows, referred to as QCS (QC for Quality Control), to record, maintain, and submit various information throughout the contract period. This joint Government-Contractor use of RMS-W and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

- Administration
- Finances
- Quality Control
- Submittal Monitoring
- Scheduling
- Import/Export of Data

## 1.1.1 Correspondence and Electronic Communications

For ease and speed of communications, both Government and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

## 1.1.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01320, "Project Schedule", Section 01330, SUBMITTAL PROCEDURES, and Section 01451, CONTRACTOR QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through QCS. Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

## 1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## U.S. ARMY CORPS OF ENGINEER (USACE)

EM 385-1-1

(2003) Safety and Health Requirement Manual

## 1.3 HARDWARE/SOFTWARE REQUIREMENTS

## 1.3.1 Installing the QCS Program

The QCSSetup<version>.exe is the program that you will begin the installation with. Launch the program through your Windows Explorer, the Run command, or however you are used to doing that sort of thing. This is self-extracting file and will create the necessary files and folders and complete the installation and set up your program. The window will close automatically when the extraction process is completed.

The program should install itself, asking only minimal questions. The program will tailor the installation to suit the computer it is being installed on. That is, the program will install a "new" program if one has not already been installed, it will install an "update" if the program is already installed on the computer and will determine each client or server requirement and automatically install/update what is required. Each screen and instruction is shown on the following pages.

## 1.4 QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide QCS on 3-1/2" high-density diskettes or CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

## 1.5 SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run QCS:

**Hardware**

IBM-compatible PC with 500 MHz Pentium or higher processor

128+ MB RAM for workstation / 256+ MB RAM for server.

1 GB hard drive disk space for sole use by the QCS system.

3-1/2 inch high-density floppy drive.

Compact Disk (CD) Reader 8x speed or higher.

SVGA or higher resolution monitor (1024x768, 256 colors).

Mouse or other pointing device.

Windows compatible printer. (Laser printer must have 4 MB+ of RAM).

Connection to the Internet, minimum 56k BPS

#### **Software**

MS Windows 98, ME, NT, or 2000.

Word Processing software compatible with MS Word 97 or newer.

Latest version of: Netscape Navigator, Microsoft Internet Explorer, or other browser that supports HTML 4.0 or higher.

Electronic mail (E-mail) MAPI compatible.

Virus protection software that is regularly upgraded with all issued manufacturer's updates.

### 1.6 RELATED INFORMATION

#### 1.6.1 QCS User Guide

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website; the Contractor can obtain the current address from the Government. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

#### 1.6.2 Contractor Quality Control(CQC) Training

The use of QCS will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class.

### 1.7 CONTRACT DATABASE

Prior to the pre-construction conference, the Government will provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed, generally by files attached to E-mail. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

### 1.8 DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the QCS database at the Contractor's site office. Data updates to the Government shall be submitted by E-mail with file attachments, e.g., daily reports, schedule updates, payment requests. If permitted by the Contracting Officer, a data diskette or CD-ROM may be used instead of E-mail (see Paragraph DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM).

The QCS database typically shall include current data on the following items:

#### 1.8.1 Administration

##### 1.8.1.1 Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver Contractor administrative data in electronic format via E-mail.

##### 1.8.1.2 Subcontractor Information

The database shall contain the name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor must be listed separately for each trade to be performed. Each subcontractor/trade shall be assigned a unique Responsibility Code, provided in QCS. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver subcontractor administrative data in electronic format via E-mail.

##### 1.8.1.3 Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main) office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

##### 1.8.1.4 Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

##### 1.8.1.5 EM 385-1-1, Corps of Engineers Safety Manual and RMS Linkage

Upon request, the Contractor can obtain a copy of the current version of the Safety Manual, EM 385-1-1, on CD. Data on the CD will be accessible through QCS, or in stand-alone mode.

#### 1.8.2 Finances

##### 1.8.2.1 Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by the Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract amount.

#### 1.8.2.2 Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. The Contractor shall submit the payment requests with supporting data by E-mail with file attachment(s). If permitted by the Contracting Officer, a data diskette may be used instead of E-mail. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

#### 1.8.3 Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01451, CONTRACTOR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

##### 1.8.3.1 Daily Contractor Quality Control (CQC) Reports.

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01451, CONTRACTOR QUALITY CONTROL. Reports shall be submitted electronically to the Government using E-mail or diskette within 24 hours after the date covered by the report. Use of either mode of submittal shall be coordinated with the government representative. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

##### 1.8.3.2 Deficiency Tracking.

The Contractor shall use QCS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC punch list items. The contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

#### 1.8.3.3 Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

#### 1.8.3.4 Accident/Safety Tracking.

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 200.

#### 1.8.3.5 Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

#### 1.8.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via QCS.

#### 1.8.4 Submittal Management

When available, the Government will provide the initial submittal register, ENG Form 4288, SUBMITTAL REGISTER, in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns as described in Section 01330, SUBMITTAL PROCEDURES. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update, ENG Form 4288, shall be produced using QCS. RMS-W will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

#### 1.8.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Section 01320, PROJECT SCHEDULE, as applicable. This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange Format (SDEF) (see Section 01320 PROJECT SCHEDULE). The updated schedule data shall be included with each pay request submitted by the Contractor.

#### 1.8.6 Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data, and schedule data using SDEF.

#### 1.9 IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.

#### 1.10 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the QCS built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

##### 1.10.1 File Medium

The Contractor shall submit required data on 3-1/2" double-sided high-density diskettes formatted to hold 1.44 MB of data, capable of running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

##### 1.10.2 Disk or CD-ROM Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the QCS file name, full contract number, project name, project location, data date, name and telephone number of person responsible for the data.

##### 1.10.3 File Names

The Government will provide the file names to be used by the Contractor with the QCS software.

#### 1.11 MONTHLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions. The contractor shall make all required corrections prior to Government

acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable QCS export file is received.

#### 1.12 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section --

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## SECTION 01320

## PROJECT SCHEDULE

## PART 1 GENERAL

## 1.1 ELECTRONIC SCHEDULE REQUIREMENT

The Project Schedule to be prepared by the Contractor shall be electronically prepared using software capable of generating a data file in the Standard Data Exchange Format (SDEF). The Project Schedule shall consist of a network analysis system as described in this Section. In preparing this system the scheduling of Construction is the sole responsibility of the contractor. The requirement for the system is included to assure adequate planning in the execution of the work and to assist the Contracting Officer in appraising the reasonableness of the proposed schedule and evaluating progress of the work for the purposes of payment.

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-01 Preconstruction Submittals

Preliminary Project Schedule; G.  
Initial Project Schedule; G.  
Periodic Schedule Updates; G.

Two copies of the schedules showing codes, values, categories, numbers, items, etc., as required.

Periodic schedule updates schedules shall be submitted together with the monthly progress payment request.

## SD-06 Test Reports

Narrative Report.  
Schedule Reports.

Two copies of the reports showing numbers, descriptions, dates, float, starts, finishes, durations, sequences, etc., as required.

## SD-07 Certificates

### Qualifications; G.

Documentation showing qualifications of personnel preparing schedule reports.

## 1.3 QUALIFICATIONS

The Contractor shall designate an authorized representative who shall be responsible for the preparation of all required project schedule reports. This person shall have previously created and reviewed computerized schedules. Qualifications of this individual shall be submitted to the Contracting Officer for review with the Preliminary Project Schedule submission

## PART 2 PRODUCTS (Not Applicable)

## PART 3 EXECUTION

### 3.1 GENERAL

Pursuant to the Contract Clause, SCHEDULE FOR CONSTRUCTION CONTRACTS, a Project Schedule as described below shall be prepared. The scheduling of construction shall be the responsibility of the Contractor. Contractor management personnel shall actively participate in its development. Subcontractors and suppliers working on the project shall also contribute in developing and maintaining an accurate Project Schedule. The approved Project Schedule shall be used to measure the progress of the work, to aid in evaluating time extensions, and to provide the basis of all progress payments.

### 3.2 BASIS FOR PAYMENT

The schedule shall be the basis for measuring Contractor progress. Lack of an approved schedule or scheduling personnel shall result in an inability of the Contracting Officer to evaluate Contractor progress for the purposes of payment. Failure of the Contractor to provide all information, as specified below, shall result in the disapproval of the entire Project Schedule submission and the inability of the Contracting Officer to evaluate Contractor progress for payment purposes. In the case where Project Schedule revisions have been directed by the Contracting Officer and those revisions have not been included in the Project Schedule, then the Contracting Officer may hold retainage up to the maximum allowed by contract, each payment period, until revisions to the Project Schedule have been made.

### 3.3 ELECTRONIC PROJECT SCHEDULE

The computer software system utilized by the Contractor to produce the Project Schedule shall be capable of providing all requirements of this specification. Failure of the Contractor to meet the requirements of this specification shall result in the disapproval of the schedule. Manually generated schedules will not be accepted.

The system noted below is capable of generating a file in the Standard Data Exchange Format (SDEF). All electronic data submittals shall be in SDEF. SDEF information is available from the Contracting Officer.

Vendor/System with SDEF support:

Primavera Systems           PRIMAVERA PROJECT PLANNER (P3)

### 3.3.1 Use of the Critical Path Method

The Critical Path Method (CPM) of network calculation shall be used to generate the Project Schedule. The Contractor shall provide the Project Schedule in either the Precedence Diagram Method (PDM) or the Arrow Diagram Method (ADM).

### 3.3.2 Level of Detail Required

With the exception of the preliminary schedule submission, the Project Schedule shall include an appropriate level of detail. Failure to develop or update the Project Schedule or provide data to the Contracting Officer at the appropriate level of detail, as specified by the Contracting Officer, shall result in the disapproval of the schedule. The Contracting Officer will use, but is not limited to, the following conditions to determine the appropriate level of detail to be used in the Project Schedule.

#### 3.3.2.1 Activity Durations

Contractor submissions shall follow the direction of the Contracting Officer regarding reasonable activity durations. Reasonable durations are those that allow the progress of activities to be accurately determined between payment periods (usually less than 2 percent of all non-procurement activities' Original Durations shall be greater than 20 days).

#### 3.3.2.2 Procurement Activities

Tasks related to the procurement of long lead materials or equipment shall be included as separate activities in the project schedule. Long lead materials and equipment are those materials that have a procurement cycle of over 90 days. Examples of procurement process activities include, but are not limited to: submittals, approvals, procurement, fabrication, delivery, installation, start-up, and testing.

#### 3.3.2.3 Government Activities

Government and other agency activities that could impact progress shall be shown. These activities include, but are not limited to: approvals, inspections, utility tie-in, Government Furnished Equipment (GFE) and notice to proceed for phasing requirements.

#### 3.3.2.4 Responsibility

All activities shall be identified in the project schedule by the party

responsible to perform the work. Responsibility includes, but is not limited to, the subcontracting firm, contractor work force, or government agency performing a given task. The responsible party for each activity shall be identified by the Responsibility Code.

#### 3.3.2.5 Work Areas

All activities shall be identified in the project schedule by the work area in which the activity occurs. Activities shall not be allowed to cover more than one work area. The work area of each activity shall be identified by the Work Area Code.

#### 3.3.2.6 Modification or Claim Number

Any activity that is added or changed by contract modification or used to justify claimed time shall be identified by a mod or claim code that changed the activity. Activities shall not belong to more than one modification or claim item. The modification or claim number of each activity shall be identified by the Mod or Claim Number.

#### 3.3.2.7 Bid Item

All activities shall be identified in the project schedule by the Bid Item to which the activity belongs. An activity shall not contain work in more than one bid item. The bid item for each appropriate activity shall be identified by the Bid Item Code.

#### 3.3.2.8 Feature of Work

All activities shall be identified in the project schedule according to the feature of work to which the activity belongs. Feature of work refers, but is not limited to a work breakdown structure for the project. The feature of work for each activity shall be identified by the Feature of Work Code.

### 3.3.3 Scheduled Project Completion

The schedule interval shall extend from notice-to-proceed to the contract completion date.

#### 3.3.3.1 Project Start Date

The schedule shall start no earlier than the date that the Notice to Proceed (NTP) was acknowledged. The Contractor shall include as the first activity in the project schedule an activity called "Start Project". The "Start Project" activity shall have: a "ES" constraint, a constraint date equal to the date that the NTP was acknowledged, and a zero day duration.

#### 3.3.3.2 Constraint of Last Activity

Completion of the last activity in the schedule shall be constrained by the contract completion date. Calculation on project updates shall be such that if the early finish of the last activity falls after the contract completion date, then the float calculation shall reflect a negative float

on the critical path. The Contractor shall include as the last activity in the project schedule an activity called "End Project". The "End Project" activity shall have: a "LF" constraint, a constraint date equal to the completion date for the project, and a zero day duration.

#### 3.3.3.3 Early Project Completion

In the event the project schedule shows completion of the project prior to the contract completion date, the Contractor shall identify those activities that have been accelerated and/or those activities that are scheduled in parallel to support the Contractor's "early" completion. Contractor shall specifically address each of the activities noted at every project schedule update period to assist the Contracting Officer in evaluating the Contractor's ability to actually complete prior to the contract period.

#### 3.3.3.4 Interim Completion Dates

Contractually specified interim completion dates shall also be constrained to show negative float if the early finish date of the last activity in that phase falls after the interim completion date.

#### 3.3.3.5 Default Progress Data Disallowed

Actual Start and Finish dates shall not be automatically updated by default mechanisms that may be included in CPM scheduling software systems. Actual Start and Finish dates on the CPM schedule shall match those dates provided from Contractor Quality Control Reports. Failure of the Contractor to document the Actual Start and Finish dates on the Daily Quality Control report for every in-progress or completed activity and ensure that the data contained on the Daily Quality Control reports is the sole basis for schedule updating shall result in the disapproval of the Contractor's schedule and the inability of the Contracting Officer to evaluate Contractor progress for payment purposes.

#### 3.3.3.6 Out-of-Sequence Progress

Activities that have posted progress without predecessors being completed (Out-of-Sequence Progress) will be allowed only on a case-by-case approval of the Contracting Officer. The Contracting Officer may direct that changes in schedule logic be made to correct any or all out-of-sequence work.

#### 3.3.3.7 Extended Non-Work Periods

Designation of Holidays to account for non-work periods of over 5 days will not be allowed. Non-work periods of over 5 days shall be identified by addition of activities that represent the delays. Modifications to the logic of the project schedule shall be made to link those activities that may have been impacted by the delays to the newly added delay activities.

#### 3.3.3.8 Negative Lags

Lag durations contained in the project schedule shall not have a negative

value.

### 3.4 PROJECT SCHEDULE SUBMISSIONS

The Contractor shall provide the submissions as described below. The data disk, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION REQUIREMENTS.

#### 3.4.1 Preliminary Project Schedule Submission

The Preliminary Project Schedule, defining the Contractor's planned operations for the first 90 calendar days shall be submitted for approval within 20 calendar days after Notice to Proceed is acknowledged. The approved preliminary schedule shall be used for payment purposes not to exceed 90 calendar days after Notice to Proceed.

#### 3.4.2 Initial Project Schedule Submission

The Initial Project Schedule shall be submitted for approval within 60 calendar days after Notice to Proceed. The schedule shall provide a reasonable sequence of activities which represent work through the entire project and shall be at a reasonable level of detail.

#### 3.4.3 Periodic Schedule Updates

Based on the result of progress meetings, specified in "Periodic Progress Meetings," the Contractor shall submit periodic schedule updates. These submissions shall enable the Contracting Officer or to assess Contractor's progress. If the Contractor fails or refuses to furnish the information and project schedule data, which in the judgement of the Contracting Officer or authorized representative, is necessary for verifying the contractor's progress, the Contractor shall be deemed not to have provided an estimate upon which progress payment may be made.

#### 3.4.4 Standard Activity Coding Dictionary

The Contractor shall submit, with the Initial Project Schedule, a coding scheme that shall be used throughout the project for all activity codes contained in the schedule. The coding scheme submitted shall list the values for each activity code category and translate those values into project specific designations. For example, a Responsibility Code Value, "ELE", may be identified as "Electrical Subcontractor." Activity code values shall represent the same information throughout the duration of the contract. Once accepted with the Initial Project Schedule submission, changes to the activity coding scheme must be accepted by the Contracting Officer.

### 3.5 SUBMISSION REQUIREMENTS

The following items shall be submitted by the Contractor for the initial submission, and every periodic project schedule update throughout the life of the project:

### 3.5.1 Data Disks

Two data disks or two sets of data disks containing the project schedule shall be provided. Data on the disks shall be in the Standard Data Exchange Format (SDEF), in accordance with ER-1-1-11, PROGRESS, SCHEDULES, AND NETWORK ANALYSIS SYSTEMS, Appendix A, Standard Data Exchange Format Specification (attached at the end of this Project Schedule specification.

#### 3.5.1.1 File Medium

Required data shall be submitted on 3.5-inch disks, formatted to hold 1.44 MB of data, under the MS-Windows operating system.

#### 3.5.1.2 Disk Label

A permanent exterior label shall be affixed to each disk submitted. The label shall indicate the type of schedule (Initial, Update, or Change), full contract number, project name, project location, data date, name and telephone number or person responsible for the schedule, and the operating system and version used to format the disk.

#### 3.5.1.3 File Name

Each file submitted shall have a name related to either the schedule data date, project name, or contract number. The Contractor shall develop a naming convention that will ensure that the names of the files submitted are unique. The Contractor shall submit the file naming convention to the Contracting Officer for approval.

### 3.5.2 Narrative Report

A Narrative Report shall be provided with each update of the project schedule. This report shall be provided as the basis of the Contractor's progress payment request. The Narrative Report shall include: a description of activities along the critical path(s), a description of current and anticipated problem areas or delaying factors and their impact, and an explanation of corrective actions taken.

### 3.5.3 Approved Changes Verification

Only project schedule changes that have been previously approved by the Contracting Officer shall be included in the schedule submission. The Narrative Report shall specifically reference, on an activity by activity basis, all changes made since the previous period and relate each change to documented, approved schedule changes.

### 3.5.4 Schedule Reports

The format for each activity for the schedule reports listed below shall contain: Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float. Actual Start and Actual Finish Dates shall be printed for those activities in progress or completed.

#### 3.5.4.1 Activity Report

A list of all activities sorted according to activity number and then sorted according to Early Start Date. For completed activities the Actual Start Date shall be used as the secondary sort.

#### 3.5.4.2 Logic Report

A list of Preceding and Succeeding activities for every activity in ascending order by activity number and then sorted according to Early Start Date. For completed activities the Actual Start Date shall be used as the secondary sort.

#### 3.5.4.3 Total Float Report

A list of all activities sorted in ascending order of total float. Activities which have the same amount of total float shall be listed in ascending order of Early Start Dates.

#### 3.5.4.4 Earnings Report

A compilation of the Contractor's Total Earnings on the project from the Notice to Proceed until the most recent Monthly Progress Meeting. This report shall reflect the Earnings of specific activities based on the agreements made in the field and approved between the Contractor and Contracting Officer at the most recent Monthly Progress Meeting. Provided that the Contractor has provided a complete schedule update, this report shall serve as the basis of determining Contractor Payment. Activities shall be grouped by bid item and sorted by activity numbers. This report shall: sum all activities in a bid item and provide a bid item percent; and complete and sum all bid items to provide a total project percent complete. The printed report shall contain, for each activity: Activity Number or "i-node" and "j-node", Activity Description, Original Budgeted Amount, Total Quantity, Quantity to Date, Percent Complete (based on cost), Earnings to Date.

#### 3.5.5 Network Diagram

The network diagram shall be required on the initial schedule submission and on monthly schedule update submissions. The network diagram shall depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The activity or event number, description, duration, and estimated earned value shall be shown on the diagram. The Contracting Officer will use, but is not limited to, the following conditions to review compliance with this paragraph:

##### 3.5.5.1 Continuous Flow

Diagrams shall show a continuous flow from left to right with no arrows from right to left. The activity or event number, description, duration, and estimated earned value shall be shown on the diagram.

#### 3.5.5.2 Project Milestone Dates

Dates shall be shown on the diagram for start of project, any contract required interim completion dates, and contract completion dates.

#### 3.5.5.3 Critical Path

The critical path shall be clearly shown.

#### 3.5.5.4 Banding

Activities shall be grouped to assist in the understanding of the activity sequence. Typically, this flow will group activities by category of work, work area and/or responsibility.

#### 3.5.5.5 S-Curves

A graph of anticipated earnings (S-Curves) showing cumulative earnings for the duration of the project. The vertical scale shall show earnings/percent complete from 0%-100%. The horizontal scale shall be a time scale showing the calendar months of the project. Three curves shall be plotted on the same graph; the earnings/percent complete based on early finish dates; the earnings/percent complete based on late finish dates; the actual earnings/percent complete to date.

#### 3.5.5.6 Bar Chart

A bar chart covering the previous month's activities and progress, and the planned activities over 3 months projected into the future. The chart shall also include actual and anticipated earnings.

### 3.6 PERIODIC PROGRESS MEETINGS

Progress meetings to discuss payment shall include a monthly onsite meeting or other regular intervals mutually agreed to at the preconstruction conference. During this meeting the Contractor shall describe, on an activity by activity basis, all proposed revisions and adjustments to the project schedule required to reflect the current status of the project. The Contracting Officer will approve activity progress, proposed revisions, and adjustments as appropriate.

#### 3.6.1 Meeting Attendance

The Contractor's Project Manager and Scheduler shall attend the regular progress meeting.

#### 3.6.2 Update Submission Following Progress Meeting

A complete update of the project schedule containing all approved progress, revisions, and adjustments, based on the regular progress meeting, shall be submitted not later than 4 working days after the monthly progress meeting.

### 3.6.3 Progress Meeting Contents

Update information, including Actual Start Dates, Actual Finish Dates, Remaining Durations, and Cost-to-Date shall be subject to the approval of the Contracting Officer. The following is a minimum set of items which the Contractor shall address, on an activity by activity basis, during each progress meeting.

#### 3.6.3.1 Start and Finish Dates

The Actual Start and Actual Finish dates for each activity currently in-progress or completed activities.

#### 3.6.3.2 Time Completion

The estimated Remaining Duration for each activity in-progress. Time-based progress calculations must be based on Remaining Duration for each activity.

#### 3.6.3.3 Cost Completion

The earnings for each activity started. Payment will be based on earnings for each in-progress or completed activity. Payment for individual activities will not be made for work that contains quality defects. A portion of the overall project amount may be retained based on delays of activities.

#### 3.6.3.4 Logic Changes

All logic changes pertaining to Notice to Proceed on change orders, change orders to be incorporated into the schedule, contractor proposed changes in work sequence, corrections to schedule logic for out-of-sequence progress, lag durations, and other changes that have been made pursuant to contract provisions shall be specifically identified and discussed.

#### 3.6.3.5 Other Changes

Other changes required due to delays in completion of any activity or group of activities include: 1) delays beyond the Contractor's control, such as strikes and unusual weather. 2) delays encountered due to submittals, Government Activities, deliveries or work stoppages which make re-planning the work necessary, and 3) a schedule which does not represent the actual prosecution and progress of the work.

### 3.7 REQUESTS FOR TIME EXTENSIONS

In the event the Contractor requests an extension of the contract completion date, he shall furnish such justification, project schedule data and supporting evidence as the Contracting Officer may deem necessary for a determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract. Submission of proof of delay, based on revised activity logic, duration, and costs (updated to the specific date that the delay occurred) is obligatory to any approvals.

### 3.7.1 Justification of Delay

The project schedule shall clearly display that the Contractor has used, in full, all the float time available for the work involved with this request.

The Contracting Officer's determination as to the number of allowable days of contract extension shall be based upon the project schedule updates in effect for the time period in question, and other factual information. Actual delays that are found to be caused by the Contractor's own actions, which result in the extension of the schedule, will not be a cause for a time extension to the contract completion date.

### 3.7.2 Submission Requirements

The Contractor shall submit a justification for each request for a change in the contract completion date of under 2 weeks based upon the most recent schedule update at the time of the Notice to Proceed or constructive direction issued for the change. Such a request shall be in accordance with the requirements of other appropriate Contract Clauses and shall include, as a minimum:

- a. A list of affected activities, with their associated project schedule activity number.
- b. A brief explanation of the causes of the change.
- c. An analysis of the overall impact of the changes proposed.
- d. A sub-network of the affected area.

Activities impacted in each justification for change shall be identified by a unique activity code contained in the required data file.

### 3.7.3 Additional Submission Requirements

For any requested time extension of over 2 weeks, the Contracting Officer may request an interim update with revised activities for a specific change request. The Contractor shall provide this disk within 4 days of the Contracting Officer's request.

## 3.8 DIRECTED CHANGES

If Notice to Proceed (NTP) is issued for changes prior to settlement of price and/or time, the Contractor shall submit proposed schedule revisions to the Contracting Officer within 2 weeks of the NTP being issued. The proposed revisions to the schedule will be approved by the Contracting Officer prior to inclusion of those changes within the project schedule. If the Contractor fails to submit the proposed revisions, the Contracting Officer may furnish the Contractor suggested revisions to the project schedule. The Contractor shall include these revisions in the project schedule until revisions are submitted, and final changes and impacts have been negotiated. If the Contractor has any objections to the revisions furnished by the Contracting Officer, the Contractor shall advise the Contracting Officer within 2 weeks of receipt of the revisions. Regardless of the objections, the Contractor shall continue to update the schedule

with the Contracting Officer's revisions until a mutual agreement in the revisions is reached. If the Contractor fails to submit alternative revisions within 2 weeks of receipt of the Contracting Officer's proposed revisions, the Contractor will be deemed to have concurred with the Contracting Officer's proposed revisions. The proposed revisions will then be the basis for an equitable adjustment for performance of the work.

### 3.9 OWNERSHIP OF FLOAT

Float available in the schedule, at any time, shall not be considered for the exclusive use of either the Government or the Contractor.

-- End of Section --

**STANDARD DATA EXCHANGE FORMAT SPECIFICATION****PART 1- GENERAL**

**1. Application of This Provision:** The Standard Data Exchange Format (SDEF) provides a nonproprietary protocol to exchange project planning and progress data between scheduling systems.

**2. File Type and Format:** The data file shall consist of a 132 character, freed format, "ASCII" file. Text shall be left-justified and numbers shall be right-justified in each field. Data records must conform, exactly, to the sequence, column position, maximum length, mandatory values, and field definitions described below to comply with the SDEF. Unless specifically stated, all numbers shall be whole numbers. Fields containing numbers shall not be zero filled. All data columns shall be separated by a single blank column. The file shall not contain blank lines.

**3. Usage Notes:** Where appropriate, notes regarding proper usage of systems to support the SDEF have been included in brackets ( [ ] ). These notes are included to assist users in creating SDEFcompatible files, given the variety of software systems that support the SDEF.

**4. Recommended Systems:** Several systems have been tested to determine the accuracy of importing and exporting SDEF files. For information on the current list of recommended systems please contact Mr. Brad James at HQUSACE, (202) 761-5541. Although the currently listed system have been tested other systems may also be acceptable provided those systems correctly import and export SDEF files.

**5. SDEF Checker Program:** To verify SDEF files meet the specified guidelines download the SDEF Checker utility from the winrms website. Go to <http://winrms.usace.army.mil>, click on the **User Manuals** Link to the left and then click on the **P3 SDEF** Link to the left.

**PART 2- SDEF SPECIFICATION**

**6. SDEF Organization:** The SDEF shall consist of the following records provided in the exact sequence shown below:

\* Change in POC information.

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Paragraph Record

<u>Reference</u>	<u>Description</u>	<u>Remarks</u>
6.a	Volume Record	Mandatory First Line of File
6.b	Project Record	Mandatory Second Line of File
6.c	Calendar Record(s)	Mandatory One Record Minimum
6.d	Holiday Record(s)	Mandatory if Holidays Used
6.e	Activity Record(s)	Mandatory Records
6.f	Precedence Record(s)	Mandatory for Precedence
6.g	Unit Cost Record(s)	Mandatory for Unit Costs
6.h	Progress Record(s)	Mandatory Records
6.i	File End Record	Mandatory Last Line of Disk/File

**6.a. Volume Record:** The Volume Record shall be used to control the transfer of data that may not fit on a single disk. The first line in every file used to store SDEF data shall be the Volume Record. The Volume Record shall sequentially identify the number of the data transfer disk(s). The Volume Record shall have the following format:

<u>Description</u>	<u>Column</u>	<u>Max.</u>	<u>Req.</u>	<u>Type</u>	<u>Notes</u>
	<u>Position</u>	<u>Len.</u>	<u>Value</u>		
RECORD IDENTIFIER	1 - 4	4	VOLM	Fixed	Filled
DISK NUMBER	6 - 7	2	√	Number	Right Justified

6.a.(1) The RECORD IDENTIFIER is the first four characters of this record. The required value for this field shall be "VOLM". The VOLM record must appear on the first line of the SDEF data file.

6.a.(2) The DISK NUMBER field shall identify the number of the data disk used to store the data exchange information. If all data may be contained on a single disk, this field shall contain the value of "1". If more disks are required, then the second disk shall contain the value "2", the third disk shall be designated with a "3", and so on. Identification of the last data disk is accomplished in the Reject End Record.

**6.b. Project Record:** The Project Identifier Record shall contain general project information. Because more than one SDEF file may be required for data transfer between large projects, the PROJ record shall be the second line of the first SDEF file transferred. The PROJ record shall contain information in the following format:

<u>Description</u>	<u>Column Position</u>	<u>Max. Len.</u>	<u>Req. Value</u>	<u>Type</u>	<u>Notes</u>
RECORD IDENTIFIER	1- 4	4	PROJ	Fixed	Filled
DATA DATE	6- 12	7	√	ddmmyy	Filled
PROJECT IDENTIFIER	14-17	4	√	Alpha.	Left Justified
PROJECT NAME	19-66	48	√	Alpha.	Left Justified
CONTRACTOR NAME	68-103	36	√	Alpha.	Left Justified
ARROW OR PRECEDENCE	105-105	1	A,P	Fixed	Filled
CONTRACT NUMBER	107-112	6	√	Alpha.	Left Justified
PROJECT START	114-120	7	√	ddmmyy	Filled
PROJECT END	122-128	7	√	ddmmyy	Filled

6.b.(1) The RECORD IDENTIFIER is the first four characters of this record. The required value for this field shall be "PROJ". This record shall contain the general project information and indicates which scheduling method shall be used.

6.b.(2) The DATA DATE is the date of the schedule calculation. The abbreviation "ddmmyy" refers to a date format that shall translate a date into two numbers for the day, three letters for the month, and two numbers for the year. For example, March 1, 1999 shall be translated into 01Mar99. This same convention for date formats shall be used throughout the entire data format. To ensure that dates are translated consistently, the following abbreviations shall be used for the three character month code:

Abbreviation Month

JAN	January
FEB	February
MAR	March
APR	April
MAY	May
JUN	June
JUL	July
AUG	August
SEP	September
OCT	October
NOV	November
DEC	December

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6.b.(3) The PROJECT IDENTIFIER is a maximum four character abbreviation for the schedule. These four characters shall be used to uniquely identify the project and specific update as agreed upon by Contractor and Contracting Officer. When utilizing scheduling software these four characters shall be used to select the project. Software manufacturers shall provide information to users to ensure that data importing programs do not automatically overwrite other schedules with the same PROJECT IDENTIFIER.

6.b.(4) The PROJECT NAME field shall contain the name and location of the project edited to fit the space provided. The data appearing here shall appear on scheduling software reports. The abbreviation "Alpha." refers to an "Alphanumeric" field value and shall be used throughout the remainder of this specification.

6.b.(5) The CONTRACTOR NAME field shall contain the Construction Contractor's name, edited to fit the space provided.

6.b.(6) The ARROW OR PRECEDENCE field shall indicate which method shall be used for calculation of the schedule. The value "A" shall signify the Arrow Diagramming Method. The value "P" shall signify the Precedence Diagramming Method. The ACTIVITY ID field of the Activity Record shall be interpreted differently depending on the value of this field. The Precedence Record shall be required if the value of this field is "P". [Usage note: software systems may not support both arrow and precedence diagramming. It is recommended that the selection of the type of network be based on the capabilities of the software used by project partners.]

6.b.(7) The CONTRACT NUMBER field shall contain the contract number for the project. For example, the construction contract number DACA85-89-C-0001 shall be entered into this field as "890001".

6.b.(8) The PROJECT START field shall contain the date that the Contractor acknowledges the Notice to Proceed (NTP). [Usage note: Software systems may use a project start date to constrain the first activity of a network. To ensure consistent scheduling calculations across products, it is recommended that the first activity in the schedule contain an EARLY START constraint and a software system's PROJECT START date only be used to report on the project's start date.]

6.b.(9) The PROJECT END field shall contain the date that the Contractor plans to complete the work as approved by the Contracting Officer. [Usage note: software systems may use a project end date to constrain the last activity of a network. To ensure consistent scheduling calculations across products, it is recommended that the last activity in the schedule contain an EARLY START constraint and a software system's PROJECT END date only be used to report on the project's end date.]

**6.c. Calendar Record:** The Calendar Record(s) shall follow the Project Identifier Record in the first disk of data transferred. A minimum of one Calendar Record shall be required for all data exchange activity files. The format for the Calendar Record shall be as follows:

<u>Description</u>	<u>Column Position</u>	<u>Max. Len.</u>	<u>Req. Value</u>	<u>Type</u>	<u>Notes</u>
RECORD IDENTIFIER	1 - 4	4	CLDR	Fixed	Filled
CALENDAR CODE	6 - 6	1	√	Alpha.	Filled
WORKDAYS	8 - 14	7	SMTWTFS	Fixed	Filled
CALENDAR DESCRIPTION	16-45	30	√	Alpha.	Left Justified

6.c.(1) The RECORD IDENTIFIER shall always begin with "CLDR" to identify it as a Calendar Record. Each Calendar Record used shall have this identification in the first four columns. [Usage note: Systems contain a variety of calendar options. It is recommended that the least common denominator of calendar features between the systems be used as the basis for creating the SDEF file for a given project.]

6.c.(2) The CALENDAR CODE shall be used in the activity records to signify that this calendar is associated with the activity. [Usage note: Some systems do not allow for alphanumeric CALENDAR CODES, but only allow positive integers from 1 to 9. It is recommended that only positive integers be used for the CALENDAR CODE field to support the widest variety of scheduling systems.]

6.c.(3) The WORKDAYS field shall contain the work-week pattern selected with "Y", for Yes, and "N", for No. The first character shall be Sunday and the last character Saturday. An example of a typical five (5) day work-week would be NYYYYYN. A seven (7) day work-week would be YYYYYYY.

6.c.(4) The CALENDAR DESCRIPTION shall be used to briefly describe the calendar used.

**6.d. Holiday Record:** The Holiday Record(s) shall follow the Calendar Record(s) in the first disk of data transferred. There may be calendars without any holidays designated or several Holiday Records for each Calendar Record(s). The format for the Holiday Record shall be as follows:

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<u>Description</u>	<u>Column Position</u>	<u>Max. Len.</u>	<u>Req. Value</u>	<u>Type</u>	<u>Notes</u>
RECORD IDENTIFIER	1 - 4	4	HOLI	Fixed	Filled
CALENDAR CODE	6 - 6	1	√	Alpha.	Filled
HOLIDAY DATE	8 - 14	7	√	ddmmyy	Filled
HOLIDAY DATE	16-22	7	-	ddmmyy	May be Filled
HOLIDAY DATE	24-30	7	-	ddmmyy	May be Filled
HOLIDAY DATE	32-38	7	-	ddmmyy	May be Filled
HOLIDAY DATE	40-46	7	-	ddmmyy	May be Filled
HOLIDAY DATE	48-54	7	-	ddmmyy	May be Filled
HOLIDAY DATE	56-62	7	-	ddmmyy	May be Filled
HOLIDAY DATE	64-70	7	-	ddmmyy	May be Filled
HOLIDAY DATE	72-78	7	-	ddmmyy	May be Filled
HOLIDAY DATE	80-86	7	-	ddmmyy	May be Filled
HOLIDAY DATE	88-94	7	-	ddmmyy	May be Filled
HOLIDAY DATE	96-102	7	-	ddmmyy	May be Filled
HOLIDAY DATE	104-110	7	-	ddmmyy	May be Filled
HOLIDAY DATE	112-118	7	-	ddmmyy	May be Filled
HOLIDAY DATE	120-126	7	-	ddmmyy	May be Filled

6.d.(1) The RECORD IDENTIFIER shall always begin with "HOLI". Each Holiday Record used shall have this identification in the first four columns.

6.d.(2) The CALENDAR CODE indicates which work-week calendar the holidays shall be applied to. More than one HOLI record may be used for a given CALENDAR CODE.

6.d.(3) The HOLIDAY DATE shall contain the date of each individual non-work day.

**6.e. Activity Records:** Activity Records shall follow any Holiday Record(s). If there are no Holiday Record(s), then the Activity Records shall follow the Calendar Record(s). There shall be one Activity Record for every activity in the network. Each activity shall have one record in the following format:

<u>Description</u>	<u>Column Position</u>	<u>Max. Len.</u>	<u>Req. Value</u>	<u>Type</u>	<u>Notes</u>
RECORD IDENTIFIER	1 - 4	4	ACTV	Fixed	Filled
ACTIVITY ID	6 - 15	10	√	Integer	See Comment Below
ACTIVITY DESCR.	17-46	30	√	Alpha.	Left Justified
ACTIVITY DURATION	48-50	3	√	Integer	Right Justified
CONSTRAINT DATE	52-58	7		ddmmmyy	May be Filled
CONSTRAINT TYPE	60-61	2		ES or LF	May be Filled
CALENDAR CODE	63-63	1	√	Alpha.	Filled
HAMMOCK CODE	65-65	1	Y, blank	Fixed	May be Filled
WORKERS PER DAY	67-69	3		Integer	Right Justified
RESPONSIBILITY CODE	71-74	4		Alpha.	Left Justified
WORK AREA CODE	76-79	4		Alpha.	Left Justified
MOD OR CLAIM NO.	81-86	6		Alpha.	Left Justified
BID ITEM	88-93	6		Alpha.	Left Justified
PHASE OF WORK	95-96	2		Alpha.	Left Justified
CATEGORY OF WORK	98-98	1		Alpha.	May be Filled
FEATURE OF WORK	100-128	30		Alpha.	Left Justified

6.e.(1) The RECORD IDENTIFIER for each activity description record must begin with the four character "ACTV" code. This field shall be used for both the Arrow Diagram Method (ADM) and Precedence Diagram Method (PDM),

6.e.(2) The ACTIVITY ID consists of coding that shall differ, depending on whether the ADM or PDM method was selected in the Project Record. If the ADM method was selected then the field shall be interpreted as two right-justified fields of five (5) integers each. If the PDM method was selected the field shall be interpreted as one (1) right-justified field of ten (10) integers each. The maximum activity number allowed under this arrangement is 99999 for ADM and 9999999999 for the PDM method. [Usage note: Many systems allow alphanumeric ACTIVITY IDs. While the SDEF does not strictly, allow the use of alphanumeric values, users may agree to use the ACTIVITY ID field to exchange alphanumeric data. It is recommended that the ACTIVITY ID be restricted to integers when one or more of the systems being used for scheduling allows only integer ACTIVITY ID values.]

6.e.(3) The ACTIVITY DESCRIPTION shall be a maximum of 30 characters. Descriptions must be limited to the space provided.

6.e.(4) The ACTIVITY DURATION contains the estimated original duration for the activity on the schedule. The duration shall be based upon the work-week designated by the activity's related calendar.

6.e.(5) The CONSTRAINT DATE field shall be used to identify a date that the scheduling system may use to modify float calculations. If there is a date in this field, then there must be a valid entry in the CONSTRAINT TYPE field.

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6.e.(6) The CONSTRAINT TYPE field shall be used to identify the way that the scheduling system shall use the CONSTRAINT DATE to modify schedule float calculations. If there is a value in this field, then there must be a valid entry in the CONSTRAINT DATE field. The valid values for the CONSTRAINT TYPE are as follows:

<u>Code</u>	<u>Definition</u>
ES	The CONSTRAINT DATE shall replace an activity's early start date, if the early start date is prior to the CONSTRAINT DATE.
LF	The CONSTRAINT DATE shall replace an activity's late finish date, if the late finish date is after the CONSTRAINT DATE.

[Usage note: Systems provide a wide variety of constraint types that may not be supported by other systems. It is recommended that constraint types be restricted to the values above regardless of the capabilities of the various systems being used for scheduling.]

6.e.(7) The CALENDAR CODE relates this activity to an appropriate work-week calendar. The ACTIVITY DURATION must be based on the valid work-week referenced by this CALENDAR CODE field.

6.e.(8) The HAMMOCK CODE indicates that a particular activity does not have its own independent duration, but takes its start dates from the start date of the preceding activity (or node) and takes its finish dates from the finish dates of its succeeding activity (or node). If the value of the HAMMOCK CODE field is "Y", then the activity is a hammock activity.

6.e.(9) The WORKERS PER DAY shall contain the average number of workers expected to work on the activity each day the activity is in progress. If this code is required by project scheduling specifications, values for this data will be right justified. Activities without workers per day shall have a value of "0".

6.e.(10) The RESPONSIBILITY CODE shall identify the subcontractors or major trade involved with completing the work for the activity. If this code is required by project scheduling specifications, value for this data will be left justified.

6.e.(11) The WORK AREA CODE shall identify the location of the activity within the project. If this code is required by project scheduling specifications, value for this data will be left justified.

6.e.(12) The MOD OR CLAIM NUMBER shall uniquely identify activities that are added or changed on a construction contract modification, or activities that justify any claimed time extensions. If this code is required by project scheduling specifications, value for this data will be left justified.

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6.e.(13) The BID ITEM shall identify the bid item number associated with each activity. If this code is required by project scheduling specifications, value for this data will be left justified.

6.e.(14) The PHASE OF WORK shall identify the timing of a specific activity within the entire project. If this code is required by project scheduling specifications, value for this data will be left justified.

6.e.(15) The CATEGORY OF WORK shall identify the general type of work performed by every activity. If this code is required by project scheduling specifications, value for this data will be placed in the field.

6.e.(16) The FEATURE OF WORK shall identify a very broad designation of the general type of work that is being accomplished by the activity. If this code is required by project scheduling specifications, value for this data will be left justified. [Usage note: Many systems require that FEATURE OF WORK values be placed in several activity code fields. It is recommended that users review SDEF documentation to determine the correct way to use a given software system to produce the FEATURE OF WORK code.]

**6.f. Precedence Record:** The Precedence Record(s) shall follow the Activity Records if a Precedence Diagram Method schedule (PDM) is identified in the ARROW OR PRECEDENCE field of the Project Record. The Precedence Record has the following format:

<u>Description</u>	<u>Column</u>	<u>Max.</u>	<u>Req.</u>	<u>Type</u>	<u>Notes</u>
	<u>Position</u>	<u>Len.</u>	<u>Value</u>		
RECORD IDENTIFIER	1 - 4	4	PRED	Fixed	Filled
ACTIVITY ID	6-15	10	√	Integer	See Comment Below
PRECEDING ACTIVITY	17 -26	10	√	Integer	See Comment Below
PREDECESSOR TYPE	28-28	1	√	S, F, C	Filled
LAG DURATION	30-33	4	√	Integer	Right Justified

6.f.(1) The RECORD IDENTIFIER shall begin with the four characters "PRED" in the first four columns of the record.

6.f.(2) The ACTIVITY ID identifies the activity whose predecessor shall be specified in this record.

6.f.(3) The PRECEDING ACTIVITY number is the number of an activity that precedes the activity noted in the ACTIVITY ID field.

6.f.(4) The PREDECESSOR TYPE field indicates the type of relation that exists between the chosen pair of activities. Valid PREDECESSOR TYPE fields areas follows:

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<u>Code</u>	<u>Definition</u>
S	Start-to-Start relation
F	Finish-to-Finish relation
C	Finish-to-Start relation

[Usage note: Some systems provide additional predecessor types that may not be supported by all other systems. It is recommended that predecessor types be restricted to the values above regardless of the capabilities of the various systems being used for scheduling.]

6.f.(5) The LAG DURATION field contains the number of days delay between the preceding and current activity. [Usage note: Some systems allow negative values for the LAG DURATION. Because these values are not supported by all other systems, it is recommended that values be restricted to zero and positive integers.]

**6.g. Unit Cost Record:** The Unit Cost Record shall follow all Precedence Records. If the schedule utilizes the Arrow Diagram Method, then the Unit Cost Record shall follow any Activity records. There shall be one Unit Cost Record for every activity that is not a lump sum activity. [Usage note: (1) It is recommended that users who wish to exchange unit cost data contact SDEF vendor representatives to determine the ability of the software system to import/export unit cost information. (2) If the software being used by each member of the project team supports unit cost data then users may wish to conduct a trial run of the SDEF data exchange with a two or three-activity network to ensure that unit cost data transfers as expected. If problems are found please consult vendor representatives for resolution prior to exchange of full project schedules. (3) Unit cost record data does not, in most systems, result in the correct values being placed in the ACTIVITY COST and COST TO DATE fields of the Progress (PROG) Record. Users must, at this time, manually transfer the data from the Unit Cost Record to the Progress Record.

The fields for this record shall take the following format:

<u>Description</u>	<u>Column Position</u>	<u>Max. Len.</u>	<u>Req. Value</u>	<u>Type</u>	<u>Notes</u>
RECORD IDENTIFIER	1 - 4	4	UNIT	Fixed	Filled
ACTIVITY ID	6-15	10	√	Integer	See Comment Below
TOTAL QTY	17-29	13	√	Format 8.4	Right Justified
COST PER UNIT	31-43	13	√	Format 8.4	Right Justified
QTY TO DATE	45-57	13	√	Format 8.4	Right Justified
UNIT OF MEASURE	59-61	3	√	Alpha.	Left Justified

6.g.(1) The RECORD IDENTIFIER shall be identified with the four characters "UNIT" placed in the first four columns of the record.

6.g.(2) The ACTIVITY ID for each activity shall match the format described in the activity record. Each activity may have only one Unit Cost Record.

6.g.(3) The TOTAL QTY is the total amount of material to be used in this activity. This number consists of eight digits, one decimal point and four more digits. An example of a number in this format is "11111111.1111". If decimal places are not needed this field shall still contain a ".0000" in columns 25-29. [Usage note: Many systems support a different format for this value that does not include as many decimal places. It is recommended that users determine their requirements for significant digits based on the lowest common denominator of the software systems being used for a given project.]

6.g.(4) The COST PER UNIT is the cost, in dollars and cents, for each unit to be used in this activity. This number consists of eight digits, one decimal point, and four more digits. An example of a number in this format is "11111111.1111". If decimal places are not needed this field shall still contain a ".0000" in columns 39-43. [Usage note: Many systems support a different format for this value that does not include as many decimal places. It is recommended that users determine their requirements for significant digits based on the lowest common denominator of the software systems being used for a given project.]

6.g.(5) The QTY TO DATE is the quantity of material installed in this activity up to the data date. This number consists of eight digits, one decimal point, and four more digits. An example of a number in this format is "11111111.1111". If decimal places are not needed this field shall still contain a ".0000" in columns 53-57. [Usage note: Many systems support a different format for this value that does not include as many decimal places. It is recommended that users determine their requirements for significant digits based on the lowest common denominator of the software systems being used for a given project.]

6.g.(6) The UNIT OF MEASURE is an abbreviation that may be used to describe the units being measured for this activity. Valid values for this field are any meaningful English or metric unit, except "LS" for Lump Sum. Lump Sum activities are not to have Unit Cost Records.

**6.h. Progress Record:** Progress Record(s) shall follow all Unit Cost Record(s). If there are no Unit Cost Record(s), then the Progress Record(s) shall follow all Precedence Records. If the schedule utilizes the Arrow Diagram Method, then the Progress Record shall follow any Activity Records. One Progress Record is required for every activity in the Activity Record. The fields for this Record shall be provided in the following format:

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<u>Description</u>	<u>Column</u> <u>Position</u>	<u>Max.</u> <u>Len.</u>	<u>Req.</u> <u>Value</u>	<u>Type</u>	<u>Notes</u>
RECORD IDENTIFIER	1-4	4	PROG	Fixed	Filled
ACTIVITY ID	6-5	10	√	Integer	See Comment Below
ACTUAL START DATE	17-23	7	√	ddmmyy	Filled if Started
ACTUAL FINISH DATE	25-31	7	√	ddmmyy	Filled if Finished
REMAINING DURATION	33-35	3	√	Integer	Right Justified
ACTIVITY COST	37-48	12	√	Format 9.2	Right Justified
COST TO DATE	50-61	12	√	Format 9.2	Right Justified
STORED MATERIAL	63-74	12	√	Format 9.2	Right Justified
EARLY START DATE	76-82	7	√	ddmmyy	Filled if Not Started
EARLY FINISH DATE	84-90	7	√	ddmmyy	Filled if Not Finished
LATE START DATE	92-98	7	√	ddmmyy	Filled if Not Started
LATE FINISH DATE	100-1067		√	ddmmyy	Filled if Not Finished
FLOAT SIGN	108-1081		+,-	Fixed	Filled if Not Finished
TOTAL FLOAT	110-1123		√	Integer	R. Just. if Not Finished

6.h.(1) The RECORD IDENTIFIER shall begin with the four characters "PROG" in the first four columns of the record.

6.h.(2) The ACTIVITY ID for each activity for which progress has been posted shall match the format described in the Activity Record.

6.h.(3) An ACTUAL START DATE is required for all in-progress activities. The ACTUAL START DATE shall be the same as, or later than, the PROJECT START date contained in the Project Record. The ACTUAL START DATE shall also be the same as, or prior to, the DATA DATE contained in the Project Record. If there is an ACTUAL START DATE for an activity that there must also be a REMAINING DURATION, and the values for the EARLY START DATE and LATE START DATE are blank. [Usage note: Some systems allow default values for ACTUAL START DATE if the date is not entered by the user. Because the failure to include a start date for activities may result in different schedule calculations, it is recommended that the ACTUAL START DATE be required for all activities in progress.]

6.h.(4) An ACTUAL FINISH DATE is required for all completed activities. If the REMAINING DURATION of an activity is zero, then there must be an ACTUAL FINISH DATE. If there is an ACTUAL FINISH DATE, then values for the EARLY START DATE, LATE START DATE, EARLY FINISH DATE, LATE FINISH DATE, FLOAT SIGN, and TOTAL FLOAT shall be blank. [Usage note: Some systems allow default values for ACTUAL FINISH DATE if the date is not entered by the user. Because the failure to include a finish date for activities may result in different schedule calculations, it is recommended that the ACTUAL FINISH DATE be required for all activities in progress.]

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6.h.(5) REMAINING DURATION is required for all activities. Activities that have not started shall have a remaining duration equal to their original duration. Activities completed based on time, shall have a zero (0) REMAINING DURATION. [Usage note: Systems have a variety of "short-cut" methods to determine the REMAINING DURATION value. It is recommended that users actually consider the time required to complete the remaining work on a given task, rather than allow a system to calculate the remaining duration based on the amount of work that has already been accomplished.]

6.h.(6) The ACTIVITY COST contains the estimated earned value of the work to be accomplished in the activity. An example of a number in this format is "1111111 11.11". If decimal places are not needed this field shall still contain a ".00" in the last three columns of this field. [Usage note: Users should inquire of software vendors if the user needs to add a zero in the data field to produce the default value "0.00".]

6.h.(7) The COST TO DATE contains the earned value for the activity. If there is an ACTUAL START DATE, then there must also be some value for COST TO DATE. An example of a number in this format is "11111111.11". If decimal places are not needed, this field shall still contain a ".00" in the last three columns of this field. The COST TO DATE is not tied to REMAINING DURATION. For example, if the REMAINING DURATION is "0", the COST TO DATE may only be 95% of the ACTIVITY COST. This difference may be used to reflect 5% retainage for punch list items. [Usage note: Systems implement cost information in different ways. It is recommended that users carefully review SDEF documentation and test results to determine how to ensure that SDEF data is exported correctly.]

6.h.(8) The STORED MATERIAL field contains the value of the material that the Contractor has paid for and is on site or in secure storage areas that is a portion of the COST TO DATE. An example of a number in this format is "11111111.11". If decimal places are not needed, this field shall still contain a ".00" in the last three columns of this field. [Usage note: Systems implement the stored materials field in a variety of ways. Many systems do not enforce STORED MATERIAL + COST TO DATE < ACTIVITY COST. To avoid potential confusion between systems, it is recommended that new activities be added to a schedule to reflect the cost of large equipment procurement rather than use the STORED MATERIALS field.]

6.h.(9) The EARLY START DATE indicates the earliest date possible that an activity can start as calculated by a CPM scheduling system or other Contracting Officer approved planning method. If the progress record for an activity contains an ACTUAL START DATE, then this field shall be blank.

6.h.(10) The EARLY FINISH DATE indicates the earliest date possible that an activity can finish as calculated by a CPM scheduling system or other Contracting Officer approved planning method. If the progress record for an activity contains an ACTUAL FINISH DATE, then this field shall be blank.

6.h.(11) The LATE START DATE indicates the latest date that an activity can begin as calculated by a CPM scheduling system or other Contracting Officer approved planning method. If the progress record for an activity contains an ACTUAL START DATE, then this field shall be blank.

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6.h.(12) The LATE FINISH DATE indicates the latest date that an activity can finish as calculated by a CPM scheduling system or other Contracting Officer approved planning method. If the progress record for an activity contains an ACTUAL FINISH DATE, then this field shall be blank.

6.h.(13) The FLOAT SIGN indicates whether the float time calculated using a CPM scheduling system or other Contracting Officer approved planning method, is positive or negative in nature. If the progress record for an activity contains an ACTUAL FINISH DATE, then this field shall be blank. In the case of zero float this field shall be blank.

6.h.(14) The TOTAL FLOAT indicates the total float time. In the Precedence Diagram Method (PDM), the total float is the difference between the early and late start or finish dates. In the Arrow Diagram Method (ADM), the total float is equal to the late event time at the end of the activity, minus the sum of the early event time at the start of the activity plus the duration of the activity.

**6.i. Project End Record:** The Project End Record shall be used to identify that the data file is completed. If the ASCII End of File character is encountered, then data import programs shall use that character to infer that the data continues on the next disk. The user shall then be prompted for the next disk number, based on the VOLM record data. The Project End Record shall be the last record of the entire data file, and shall have the following format:

<u>Description</u>	<u>Column</u>	<u>Max.</u>	<u>Req.</u>	<u>Type</u>	<u>Notes</u>
	<u>Position</u>	<u>Len.</u>	<u>Value</u>		
RECORD IDENTIFIER	1-3	3	END	Fixed	Filled

6.i.(1) The RECORD IDENTIFIER for the Project End Record shall be "END". Data contained in the data exchange file that occurs after this record shall not be used.

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-- End of Section Table of Contents --

## SECTION 01330

## SUBMITTAL PROCEDURES

## PART 1 GENERAL

## 1.1 SUBMITTAL IDENTIFICATION

Submittals required are identified by SD numbers and titles as follows:

- SD-01 Preconstruction Submittals
- SD-02 Shop Drawings
- SD-03 Product Data
- SD-04 Samples
- SD-05 Design Data
- SD-06 Test Reports
- SD-07 Certificates
- SD-08 Manufacturer's Instructions
- SD-09 Manufacturer's Field Reports
- SD-10 Operation and Maintenance Data
- SD-11 Closeout Submittals

## 1.2 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

## 1.2.1 Government Approved/Accepted

Governmental approval/acceptance is required for any deviations from the Solicitation or Accepted Proposal and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction", they are considered to be "shop drawings". The Contractor shall provide the Government with six (6) copies of all Government Approved/Accepted construction submittals.

## 1.2.2 Information Only

All submittals not requiring Government acceptance/approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above. The Contractor shall

provide the Government with four (4) copies of all Information Only submittals.

### 1.3 GOVERNMENT RESPONSIBILITY

#### 1.3.1 Extensions of Design

Government review is required for extensions of design construction submittals used to define contract conformity, and for deviation from the completed design. Review will be only for conformance with the contract requirements. Included are only those construction submittals for which the Designer of Record design documents do not include enough detail to ascertain contract compliance. Government review is not required for extensions of design such as structural steel or reinforcement shop drawings.

#### 1.3.2 Government Accepted/Approved Submittals

The Contracting Officer's conformance review or approval of submittals shall not be construed as a complete check, but will indicate only that the design, general method of construction, materials, detailing and other information appear to meet the Solicitation and Accepted Proposal. Government review or approval will not relieve the Contractor of the responsibility for any errors that may exist. The Contractor, under the Design and CQC requirements of this contract, is responsible for the design, dimensions, all design extensions, such as the design of adequate connections and details, etc., and the satisfactory construction of all work. After submittals have been reviewed for conformance or accepted/approved, as applicable, by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

### 1.4 CONTRACTOR RESPONSIBILITY

#### 1.4.1 Designer of Record

The Designer of Record shall approve all extensions of design, critical materials, any deviations from the solicitation, the accepted proposal, the completed design, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction", these are considered to be "shop drawings". The Government may review Designer of Record approved submittals for conformance to the Solicitation and Accepted Proposal. The Government will review all submittals designated as deviating from the Solicitation or Accepted Proposal, as described below.

#### 1.4.2 Disapproved Submittals

The Contractor shall make all corrections required by the Contracting Officer, obtain the Designer of Record's approval, when applicable, and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. Any "information only" submittal

found to contain errors or unapproved deviations from the Solicitation or Accepted Proposal shall be resubmitted as one requiring "approval" action, requiring both Designer of Record and Government acceptance/approval. If the Contractor considers any correction indicated by the Government on the submittals to constitute a change to the contract, it shall promptly provide a notice in accordance with the Contract Clause "Changes" to the Contracting Officer.

#### 1.5 WITHHOLDING OF PAYMENT

No payment for materials incorporated in the work will be made if all required Designer of Record or Government acceptances/approvals have not been obtained. No payment will be made for any materials incorporated into the work for any conformance review submittals or information only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

#### 1.6 SUBMITTALS

Government acceptance/approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with this section:

##### SD-01 Preconstruction Submittals

Submittal Register (ENG Form 4288); G.  
Monthly Updates (ENG Form 4288)

Four copies of the completed ENG Form 4288.

One copy of the monthly update shall be submitted together with the monthly progress payment request.

#### PART 2 PRODUCTS (Not Applicable)

#### PART 3 EXECUTION

##### 3.1 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) System Manager and each item shall be stamped, signed, and dated by the CQC System Manager indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list);

certifications; warranties; and other such required submittals. Submittals requiring Government acceptance/approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

### 3.1.1 Design Submittals

The Contractor shall provide design submittals in accordance with Section 01012 entitled "DESIGN AFTER AWARD".

### 3.2 SUBMITTAL REGISTER (ENG FORM 4288)

The Designers of Record shall develop a complete list of submittals required during the design and construction phases of the contract. The Contractor shall develop a Submittal Register, ENG Form 4288, from this list, including any other submittals that may be required by other parts of the contract. The Contractor shall use the government-provided software, QCS (see Section 01312), to create the ENG Form 4288. The completed Submittal Register shall be submitted to the Contracting Officer for approval within 15 calendar days after Notice to Proceed with the design phase. The submit dates and need dates in the submittal register shall be coordinated with the dates in the Contractor's progress schedule. Updates to the submittal register showing the Contractor action codes and actual submittal dates with Government action codes and action dates shall be submitted monthly together with the monthly payment request, or until all submittals have been satisfactorily completed. When the progress schedule is revised, the submittal register shall also be revised and both resubmitted for approval. The approved submittal register will serve as a scheduling document for submittals and will be used to control submittal actions throughout the contract period.

### 3.3 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (for design submittals, see Section 01012; for construction submittals, a minimum of 30 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval by the Government. No delay damages or time extensions will be allowed for time lost in incorrect, incomplete and/or late submittals. An additional 15 calendar days shall be allowed and shown on the register for review and approval of submittals for food service equipment and refrigeration and HVAC control systems.

### 3.4 TRANSMITTAL FORM (ENG FORM 4025)

A transmittal form (ENG Form 4025) shall be used for submitting both Government approved and information only submittals. The Contractor shall use the government-provided software, QCS (see Section 01312), to create the ENG Form 4025. A separate transmittal form shall be used for each specification section. This form shall be properly completed by filling

out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

### 3.5 SUBMITTAL PROCEDURE

Submittals shall be made as follows:

#### 3.5.1 Procedures

Submittals to the Contracting Officer are required in the number of copies identified in paragraph 1.2 and shall be submitted as follows:

U.S. Army Corps of Engineer District, Honolulu  
Fort Shafter Resident Office  
Bldg 230  
Fort Shafter, Hawaii 96858-5440

#### 3.5.2 Deviations

- a. For submittals that include proposed deviations requested by the Contractor, the column "variation" on ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Contractor's Designer of Record approval is required for any proposed deviations. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.
- b. In cases where "trade names or equal" are used in the plans and/or Technical Specifications, any "equal" substitution by the Contractor is considered a variance and will require the Government's approval. Approval action by the Contracting Officer will not relieve the Contractor of his quality control responsibility and compliance with the contract, except for those specific portions of the submittal which clearly highlight the departures from the contract, and which are brought to the attention of the Government. The Contractor shall be responsible for all corrective actions, when submittals containing provisions of non-compliance with the contract are not specifically brought to the Government's attention. Any associated cost or time loss from such corrective actions shall not be made subject to a claim against the Government.
- c. Variations from the contract requirements may require an appropriate contract modification prior to acceptance by the Government; however, such pending action shall not be a basis of claim for time or additional cost against the Government, since the Contractor still has the option to comply with the original contract requirements. If the variation is of a minor nature and does not affect a change in cost or time of performance, a modification may not be issued. All variations shall meet the standards set by the contract documents.

### 3.6 COORDINATION OF LAYOUTS

The Contractor Quality Control (CQC) organization is responsible for insuring that the shop drawings and submittals of the different trades are coordinated in order that space conflicts during installation/construction of mechanical, electrical, architectural, civil, structural and other items of work are avoided. The Contractor shall be required to prepare/develop coordinated working layout drawings prior to commencement of any feature of work, at any contractor tier, unless otherwise directed by the Contracting Officer. These layout drawings shall be reviewed and certified by the CQC organization prior to the start of work in any area. The CQC shall insure that layout drawings indicate all necessary features of work, providing for a coordinated arrangement of the various installations, giving full consideration for access to installed equipment/systems and the future maintenance of these items. Interference between equipment and systems or construction materials which cannot be resolved between Contractor and subcontracting tiers shall be resolved by the Contracting Officer at no additional cost to the Government, if it is determined that adequate space was available and installations could have been accommodated within the designated construction area through properly coordinated layout drawings. One (1) CQC certified copy of all layout drawings shall be available for Government's review five (5) working days prior to scheduled commencement of the work. Submission shall be made upon Government's request.

### 3.7 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

### 3.8 GOVERNMENT ACCEPTED/APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. The Contracting Officer will retain four (4) copies of the submittal and two (2) copies of the submittal will be returned to the Contractor. If the Government performs a conformance review of other Designer of Record approved submittals, the submittals will be so identified and returned, as described above.

### 3.9 INFORMATION ONLY SUBMITTALS

Submittals provided For Information Only (FIO) to the Government shall be submitted in four (4) copies, including resubmittals. Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

3.10 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR  (Firm Name)
  _____ Approved
  _____ Approved with corrections as noted on submittal data and/or attached sheets(s).
  SIGNATURE: _____
  TITLE: (DESIGNER OF RECORD)
  DATE: _____

-- End of Section --



## INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.
2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No." This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.
4. Submittals requiring expeditious handling will be submitted on a separate form.
5. Separate transmittal form will be used for submittals under separate sections of the specifications.
6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications -- also, a written statement to that effect shall be included in the space provided for "Remarks."
7. Form is self-transmittal, letter of transmittal is not required.
8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i, to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

### THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

- |      |  |       |   |
|------|--|-------|---|
| A -- | Approved as submitted.   | E --  | Disapproved (See attached).   |
| B -- | Approved, except as noted on drawings.   | F --  | Receipt acknowledged.   |
| C -- | Approved, except as noted on drawings.<br>Refer to attached sheet resubmission required. | FX -- | Receipt acknowledged, does not comply as<br>noted with contract requirements. |
| D -- | Will be returned by separate correspondence.   | G --  | Other (Specify)   |
10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

(Reverse of ENG Form 4025-R)

**SUBMITTAL REGISTER**

CONTRACT NO.

TITLE AND LOCATION

QUAD E BLDG 549, 550, 551, & 552

CONTRACTOR

A C T I V I T Y  N O	T R A N S M I T T A L  N O	S P E C I F I C S E C T	D E S C R I P T I O N	P A R A M E T E R S	G O V E R N M E N T  C L A S S I F I C A T I O N	C O N T R A C T O R : S C H E D U L E D A T E S			C O N T R A C T O R A C T I O N		A P P R O V I N G A U T H O R I T Y				M A I L E D T O C O N T R A C T O R	R E M A R K S		
						S U B M I T	B Y	B Y	A C T I O N	D A T E O F	D A T E F R O M	D A T E F R O M	D A T E F R O M	D A T E F R O M			D A T E O F	D A T E O F
	01320		SD-01 Preconstruction Submittals															
			Preliminary Project Schedule	3.4.1	G													
			Initial Project Schedule	3.4.2	G													
			Periodic Schedule Updates	3.4.3	G													
			SD-06 Test Reports															
			Narrative Report	3.5.2														
			Schedule Reports	3.5.4														
			SD-07 Certificates															
			Qualifications	1.3	G													
	01330		SD-01 Preconstruction Submittals															
			Submittal Register (ENG Form 4288)	3.2	G													
			Monthly Updates (ENG Form 4288)															
	01451		SD-01 Preconstruction Submittals															
			Quality Control Plan	3.2	G													
	01780		SD-02 Shop Drawings															
			As-Built Drawings	1.2.1														
			SD-03 Product Data															
			As-Built Record of Equipment and Materials	1.2.2														
			Warranty Management Plan	1.3.1														
			Warranty Tags	1.3.5														
			Final Cleaning	1.6														
	01900		SD-01 Preconstruction Submittals															
			Organization Plan		G													

**SUBMITTAL REGISTER**

CONTRACT NO.

TITLE AND LOCATION

QUAD E BLDG 549, 550, 551, & 552

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION	PARAGRAPH	GLASS/FICTION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				REMARKS		
						SUBMIT	BY	BY	ACTION	DATE OF ACTION	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	DATE OF ACTION		DATE RCD FRM APPR AUTH	
																	(g)
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01900	Accident Prevention Plan														
			Activity Hazard Analyses		G												
			SD-03 Product Data														
			Equipment Data														
			Recovered Material Report														
			SD-06 Test Reports														
			Inspection of Existing Conditions														
			Dust Control	1.4	G												
			Excavation/Trenching Clearance														
			Condition of Contractor's														
			Operation or Storage Area														
			SD-07 Certificates														
			Products Containing Recovered														
			Materials														

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SECTION 01415

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## SECTION 01415

## METRIC MEASUREMENTS

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## ASTM INTERNATIONAL (ASTM)

ASTM SI 10	(2002) American National Standard for Use of the International System of Units (SI): The Modern Metric System
ASTM E 621	(1994; R 1999e1) Use of Metric (SI) Units in Building Design and Construction (Committee E-6 Supplement to SI 10)

## 1.2 GENERAL

This project includes metric units of measurements. The metric units used are the International System of Units (SI) developed and maintained by the General Conference on Weights and Measures (CGPM); the name International System of Units and the international abbreviation SI were adopted by the 11th CGPM in 1960. A number of circumstances require that both metric SI units and English inch-pound (I-P) units be included in a section of the specifications. When both metric and I-P measurements are included, the section may contain measurements for products that are manufactured to I-P dimensions and then expressed in mathematically converted metric value (soft metric) or, it may contain measurements for products that are manufactured to an industry recognized rounded metric (hard metric) dimensions but are allowed to be substituted by I-P products to comply with the law. Dual measurements are also included to indicate industry and/or Government standards, test values or other controlling factors, such as the code requirements where I-P values are needed for clarity or to trace back to the referenced standards, test values or codes.

## 1.3 USE OF MEASUREMENTS

Measurements shall be either in SI or I-P units as indicated, except for soft metric measurements or as otherwise authorized. When only SI or I-P measurements are specified for a product, the product shall be procured in the specified units (SI or I-P) unless otherwise authorized by the Contracting Officer. The Contractor shall be responsible for all associated labor and materials when authorized to substitute one system of units for another and for the final assembly and performance of the specified work and/or products.

### 1.3.1 Hard Metric

A hard metric measurement is indicated by an SI value with no expressed correlation to an I-P value. Hard metric measurements are often used for field data such as distance from one point to another or distance above the floor. Products are considered to be hard metric when they are manufactured to metric dimensions or have an industry recognized metric designation.

### 1.3.2 Soft Metric

- a. A soft metric measurement is indicated by an SI value which is a mathematical conversion of the I-P value shown in parentheses (e.g. 38.1 mm (1-1/2 inches)). Soft metric measurements are used for measurements pertaining to products, test values, and other situations where the I-P units are the standard for manufacture, verification, or other controlling factor. The I-P value shall govern while the metric measurement is provided for information.
- b. A soft metric measurement is also indicated for products that are manufactured in industry designated metric dimensions but are required by law to allow substitute I-P products. These measurements are indicated by a manufacturing hard metric product dimension followed by the substitute I-P equivalent value in parentheses (e.g., 190 x 190 x 390 mm (7-5/8 x 7-5/8 x 15-5/8 inches)).

### 1.3.3 Neutral

A neutral measurement is indicated by an identifier which has no expressed relation to either an SI or an I-P value (e.g., American Wire Gage (AWG) which indicates thickness but in itself is neither SI nor I-P).

## 1.4 COORDINATION

Discrepancies, such as mismatches or product unavailability, arising from use of both metric and non-metric measurements and discrepancies between the measurements in the specifications and the measurements in the drawings shall be brought to the attention of the Contracting Officer for resolution.

## 1.5 RELATIONSHIP TO SUBMITTALS

Submittals for Government approval or for information only shall cover the SI or I-P products actually being furnished for the project. The Contractor shall submit the required drawings and calculations in the same units used in the contract documents describing the product or requirement unless otherwise instructed or approved. The Contractor shall use ASTM SI 10 and ASTM E 621 as the basis for establishing metric measurements required to be used in submittals.

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## SECTION 01420

## SOURCES FOR REFERENCE PUBLICATIONS

## PART 1 GENERAL

## 1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization, (e.g. ASTM B 564 Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

## 1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the standards producing organization should be ordered from the source by title rather than by number.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)  
1819 L Street, NW, 6th Floor  
Washington, DC 20036  
Ph: 202-293-8020  
Fax: 202-293-9287  
E-mail: [info@ansi.org](mailto:info@ansi.org)  
Internet: <http://www.ansi.org/>

Note --- Documents beginning with the letter "S" can be ordered from:

Acoustical Society of America (ASA)  
2 Huntington Quadrangle, Suite 1N01  
Melville, NY 11747-4502  
Ph: 516-576-2360  
Fax: 516-576-2377  
Internet: <http://asa.aip.org>  
E-mail: [asa@aip.org](mailto:asa@aip.org)

ASTM INTERNATIONAL (ASTM)  
100 Barr Harbor Drive, P.O. Box C700  
West Conshohocken, PA 19428-2959  
Ph: 610-832-9500

Fax: 610-832-9555  
E-mail: [service@astm.org](mailto:service@astm.org)  
Internet: <http://www.astm.org>

COMPRESSED GAS ASSOCIATION (CGA)  
4221 Walney Road, 5th Floor  
Chantilly, VA 20151-2923  
Ph: 703-788-2700  
Fax: 703-961-1831  
Internet: <http://www.cganet.com>  
E-mail: [cga@cganet.com](mailto:cga@cganet.com)

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)  
Mail Stop C-13  
4676 Columbia Parkway  
Cincinnati, OH 45226-1998  
Ph: 800-356-4674  
Fax: 513-533-8573  
E-mail: [pubstaff@cdc.gov](mailto:pubstaff@cdc.gov)  
Internet: <http://www.cdc.gov/niosh/homepage.html>

UNDERWRITERS LABORATORIES (UL)  
333 Pfingsten Road  
Northbrook, IL 60062-2096  
Ph: 847-272-8800  
Fax: 847-272-8129  
Internet: <http://www.ul.com/>  
E-mail: [northbrook@us.ul.com](mailto:northbrook@us.ul.com)

U.S. ARMY CORPS OF ENGINEERS (USACE)  
Order CRD-C DOCUMENTS from:  
U.S. Army Engineer Waterways Experiment Station  
ATTN: Technical Report Distribution Section, Services  
Branch, TIC  
3909 Halls Ferry Rd.  
Vicksburg, MS 39180-6199  
Ph: 601-634-2664  
Fax: 601-634-2388  
E-mail: [mtc-info@erdc.usace.army.mil](mailto:mtc-info@erdc.usace.army.mil)  
Internet: <http://www.wes.army.mil/SL/MTC/handbook.htm>

Order Other Documents from:  
USACE Publications Depot  
Attn: CEIM-SP-D  
2803 52nd Avenue  
Hyattsville, MD 20781-1102  
Ph: 301-394-0081  
Fax: 301-394-0084  
E-mail: [pubs-army@usace.army.mil](mailto:pubs-army@usace.army.mil)  
Internet: <http://www.usace.army.mil/publications>  
or <http://www.hnd.usace.army.mil/techinfo/engpubs.htm>

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)  
Order from:

HUD User  
P.O. Box 23268  
Washington, DC 20026-3268  
Ph: 800-245-2691  
Fax: 202-708-9981  
Internet: <http://www.huduser.org>  
E-mail: [Huduser@aspensys.com](mailto:Huduser@aspensys.com)

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460  
Ph: 202-260-2090  
FAX: 202-260-6257  
Internet: <http://www.epa.gov>

NOTE --- Some documents are available only from:  
National Technical Information Services (NTIS)  
5285 Port Royal Road  
Springfield, VA 22161  
Ph: 703-605-6000  
Fax: 703-605-6900  
E-mail: [webmaster@ntis.gov](mailto:webmaster@ntis.gov)  
Internet: <http://www.ntis.gov>

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## SECTION 01451

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## SECTION 01451

## CONTRACTOR QUALITY CONTROL

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740 (1996) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

ASTM E 329 (1995b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

## INTERNATIONAL BUILDING CODE (IBC)

IBC 2000 International Building Code 2000

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Quality Control Plan; G.

## 1.3 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control system, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

## PART 2 PRODUCTS (Not Applicable)

## PART 3 EXECUTION

## 3.1 GENERAL

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled, "Inspection of Construction." The quality control system shall consist of plans, procedures, and the organization necessary to produce an end product that complies with the contract requirements. The system shall cover all design and construction operations, both onsite and offsite, and shall be keyed to the proposed design and construction sequence.

The Project Manager will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The Project Manager in this context shall mean the individual with the responsibility for the overall management of the project, including design, construction, quality, and production.

## 3.2 QUALITY CONTROL PLAN

## 3.2.1 Contractor Quality Control

The Contractor shall furnish for review by the Government, not later than 30 days after receipt of Notice to Proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Government will consider an interim plan for the first 90 days of operation. Design and construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

## 3.2.2 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all design and construction operations, both onsite and offsite, including work by subcontractors, designers of record, consultants, architect/engineers (A/E), fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the construction work specified. The staff shall include a CQC System Manager who shall report to the Project Manager or someone higher in the Contractor's organization.
- b. The name, qualifications (in resume format), duties,

responsibilities, and authorities of each person assigned a CQC function. Technicians responsible for sampling and testing of concrete shall be certified by the American Concrete Institute (ACI) or the Concrete Technicians Association of Hawaii (CTAH). Proof of certification shall be included in the quality control Plan. Personnel qualifications may be furnished incrementally as the work progresses, but in no case, less than fourteen (14) calendar days before personnel are required on the job.

- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, designers of record, consultants, A/E's, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330, SUBMITTAL PROCEDURES, or Section 01012, DESIGN AFTER AWARD, as applicable.
- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test.
- f. For all proposed QC materials testing laboratories the contractor must submit a current HED or MTC letter of validation.
- g. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- h. Procedures for tracking design and construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
- i. Reporting procedures, including proposed reporting formats.
- j. A list of the definable features of work. A definable feature of work is a task that is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting, but may also be developed as design

progresses. Definable features must be identified prior to construction of that feature.

### 3.2.3 Additional Requirements for the Design Quality Control (DQC) Plan

The Contractor's DQC Plan shall provide and maintain an effective quality control program which will assure that all services required by this design-build contract are performed and provided in a manner that meets professional architectural and engineering quality standards. As a minimum, competent, independent reviewers identified in the DQC Plan shall technically review all documents. The same element that produced the product shall not perform the independent technical review (ITR). The Contractor shall correct errors and deficiencies in the design documents prior to submitting them to the Government.

The Contractor shall include the design schedule in the master project schedule, showing the sequence of events involved in carrying out the project tasks within the specific contract period. This should be at a detailed level of scheduling sufficient to identify all major design tasks, including those that control the flow of work. The schedule shall include review and correction periods associated with each item. This should be a forward planning as well as a project-monitoring tool. The schedule reflects calendar days and not dates for each activity. If the schedule is changed, the Contractor shall submit a revised schedule reflecting the change within seven (7) calendar days. The Contractor shall include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal. These completed checklists shall be submitted at each design phase as part of the project documentation. Example checklists can be found in ER 1110-1-12.

A Design Quality Control Manager who has the responsibility of being cognizant of, and assuring that all documents on the project have been coordinated, shall implement the DQC Plan. This individual shall be a person who has verifiable engineering or architectural design experience and is a registered professional engineer or architect. The Contractor shall notify the Contracting Officer, in writing, of the name of the individual, and the name of an alternate person assigned to the position.

The Contracting Officer will notify the Contractor, in writing, of the acceptance of the DQC Plan. After acceptance, any changes proposed by the Contractor are subject to the acceptance of the Contracting Officer.

### 3.2.4 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of design and/or construction. Acceptance is conditional and will be predicated on satisfactory performance during the design and construction phases. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

### 3.2.5 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the

Contracting Officer in writing a minimum of seven (7) calendar days prior to any of any proposed change. Proposed changes shall not be implemented prior to its acceptance by the Contracting Officer.

### 3.3 COORDINATION MEETINGS

After the Pre-design Conference and before the start of design and/or construction, and prior to acceptance by the Government of the Quality Control Plan, a Quality Control Coordination Meeting shall be held. The Contractor shall meet with the Contracting Officer or Authorized Representative to discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of [7] calendar days prior to the Coordination Meeting. During this meeting, a mutual understanding of the CQC system details shall be developed, including the forms for recording the CQC operations, design activities, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's management and control with the Government's Quality Assurance. Minutes of the meeting will be prepared by the Government and signed by both the Contractor and the Contracting Officer's Representative. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures that may require corrective action by the Contractor.

### 3.4 QUALITY CONTROL ORGANIZATION

#### 3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager (CQCSM), a Design Quality Manager, and a sufficient number of additional qualified personnel to ensure contract compliance. The Safety and Health Manager shall receive direction and authority from the CQC System Manager and shall serve as a member of the CQC staff. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as par of the CQC organization. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer.

The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, shop drawing submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

#### 3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within

the onsite work organization who shall be responsible for overall management of CQC on the contract and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management with a minimum of 5 years construction experience on construction similar to this contract. The CQC System Manager, or an acceptable, qualified representative, shall be on site at all times during design and construction activities and shall be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as the designated CQC System Manager.

### 3.4.3 CQC Personnel (Construction)

In addition to CQC personnel specified elsewhere in the contract, the Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC System Manager in the areas listed below. Unless otherwise stated, these individuals, when required, may be employees of the prime or subcontractor; shall be responsible to the CQC System Manager; be physically present at the construction site during work on their areas of responsibility; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan.

#### EXPERIENCE MATRIX

<u>Area</u>	<u>Qualifications</u>
a. Civil	Graduate Civil Engineer with 2 years experience in the type of work being performed on this project or technician with 5 years related experience
b. Mechanical	Graduate Mechanical Engineer with 2 years experience or technician with 5 years related experience
c. Electrical	Graduate Electrical Engineer with 2 years related experience or technician with 5 years related experience
d. Structural	Graduate Structural Engineer with 2 years experience or person with 5 years related experience
e. Architectural	Graduate Architect with 2 years experience or person with 5 years related experience
f. Environmental	Graduate Environmental Engineer with 3 years experience

- |                                  |   |
|----------------------------------|---|
| g. Submittals                    | Submittal Clerk with 1 year experience                                |
| h. Occupied family housing       | Person, customer relations type, coordinator experience               |
| i. Concrete, Pavements and Soils | Materials Technician with 2 years experience for the appropriate area |

If it is subsequently determined by the Contracting Officer that the minimum contract CQC requirements are not being met, the Contractor may be required to provide additional staff personnel to the CQC organization at no cost to the Government.

#### 3.4.4 Additional Requirement

In addition to the above experience and/or education requirements, the CQC System Manager and any alternates shall have completed the course entitled "Construction Quality Management For Contractors" within the past 5 years. This course is periodically offered at the General Contractors Association of Hawaii.

#### 3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance. Requests shall include the names, qualifications, duties, and responsibilities of each proposed replacement. Upon acceptance of any changes, the Contractor shall revise the CQC plan to accurately reflect the changes. The CQC plan shall be kept current at all times during the life of the contract.

#### 3.5 SUBMITTALS AND DELIVERABLES

Design submittals shall be made as required in Section 01012, DESIGN AFTER AWARD. Construction submittals shall be made as specified in Section 01330, SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements. When Section 15950A, Heating, Ventilating and Air Conditioning (HVAC) Control Systems; Section 15951A, Direct Digital Control for HVAC; Section 15990A, Testing, Adjusting, and Balancing of HVAC Systems; or Section 15995A, Commissioning of HVAC Systems, are included in the contract, the submittals required by those sections shall be coordinated with Section 01330, Submittal Procedures, to ensure adequate time is allowed for each type of submittal required.

Special Inspections: Continuous or periodic special inspection by a certified inspector shall be performed on seismic-resisting systems in accordance with IBC 2000, Section 1740.

#### 3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures

that the design and construction, to include that of designers of record, consultants, subcontractors and suppliers, comply with the requirements of the contract. The CQC System Manager shall conduct at least three phases of control for each definable feature of construction work, as follows:

#### 3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications, reference codes and standards. The Contractor shall make available and maintain a copy, in the field, of the referenced codes and standards applicable to the work to be accomplished, until final acceptance of the work.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the Contracting Officer has accepted the portion of the plan for the work to be performed.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 2 workdays in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to

the acceptable level of workmanship required in order to meet contract specifications.

### 3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 1 workday in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

### 3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work that may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

### 3.6.3 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

### 3.7 TESTS

#### 3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product that conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

The Contractor's testing procedures shall include the following activities and shall record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

#### 3.7.2 Testing Laboratories

##### 3.7.2.1 Validation Requirements

Any laboratory used by the Contractor for testing aggregate, concrete, bituminous materials, soils, rock, and other construction materials must possess a current validation letter prior to performance of testing by that laboratory. Validation shall be obtained through the Corps of Engineers Materials Testing Center (MTC) in Vicksburg, MS. Validation may be initiated by completing an Inspection Request Form and questionnaire that are available directly from the MTC or from the MTC website, <http://www.wes.army.mil/SL/MTC/inspection.htm>.

The MTC also maintains a website listing validated laboratories at:

<http://www.wes.army.mil/SL/MTC/ValStatesTbl.htm>.

#### 3.7.2.2 Exception

The validation letters already obtained from HED in 2001 and 2002 will be considered acceptable proof of validation through its expiration date. Upon expiration, laboratories must be revalidated by the MTC, as required above. The validation status of laboratories in Hawaii may be found at: <http://www.poh.usace.army.mil/Construction/LabValidation/labvalidation.html>.

#### 3.7.3 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

#### 3.7.4 Capability Recheck

If the selected laboratory fails the capability check, the Contractor shall reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

#### 3.7.5 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make quality assurance tests and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

#### 3.7.6 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. \*Samples of materials for test verification and acceptance testing by the Government shall be delivered to a testing laboratory on the Island of Oahu, State of Hawaii, designated by the Contracting Officer. Coordination for each specific test, exact delivery location, and dates will be made through the Government field office.

### 3.8 COMPLETION INSPECTION

#### 3.8.1 Punch-Out Inspection

Near the completion of all work or any increment thereof established by a completion time stated in the Special Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the CQC System Manager shall conduct an inspection of the work and develop a punch list of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be

corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

#### 3.8.2 Pre-Final Inspection

The Government will perform this inspection to verify that the facility is complete and ready to be occupied. The CQC System Manager shall develop a punch list of items that do not conform to the contract documents. The Government will review the punch list and add to or correct the items listed. The CQC System Manager shall incorporate Government comments and provide a Pre-Final Punch List. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government to schedule a Final inspection with the customer. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work (contract performance period) or any particular increment thereof if the project is divided into increments by separate completion dates.

#### 3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at this inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The Contractor shall notify the Contracting Officer at least 14 days prior to the proposed final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work to be performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

#### 3.8.4 Post Completion Feedback Meeting and Preparation of Written Minutes

At the completion of this project, the CQC Systems Manager will host a meeting to review the project and to discuss lessons learned during the design and construction of the project. This meeting should be scheduled for 4 hours on-site and should be attended by the Project Manager and representatives of the designers of record, consultants, and major subcontractors, including mechanical and electrical. The Contracting Officer will invite members of the design team to participate in this meeting. Minutes of the meeting shall be prepared by the CQC System Manager and submitted to the Government.

## 3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be prepared using government-provided software, QCS (see Section 01312 01312), that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/ drawings requirements.
- f. Submittals reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. Unless otherwise directed by the Contracting Officer the original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days, beginning with the construction NTP, shall be accounted for throughout the life of the contract. The first report following a day of

no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

### 3.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

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## SECTION 01572

## CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

## 1.1 GOVERNMENT POLICY

Government policy is to apply sound environmental principles in the design, construction and use of facilities. As part of the implementation of that policy the Contractor shall: (1) practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction and demolition waste from landfills and incinerators and to facilitate their recycling or reuse.

## 1.2 MANAGEMENT

The Contractor shall take a pro-active, responsible role in the management of construction and demolition waste and require all subcontractors, vendors, and suppliers to participate in the effort. Construction and demolition waste includes products of demolition or removal, excess or unusable construction materials, packaging materials for construction products, and other materials generated during the construction process but not incorporated into the work. In the management of waste consideration shall be given to the availability of viable markets, the condition of the material, the ability to provide the material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates. The Contractor shall be responsible for implementation of any special programs involving rebates or similar incentives related to recycling of waste. Revenues or other savings obtained for salvage, or recycling shall accrue to the Contractor. Firms and facilities used for recycling, reuse, and disposal shall be appropriately permitted for the intended use to the extent required by federal, state, and local regulations.

## 1.3 PLAN

A waste management plan shall be submitted within 15 days after [contract award][notice to proceed] and prior to initiating any site preparation work. The plan shall include the following:

- a. Name of individuals on the Contractor's staff responsible for waste prevention and management.
- b. Actions that will be taken to reduce solid waste generation.
- c. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas and equipment to be used for processing, sorting, and temporary storage of wastes.
- d. Characterization, including estimated types and quantities, of the

waste to be generated.

e. Name of landfill and/or incinerator to be used and the estimated costs for use, assuming that there would be no salvage or recycling on the project.

f. Identification of local and regional reuse programs, including non-profit organizations such as schools, local housing agencies, and organizations that accept used materials such as materials exchange networks and Habitat for Humanity.

g. List of specific waste materials that will be salvaged for resale, salvaged and reused, or recycled. Recycling facilities that will be used shall be identified.

h. Identification of materials that cannot be recycled/reused with an explanation or justification.

i. Anticipated net cost savings determined by subtracting Contractor program management costs and the cost of disposal from the revenue generated by sale of the materials and the incineration and/or landfill cost avoidance.

#### 1.4 RECORDS

Records shall be maintained to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration. The records shall be made available to the Contracting Officer during construction, and a copy of the records shall be delivered to the Contracting Officer upon completion of the construction.

#### 1.5 COLLECTION

The necessary containers, bins and storage areas to facilitate effective waste management shall be provided and shall be clearly and appropriately identified. Recyclable materials shall be handled to prevent contamination of materials from incompatible products and materials and separated by one of the following methods:

##### 1.5.1 Source Separated Method.

Waste products and materials that are recyclable shall be separated from trash and sorted into appropriately marked separate containers and then transported to the respective recycling facility for further processing.

##### 1.5.2 Co-Mingled Method.

Waste products and recyclable materials shall be placed into a single container and then transported to a recycling facility where the recyclable materials are sorted and processed.

## 1.5.3 Other Methods.

Other methods proposed by the Contractor may be used when approved by the Contracting Officer.

## 1.6 DISPOSAL

Except as otherwise specified in other sections of the specifications, disposal shall be in accordance with the following:

## 1.6.1 Reuse.

First consideration shall be given to salvage for reuse since little or no re-processing is necessary for this method, and less pollution is created when items are reused in their original form. Sale or donation of waste suitable for reuse shall be considered. Salvaged materials, other than those specified in other sections to be salvaged and reinstalled, shall not be used in this project.

## 1.6.2 Recycle.

Waste materials not suitable for reuse, but having value as being recyclable, shall be made available for recycling whenever economically feasible.

## 1.6.3 Waste.

Materials with no practical use or economic benefit shall be disposed at a landfill or incinerator.

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IN THE WORK

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work under this contract, contain the highest practicable percentage of recycled or recovered materials, provided specified requirements are also met.

1.5 EPA LISTED ITEMS USED IN CONDUCT OF THE WORK BUT NOT INCORPORATED IN THE WORK

There are many products listed in 40 CFR 247 which have been designated or proposed by EPA to include recycled or recovered materials that may be used by the Contractor in performing the work but will not be incorporated into the work. These products include office products, temporary traffic control products, and pallets. It is recommended that these non-construction products, when used in the conduct of the work, contain the highest practicable percentage of recycled or recovered materials and that these products be recycled when no longer needed.

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## SECTION 01780

## CLOSEOUT SUBMITTALS

## PART 1 GENERAL

## 1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-02 Shop Drawings

## As-Built Drawings.

Drawings showing final as-built conditions of the project. The final CADD as-built drawings shall consist of one set of electronic CADD drawing files in the specified format, one set of original drawings, 2 sets of prints of the originals, and one set of the Government accepted working as-built drawings.

## SD-03 Product Data

## As-Built Record of Equipment and Materials.

Two copies of the record listing the as-built materials and equipment incorporated into the construction of the project.

## Warranty Management Plan.

One set of the warranty management plan containing information relevant to the warranty of materials and equipment incorporated into the construction project, including the starting date of warranty of construction. The Contractor shall furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.

## Warranty Tags.

Two record copies of the warranty tags showing the layout and design.

## Final Cleaning.

Two copies of the listing of completed final clean-up items.

## 1.2 PROJECT RECORD DOCUMENTS

### 1.2.1 As-Built Drawings

This paragraph covers as-built drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working as-built drawings" and "final as-built drawings" refer to contract drawings which are revised to be used for final as-built drawings.

#### 1.2.1.1 Government Furnished Materials

One set of electronic CADD files in the specified software and format revised to reflect all bid amendments will be provided by the Government at the preconstruction conference for projects requiring CADD file as-built drawings.

#### 1.2.1.2 Working As-Built and Final As-Built Drawings

The Contractor shall maintain 2 sets of paper drawings by red-line process to show the as-built conditions during the prosecution of the project. These working as-built marked drawings shall be kept current on a daily basis and at least one set shall be available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. At the final inspection or upon beneficial occupancy of the facility by the user, whichever comes first. The Contractor shall provide one of the two sets of working as-built drawings to the COR for turnover with the facility. This set will serve as an advance/interim working set for the occupant of the completed facility; until such time that the final as-built drawings are furnished to them. Final as-built drawings shall be prepared after the completion of each definable feature of work as listed in the Contractor Quality Control Plan (Foundations, Utilities, Structural Steel, etc., as appropriate for the project). The working as-built marked drawings and final as-built drawings will be jointly reviewed for accuracy and completeness by the Contracting Officer and the Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the working and final as-built drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the as-built drawings. This monthly deduction will continue until an agreement is reached between the Contracting Officer and the Contractor regarding the accuracy and completeness of updated drawings. The working and final as-built drawings shall show, but shall not be limited to, the following information:

- a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, the as-built drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Valves, splice boxes and similar appurtenances shall be located by dimensioning along the utility run from a reference point. The average depth below the surface of each run shall also

- be recorded.
- b. The location and dimensions of any changes within the building structure.
  - c. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.
  - d. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.
  - e. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.
  - f. Changes or modifications which result from the final inspection.
  - g. Where contract drawings or specifications present options, only the option selected for construction shall be shown on the final as-built drawings.
  - h. If borrow material for this project is from sources on Government property, or if Government property is used as a spoil area, the Contractor shall furnish a contour map of the final borrow pit/spoil area elevations.
  - i. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.
  - j. Modifications (change order price shall include the Contractor's cost to change working and final as-built drawings to reflect modifications) and compliance with the following procedures.
    - (1) Directions in the modification for posting descriptive changes shall be followed.
    - (2) A Modification Circle shall be placed at the location of each deletion.
    - (3) For new details or sections which are added to a drawing, a Modification Circle shall be placed by the detail or section title.
    - (4) For minor changes, a Modification Circle shall be placed by the area changed on the drawing (each location).
    - (5) For major changes to a drawing, a Modification Circle shall be placed by the title of the affected plan, section, or detail at each location.
    - (6) For changes to schedules or drawings, a Modification Circle shall be placed either by the schedule heading or by the change in

the schedule.

(7) The Modification Circle size shall be 1/2 inch diameter unless the area where the circle is to be placed is crowded. Smaller size circle shall be used for crowded areas.

#### 1.2.1.3 Drawing Preparation

The as-built drawings shall be modified as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with Government accepted working as-built drawings, and adding such additional drawings as may be necessary. These working as-built marked drawings shall be neat, legible and accurate. These drawings are part of the permanent records of this project and shall be returned by the Contractor to the Contracting Officer after final acceptance by the Government. Any drawings damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at no expense to the Government.

#### 1.2.1.4 Computer Aided Design and Drafting (CADD) Drawings

Only personnel proficient in the preparation of microstation CADD drawings shall be employed to modify the contract drawings or prepare additional new drawings. Additions and corrections to the contract drawings shall be equal in quality and detail to that of the originals. Line colors, line weights, lettering, layering conventions, and symbols shall be the same as the original line colors, line weights, lettering, layering conventions, and symbols. If additional drawings are required, they shall be prepared using the specified electronic file format applying the same graphic standards specified for original drawings. The title block and drawing border to be used for any new final as-built drawings shall be identical to that used on the contract drawings. Additions and corrections to the contract drawings shall be accomplished using CADD files. The Contractor will be furnished Microstation CADD files and pentable. The electronic files will be supplied on compact disc, read-only memory (CD-ROM). The Contractor shall be responsible for providing all program files and hardware necessary to prepare final as-built drawings. The Contracting Officer will review final as-built drawings for accuracy and the Contractor shall make required corrections, changes, additions, and deletions.

- a. CADD colors shall be the "base" colors of red, green, and blue. Color code for changes shall be as follows:
  - (1) Deletions (red) - Deleted graphic items (lines) shall be colored red with red lettering in notes and leaders.
  - (2) Additions (Green) - Added items shall be drawn in green with green lettering in notes and leaders.
  - (3) Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes shall be in blue.
- b. All changes to the contract drawing files shall be made on the

level as the original item. There shall be no deletions of existing lines; existing lines shall be over struck in red. Additions shall be in green with line weights the same as the drawing.

- c. When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" followed by the name of the Contractor in letters at least 3/16 inch high. All other contract drawings shall be marked either "as-built" drawing denoting no revisions on the sheet or "Revised As-Built" denoting one or more revisions. Original contract drawings shall be dated in the revision block.
- d. Within 10 days after Government acceptance of all of the working as-built drawings for a phase of work, the Contractor shall prepare the final CADD as-built drawings for that phase of work and submit two sets of blue/black-line prints of these drawings for Government review. The Government will promptly return one set of prints annotated with any necessary corrections. Within 10 days the Contractor shall revise the CADD files accordingly at no additional cost and submit one set of final prints for the completed phase of work to the Government. Within 10 days of substantial completion of all phases of work, the Contractor shall submit the final as-built drawing package for the entire project. The submittal shall consist of one set of electronic files on compact disc, read-only memory (CD-ROM), one set of originals, two sets of prints and one set of the Government annotated and accepted working as-built drawings. They shall be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any transactions or adjustments necessary to accomplish this is the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with the customer's CADD system. Paper prints, drawing files and storage media submitted will become the property of the Government upon final acceptance. Failure to submit final as-built drawing files or working as-built marked drawings as specified shall be cause for withholding any payment due the Contractor under this contract. Acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor.

#### 1.2.1.5 Payment

No separate payment will be made for as-built drawings required under this contract, and all costs accrued in connection with such drawings shall be considered a subsidiary obligation of the Contractor.

#### 1.2.2 As-Built Record of Equipment and Materials

The Contractor shall furnish one copy of preliminary record of equipment and materials used on the project 15 days prior to final inspection. This preliminary submittal will be reviewed and returned 2 days after final inspection with Government comments. Two sets of final record of equipment and materials shall be submitted 10 days after final inspection. The

designations shall be keyed to the related area depicted on the contract drawings. The record shall list the following data:

RECORD OF DESIGNATED EQUIPMENT AND MATERIALS DATA

Description	Specification Section	Manufacturer and Catalog, Model, and Serial Number	Composition and Size	Where Used
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### 1.2.3 Final Approved Shop Drawings

The Contractor shall furnish final approved project shop drawings 30 days after transfer of the completed facility.

### 1.2.4 Real Property Equipment

The Contractor shall furnish a list of installed equipment furnished under this contract. The list shall include all information usually listed on manufacturer's name plate. The "EQUIPMENT-IN-PLACE LIST" shall include, as applicable, the following for each piece of equipment installed: description of item, location (by room number), model number, serial number, capacity, name and address of manufacturer, name and address of equipment supplier, condition, spare parts list, manufacturer's catalog, and warranty. A draft list shall be furnished at time of transfer. The final list shall be furnished 30 days after transfer of the completed facility.

## 1.3 WARRANTY MANAGEMENT

### 1.3.1 Warranty Management Plan

The Contractor shall develop a warranty management plan. At least 30 days before the planned pre-warranty conference, the Contractor shall submit the warranty management plan for Government approval. The warranty management plan shall include all required actions and documents to assure that the Government receives all warranties to which it is entitled, in accordance with the Contract Clause, WARRANTY OF CONSTRUCTION. The plan shall be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below shall include due date and whether item has been submitted or was accomplished. Warranty information made available during the construction phase shall be submitted to the Contracting Officer for approval prior to each monthly pay estimate. Approved information shall be assembled in a binder and shall be turned over to the Government upon acceptance of the work. The construction warranty period shall begin on the date of project acceptance and shall continue for the full product warranty period. A joint 4 month and 9 month warranty inspection shall be conducted, measured from time of acceptance, by the Contractor, Contracting Officer and the Customer Representative. Information contained in the warranty management plan shall include, but shall not be limited to, the following:

- a. Roles and responsibilities of all personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the Contractors, subcontractors, manufacturers or suppliers involved.
- b. Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and for all commissioned systems such as fire protection and alarm systems, sprinkler systems, lightning protection systems, etc.
- c. A list for each warranted equipment, item, feature of construction or system indicating:
  - (1) Name of item.
  - (2) Model and serial numbers.
  - (3) Location where installed.
  - (4) Name and phone numbers of manufacturers or suppliers.
  - (5) Names, addresses and telephone numbers of sources of spare parts.
  - (6) Warranties and terms of warranty. This shall include one-year overall warranty of construction. Items which have extended warranties shall be indicated with separate warranty expiration dates.
  - (7) Cross-reference to warranty certificates as applicable.
  - (8) Starting point and duration of warranty period.
  - (9) Summary of maintenance procedures required to continue the warranty in force.
  - (10) Cross-reference to specific pertinent Operation and Maintenance manuals.
  - (11) Organization, names and phone numbers of persons to call for warranty service.
  - (12) Typical response time and repair time expected for various warranted equipment.
- d. The Contractor's plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.
- e. Procedure and status of tagging of all equipment covered by extended warranties.
- f. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

#### 1.3.2 Performance Bond

The Contractor's Performance Bond shall remain in effect throughout the construction period, and during the life of any guaranty required under the Contract Performance Bond, Standard Form 25.

- a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the Contracting

Officer will have the work performed by others. After completion of the construction warranty work, charges will be made to the remaining construction warranty funds of expenses which the Government incurred while performing the work, including, but not limited to administrative expenses.

- b. In the event sufficient funds are not available to cover the construction warranty work performed by the Government, at the Contractor's expense, the Contracting Officer will have the right to recoup expenses from the bonding company.
- c. Following oral or written notification of required construction warranty repair work, the Contractor shall respond in a timely manner. Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the Contracting Officer to proceed against the Contractor.

#### 1.3.3 Pre-Warranty Conference

Prior to contract completion, and at a time designated by the Contracting Officer, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this section. Communication procedures for Contractor notification of construction warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty shall be established/reviewed at this meeting. In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor shall furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue construction warranty work action on behalf of the Contractor. This point of contact will be located within the local service area of the warranted construction, shall be continuously available, and shall be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of its responsibilities in connection with other portions of this provision.

#### 1.3.4 Contractor's Response to Construction Warranty Service Requirements

Following oral or written notification by the Contracting Officer, the Contractor shall respond to construction warranty service requirements in accordance with the "Construction Warranty Service Priority List" and the three categories of priorities listed below. The Contractor shall submit a report on any warranty item that has been repaired during the warranty period. The report shall include the cause of the problem, date reported, corrective action taken, and when the repair was completed. If the Contractor does not perform the construction warranty within the timeframes specified, the Government will perform the work and backcharge the construction warranty payment item established.

- a. First Priority Code 1. Perform onsite inspection to evaluate situation, and determine course of action within 4 hours, initiate work within 6 hours and work continuously to completion or relief.

- b. Second Priority Code 2. Perform onsite inspection to evaluate situation, and determine course of action within 8 hours, initiate work within 24 hours and work continuously to completion or relief.
- c. Third Priority Code 3. All other work to be initiated within 3 work days and work continuously to completion or relief.
- d. The "Construction Warranty Service Priority List" is as follows:

## Code 1-Air Conditioning Systems

- (1) Recreational support.
- (2) Air conditioning leak in part of building, if causing damage.
- (3) Air conditioning system not cooling properly.

## Code 1-Doors

- (1) Overhead doors not operational, causing a security, fire, or safety problem.
- (2) Interior, exterior personnel doors or hardware, not functioning properly, causing a security, fire, or safety problem.

## Code 3-Doors

- (1) Overhead doors not operational.
- (2) Interior/exterior personnel doors or hardware not functioning properly.

## Code 1-Electrical

- (1) Power failure (entire area or any building operational after 1600 hours).
- (2) Security lights
- (3) Smoke detectors

## Code 2-Electrical

- (1) Power failure (no power to a room or part of building).
- (2) Receptacle and lights (in a room or part of building).

## Code 3-Electrical

Street lights.

## Code 1-Gas

- (1) Leaks and breaks.
- (2) No gas to family housing unit or cantonment area.

## Code 1-Heat

- (1) Area power failure affecting heat.
- (2) Heater in unit not working.

## Code 2-Kitchen Equipment

- (1) Dishwasher not operating properly.
- (2) All other equipment hampering preparation of a meal.

## Code 1-Plumbing

- (1) Hot water heater failure.
- (2) Leaking water supply pipes.

Code 2-Plumbing

- (1) Flush valves not operating properly.
- (2) Fixture drain, supply line to commode, or any water pipe leaking.
- (3) Commode leaking at base.

Code 3 -Plumbing

Leaky faucets.

Code 3-Interior

- (1) Floors damaged.
- (2) Paint chipping or peeling.
- (3) Casework.

Code 1-Roof Leaks

Temporary repairs will be made where major damage to property is occurring.

Code 2-Roof Leaks

Where major damage to property is not occurring, check for location of leak during rain and complete repairs on a Code 2 basis.

Code 2-Water (Exterior)

No water to facility.

Code 2-Water (Hot)

No hot water in portion of building listed.

Code 3-All other work not listed above.

1.3.5 Warranty Tags

At the time of installation, each warranted item shall be tagged with a durable, oil and water resistant tag approved by the Contracting Officer. Each tag shall be attached with a copper wire and shall be sprayed with a silicone waterproof coating. The date of acceptance and the QC signature shall remain blank until project is accepted for beneficial occupancy. The tag shall show the following information.

- a. Type of product/material\_\_\_\_\_.
- b. Model number\_\_\_\_\_.
- c. Serial number\_\_\_\_\_.
- d. Contract number\_\_\_\_\_.
- e. Warranty period\_\_\_\_\_ from\_\_\_\_\_ to\_\_\_\_\_.
- f. Inspector's signature\_\_\_\_\_.
- g. Construction Contractor\_\_\_\_\_.

Address\_\_\_\_\_.

Telephone number\_\_\_\_\_.

h. Warranty contact\_\_\_\_\_.

Address\_\_\_\_\_.

Telephone number\_\_\_\_\_.

i. Warranty response time priority code\_\_\_\_\_.

j. WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.

1.4 MECHANICAL TESTING, ADJUSTING, BALANCING, AND COMMISSIONING

Prior to final inspection and transfer of the completed facility; all reports, statements, certificates, and completed checklists for testing, adjusting, balancing, and commissioning of mechanical systems shall be submitted to and approved by the Contracting Officer as specified in applicable technical specification sections.

1.5 OPERATION AND MAINTENANCE MANUALS

Operation manuals and maintenance manuals shall be submitted as specified. Operation manuals and maintenance manuals provided in a common volume shall be clearly differentiated and shall be separately indexed.

1.6 FINAL CLEANING

The premises shall be left broom clean. Stains, foreign substances, and temporary labels shall be removed from surfaces. Carpet and soft surfaces shall be vacuumed. Equipment and fixtures shall be cleaned to a sanitary condition. Filters of operating equipment shall be cleaned. Debris shall be removed from roofs, drainage systems, gutters, and downspouts. Paved areas shall be swept and landscaped areas shall be raked clean. The site shall have waste, surplus materials, and rubbish removed. The project area shall have temporary structures, barricades, project signs, and construction facilities removed. A list of completed clean-up items shall be submitted on the day of final inspection.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

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## SECTION 01900

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PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section Table of Contents --

## SECTION 01900

## MISCELLANEOUS PROVISIONS

## PART 1 GENERAL

## 1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-01 Preconstruction Submittals

## Organization Plan; G.

Provide a diagram depicting the proposed management organization. The chart shall clearly identify lines of authority and areas of responsibility. Include a narrative description of how the management team will operate, and the specific duties and responsibilities of the key individuals.

The narrative shall describe the Offeror's proposed on-site organization and structure, and shall describe how the Offeror intends to monitor and control timeliness, quality, and safety of the work at the job site, including the work of any subcontractors on all phases of the contract.

Identify the individuals proposed to fill the key management positions: Project Manager, Project Superintendent, Contractor Quality Control System Manager, Design Quality Control Manager, Safety and Health Manager. Provide resumes for each individual. Resumes must support the individual's qualifications to perform in the selected position.

Provide copies of letters of direction to each key personnel from an appropriate officer of the company.

## Accident Prevention Plan

## Activity Hazard Analyses; G.

## SD-03 Product Data

## Equipment Data

A list of all equipment furnished under this contract. This list shall include, but not be limited to, each piece of equipment

with a serial number, and shall include all information shown on the manufacturer's nameplate, so as to positively identify the piece of equipment. This list shall also include the cost of each piece of equipment (less installation costs) F.O.B. construction site. This list shall be furnished as soon as possible after equipment is purchased. The list shall consist of one (1) reproducible and three (3) copies, and shall be furnished to the Contracting Officer not later than thirty (30) calendar days prior to completion of any segment of the contract work which has an incremental completion date.

#### Recovered Material Report

The Contractor shall provide a report listing all products meeting EPA guidelines for products containing recovered materials and quantity used for this project.

#### SD-06 Test Reports

##### Inspection of Existing Conditions..

A written report with color photographs noting the condition of the existing facilities at the time of the inspection. One copy of the report including photographs shall be submitted to the Contracting Officer, prior to construction.

##### Dust Control; G

Method(s) of dust control.

##### Excavation/Trenching Clearance

Prior to start of any excavation or trenching work, the Contractor shall obtain clearance, in writing, from the appropriate communications agency and base or area engineer. Copies of all correspondence shall be provided the Contracting Officer. Normal coordination time for obtaining the necessary permits is approximately fifteen (15) calendar days. The Contractor shall advise the Contracting Officer promptly when it appears that the normal coordination time will be exceeded.

##### Condition of Contractor's Operation or Storage Area

The Contractor shall submit to the Contracting Officer photographs and/or videos depicting the condition of the Contractor's Operation or Storage Area.

#### SD-07 Certificates

##### Products Containing Recovered Materials

The Contractor shall submit manufacturer's certification attesting that product meets or exceeds EPA's recovered material guidelines.

## 1.2 PROJECT MANAGEMENT ORGANIZATION

### 1.2.1 General

The Contractor is responsible for ensuring that the contract is adequately staffed to manage all of the work in full accordance and compliance with the contract requirements.

### 1.2.2 Organization Plan

The contractor shall submit an organization plan describing the organization it intends to structure for managing this contract. The plan shall include lines of authority, position responsibilities, and qualifications of the proposed staff. The project staff shall minimally consist of the following key personnel: Project Manager, Project Superintendent, Contractor Quality Control System Manager, Design Quality Control Manager, Safety and Health Manager. Each of the individuals selected to fill these positions is subject to acceptance by the Contracting Officer.

### 1.2.3 Organizational Changes

The Contractor shall maintain the project management staff at full strength at all times. When it is necessary to make changes to the staff, the Contractor shall revise the Organization Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance at least fourteen (14) calendar days prior to implementation of the changes.

Substitutions for any accepted key personnel must be submitted for review and acceptance by the Contracting Officer prior to the start of work by that individual. The Contractor is informed that the Government will be allowed at least 30 days to respond. Any delays resulting from this process shall be the responsibility of the contractor and shall not be a basis for any equitable contract adjustment.

### 1.2.4 Project Manager

The Project Manager shall be responsible for the contractor's overall management and coordination of this contract and shall be the central point of contact with the Government for performance of all work under this contract including warranty. The Project Manager shall oversee construction accomplishment, administer all instructions, and answer all questions from the Contracting Officer pertaining to the work during the life of the contract, including the warranty period. The Project Manager shall be responsible for the complete coordination of all work in this contract. The Project Manager will be responsible for ensuring that adequate internal controls and review procedures are followed in order to eliminate conflicts, errors and omissions, and for ensuring that all technical requirements are met. Another individual may be designated to temporarily act for the Project Manager, however, forty-eight (48) hours advance notice in writing of such change shall be requested to the Contracting Officer, and no change shall be made without prior acceptance by the Contracting Officer.

The Project Manager shall have a recognized four-year college degree in engineering, architecture, or related technical field, and at least five (5) years experience in managing and supervising Department of Defense construction projects of similar size and scope.

#### 1.2.5 Project Superintendent

A Project Superintendent shall be assigned. This individual shall have a minimum of five years experience as a superintendent on Department of Defense construction projects similar in size and scope to this contract. The project superintendent shall have overall responsibility for all operations on the jobsite. The superintendent shall be assigned no other duties.

#### 1.2.6 Contractor Quality Control

To assure compliance with contract requirements, the Contractor shall establish and maintain quality control for materials and work, including design, covered by all sections of the TECHNICAL REQUIREMENTS in accordance with Section 01451 CONTRACTOR QUALITY CONTROL. Records shall be maintained for all operations including sampling and testing.

#### 1.2.7 Safety

##### 1.2.7.1 General

Site activities performed in conjunction with this contract may pose safety hazards that require specialized expertise to effectively address and eliminate. The Contractor shall be responsible for preparing and implementing an effective safety and health program throughout the entire duration of the contract.

##### 1.2.7.2 Accident Prevention Plan (APP)

The contractor shall prepare an Accident Prevention Plan in accordance with the provisions of FAR 52.236-13 (Section 00700) and Section 00800, paragraph S-36.18. The Accident Prevention Plan shall address the contractor's overall safety program for the entire contract. The APP shall consist of the forms and documents listed in Section 00800, S36.18, ACCIDENT PREVENTION PLAN, covering the overall safety considerations for the contract as a whole.

##### 1.2.7.3 Site-Specific Safety and Health Plan (SSHP)

The contractor shall prepare a site-specific safety and health plan addressing the safety aspects specific to the work ordered. Work on a feature of work shall not commence prior to receiving the Contracting Officer's written acceptance of both the contract Accident Prevention Plan and the site-specific safety and health plan.

The SSHP shall be prepared in accordance with the requirements specified in this section and shall comply with all federal, state, and local health and safety requirements, e.g., the Occupational Safety and Health

Administration (OSHA) requirements (29 CFR 1910 and 1926) and the U.S. Army Corps of Engineers Safety and Health Requirements Manual (EM 385-1-1). The SSHP shall address those elements that are specific to the feature of work that have potential for negative effects on the safety and health of workers, the public, and other personnel on site.

An Activity Hazard Analysis (AHA), POD Form 184-R, rev 16 Oct 98, shall be submitted for all phases of construction specific to the feature of work and worksite. Work on a construction phase cannot begin until the AHA is submitted and accepted.

The SSHP shall identify the individual responsible for jobsite safety. This individual shall be present at the jobsite at all times during construction. Copies of the accepted SSHP and Accident Prevention Plan shall be available at the jobsite at all times. All workers shall know the location of these plans. All workers shall receive a safety briefing covering applicable sections of these plans prior to the start of construction.

Daily safety and health inspections shall be conducted to determine if site operations are conducted in accordance with the accepted SSHP and contract requirements. Results and observations made during these inspections shall be noted in the contractor's daily report.

#### 1.2.7.4 Safety and Health Manager

The Safety and Health Manager shall have direct responsibility for the overall management of the contractor's Safety Program for the entire contract, as required by the US Army Corps of Engineers Safety and Health Requirements Manual, EM385-1-1, and other applicable safety standards. This individual shall have a minimum of five (5) years experience in safety on Department of Defense construction projects similar in size and scope to this contract. All members of the safety staff are subject to review and acceptance by the Contracting Officer. The Safety and Health Manager shall have no other duties.

#### 1.3 AS-BUILT DRAWINGS

As-built drawings shall be in accordance with Section 01780 CLOSEOUT SUBMITTALS.

#### 1.4 DUST CONTROL

The amount of dust resulting from the Contractor's work shall be controlled to prevent the spread of dust to occupied portions of the construction site and to avoid creation of a nuisance in the surrounding area. Use of water will not be permitted when it will result in, or create, hazardous or objectionable conditions such as flooding and pollution. Measures shall also be taken for dust control along haul routes and equipment parking areas.

## 1.5 PROTECTION

The Contractor shall take all necessary precautions to insure that no damages to private or public property will result from his operations. Any such damages shall be repaired or property replaced by the Contractor in accordance with the CONTRACT CLAUSES entitled "PERMITS AND RESPONSIBILITIES" and "PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS", without delay, and at no cost to the Government.

### 1.5.1 Warning Signs and Barricades

The Contractor shall be responsible for posting warning signs or erecting temporary barricades to provide for safe conduct of work and protection of property.

### 1.5.2 Protection of Grassed and Landscaped Areas

The Contractor's vehicles shall be restricted to paved roadways and driveways. Vehicles shall not be driven or parked on grassed and/or landscaped areas except when absolutely necessary for the performance of the work and approved in advance by the Contracting Officer. Grassed or landscaped areas damaged by the Contractor shall be restored to their original condition without delay and at no cost to the Government.

### 1.5.3 Protection of Trees and Plants

Where necessary, tree branches and plants interfering with the work may be temporarily tied back by the Contractor to permit accomplishment of the work in a convenient manner, so long as they will not be permanently damaged thereby. If this is not feasible, the Contracting Officer may prune them, subject to written approval.

### 1.5.4 Protection of Building From the Weather

The interior of the building and all materials and equipment shall be protected from the weather at all times.

## 1.6 RESTORATION WORK

Existing conditions or areas damaged or disturbed by the Contractor's operations shall be restored to their original condition, or near original condition as possible, to the satisfaction of the Contracting Officer.

## 1.7 REMOVAL AND DISPOSAL

The Contractor shall salvage or recycle waste to the maximum extent practical as it relates to the capabilities of local industries. A record of the quantity of salvaged or recycled materials shall be maintained by the Contractor during the length of the project and submitted to the Contracting Officer at acceptance of the project. Quantities shall be recorded in the unit of measure of the industry. Reuse of materials on the site shall be considered a form of recycling. An example of such reuse would be the use of acceptable excavated materials as fill.

#### 1.7.1 Title to Materials

Title to all materials and equipment to be removed, except as indicated or specified otherwise, is vested in the Contractor upon receipt of notice to proceed. The Government will not be responsible for the condition, loss or damage to such property after the Contractor's receipt of notice to proceed. Items indicated to be removed shall be removed and disposed of by the Contractor outside the limits of Government-controlled property at the Contractor's responsibility and expense before the completion and final acceptance of the work and such materials shall not be sold on the site.

#### 1.7.2 Rubbish and Debris

Rubbish and debris shall be removed from Government-controlled property daily unless otherwise directed, so as not to allow accumulation inside or outside the building. Materials that cannot be removed daily shall be stored in areas designated by the Contracting Officer.

#### 1.8 INTERFERENCE WITH GOVERNMENT OPERATIONS

The Contractor shall establish work procedures and methods to prevent interference with existing operations within or adjacent to the construction area. Free passage into adjoining or adjacent buildings not in the contract will not be permitted except as approved by the Contracting Officer. Procedures and methods shall also provide for safe conduct of work and protection of property that is to remain undisturbed.

##### 1.8.1 Coordination

The Contractor shall coordinate all work with the Contracting Officer to minimize interruption and inconvenience to the occupants or to the Government. Scheduling and programming of work will be established during the pre-construction conference.

##### 1.8.2 Materials and Equipment

All materials and equipment required to complete the project shall be on hand before work is started.

##### 1.8.3 Utilities and Facilities

All utilities and facilities within the area shall remain operable and shall not be affected by the Contractor's work, unless otherwise approved in writing in advance by the Contracting Officer.

##### 1.8.4 Staking and Flagging Existing Utilities

The Contractor, prior to start of any excavation or trenching work, shall verify the location of all utility lines shown on the drawings which are within the areas of work, and shall mark, stake, or flag each utility line along trench alignments and under areas of excavation under this project, as approved. Existing utility lines shall be located by walking trench alignments with approved equipment for locating underground pipes and

cables. Utility lines so located shall be noted on the drawings.

#### 1.9 CONTRACTOR'S OPERATIONS OR STORAGE AREA

At the request of the Contractor, an open operations or storage area will be made available within the installation, the exact location of which will be determined by the Government. The Contractor shall be responsible for the security necessary for protection of his equipment and materials, and shall maintain the area free of debris. No rusty or unsightly materials shall be used for providing the secure measure and such measure shall be erected in a workmanlike manner. Before any construction commences on establishing the operation/storage area, Contractor shall take photographs and/or videos of the site in order to establish the original conditions of the site. A duplicate set shall be made and submitted to the Government for its files. Upon completion and prior to the final acceptance of the contract work, the Contractor shall restore the area to its original condition.

#### 1.10 CONTRACTOR PARKING

Parking for the Contractor's, his employee's, and subcontractors' personal vehicles is limited to areas within the limits of construction. Personal vehicle parking is prohibited anywhere else within the boundaries of Schofield Barracks Military Base.

#### 1.11 GOVERNMENT PROJECT OFFICE

The Contractor shall provide, for use by Government supervisory and inspection personnel, a job-site office space with a floor area not less than 500 square feet, with minimum twice-per-week janitorial service. This office space may be within the Contractor's project office building if adjacent to the job site and if separated by a solid partition; otherwise a separate facility, adjacent to the job site, shall be provided. The office shall be provided with windows and screens, air conditioning to maintain not more than 22 degrees C, electricity, wall outlets, ceiling lights, (1) telephone and (3) cellular phones or (4) cellular phones, (3) office desks with drawers, (3) layout tables, (5) ergonomic chairs, (4) legal-size five-drawer locking file cabinets, (3) 3-shelf bookcase, (3) plan racks, (1) fire extinguisher, and (3) computers.

Provide potable drinking water and temporary toilet facilities for Government personnel. Contractor's copier and fax machine shall be available for use by Government personnel. Contractor shall provide (4) vehicle parking spaces for Government personnel at the project office. The cost of utilities including two telephone lines with different telephone numbers (one number for the telephone instrument and one for the modem), air conditioning, and operation and maintenance costs of the Government project office shall be borne by the Contractor. The government will be responsible for its long distance calls. Upon completion of the project, the project office and furnishings shall be removed and disposed of by the Contractor.

## 1.11.1 Computer Requirements

The Contractor shall provide computers for use by Government personnel assigned to this contract. These computers shall be Dell Optiplex GX270 or approved equal (proposed "equal" systems require approval by the Government prior to contract award), minimally configured as follows:

## a. DESKTOP REQUIREMENTS

<b>Feature</b>	<b>Requirement</b>
OptiPlex GX260 Small Minitower	Pentium ® 4 Processor, 2.80GHz, 512K/8000MHZ FSB, 512K
Memory:	1.0GB DDR Non-ECC SDRAM, 333RAM, or higher (2DIMMs max)
Keyboards:	PS/2 Keyboard
Monitors:	17 inch flat panel display (17.0 viewable)
Boot Hard Drives:	80GB EIDE 7200RPM
Card Reader:	5.25 inch PCMCIA Reader with Required PCI Controller Card
Floppy Drives:	Internal 1.44 MB 3.5 Inch Floppy Drive
Operating System(s):	Windows ® XP Professional, SP1 with media and NTFS
Mouse.	Microsoft PS/2 2-Button IntelliMouse with Scroll
Network Adapters (NICs):	Integrated Intel Gigabit (10/100/1000) with Alert Standards Format
1st Removable Media and DVD+RW Options	8X DVD+RW/+R drive with Roxio software
Audio Solutions	Inergrated Sound Blaser Compatible
Speakers:	External speakers
Documentation:	Resourse CD containing Diagnostics and Drivers for Dell OptiPlex systems
Additional Hard Drive or ZIP Drive:	Zip 250 Disk Drive
Energy Star Label:	Energy Star Label

a. **DESKTOP REQUIREMENTS**

<b>Feature</b>	<b>Requirement</b>
Hardware Support Services:	3 Yr Same Day 4 Hr Response Parts + Onsite Labor (M-F 8am-6pm)
Optional Support Services	Gold Technical Support, OptiPlex, 3 Years
Installation Support:	No Installation
Mouse Pad:	Mouse Pad
Power Protection:	American Power Conversation (APC) Back-UPS ES 350
Additional Software:	Microsoft Office 2003 Adobe Acrobat 6.0

b. **CONNECTIVITY REQUIREMENTS**

The Government Project Office shall be provided with one high speed internet connection (RoadRunner™ or DSL) with a minimum download speed of 3 Mbps and a minimum upload speed of 1.5 Mbps, and one static IP address.

c. **NETWORKING REQUIREMENTS**

The Government Project Office shall be configured with a local area network that includes a Cisco Catalyst 3750G 24PS 10/100 switch (or equal) with a minimum of twenty-four (24) ports. Wiring shall be CAT6 twisted pair cabling terminated with RJ-45 connectors, which will run from the cable-modem/switch to each of the workstations and/or other devices.

The Contractor shall have delivered all required computer hardware and software directly to the Government Project Office in factory-sealed, unopened boxes. Any boxes delivered with damaged or tampered seals will be rejected by the Government and shall be replaced by the Contractor at no additional cost to the Government. The Government will perform set up of the computers in the Government Project Office.

The Contractor shall provide all software licenses and software updates for the duration of the contract. Hardware shall be provided with a 3-year manufacturer's onsite maintenance contract. Should the construction contract last longer than 3 years, at the end of the maintenance contract, the Contractor shall provide new computers, similar to the above, except configured to the standard at that time. The Government will provide specifications for replacement workstations and hardware.

At the end of the construction contract, the Government will turn over all

contractor-provided hardware and software to the Contractor. Hard drives will be wiped clean of all software, including the operating system.

#### 1.11.1.1 Other Devices (minimum requirements)

Printer: Hewlett-Packard Laserjet 5100TN or 5100DTN or approved equal (must be HP PCL compatible), Digital Camera: Kodak LS443 with additional 256 MB memory card, or approved equal.

#### 1.11.1.2 Connectivity Requirements

The Government Project Office shall be provided with one high speed internet connection (RoadRunner™ or DSL) with a minimum download speed of 3 Mbps and a minimum upload speed of 1.5 Mbps, and one static IP address.

### 1.12 WORKING DIRECTIVES

#### 1.12.1 Working Hours

All work shall be performed between the hours of 0730 to 1600 HST, Monday through Friday. No work shall be accomplished on Saturdays, Sundays, and all federal holidays, without written permission from the Contracting Officer. Such written permission shall be available at the jobsite at all times during construction.

#### 1.12.2 Phasing

Buildings 356, 357, and 358 will be turned over to the Contractor no earlier than February 1, 2004, but no later than March 1, 2004. Building 355 will be turned over to the Contractor no earlier than February 1, 2005, but no later than March 1, 2005. The Contractor will only have limited access to all buildings prior to their turnover. Work in the buildings cannot start until the building is turned over to the Contractor. All utilities in the buildings shall remain fully operational until the building is turned over to the Contractor.

### 1.13 COMMERCIAL TELEPHONE SERVICE LINES

Availability of existing commercial telephone service lines are extremely limited and/or non-existent. Contractor shall coordinate with Verizon Hawaii to verify the extent of commercial telephone service lines available and what actions may be necessary to obtain said service in the magnitude required to satisfy its operational requirements. Notwithstanding the actual level of commercial telephone service lines available, the Contractor shall be responsible for all costs and necessary actions.

### 1.14 INSPECTION

#### 1.14.1 Final Inspection and Acceptance

The Contractor shall give the Contracting Officer, a minimum of fourteen (14) calendar days advance notice prior to final inspection for acceptance by the Contracting Officer. The Contractor upon notification by the

Contracting Officer shall promptly and satisfactorily correct all deficiencies found on final inspection.

1.15 USE OF PRODUCTS CONTAINING RECOVERED MATERIALS

Recovered materials are materials manufactured from waste material and byproducts that have been recycled or diverted from solid waste. The Contractor shall give preference to products containing recovered material when price, performance, and availability meet project requirements. A listing of products, including the recommended recovered material content, is provided by the Environmental Protection Agency at <http://www.epa.gov/cpg/products.htm>. Only those products having recovered material content equal to or greater than EPA guidelines shall be used to meet this requirement.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

ATTACHMENT 18

SCHOFIELD BARRACKS  
HISTORIC ARCHITECTURAL SURVEY

# **SCHOFIELD BARRACKS**

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**HISTORIC ARCHITECTURAL SURVEY  
FOR SIGNIFICANT FEATURES IN QUADS B, C, D, E, & F  
AND CONDITION ASSESSMENT OF QUAD F**

**SCHOFIELD BARRACKS HISTORIC DISTRICT  
SCHOFIELD BARRACKS MILITARY RESERVATION  
OAHU ISLAND, HAWAII**

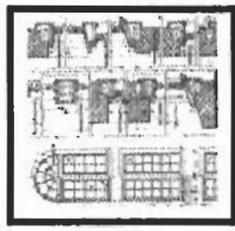
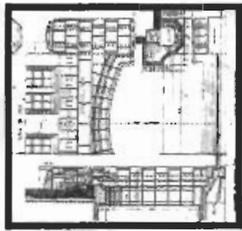
## **FINAL REPORT**

October, 2002

Submitted to:  
Environmental Branch  
USAED Honolulu  
Building 252  
Fort Shafter, Hawaii 96858-5440

Prepared by:

Fung Associates  
With Mason Architects, Inc. & HL & L Corporation



SECTION I: INTRODUCTION

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## SECTION I : INTRODUCTION

### A. SCOPE OF WORK

The scope of work involves the historic architectural evaluation and assessment of five Quads that form the central core of the Schofield Barracks Historic District (SIBID). The intent of this investigation is to ascertain the architecturally significant features of the buildings at Quads B, C, D, E, and F. Additionally, the scope involves a conditional structural assessment of Quad F. The Quads are considered to be of Category II historic significance classification. The intent of this report is to establish the historic significance of the structures that are proposed for renovation and will be affected by future construction projects. The renovation of Quad F is scheduled to begin during the fiscal year 2001, followed by Quad C in 2003, Quad E in 2004, Quad D in 2005, and finally Quad B in 2006.

The buildings that were evaluated consisted of: Quad B, buildings 249, 250, 251 and 252; Quad C, buildings 349, 350, 351 and 352; Quad D, buildings 449, 450, 451 and 452; Quad E, buildings 549, 550, 551 and 552; and Quad F, buildings 649, 650, 651 and 652.

The research objective for the architectural survey is to provide full documentation of all buildings as well as interpretation of significant features and elements concerning exterior, interior, and details, and assessment of their potential significance with appropriate historic property treatment recommended measures. The result of these investigations is to ensure that the structural integrity of the buildings, and the architectural features and elements that contribute to the significance of the Quad buildings are adequately documented and appropriate measures are recommended.

This project was conducted under contract to the U.S. Army Corps of Engineers and in compliance with the National Historic Preservation Act (NHPA) of 1966, Sections 106 and 110. All historic architectural investigations were performed with the procedures and intent of HABS/IAER, and a formal HABS/IAER recordation document was included with Quad F.

### B. RESEARCH DESIGN

The research design for the architectural survey called for archival/document research, field investigation, data analysis of architectural and historical research findings, and compilation of a report to document these findings and to make recommendation. A description of the parts is as follows:

1. **Archival/document research:** Identification of historical references for the significant architectural styles and historical background as a first step in the process was necessary in order to create an understanding of the historical importance of these structures as well as their character defining features. Original design elements had to be examined in order to establish their historical significance. The following steps were involved in this portion of the project:
  - a. **Research and review of the general historical context:** This involved investigation into the historical background as well as other specific references such as previous historical studies and inventory surveys of Quads B, C, D, E, and F as part of the SBID on Schofield Barracks Military Reservation (SBMR). Written documents and historical photographic records were found at various locations, namely, the Tropic Lightning Museum, Army Museum, Public Affairs Offices, Bishop Museum and the libraries of the State Historic Preservation Office and the University of Hawaii.
  - b. **Research of the physical context:** This involved a careful examination of original building plans in order to identify the original character defining exterior, interior, and detail features of Quad structures. Subsequent architectural drawings of major renovation projects were also utilized to identify the character changing elements. The research materials for this portion of the work were found at the Directorate of Public Works at Wheeler Army Airfield or with the Corps of Engineers at Fort Shafter.
2. **Field Investigation:** The work tasks under this section included the following:
  - a. **Architectural:** The fieldwork involved the visual inspection of all structures and verification of current conditions in order to understand and document the degree of architectural or structural modifications to original buildings. The work included a comparison of the original character defining exterior and interior details with the current conditions. Field activities were coordinated with the USAG-III DPW Cultural Resource Manager and the SBMR military officials. Findings were recorded using photography as the primary tool to document the elements and their condition.
  - b. **Structural:** The activities to ascertain structural condition at Quad F involved: field inspection to determine structural integrity at Quad F, and examination of original structural drawings. The purpose of this comparative technique was to determine the integrity of the condition of Quad F based on current code requirements regarding seismic and shear wall requirements utilizing current acceptable methods of assessment.
3. **Data Analysis:** Data analysis to ascertain significance of architectural building elements included the following measures: a) defining the degree of original character defining architectural features remaining; b) identifying detracting features which have resulted from past modifications, and c) recommending measures to be taken during future construction undertakings in

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order to restore certain elements of historical importance. The work tasks also involved: d) a structural conditional assessment of Quad F.

- a. The significant exterior, interior and detail character defining elements of the original buildings were studied, and the relevant information regarding the historical and background materials for the Quads B, C, D, E, & F were extracted and analyzed in order to establish historical references in style and character. The original as-builds were compared to current field observations in order to determine the degree of original features remaining.
  - b. The architectural historic integrity of the unique elements and building features were assessed, impact of changes recorded and those detracting from original historic style and character were identified.
  - c. Recommendations were made to remedy significant features and detracting conditions. The impacts of modification to individual features and structures that have occurred since initial construction were recorded using photographic technique of documentation.
  - d. The structural conditional assessment of Quad F involved performing structural calculations in order to determine integrity and compliance with current codes; to provide a general opinion on structural adequacy; and to make recommendations.
4. Report: The primary body of the report contains the historical context; documentation of architectural history including the character defining building elements of the Quads and their historic significance; the physical history of each quad; as well as photographic references. The sections of the report are organized as follows:
- a. A discussion of the historical context containing an overview of Schofield Barracks past history including the physical history of Schofield Barracks and more specifically that of the Quads.
  - b. An architectural and historical description relating to each Quad structure including a description of original character defining features and elements as well as an assessment of their significance. A summary discussion of character defining elements includes the following: 1) features as found in original design intent/construction; 2) features as found in current condition detracting from historical integrity; and 3) recommendation of features to be restored.

- c. A physical description includes but not limited to: date of construction and original use; basic form of plan; building materials used for foundations, walls, roof, trim, and interiors (if important); basic structural system and notable construction details; and significant alterations.
- d. Photographs of each structure included any or all of the following views: exterior views: general/contextual, front, right side, rear, left side, and details of unique or significant structural or decorative elements.
- e. Structural condition assessment report including scope of work, basis of data, and structural analysis with supporting calculations was compiled for Quad F.

### C. PROJECT TEAM

Fung Associates, in collaboration with Mason Architects Inc., performed the historical architectural analysis and the main body of this report. Members of the project team included planning and architectural historians and support staff from Fung Associates and Mason Architects, Inc. Both principals, Mr. Louis Fung and Mr. Glenn Mason, were active participants during the compilation of research, field investigations, analysis of findings and documentation. The background research and fieldwork to evaluate historical architectural integrity of Quad buildings was completed by Azita Pourmehr Quon of Fung Associates, and Katherine Slocumb of Mason Architects, Inc. Mr. Henry Li of HL&L Corporation performed the structural investigations and assessment for compliance with current codes for Quad F. Mr. David Franzen of Franzen Photography performed the professional photography per HABS/HAER standards.

SECTION II: BACKGROUND

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## SECTION II : BACKGROUND

### A. PROJECT LOCATION

Schofield Barracks Military Reservation is located on the island of Oahu approximately 22 miles northwest of downtown Honolulu at an elevation of 800 feet above sea level. The installation is bounded by the Koolau mountain range to the east and the Waianae mountain range to the west and is located on the north central plateau in the Wahiawa district of Oahu (Figure 1). Historically the site was selected because of its strategic central location between the mountain ranges in the Leilehua or Schofield Barracks Plateau. Leilehua Ranch was a former hunting retreat of King Kalakaua. Currently, access to the installation is via Kamehameha Highway, the H-2 Freeway, Kaukonahua Road, Kunia Road, and Wilikina Drive.

Kamehameha Highway and Wheeler AAI' essentially divide the military reservation into two sections: the Main Post and East Range. The installation presently encompasses a total of 13, 632.36 acres which includes 12, 715.89 acres of ceded land; 882.43 acres of fee owned land; 8.93 acres of land held by license; 22.86 acres of easements; and 2.25 acres of land held by permit (Belt Collins and Associates, 1993). Project areas are buildings in Quads B, C, D, E, and F on the Main Post of Schofield Barracks in the historic district (Figure 2).

### B. HISTORICAL CONTEXT

#### HAWAII PRIOR TO WORLD WAR II

On a stopover to Antarctica in 1840, Lieutenant Charles Wilkes observed and noted that Oahu has the largest and most spacious harbor in the Pacific. The harbor, at the mouth of the Pearl River on Oahu, seemed to have strategic significance in the face of a British Empire that was expanding in the Pacific. Pearl Harbor was selected as a U.S. military base by Major General John M. Schofield, then Commander of the Army Division of the Pacific and previous Secretary of War who first visited Hawaii in 1872 to evaluate the defense potential of various Hawaiian ports. In 1876, the Hawaiian Kingdom under King Kalakaua granted the U.S. Navy permission to develop Pearl Harbor in return for allowing exportation of Hawaiian sugar to U.S. markets duty-free. In 1887, the United States was given exclusive use of Pearl Harbor, and in 1901, it was established as the Naval Base in Hawaii. After the overthrow of the Hawaiian Monarchy and the establishment of the provisional government, the Crown Lands consisting of two

million acres in all, reverted to the public domain. With the 1893 annexation of the Hawaiian Islands, the former Crown lands, now public lands became the property of the U.S. Government.

The United States growing concern over perceived threat of Japan during Russo-Japanese War instigated the build-up of naval forces in the Pacific and thus spurred an increase in Army personnel. In 1907, Fort Shafter was established by the U.S. Army to defend Pearl Harbor from the north direction. In 1908, Schofield Barracks was selected as the central base for Oahu's mobile defense troops because of its strategic location on the central Leilehua plain between the Waianae mountains and the Koolau range. Historically, Leilehua Ranch was a former hunting retreat of King Kalakaua. Thus, alternately Leilehua Barracks and Castner Village became the early names for the temporary camp. Later the post was renamed after Major General John M. Schofield who originally selected this site. Schofield Barracks continued to serve as the headquarters of the United States Army District of Hawaii. Construction of the cantonment began under the supervision of quartermaster Captain Joseph C. Caster and was later continued under the direction of General Macomb. The desire to keep Hawaii in American hands assured that the Hawaiian Division received top priority, thus, the expansion plan for Schofield Barracks was concurrent with the build-up of other Army facilities on Oahu over the following few decades.

Schofield Barracks maintains historic significance in military history of Hawaii. After World War I, Oahu became the key to America's Pacific defense plans, and Schofield Barracks, the center of the defense activities for the Army on the islands. Its barracks housed the Hawaiian Division, the only complete division of the U.S. Army prior to WWII, from which the 24<sup>th</sup> and 25<sup>th</sup> Divisions were formed. Schofield Barracks' athletic program became a model for the army, and its climate made it an ideal training site.

## **SCHOFIELD BARRACKS DURING AND AFTER WORLD WAR II**

Rising tensions in the Pacific region in the late 1930s resulted in increased defense mobilization throughout the islands, and the reorganization of the Hawaiian Division in 1941, forming the 24<sup>th</sup> and 25<sup>th</sup> (later named "Tropic Lightning" Divisions). Schofield Barracks became the Army's largest single garrison and, in 1939, was the second largest city in the Territory of Hawaii, with a population of twenty thousand people. Schofield Barracks population grew in the two years before the war, to a total pre-war strength of 43,177 troops.

In the early morning of December 7, 1941, Japanese pilots flew six aircraft carriers toward Oahu. The first wave of 183 planes struck its targets at 7:55 a.m. The 25<sup>th</sup> Division had the distinction of being the first Army unit to receive the first wave of hostile

fire from the Japanese planes (Alvarez 1982), and shot down two planes. The post received some damage mostly consisting of bullet holes in buildings, and many men received shrapnel and bullet wound injuries. Adjacent at Wheeler Field, the location of Army Air Corps fighter planes, received significantly more damage to planes and hangars, and had many casualties.

The Hawaiian Department's commander and his naval counter-part were relieved of duty following the attack on Pearl Harbor and other sites, and replaced by a unified command and the Hawaiian Department ceased to exist. The primary mission of the 24<sup>th</sup> and 25<sup>th</sup> Divisions, supported by troops from the West Coast of the United States, became the defense of Oahu. As the war progressed, Schofield Barracks became the major training, staging, and supply center for the war in the Pacific. Over one million troops were temporarily housed at Schofield Barracks in various stages during World War II, and many temporary buildings were constructed to accommodate the increase in personnel. Barracks, storage, and administration buildings were built using standard Army plans, although modifications were made to adapt the plans to Hawaii's mild climate.

Various training camps were run at Schofield Barracks during WWII, including the Ranger Combat Training School (first called the Jungle Training Center). These men were trained for combat in the Pacific areas. Following the war, Schofield Barracks' population shrank to five thousand troops. Many of the temporary buildings were removed and efforts were made to improve the appearance of the base. As was typical at Army installations of this period, additional recreation facilities were constructed at Schofield Barracks, including a swimming pool, stable, and a new golf course. On a 1946 tour of Schofield Barracks, General Dwight Eisenhower stated that "the post was the most important single base the United States has in the world" (Advertiser, 1 May 1946). New weapons and military tactics now depended upon numerous bases in distant areas, however, expenditures and numbers of military personnel in Hawaii continued to decline. In 1950, Fort Shafter and Schofield Barracks were consolidated into one unit with headquarters at Fort Shafter (Alvarez, 1984: 78).

The population at the installation remained low until the outbreak of the Korean War. In 1951, the Hawaiian Infantry Training Center at Schofield Barracks was established to train replacement troops destined for Korea. Schofield Barracks maintained an important role in the Korean War and the Vietnam War, by providing basic training for many recruits due to be sent to Asia (Rosendahl 1977:12, 20). These years saw a dramatic increase in construction of military housing, as well as schools, chapels, and other support facilities. Older buildings were renovated to conform to new Army housing standards. The use of many large areas of the post for new housing made acquiring new areas for maneuvers necessary, and various training areas on Oahu, such as at Helemano and Wahiawa, and on the island of Hawaii, were made sub installations of Schofield Barracks.

Today, Schofield Barracks remains the largest permanent installation of the U.S. Army outside of the continental United States. The post played a primary role in training troops for the Pacific Theater of Operations in WWII, and the Korean and Vietnam Conflicts. The barracks, due to its location in a mild climate, is regarded as one of the Army's best training areas (Rosendahl

1993). The 25<sup>th</sup> ("Tropic Lightning") Division has remained the principal occupant of Schofield Barracks, with the exception of the four years period it served in Vietnam. They have continued to share the post with other brigades from the Hawaii National Guard and the Army Reserves.

Schofield Barracks gained notoriety and fame as a result of the James Jones novel "From Here to Eternity", which depicted life in at the base during the outbreak of WWII. The novel was further depicted by the movie filmed on the base in 1953.

### PHYSICAL HISTORY OF SCHOFIELD BARRACKS

In 1908, the Schofield Barracks site was selected as the base for Oahu's mobile defense troops because of its strategic central location on the Leilehua plain between the Waianac mountains and the Koolau range. With the extension of the railroad to the north central part of the island in 1906, construction of temporary buildings began under the supervision of Captain Joseph C. Casner, the construction quartermaster. The first construction was a central shack for the officers, a clubhouse, stockade and guardhouse, and several raised tent floors on which tents were placed as sleeping rooms (Honolulu Star Bulletin, 12-26-36). Workers for the temporary camp were housed at Wahiawa due to a shortage of water at the site. The water shortage persisted until the completion of a deep well in 1938 (Addleman 1940). The temporary camp was alternately called Leilehua Barracks and Casner Village, but was later renamed after Lieutenant General John McAllister Schofield (1831-1906). The camp was located in the east portion of the post, near where the current Solomon Elementary School is located. In preparation for the troops, by mid-January of 1909, temporary buildings such as barracks, officer's quarters, an administration building, mess halls, a clubhouse, and permanent stables were completed at the camp (Alvarez 1982). The first to occupy Schofield Barracks were the 5th Cavalry, composed of 473 officers and men. By 1910 there were 248 buildings on the post, permanent and temporary, including 171 tents with wood floors (Honolulu Star Bulletin, 9-19-36). The 5th Cavalry were joined in 1910 by the 1st Field Artillery Regiment, the 2nd Infantry Regiment in 1911, and the 25th Infantry Regiment in 1913. By 1914, the post's population was about 6,000 men. The temporary post continued to expand until the permanent construction began.

The Post served as the headquarters of the United States Army District of Hawaii until 1911 when it was relocated to the Alexander Young Hotel in downtown Honolulu. That same year, the Secretary of War approved recommendations for a seven-regiment post at Schofield Barracks at an estimated cost of five million dollars. This planned expansion for Schofield Barracks was concurrent with the build-up of other Army facilities on Oahu by General Macomb.

The first plans for the permanent post were prepared in 1912 by General Macomb. The layout reflects the linear base design, with the barracks and administration buildings along a central line, the housing areas on one side, and the technical buildings along the other side. The permanent buildings were to be organized into seven contiguous sections, each one shaped in a rectangle headed by a loop. The rectangles were to contain barracks in quadrangular formation and the officer's quarters would line the loops; the main sewer and water lines ran down the center for economy (Alvarez, 1982: 32).

Construction of the permanent post began in 1913. Among the first permanent buildings at Schofield Barracks, completed in 1914, were two large masonry barracks buildings, known as Quad B (now buildings 156 and 158) and the Soldier's Chapel (Building T-590). Other buildings from this early period include the Post Library (now Carter Hall - the Tropic Lightning Museum, Building 361), the remaining buildings in Quad B, and Quad C, which was completed in 1915 and 1916. Also constructed at this time were two loops of two-story officers' houses, sited above Quads B and C. These were occupied by officers of the 3rd Engineers, of the Special Troops, and of the 35th Infantry, and were called Flagler Loop and Loftus Loop. These were demolished after WWII.

Schofield Barracks stands as an excellent example of Army base development. In 1916, the construction quartermaster developed plans for the remainder of the base. However, during World War I construction was delayed when all of Schofield Barracks' tenants were called to war (Alvarez 1982). The post became nearly deserted until the Hawaiian National Guard, in the form of the 1st and 2nd Hawaiian Infantry Regiments were called in as caretakers. Following the signing of the Armistice in November 1918, the need for training passed, and the Hawaiian Infantry regiments began work beautifying the post. This included landscaping, building roads, and planting trees, including the rows of eucalyptus along Macomb Road, Waianae Avenue, and other major post roads (Alvarez, 1982: 41). The Hawaiian Infantry regiments were demobilized in August 1919 and relieved of duty by the 17th Cavalry. The base was then sparsely occupied until the arrival of the 35th and 44th Infantry Regiments in 1920, and the 8th, 11th, 13th Field Artillery Regiments and 3rd Engineers in 1921. The increased role for the artillery troops prompted the development of separate living quarters. The first artillery barracks were completed in 1919 (Quad I), and the second in 1923 (Quad J). These quads also had the adjacent officer's housing areas (700 and 800 area housing).

In the interim between the World Wars, the 1916 construction plan continued to be carried out into the 1930's. The adjacent Wheeler Field was constructed. In 1918, the three craftsman style houses along General Loop were completed. In 1920, expansion of the railroad and the initial phase of Quartermaster warehouses were started. In 1920 and 1921, two additional masonry Quads, D and E, were finished consisting of one administration and three barracks buildings. Between 1919 and 1922, the wooden officers' quarters adjacent to D and E quads were constructed in residential loops along the northeast of the quads. The historic core of the base was essentially in place by the mid-1930s. Other buildings were constructed during this period, including a post exchange, general's housing, non-commissioned officers' housing, the fire station, recreational buildings,

warehouses, and the post stockade. Additional large projects completed in the 1920's include the hospital, office's club, and the remaining quartermaster warehouses.

Quad F was constructed in 1931 for the 19<sup>th</sup> Infantry. The last group of officers' quarters at Schofield Barracks were completed in 1932. These houses are mission style, similar to houses constructed at Wheeler Field and were built for officers and non-commissioned officers of the 11th Medical Regiment and the 19th Infantry.

In the late 1930s, the United States' growing concern in the Pacific region resulted in increased defense mobilization throughout the islands. Schofield Barracks not only became the Army's largest single garrison, but in 1939, was the second largest city in the Territory of Hawaii. In the December 1941 attack, the post received some damage, mostly consisting of bullet holes in buildings.

As the war progressed, Schofield Barracks became the major training, staging, and supply center for the war in the Pacific. Over one million troops were temporarily housed at Schofield Barracks in various stages during World War II, and many temporary buildings were constructed to accommodate the increase in personnel. Barracks, storage, and administration buildings were built using standard Army plans, although modifications were made to adapt the plans to Hawaii's mild climate.

Following the war, Schofield Barracks' population once again shrank to five thousand troops. Many of the temporary buildings were removed and efforts were made to improve the neglected appearance of the base. Typical of Army construction projects of this period, additional recreation facilities were constructed at Schofield Barracks, including stables and a new golf course.

The population at the installation remained low until the outbreak of the Korean War. These years saw a dramatic increase in military housing construction, as well as schools, chapels, and other support facilities. Older buildings, such as the barracks, quadrangles and early houses, were renovated to conform to new Army housing standards.

The 25th ("Tropic Lightning") Division has remained the principal occupant of Schofield Barracks, although they have continued to share the post with other brigades from the Hawaii National Guard and the Army Reserves. Today, Schofield Barracks remains the largest permanent installation of the U.S. Army outside the continental United States. The barracks occupies 18,523 acres, and due to its situation in a mild climate, is regarded as one of the Army's best training areas (Rosendahl 1993).

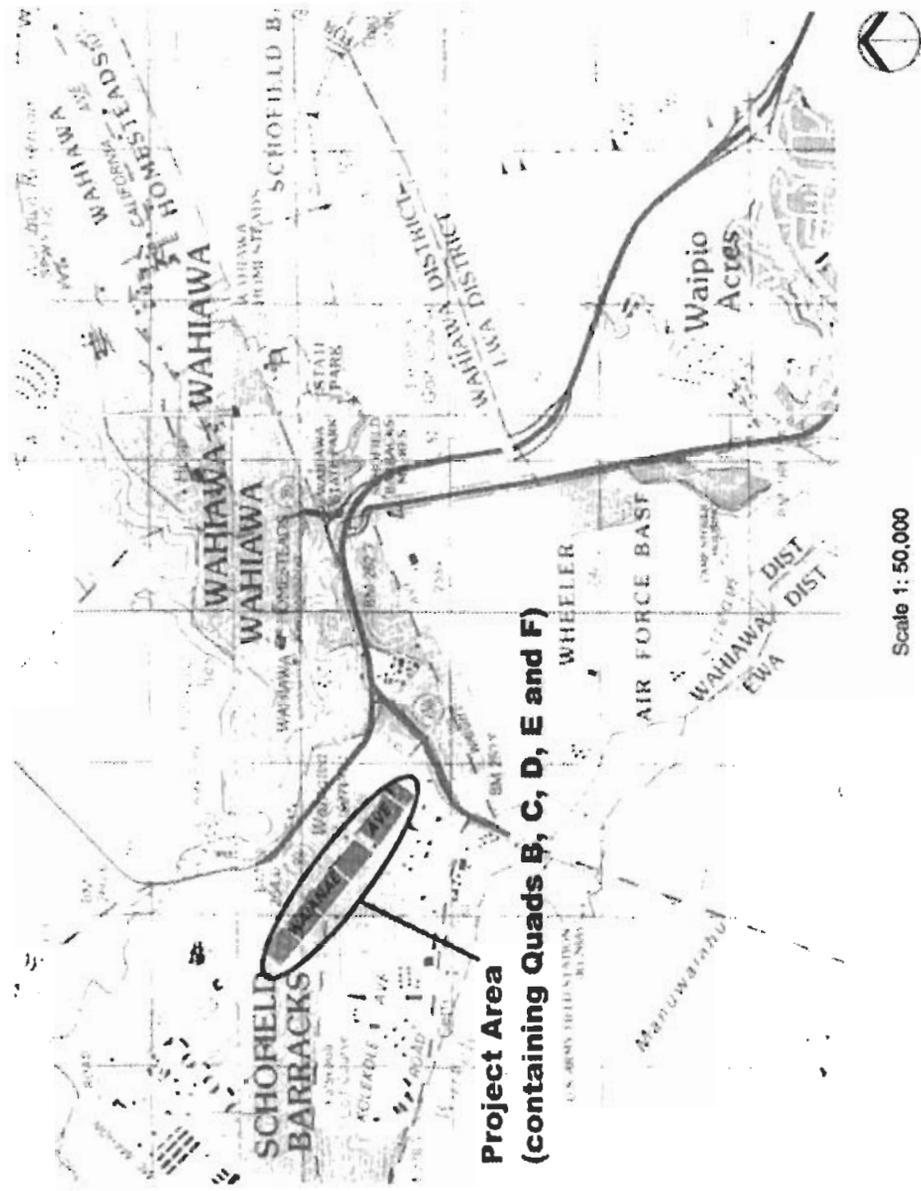
The different construction phases that occurred over a span of several decades are apparent in the plan and architectural styles represented at the base. The base plan and design reflects the typical military styles of various periods. The initial buildings all represent the Second Renaissance Revival style, the early 1920s housing is in a tropical Bungalow style, the 1930s housing areas are in the Spanish Colonial Revival style, and World War II buildings consists mostly of temporary wood structures built from

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standard Army plans. The base is relatively intact, with the pre-1950s buildings generally retaining their original exterior appearance. The discussion of architectural character and significance in this report is limited to Quad buildings and it follows in the next portion of the report.



FIGURE - 2



Project Area: Quads B, C, D, E, & F at Schofield Barracks Military Reservation

SECTION III: QUADS B, C, D, & E

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## SECTION III : QUADS B, C, D, & E

### A. LOCATON

The Quads are located on the Main Post of the Schofield Barracks Historic District (SBHID). The historic district contains the central core of significant structures and sites that exhibit U.S. Army's development patterns and establish the overall character of Schofield Barracks Military Reservation (SBMR). Out of the eight Quads that are part of this historic district, this report concerns itself with Quads B, C, D, E, & F only.

Quads B, C, D, E, & F (Figure-3) form a linear design along a central line in the district and are located approximately in the northeast portion of the installation between Waianac and Foote Avenues. The linear progression of quads begins with Quad B at the lowest point in the east and ends with Quad F at the highest point moving west direction.

Each quad has four buildings. Typically, the administration building flanks the tree-lined Waianae Avenue and forms an anchoring edge between the housing areas and the quad facilities. The other three buildings that are referred to as barracks surround an open courtyard and together with the administration building form a quadrangular shape, hence, also referred to as 'quadrangles' (barracks and administration buildings).

### B. HISTORY - QUADS AT SCHOFIELD BARRACKS

The plans for the permanent post were first prepared in 1912 by General McComb. The plan reflected seven contiguous sections, each one shaped in a rectangle headed by a loop (Figure-4). The rectangles, or the quads were to contain four large masonry buildings in quadrangular formation while the officers quarter's lined the loop. Two buildings in Quad B were the first permanent structures built in 1914 (Refer to Figure-8). The remainder of the quad buildings were built in accordance with the Army Quartermaster's layout of 1916 (Figure-5).

Today the quadrangle barracks are prominent and central features in the overall physical layout of Schofield Barracks. Visually, these quad barracks dominate the base and form a linear spine for the Historic District along Waianae Avenue. Between years 1914 and 1948, a total of eight quads were built at Schofield Barracks. The five Quads, B, C, D, E, and F that were built between 1914 and 1931 for the infantry regiments and engineers form a central spine in the northeastern quadrant of the base (Figure-6).

Three other quad additions, I, J, and K constructed for artillery regiments are dated between 1919 and 1948 and are situated perpendicular to this central line in northwestern quadrant of the site.

The linear progression of Quads B, C, D, F, and G form a central core for the Schofield Barracks Historic District. Each Quad was built to house an entire regiment. The infantry quads each typically comprised of four buildings: three barracks and an administration building in a quadrangle layout around a central courtyard. Quads I through K, located in the northwest part of the base, were originally built with only three buildings, each containing an administration building and two barracks buildings.

In a 1908 newspaper article, quartermaster Captain Castner reports that the quads were to be built using the tilt-up construction method, where the framework for the walls was laid out on the ground, the concrete poured, and when the concrete was set the walls was tilted up to a standing position and locked in with the other walls (Pacific Commercial Advertiser, 12-5-08). It is unknown if this method was indeed used, but if so, this would be a very early use of this construction method, contributing to the significance of the structures.

The quads were self-contained structures (Figure-7), built according to standard Army design, in a style expressive of the post industrial and social revolution thinking. Quads B, C, D, F, I, & J constructed between 1914 and 1923 were stylized in very modest Second Renaissance Revival Architectural "Classical" elements were interpreted and simplified to represent and emphasize the function. The architectural elements that are articulated in these buildings and are representative of this period are: decorative porticos, arcades or galleries, arched openings, entablatures decorated with geometric frieze patterns topped with cornice details. The industrial and social revolution can be characterized as a period of search for new findings to replace the traditional symbolic forms. The result, utilitarian structures replaced highly elaborate "Classical" buildings and the multiplicity of new building types brought about a new approach of experimentation with forms taken from different styles. Selecting from the styles of the past to suit the function or the building type became an acceptable approach to building design. Between the two world wars, the Renaissance Revival gave way to uniform and simplified shapes lacking articulation of detail and a greater stress for functionalism, namely, the "International Style".

Quad buildings generally had three stories laid out in very linear horizontal fashion. Architecturally, the building mass of quad buildings were defined by means of articulation of the horizontal plane in distinct divisions, belt or string courses. Juxtaposition of the horizontal and vertical planes were emphasized in the center of the administration building. Window fenestration in bands or the rhythmic openings along the arcades further recemphasized the horizontal nature of this style. The later Quads differ stylistically, but follow the same general functional layout. All quad floor plans were laid out according to the same overall design as reflected in the original 1917 construction documents prepared by Constructing Quartermaster (Appendix A). The original building construction documents for Quad F, dating back to 1930 reflect slight variation in the degree of detail (Appendix B).

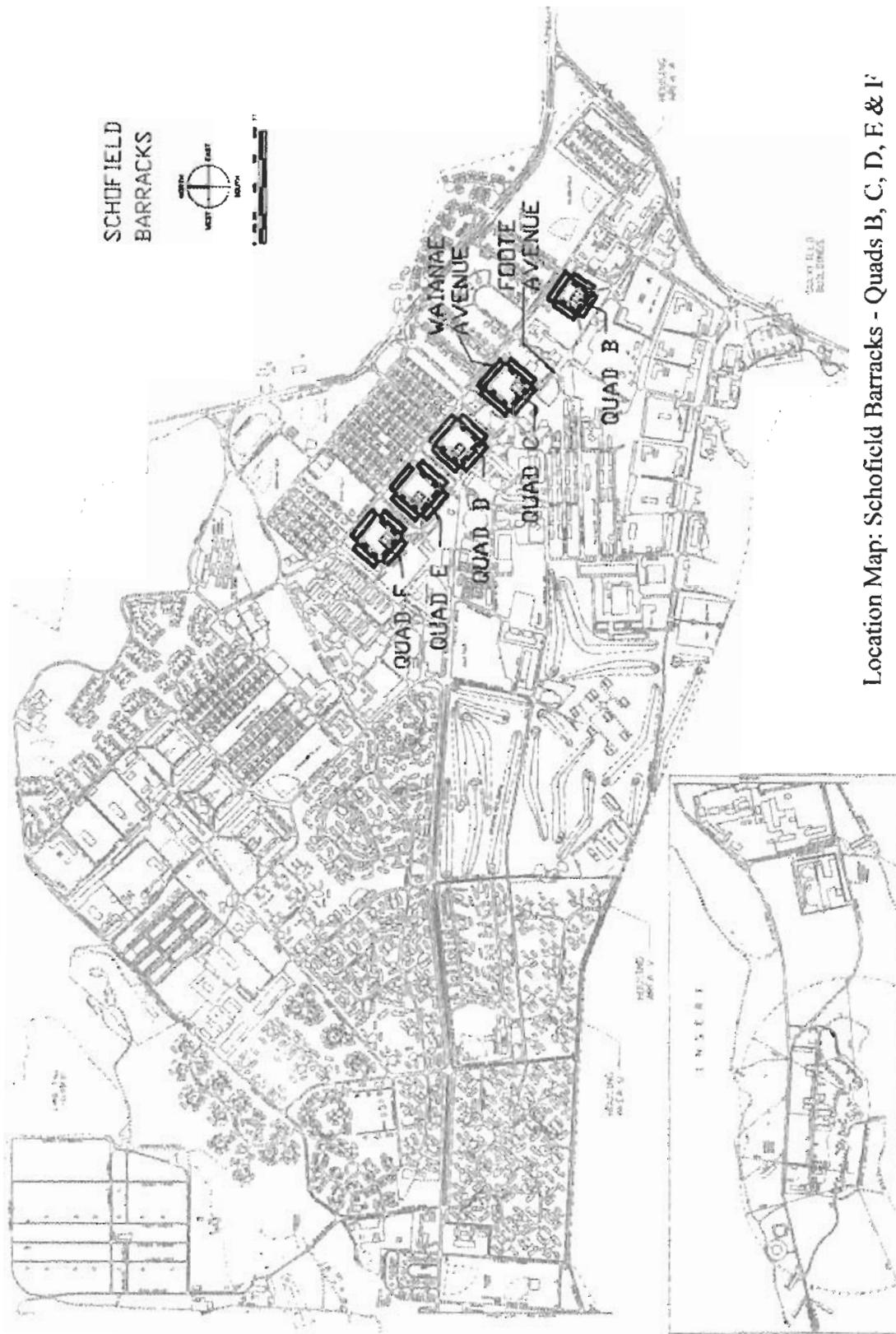
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Quad F was designed in a more simple utilitarian style with a relatively flat roof and less ornate entablature and cornice detail. This departure reflects a closer tie to the "International Style".

The demand for better and more private facilities led to modernization projects of the quadrangle barracks buildings in the 1970s. Typically on the exterior, the original wood divided-light casement and double-hung windows have been converted to new aluminum windows. Other major interior alterations have included re-partitioning of space to accommodate the modern usage and addition of air-conditioning. Currently Quads B, C, D, and E are occupied, and Quad F is to most extent vacant.

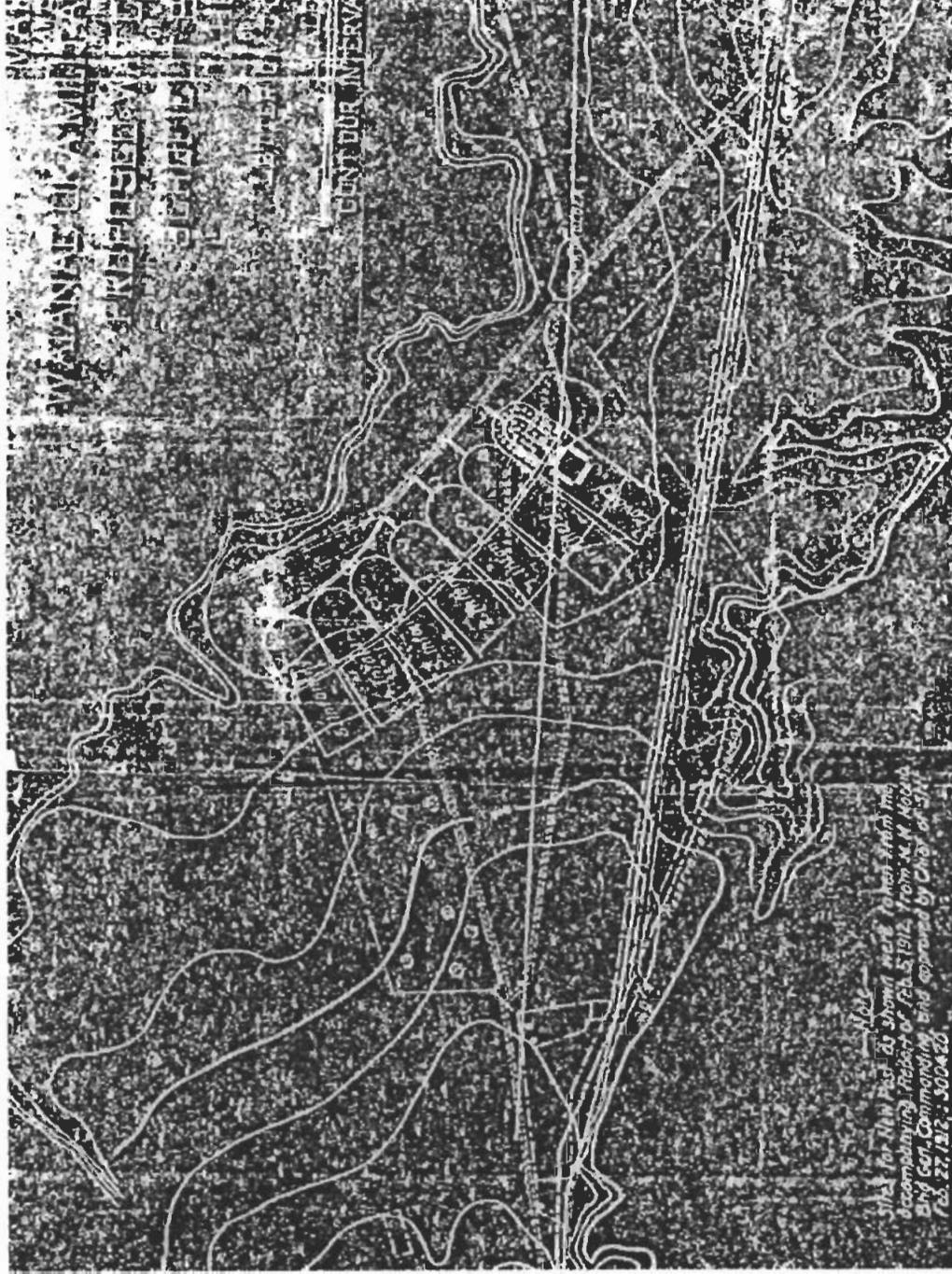
HISTORIC ARCHITECTURAL SURVEY  
FOR SIGNIFICANT FEATURES  
SCHOFIELD BARRACKS QUADS B, C, D, E, F

FIGURE - 3



Location Map: Schofield Barracks - Quads B, C, D, E & F

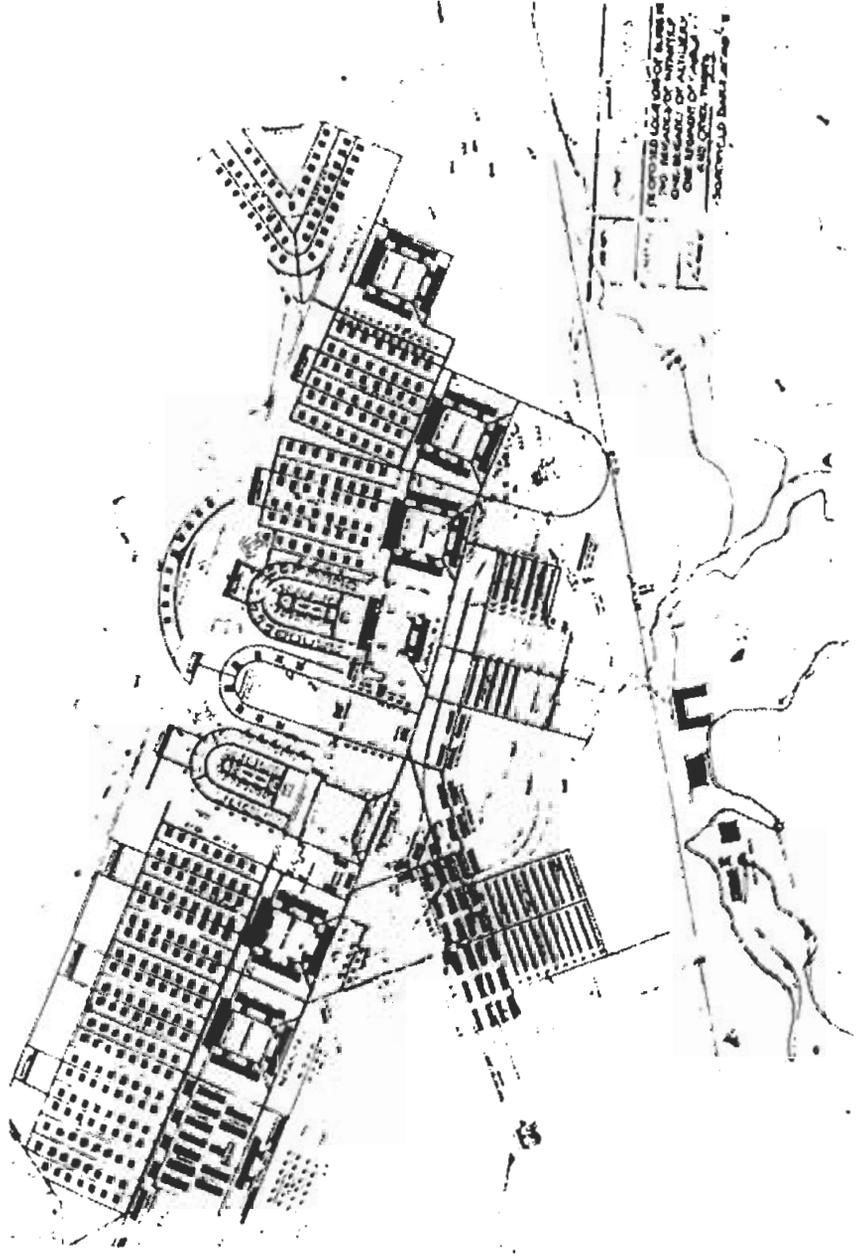
FIGURE - 4



First development plan of SBMR by General McComb, February 27, 1912. Shows seven contiguous sections, each one shaped in a rectangle headed by a loop. Rectangles were to contain the barracks.

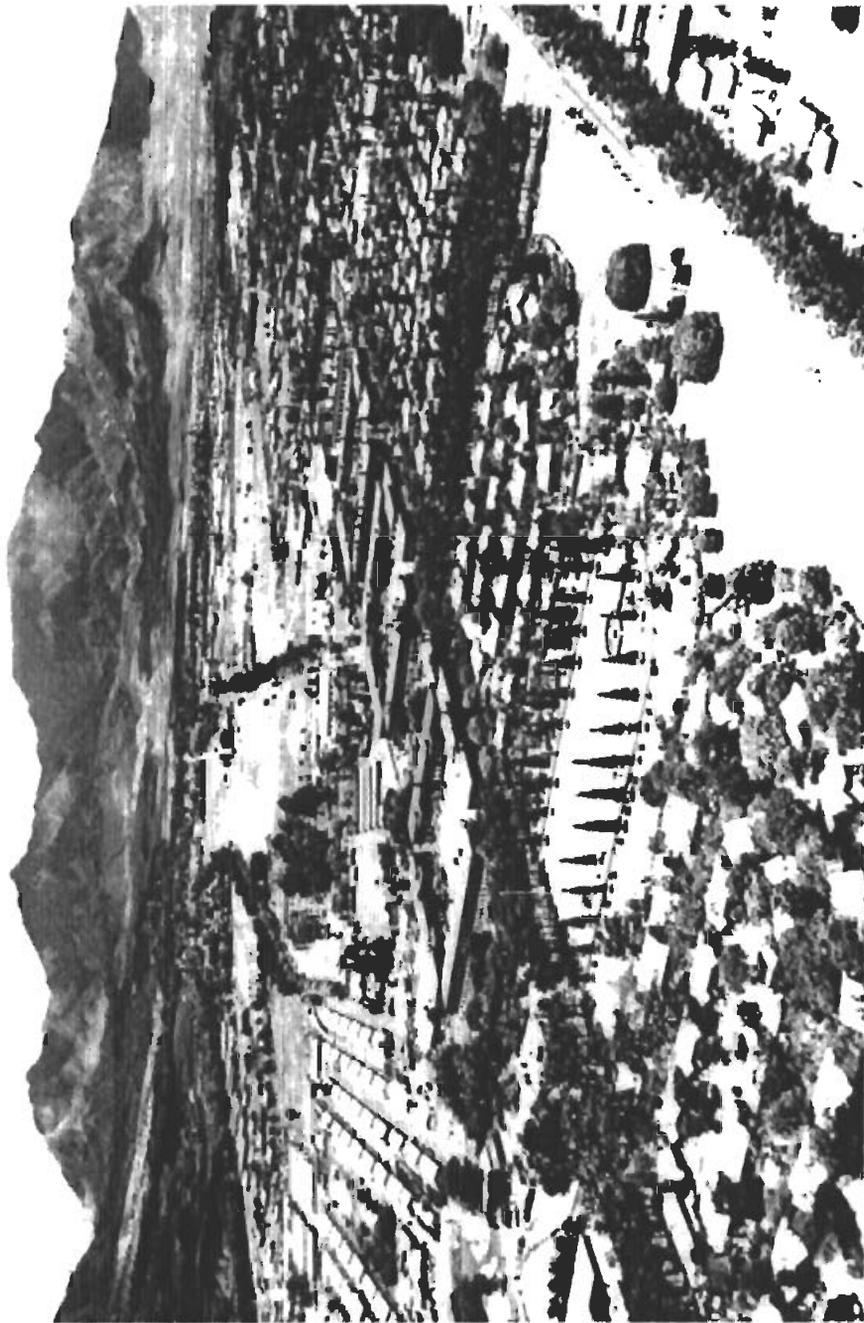
HISTORIC ARCHITECTURAL SURVEY  
FOR SIGNIFICANT FEATURES  
SCHOTFIELD BARRACKS QUADS B, C, D, E, F

FIGURE - 5



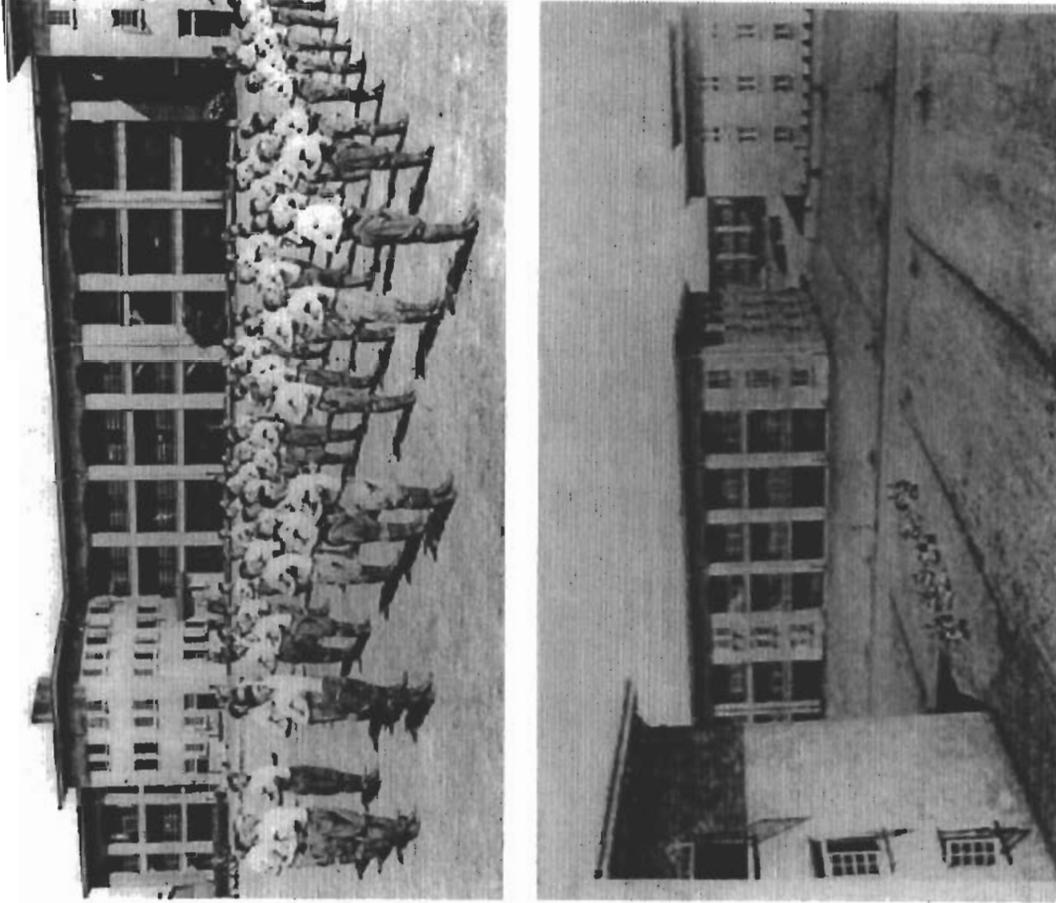
1916 Development Plan of SBMR prepared by Army Quartermaster

FIGURE-6



Photograph of Quads in the early 1930's — Forming a central spine at SBMR

FIGURE-7



Early photograph of 'Quadrangles' demonstrating massing and arcade details  
of Second Renaissance Revival

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QUAD D – BUILDINGS 449, 450, 451, & 452

**A. BUILDING SIGNIFICANCE**

Quad D is significant as a substantial element in the original base layout, and is within the Schofield Barracks Historic District which is listed on the National Register of Historic Places. The historic district contains the central core of significant properties that exhibit Army's development patterns and establish the character of Schofield Barracks Military Reservation. These barracks historically provided the centralized housing, dining, and administrative space for troops

Quad D, buildings 449, 450, 451 and 452 were constructed in 1921 as barracks for the 27<sup>th</sup> Infantry. Quad D is shown alongside quad E in an aerial photograph of Schofield Barracks dated February 21, 1923 (Figure-28). Building 449 was designed as the administration building for Quad D and housed the functions for the headquarters of the brigade. Buildings 450, 451, and 452 were designed as barracks and served primarily as sleeping quarters for the brigade.

**B. PHYSICAL HISTORY**

**Date (s) of erection:** Constructed in 1921. Contractor/builder unknown.

**Architect:** Drawings prepared under direction of Office of Constructing Quartermaster, Honolulu, Hawaii.

**Original plans and construction:** The original drawings for Quads B, C, D, & E, Administration and Barracks are dated 1917. The total sheet number of original set of documents is unknown. What remains of the original set is filed at the Department of Public Works, at Wheeler Army Airfield (Appendix A).

**Original and subsequent owners:** U. S. Army.

**Applicable Land Use Plans and Policies:** Quads are situated on Federal land whereby State and City land use designations are not enforceable. Nevertheless, the following land uses are designated: State land use is Urban; City and County of Honolulu zoning is Military and Federal; and the Development Plan is Medium Density Apartments. The Quads do not lie within the City's Special Management Area.

**Alterations and Additions:** The demand for better and private facilities led to the modernization of the interiors of all of the quadrangle barracks buildings in the 1970's. Various alterations and renovations projects have since taken place. Currently some sections of Quad D are undergoing renovation.

## C. ARCHITECTURAL HISTORY

### ARCHITECTURAL CHARACTER

The architectural composition of Quad D is the same distinctive quadrangle layout of four buildings: one administration and three barracks surrounding an open courtyard. Architectural differences in functional layout and architectural massing are reflected in the two building types: the administration building, and the barracks.

Quad D, similar to B, C, and E, is designed in a modest Second Renaissance Revival Style. Distinguishing classical elements in Quad D include: arcades or galleries with a combination of rectangular and arched openings; arched window openings dominating the central façade of the administration building; and the entablature decorated with a frieze pattern centered with a diamond motif. Buildings are typically a three-story mass with a strong linear horizontal emphasis evident through use of fairly distinct base course, rhythmic banding effect of window fenestrations, and use of arcades and uniform openings. Also contributing to the horizontal effect is the eave line above the frieze terminating with a slightly sloped roof for Hawaii's rains.

A strong architectural element of the administration, Building 449, is the decorative portico or the main entry feature with a decorative concrete, brick and plaster surround at the rectangular opening to the passage leading to the central courtyard. Above the entry is a faux-balcony with decorative dentils and detail. A low concrete cheekwall extends from each side of the entry at the ground level.

The use of a double arcade is another architectural feature typical only to Quads D, E, and F barracks buildings. The regularity of the arcade openings gives the street façade a strong horizontal sense of movement. On the other hand the courtyard elevations of barracks are more informal in nature, and the galleries are broken up with small projections into the courtyard. Despite the solidity of barrack structures, originally the buildings were designed with natural ventilation to take advantage of the Hawaiian trade winds. The use of high ceilings and deep porches kept the rooms cool year round.

Condition: Although generally the structures still retain their appearance of overall mass, plan and some of their original interior details, some significant architectural features have been altered which affect the original integrity of their historic intent and significance. The following detailed description of the Quad D buildings elaborates on these differences. The overall condition of

Quad D buildings is fair. Structurally Quads appear in reasonable condition, however it is apparent that these structures have suffered aging problems, exposure to environment, and poor maintenance. To name a few, points of observation during this survey were: peeling paint, spalling concrete leaving reinforcing steel exposed (Figure-16 & 26), chipped and damaged building parts, broken glass, mold and dirt around the premises.

## DESCRIPTION OF EXTERIOR

### 1. Original Character Defining Features:

**Plan:** Each quad is a quadrangular composition, with the three barracks buildings situated around an open courtyard and anchored by the administration building, generally, in the northern direction. The plan layout of the administration building is rectilinear with a directional and functional emphasis at center, utilizing the main entry as the central gateway to the barracks courtyard. The plan layout of the barracks is rectilinear with a horizontal emphasis.

**Massing:** Generally the quad buildings are three-story structures, very linear with a horizontal emphasis defined by the use of horizontal base course, uniform window fenestrations and arcade openings. The horizontal scale is further achieved with the delineation of the eave line with a decorative band at the frieze, enriched cornices with decorative brackets, dentils and a slightly sloped tar and gravel roof. The central portion of the architectural mass in the administration building is emphasized with a large volume space, which is also reflected in tall window openings on the façade. The administration building has a height of approximately 53 feet at its center point and an overall length of 365 feet, while the barracks are about 38 feet high and approximately 320 feet long. The linear shape of the barracks buildings is broken up with small projections into the courtyard.

**Exterior Architectural Elements:** Various distinct features of the architectural façade are the following:

- **Façade (Figure-2):** The exterior walls are cast-in-place reinforced concrete, stucco finished with a distinct horizontal coursing between second and third floors. Façade terminates with a simplified adornment on the entablature reflected by a frieze decoration. The frieze decoration is a rectilinear design with a diamond pattern at the center of each panel that is repeated around the perimeter of the building envelope. The horizontal lines are further delineated at the very top with an eave, originally, much more elaborate with a cornice and bracket detail. The original roof structural trusses were wood. These features are significant in that they represent the architectural character of the style.

- **Windows/Doors (Figure-10):** Windows on all elevations are uniformly aligned of similar character, originally, multi-mullions or divided-light in wood casement type or double-hung. The uniformity and scale of these openings give the overall mass character. The original use of heavy concrete sill lines give the windows additional horizontal emphasis, and the regularity of the window openings with heavy wood dividers give it the proportion and scale. The intricacy of construction style contributes to the overall flavor and character of the architectural style. All original exterior doors reflect similar multi-mullion or divided-light construction and therefore, possess similar importance in maintaining the overall integrity.
- **Portico or main entrance (Figure-11, 29 & 30):** A central feature of the administration building is the decorative portico. Typical of most quads, two vertical pier columns connected with a horizontal header beam span a rectangular opening. The entry detail is laid with decorative brick pattern with raised concrete border on each side. The opening is further articulated with recessed indentations or lines. Infantry insignias were sometimes placed at the center of this header piece. A low concrete checkwall extends from each side of the entry at the ground level. Historic light fixture bases still remain on each side of the entry within the brick pattern course. The entry feature significantly contributes to the overall integrity of the original plan and mass.
- **Balcony/Balustrade (Figure-11, 29 & 30):** A decorative faux balcony projecting from the vertical plane forms a horizontal overhang for the opening. At the base of this a uniform pattern of dentils or stone brackets further delineate the opening. The concrete posts of the balustrade are heavy at ends and in the middle and drawings indicate a metal railing detail in between the divisions. Although old photographs reveal absence of metal railing in some of the buildings, some form of decoration on top of the portico, such as a cast insignia, contributed to its sense of scale and importance. This element as a historic feature is significant.
- **Arcade galleries or walkways (Figure-12 & 31):** The double gallery formation, one on the exterior street face and one on the interior courtyard face, is a feature of Quads D, F, and I. The galleries have rectangular shaped openings at the first and second floors and arched openings at the third floor (except for Quad F where the openings are all rectangular). The rhythm created through regularity of the openings give the buildings the horizontal scale and plays a significant importance in the design of the façade.
- **Stairs and arcade railings (Figure-12 & 31):** The open stairways and walkway railings were originally designed with a horizontal emphasis and are a visible part of the walkway. Quad D railings no longer carry the same railing detail. These serve as functional features of the plan and are of significance to the building's character.

## 2. Alterations To Original Features:

Generally, all Quad structures still retain the historical integrity of the original overall plan, architectural massing and scale, and other architectural elements as described above. Discussion below includes only those components of the building that have been since modified or drastically altered during the past major renovations.

- Typically, all original wood windows have been replaced with new casement, or double-hung aluminum, or louvered windows that no longer carry the divided mullion style of the era. This alteration is the most intrusive, or character-changing of the alterations that have been done to the Quads.
- For the most part, the majority of the original building fenestrations have been retained, however, needed modifications have been made that have called for blocking whole windows reflected in plaster including the stylistic arches of the windows or partial blocking reflected in painted surfaces that matches the window frames (also refer to the interior alterations section). Although the overall uniformity that still remains helps maintain the sense of scale and original design intent, the changes alter the original architectural proportions and the flavor of the period.
- The original wooden structural trusses have been replaced with light-gauge metal trusses and corrugated metal roofing (also refer to the interior alterations section). The original eaves with decorative detail have been reduced to a flat horizontal projection with none of the original cornice or bracket detailing (Figure-32). The current cave line no longer delineates the weighted horizontal line of the cornice/bracket detail and affects the integrity of style.
- The balustrade and rail detail (Figure-30) above the portico is left unadorned and is missing the metal railing and other vertical divisions that gave it the appropriate scale and sense of importance.
- The stair rail in the administration building still reflects the original design with heavy vertical divisions. However, the railings at the balconies (Figure-33) through out the barracks no longer demonstrate the original horizontal lines and emphasis.
- Typically, all exterior doors have been replaced with new metal doors. Additionally door transoms have been covered or filled-in. These changes impact the overall original character of the buildings.
- Although a few light fixtures were noted possibly original (Figure-34) during this survey, most other exterior fixtures on the side façade s are new. Fixtures on the walls of the galleries have been widely replaced.

- Visible on the exterior of many buildings are the addition of electrical conduits and boxes, and mechanical and communications equipment.
- The original exterior facing square style downspouts in Quad D have been removed.
- Visible on the exterior of the barracks buildings 451 and 452 are additions of mechanical structures in the center portions and sides of the buildings.
- Numerous structures have been added to building 450 on the courtyard elevation to house mechanical needs for kitchen facilities and other uses, as well as new covered walkway structures.
- The street-facing arcade or gallery walkway on the ground floor of building 450, have been mostly or partially enclosed with walls or windows to accommodate the conversion to administrative office uses. These modifications reflect a wide range of variation in the use of style, materials, consistency, and aesthetics.

**3. Detracting Features:** Discussion of recommendations below includes only those components of the buildings that have resulted from the past major renovations, and that are detracting from the original integrity of the historical elements.

- New casement or double-hung aluminum windows that no longer carry the same flavor of the original divided mullion style of the era should be replaced with windows that better closely match the original flavor and character.
- The blocking of fenestration in the windows that has altered the architectural proportions of original design intent and the flavor of the period should be replaced as much as possible.
- Unadorned eave line, absent of cornice/bracket detail, detracts from the original scale and weight of the original roof line and should be restored back to replicate the original details.
- The undecorated balustrade/rail details change the original scale and weight and detracts from the sense of importance of the Portico. New railings should be installed to match the original.
- New modern doors represent a new visual style. Also, glazing at door transoms that have been covered or in-filled, changing the overall proportions, should be replaced with new doors that better match the original style and flavor.

- Visible electrical, mechanical, communication equipment and conduits, boxes and pipes on the exterior walls should be consolidated as much as possible and hidden from view.
- Metal railings at arcades should be restored back to the horizontal scale and original design intent.
- Additions such as covered walkways should better match the original style and materials.
- Poorly maintained building elements and premises, peeling paint, spalling concrete, chipped or exposed concrete should be noted and repaired. Building element corners and edges have been chipped, exposing the concrete to the damaging environment. The building elements should be cleaned, repainted or scaled. Chipped or broken areas should be repaired, and the sprinklers should be adjusted so that the building does not get wet.

## DESCRIPTION OF INTERIOR

### 1. Original Character Defining Features:

**Plan:** The interior of the administration building was originally partitioned to accommodate functions such as kitchens, dining areas, a post exchange, and a prison with four cells on the ground floor. Offices, a barber shop, a printing shop, a court martial room, medical examining rooms, dispensary, and dormitories on the second floor. Reading, music rooms, day and school rooms, additional dormitories, and a large auditorium was held on the third floor. The floors were connected through open stairs and covered arcades. The large volume central section of the third floor plan housed the auditorium originally with a stage. The dormitories contained large open space plan with adjacent supporting areas of lavatory/shower rooms.

The barracks (Figure-17) represented the more private functions of the infantry. The plan of the barracks was partitioned to serve primarily as sleeping quarters of the brigade. Each barracks contained: squad rooms, typically an open space plan measuring approximately fifty feet by ninety feet, four each on second and third floors; two common lavatory/shower rooms each on second and third floors; day rooms, kitchens, and mess halls filled the first floor. The two projections on the courtyard side housed the kitchen and the lavatory/shower sections.

### Interior Architectural Elements:

- Classical elements ([Figure-18](#)): The high volume space in the interior of the auditorium is decorated with large window openings to one side and walls that are adorned with arched niches duplicating the pattern of the arched windows, originally, shown in the drawings topped with a center piece at the high point of the arch. The door fenestrations on the opposite interior wall of the arcade gallery duplicates the same uniform and repetitive pattern of window openings and niches. Other classical elements of the interior include: horizontal base division, and decorative wainscot molding decorated with arched carving at interval divisions in white to contrast from the buff color interior wall finish. The heavy line of the wainscot molding breaks the high volume proportions. The auditoriums were originally designed with a stage flanked with columns and an orchestra pit.
- Ceiling ([Figure-18](#)): The walls terminate with a crown molding and a metal ceiling. The large wooden structural truss system is concealed from the eye above the metal ceiling.
- Floor: The auditorium was finished with wood flooring.
- Building 450, the original glazed blocks ([Figure-36](#)) used throughout the interior of the kitchen still remains.

### 2. Alterations To Original:

Generally, the interior space plan of all quad structures have been altered during various past renovation projects. Typically, new partitioned walls have been placed to accommodate the administrative functions as well as those of the barracks. Ceilings through out the interiors have been dropped to accommodate installation of modern conveniences such as air-conditioning both in the administration building as well as in the barracks. The Quad D auditorium ([Figure-35](#)) has been converted to gymnasium usage. Another major modification to the auditorium is in the open exposed ceiling. The new light structural truss system changes the original proportions of the interior volume. The truss has been left exposed and the ceiling height has been raised to slightly below the metal decking. The light fixtures are new and the character of the original fixtures is unknown.

### 3. Detracting Features:

The general interior modifications to the plan layout throughout the buildings, as well as those resulting in lowered ceiling heights are significant to the overall building character. The lowered ceiling heights have resulted in loss of original scale and

proportion. The interior ceilings should be soffited around the door and window openings so that the full height of the original opening can be used, and windows and doors matching the original style, and, if possible, material should be installed.

The converted auditorium has lost numerous significant details, namely, the height proportions, horizontal partitioning of walls, details such as crown moldings and carvings.

**D. SUMMARY OF CHARACTER DEFINING FEATURES**

Bldg. No	Character Defining Features <u>Remaining</u> <u>EXTERIOR</u>	Detracting Features - <u>To Remove</u> <u>EXTERIOR</u>	Character Defining Features - <u>To Restore</u> <u>EXTERIOR</u>
Quad D			
449 Administration	Plan: <ul style="list-style-type: none"> <li>• Quadrangular relationship</li> <li>• Rectilinear plan layout at center of Admin. Bldg.</li> </ul> Mass/Scale: <ul style="list-style-type: none"> <li>• Three-story height</li> <li>• Linear and horizontal scale</li> <li>• High volume center section at third floor of Admin.</li> </ul> Architectural Features: <ul style="list-style-type: none"> <li>• Stucco finish/painted</li> <li>• Horizontal base course emphasis</li> <li>• Slightly sloped roof with horizontal eave, overhang</li> <li>• Diamond motif in frieze pattern</li> </ul>	Architectural Features: <ul style="list-style-type: none"> <li>• Loss of eave/cornice detail</li> <li>• Wood windows changed to a different visual style</li> <li>• Top of windows in-filled and painted with either the wall color or the dark window frames</li> <li>• Doors changed to a modern visual style, and transoms covered/in-filled</li> <li>• Doorways in-filled or converted to window openings</li> <li>• Vertical pattern at railings not reflecting orig. horizontal lines</li> <li>• Visible exterior pipes, conduits and boxes not hidden from view</li> <li>• New light fixtures</li> </ul>	Architectural Features: <ul style="list-style-type: none"> <li>• Restore cornice and bracket detail to eave lines</li> <li>• Restore original balustrade/rail detail at front Portico to bring back sense of scale and importance</li> <li>• Restore overall size and scale of window openings</li> <li>• Install window types to better closely match original flavor and character with heavy divisions and multi-divisional mullions</li> <li>• Install doors to closely match historic-style at exteriors</li> <li>• Conceal and consolidate electrical conduits as much as possible within building or in a</li> </ul>
450, 451 & 452 Barracks			

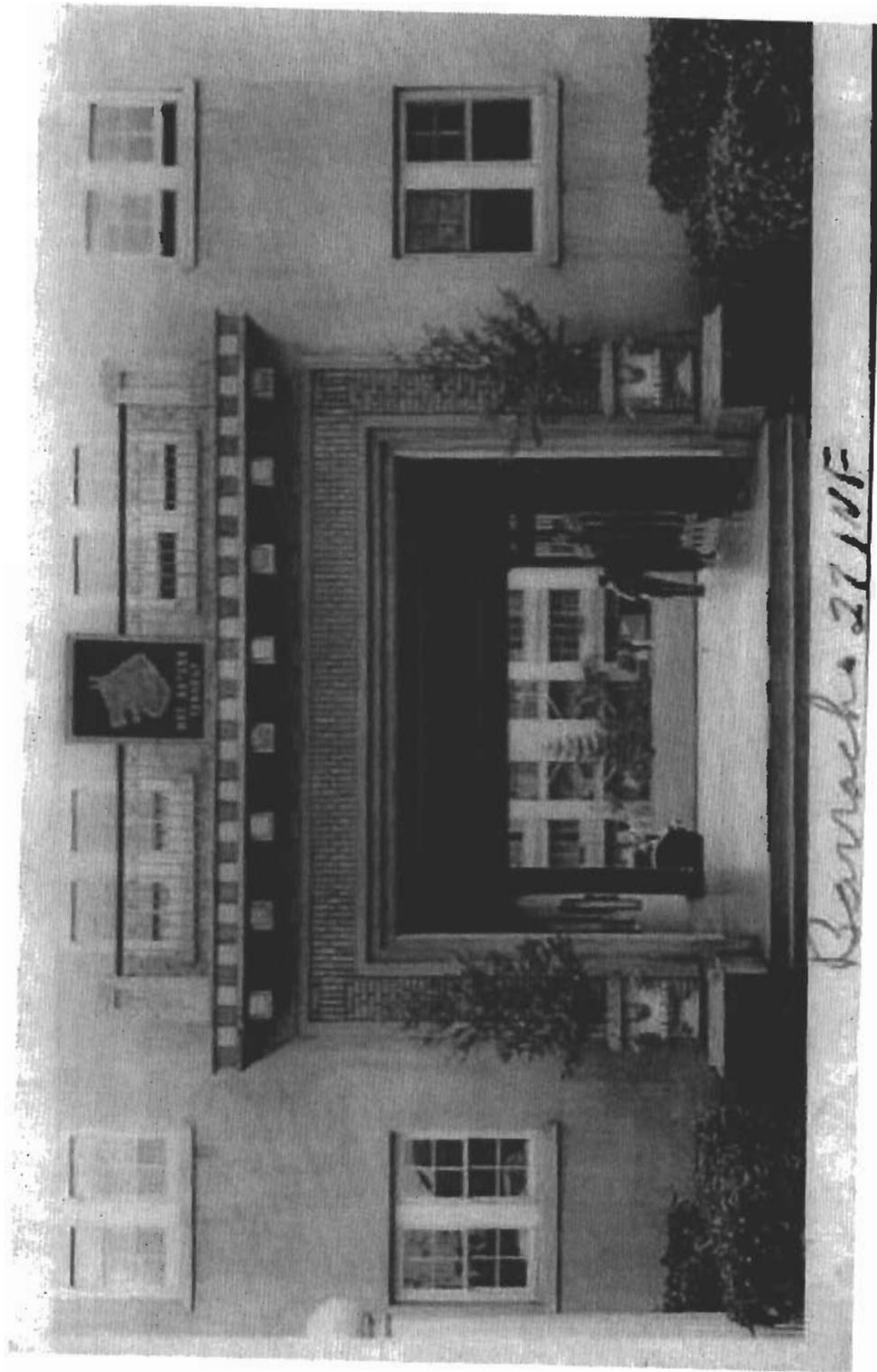
	<ul style="list-style-type: none"> <li>Window/doors rhythm &amp; uniformity</li> <li>Heavy concrete sill at windows and doors</li> <li>Gallery arcade openings rhythm &amp; uniformity</li> <li>Central main entrance at Admin. Rectangular brick opening, adornments, open passage way to courtyard; light fixtures on each side</li> <li>Faux balcony/balustrade detail</li> <li>Exterior concrete stairways with concrete railings at Admin.</li> </ul> <p><u>INTERIOR</u></p> <p>Plan:</p> <ul style="list-style-type: none"> <li>Plan layout</li> </ul> <p>Interior Architectural Features:</p> <ul style="list-style-type: none"> <li>Classical elements at Admin.: arched wall niches, wainscot moldings and decorative carvings; horizontal base line</li> <li>Ceiling crown molding &amp; proportions</li> <li>Original glazed blocks used in the interior of kitchen (#450)</li> </ul>	<ul style="list-style-type: none"> <li>Mechanical free standing structure additions to barracks</li> <li>Covered walkway additions</li> <li>Inconsistent modifications to exterior street face of barracks ground floor, Bldg. 450</li> </ul> <p><u>INTERIOR</u></p> <p>Plan:</p> <ul style="list-style-type: none"> <li>Altered interior floor plans</li> </ul> <p>Interior Architectural Features:</p> <ul style="list-style-type: none"> <li>Dropped ceilings impacting the proportion of the interior space as well as impacting the size of original openings</li> <li>Raised ceiling at Admin. Auditorium/gymnasium changing original scale and height proportions</li> </ul>	<p>covered exterior area</p> <ul style="list-style-type: none"> <li>Replace railing design to reflect original horizontal emphasis</li> <li>Additions to building façade s to match in style and materials</li> </ul> <p><u>INTERIOR</u></p> <p>Interior Architectural Features:</p> <ul style="list-style-type: none"> <li>Soffit ceilings at doors and windows to restore the scale and proportion of openings</li> <li>Restore back original height proportions &amp; details of auditorium/gymnasium in Admin.</li> <li>Replace gymnasium lights with ones to fit better the historical setting</li> </ul> <p><u>LANDSCAPE</u></p> <ul style="list-style-type: none"> <li>Remove vegetation growing within three feet of building, ensure sprinklers do not spray water on building</li> <li>Clear building premises of debris</li> </ul>
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FIGURE 28



Historical Photograph of Quads D and F:  
27<sup>th</sup> and 21<sup>st</sup> Infantry Barracks and Officer's housing, February 21, 1923.

FIGURE 29



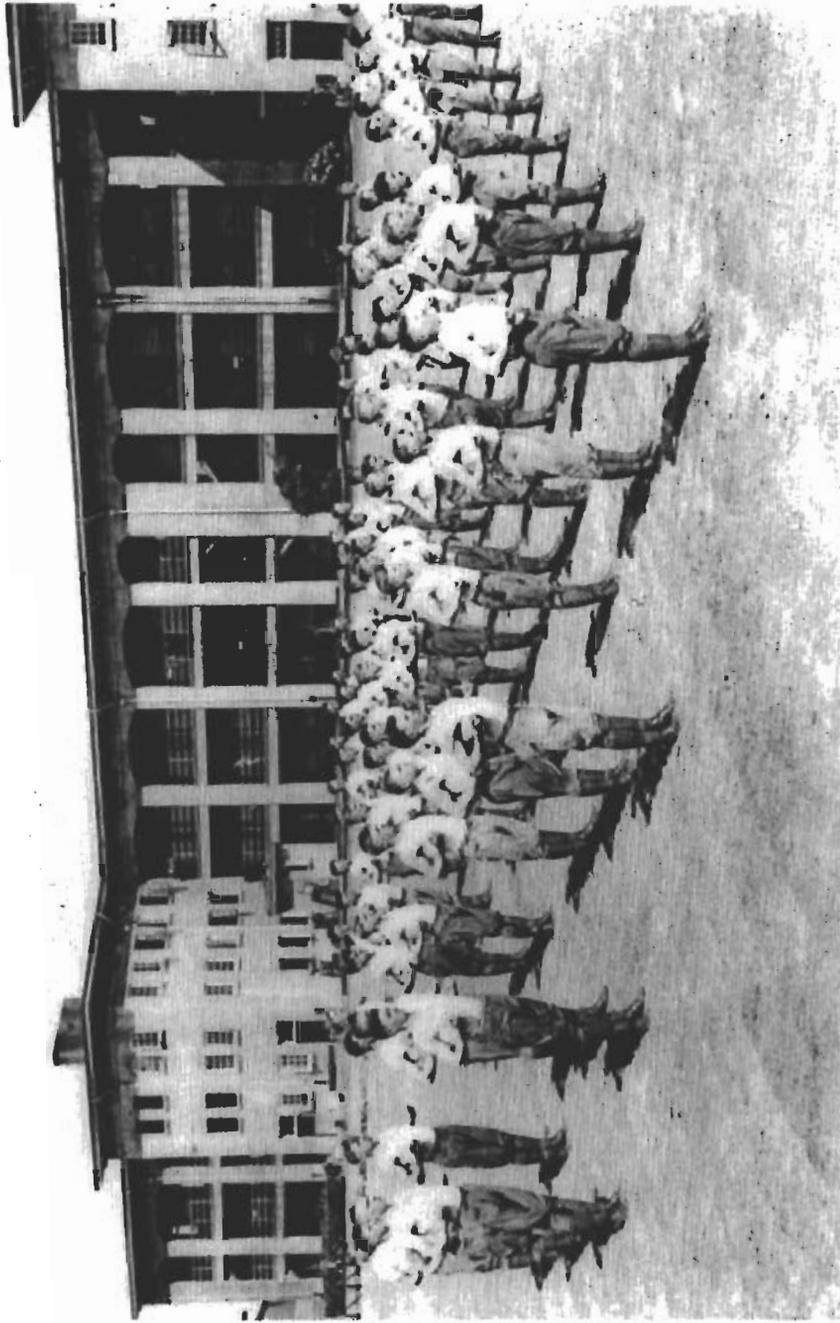
Historic Photograph - Portico of Quad D, Building 449 for the 27<sup>th</sup> Infantry

FIGURE 30



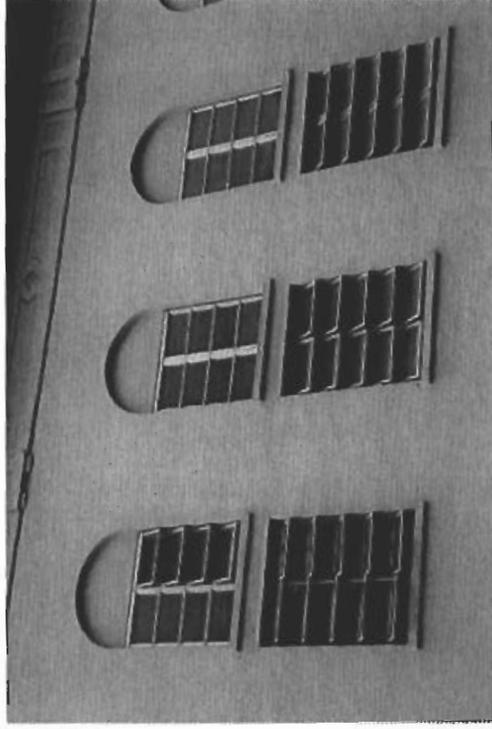
Portico of Quad D: Facade details

FIGURE 31



Historical Photograph of Quad D:  
Arcade galleries at courtyard

FIGURE 32



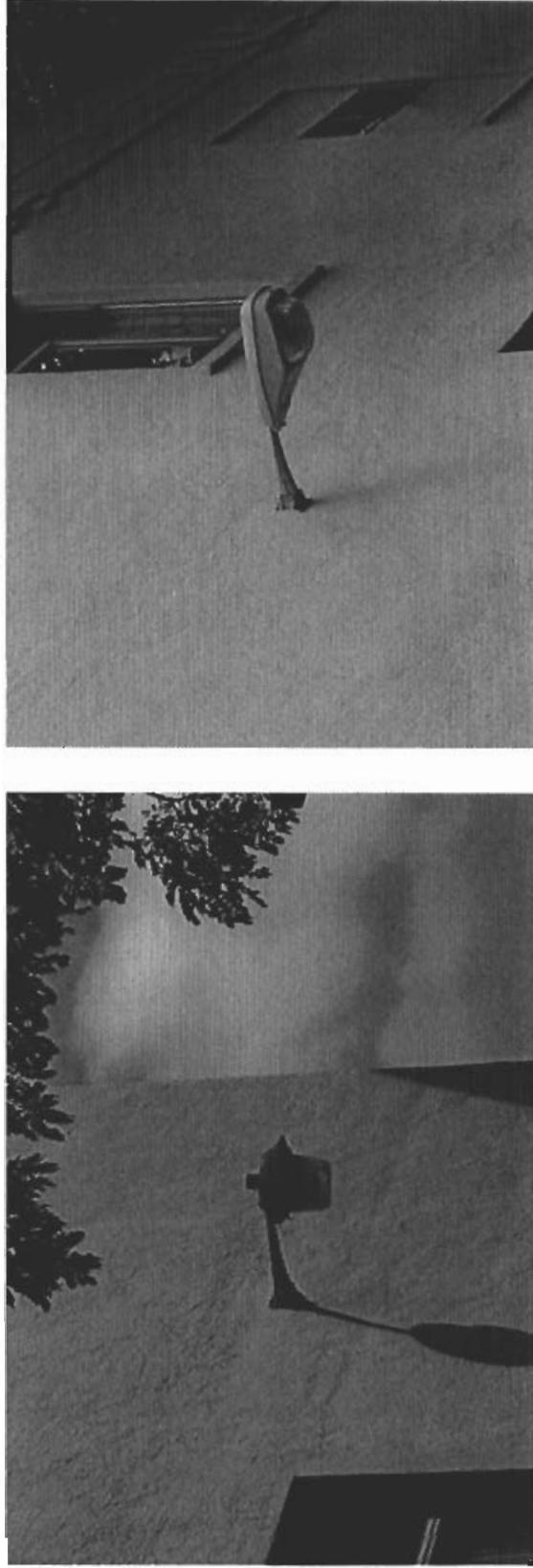
Quad D: Street façade details

FIGURE 33



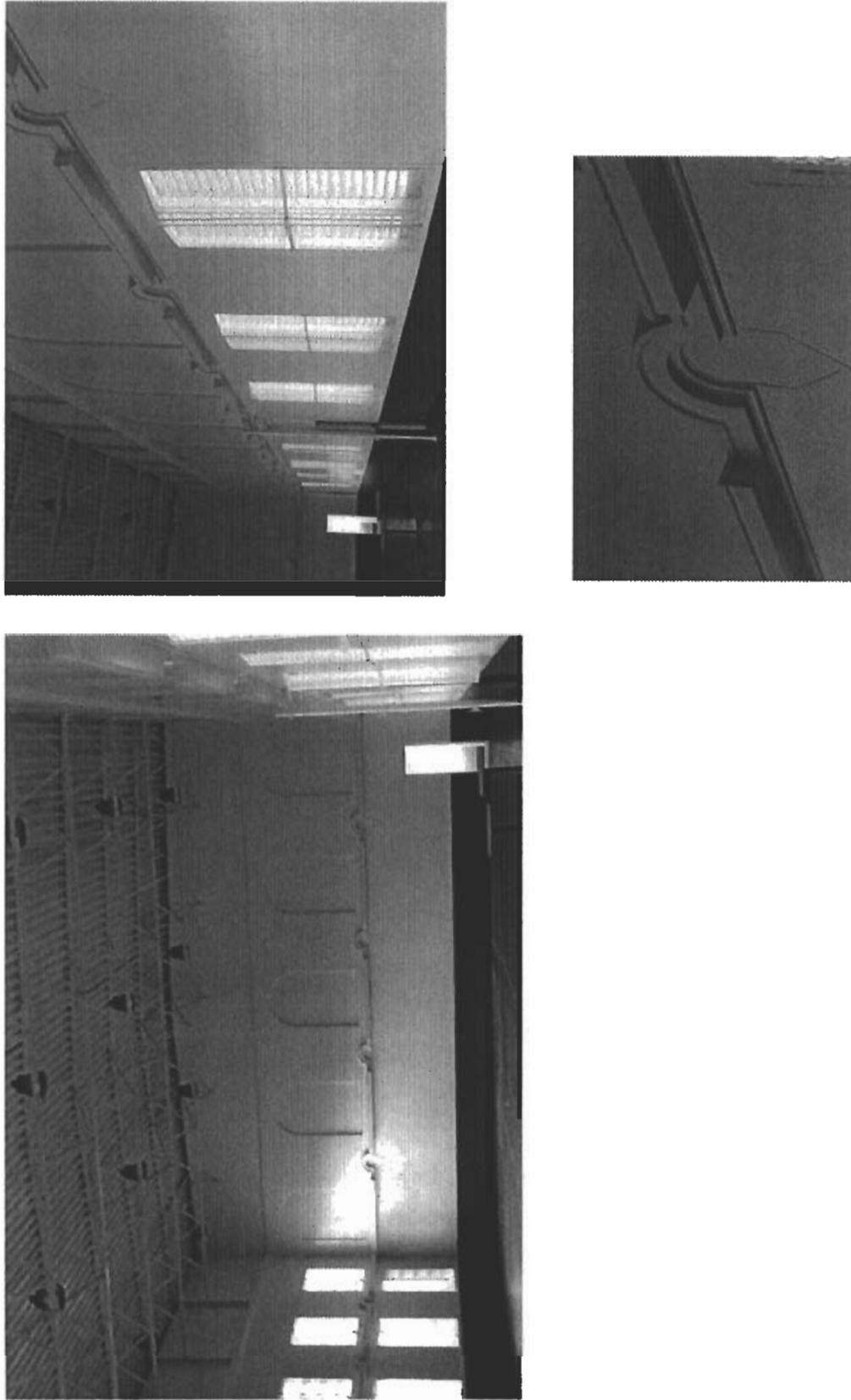
Quad D: Arcade galleries

FIGURE 34



Exterior light fixtures: possibly original (left), modern (right)

FIGURE 35



Auditorium/gymnasium details at Quad D

FIGURE 36



Original glazed CMU in kitchen at Quad D

HISTORIC ARCHITECTURAL SURVEY  
FOR SIGNIFICANT FEATURES  
SCHOFIELD BARRACKS BLDG: 649  
HABS NO. ###

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SECTION IV: QUAD F – BUILDINGS 649, 650, 651, & 652

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