

PROJECT TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

01312 QUALITY CONTROL SYSTEM (QCS)
01320 PROJECT SCHEDULE
01330 SUBMITTAL PROCEDURES
01420 SOURCES FOR REFERENCE PUBLICATIONS
01430 ENVIRONMENTAL PROTECTION
01451 CONTRACTOR QUALITY CONTROL
01525 SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS
01572 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT
01670 RECYCLED / RECOVERED MATERIALS
01780 CLOSEOUT SUBMITTALS
01781 OPERATION AND MAINTENANCE DATA
01900 MISCELLANEOUS PROVISIONS

DIVISION 02 - SITE CONSTRUCTION

02111 EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL
02120A TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS
02220 DEMOLITION
02231 CLEARING AND GRUBBING
02315A EXCAVATION, FILLING AND BACKFILLING FOR BUILDINGS AND PAVEMENTS
02316A EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS
02510A WATER DISTRIBUTION SYSTEM
02531 SANITARY SEWERS
02722A AGGREGATE AND/OR GRADED-CRUSHED AGGREGATE BASE COURSE
02748A BITUMINOUS TACK AND PRIME COATS
02750 BITUMINOUS CONCRETE PAVEMENT

DIVISION 03 - CONCRETE

03100A STRUCTURAL CONCRETE FORMWORK
03200A CONCRETE REINFORCEMENT
03230 STEEL STRESSING TENDONS AND ACCESSORIES FOR PRESTRESSED CONCRETE
03300 CAST-IN-PLACE STRUCTURAL CONCRETE
03410A PRECAST/PRESTRESSED CONCRETE FLOOR AND ROOF UNITS
03415A PRECAST-PRESTRESSED CONCRETE

DIVISION 05 - METALS

05120 STRUCTURAL STEEL
05400A COLD-FORMED STEEL FRAMING
05500 MISCELLANEOUS METAL

DIVISION 06 - WOOD AND PLASTICS

06100A ROUGH CARPENTRY
06200A FINISH CARPENTRY
06650 SOLID POLYMER (SOLID SURFACING) FABRICATIONS

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

07212N MINERAL FIBER BLANKET INSULATION
07240 EXTERIOR FINISH SYSTEMS
07412A NON-STRUCTURAL METAL ROOFING
07520 ACRYLIC ROOF COATING
07600 FLASHING AND SHEET METAL
07840A FIRESTOPPING
07900A JOINT SEALING

DIVISION 08 - DOORS AND WINDOWS

08115 STAINLESS STEEL DOORS AND FRAMES
08210 WOOD DOORS
08330A STAINLESS STEEL OVERHEAD ROLLING DOORS
08560 PLASTIC WINDOWS
08710 DOOR HARDWARE
08810A GLASS AND GLAZING

DIVISION 09 - FINISHES

09100N METAL SUPPORT ASSEMBLIES
09215 VENEER PLASTER
09250 GYPSUM BOARD
09310 CERAMIC TILE
09510 ACOUSTICAL CEILINGS
09650 RESILIENT FLOORING
09900 PAINTS AND COATINGS

DIVISION 10 - SPECIALTIES

10153 TOILET PARTITIONS
10201 METAL WALL LOUVERS
10260 CORNER GUARDS
10430 EXTERIOR SIGNAGE
10440 INTERIOR SIGNAGE
10505 SOLID PLASTIC LOCKERS
10520 FIRE EXTINGUISHERS AND CABINETS
10800 TOILET ACCESSORIES

DIVISION 11 - EQUIPMENT

11312 SEWAGE PUMP STATION
11502 PAINT/RHINO SPRAY BOOTH
11503 ABRASIVE BLAST BOOTH
11504 HYDRO BLAST SYSTEM
11505 METALIZATION BOOTH

DIVISION 12 - FURNISHINGS

12490A WINDOW TREATMENT

DIVISION 13 - SPECIAL CONSTRUCTION

13080 SEISMIC PROTECTION FOR MISCELLANEOUS EQUIPMENT
13281A LEAD HAZARD CONTROL ACTIVITIES
13286N HANDLING OF LIGHTING BALLASTS AND LAMPS CONTAINING PCBs AND MERCURY
13851A FIRE DETECTION AND ALARM SYSTEM, ADDRESSABLE
13920A FIRE PUMPS
13930A WET PIPE SPRINKLER SYSTEM, FIRE PROTECTION

DIVISION 15 - MECHANICAL

15070A SEISMIC PROTECTION FOR MECHANICAL EQUIPMENT
15080A THERMAL INSULATION FOR MECHANICAL SYSTEMS
15182A REFRIGERANT PIPING
15400A PLUMBING, GENERAL PURPOSE
15700A UNITARY HEATING AND COOLING EQUIPMENT
15895 AIR SUPPLY, DISTRIBUTION, VENTILATION, AND EXHAUST SYSTEM
15950A HEATING, VENTILATING AND AIR CONDITIONING (HVAC) CONTROL SYSTEMS
15990A TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS
15995A COMMISSIONING OF HVAC SYSTEMS

DIVISION 16 - ELECTRICAL

16070A SEISMIC PROTECTION FOR ELECTRICAL EQUIPMENT
16375A ELECTRICAL DISTRIBUTION SYSTEM, UNDERGROUND
16415A ELECTRICAL WORK, INTERIOR
16528A EXTERIOR LIGHTING
16710A PREMISES DISTRIBUTION SYSTEM
16711A TELEPHONE SYSTEM, OUTSIDE PLANT

-- End of Project Table of Contents --

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION
VEHICLE PAINT & PREP SHOP

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				REMARKS		
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH
		01320	SD-01 Preconstruction Submittals														
			Preliminary Project Schedule	3.4.1													
			Initial Project Schedule	3.4.2													
			Periodic Schedule Updates	3.4.3													
			SD-06 Test Reports														
			Narrative Report	3.5.2													
			Schedule Reports	3.5.4													
			SD-07 Certificates														
			Qualifications	1.3													
		01330	SD-01 Preconstruction Submittals														
			Submittal Register (ENG Form 4288)	3.2	G												
			Monthly updates (ENG Form 4288)	3.7.1													
		01430	SD-06 Test Reports														
			Environmental Protection Plan		G												
		01451	SD-01 Preconstruction Submittals														
			Quality Control Plan	3.2	G												
			SD-07 Certificates														
			ICC IBC Certificates														
		01525	SD-01 Preconstruction Submittals														
			Accident Prevention Plan (APP)	1.8	G												
			Activity Hazard Analysis (AHA)	1.9	G G												
			Crane Work Plan		G												
			Proof of qualification	3.5.2	G												
			SD-06 Test Reports														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01525	Reports	1.13													
			Accident Reports	1.13.1													
			Monthly Exposure Reports	1.13.3													
			Regulatory Citations and Violations	1.13.4													
			Crane Reports	1.13.5													
		01780	SD-02 Shop Drawings														
			As-Built Drawings	1.2.1													
			SD-03 Product Data														
			As-Built Record of Equipment and Materials														
			Warranty Management Plan														
			Warranty Tags														
			Final Cleaning	1.6													
		01900	SD-01 Preconstruction Submittals														
			Accident Prevention Plan		G												
			Activity Hazard Analyses		G												
			SD-03 Product Data														
			Equipment Data														
			SD-06 Test Reports														
			Inspection of Existing Conditions														
			Dust Control		G												
			Excavation/Trenching Clearance														
			Condition of Contractor's Operation or Storage Area														
			SD-07 Certificates														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION						CONTRACTOR											
VEHICLE PAINT & PREP SHOP						CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
		01900	Products Containing Recovered Materials														
		02111	SD-02 Shop Drawings														
			Surveys	1.4	G												
			SD-03 Product Data														
			Excavation and Handling Work Plan		G												
			Closure Report	3.9	G												
			SD-06 Test Reports														
			Backfill	2.1	G												
			Surveys	1.4	G												
			Confirmation Sampling and Analysis	3.3	G												
			Sampling of Stored Material	3.5.1	G												
			Sampling Liquid	3.5.2	G												
			Compaction	3.7.2	G												
		02120A	SD-03 Product Data														
			On-site Hazardous Waste Management	3.1	G												
			Notices of Non-Compliance and Notices of Violation														
			SD-06 Test Reports														
			Recordkeeping	3.7	G												
			Spill Response	3.8													
			Exception Reports	3.7	G												
			SD-07 Certificates														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	GOVT CLASSIFICATION / REVIEW NUMBER	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		02120A	Qualifications	1.3													
			EPA Off-Site Policy	3.2.2													
			Management Plan	3.1.2													
			Shipping Documents and	3.2.3	G												
			Packagings Certification														
		02220	SD-01 Preconstruction Submittals														
			Work Plan	1.8.2	G												
			Demolition plan	1.8.1	G												
		02315A	SD-06 Test Reports														
			Testing	3.11													
		02316A	SD-01 Preconstruction Submittals														
			Shoring and Sheeting Plan		G												
			Dewatering Plan		G												
			SD-06 Test Reports														
			Field Density Tests	3.4.3													
			Testing of Backfill Materials	3.4.2													
		02510A	SD-03 Product Data														
			Installation	3.1													
			Waste Water Disposal Method														
			Satisfactory Installation														
			SD-06 Test Reports														
			Bacteriological Disinfection														
			SD-07 Certificates														
			Manufacturer's Representative														
			Installation	3.1													
		02531	SD-02 Shop Drawings														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		02531	Precast concrete manhole														
			Metal items	2.3.4													
			Frames and covers	2.3.4.1													
			SD-03 Product Data														
			Pipeline materials	2.1													
			SD-07 Certificates														
			Portland Cement														
			Joints														
		02722A	SD-03 Product Data														
			Plant, Equipment, and Tools	1.6													
			SD-06 Test Reports														
			Sampling and testing	1.4													
			Field Density Tests	1.4.2.4													
		02748A	SD-06 Test Reports														
			Sampling and Testing	3.7													
		02750	SD-06 Test Reports														
			Trial Batch Reports														
			Mix Design														
			SD-07 Certificates														
			materials	2.1													
			SD-08 Manufacturer's Instructions														
			Asphalt mix delivery record data														
			Materials and material sources														
		03100A	SD-03 Product Data														
			Form Materials	2.1													
			Form Releasing Agents	2.1.5													

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION

VEHICLE PAINT & PREP SHOP

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS	
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE			DATE OF ACTION
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		03200A	SD-02 Shop Drawings														
			Reinforcement	3.1													
			SD-03 Product Data														
			Welding	1.3													
			SD-07 Certificates														
			Reinforcing Steel	2.1													
		03230	SD-02 Shop Drawings														
			Installation Drawings	3.1.2													
			SD-03 Product Data														
			Prestressing Method and Equipment	3.1.1													
			Materials Disposition Records	3.3													
			Prestressing Operations Records	3.1.7													
			SD-06 Test Reports														
			Stressing Tendons and Accessories	2.1													
			SD-07 Certificates														
			Certification of Prestressing Technicians	1.4													
		03300	SD-03 Product Data														
			Mixture Proportions	1.6													
			SD-06 Test Reports														
			Testing and Inspection for Contractor Quality Control	3.14													
			SD-07 Certificates														
			Qualifications	1.4													

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION
VEHICLE PAINT & PREP SHOP

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS	
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE			DATE OF ACTION
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		03410A	SD-02 Shop Drawings														
			Precast/Prestressed Units	1.3													
			SD-03 Product Data														
			Precast/Prestressed Units	1.3													
			SD-06 Test Reports														
			Tests	2.2													
		03415A	SD-02 Shop Drawings														
			Erection	3.10													
			SD-03 Product Data														
			Erection Plan	3.10.5													
			Design Calculations	1.3.1.3													
			Concrete Mixture Proportions	2.2	G												
			Construction Records	3.11													
			SD-04 Samples														
			Precast Panel	1.4	G												
			SD-06 Test Reports														
			Materials	2.1													
			Concrete	1.3.2.2													
			SD-07 Certificates														
			Cement	2.1.1													
			Pozzolan														
			Air-Entraining Admixture	2.1.2.2													
			Water-Reducing Admixture	2.1.2.2													
			Accelerating Admixture	2.1.2.2													
			Aggregates	2.1.2.1													
			Air Content	1.3.2.3													

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	05120		SD-02 Shop Drawings														
			Fabrication drawings	1.5.1													
			SD-03 Product Data														
			Shop primer	2.4													
			Load indicator washers	2.2.3													
			SD-06 Test Reports														
			Bolts, nuts, and washers	2.2													
			SD-07 Certificates														
			Steel	2.1													
			Bolts, nuts, and washers	2.2													
			Shop primer	2.4													
			Welding electrodes and rods	2.3.1													
			Welding procedures and qualifications	1.5.2.1													
	05400A		SD-07 Certificates														
			Mill Certificates														
	05500		SD-02 Shop Drawings														
			Steel Pipe Bollards														
			Canopy Framing														
			Stainless Steel Fixed Ladder														
			Stainless Steel Gratings														
			Fiberglass Reinforced Plastic Gratings														
			Stainless Steel Floor Plates														
			Stainless Steel Wall Panels														
	06100A		SD-07 Certificates														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		06100A	Grading and Marking	2.1.1													
		06200A	SD-02 Shop Drawings														
			Finish Carpentry														
			SD-03 Product Data														
			Plastic laminate														
			SD-04 Samples														
			Plastic laminate														
		06650	SD-02 Shop Drawings														
			Shop Drawings														
			Installation	3.2													
			SD-03 Product Data														
			Solid polymer material	2.1													
			Qualifications	1.6													
			Fabrications	2.3													
			SD-04 Samples														
			Material	2.1													
			Counter Tops	2.3.6													
			SD-06 Test Reports														
			Solid polymer material	2.1													
			SD-07 Certificates														
			Fabrications	2.3													
			Qualifications	1.6													
			SD-10 Operation and Maintenance														
			Data														
			Solid polymer material	2.1													
			Clean-up														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION

CONTRACTOR

VEHICLE PAINT & PREP SHOP

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				REMARKS		
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	DATE RCD FRM APPR AUTH
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		07212N	SD-03 Product Data														
			Batt insulation	2.1													
			Accessories	2.2													
			SD-08 Manufacturer's Instructions														
			Insulation	3.2.1													
		07240	SD-02 Shop Drawings														
			Shop drawings	3.3													
			SD-03 Product Data														
			Sheathing board	2.2													
			Mechanical fasteners	2.3													
			Accessories	2.9													
			Base coat	2.4													
			Portland cement	2.5													
			Reinforcing fabric	2.6													
			Finish coat	2.7													
			Joint Sealant	2.10													
			Primer	2.8													
			Bond breaker	2.11													
			Backer Rod	2.12													
			Warranty	1.7													
			SD-04 Samples														
			Sample Boards	1.2.3.7	G												
			Mock-up Installation of EFS	1.2.1.4													
			SD-05 Design Data														
			Wind load	1.2.1.2													
			Moisture analysis	1.2.4													

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION

VEHICLE PAINT & PREP SHOP

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					REMARKS	
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		MAILED TO CONTR/ DATE RCD FRM APPR AUTH
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	07240		SD-06 Test Reports														
			Abrasion resistance	1.2.3.1													
			Accelerated weathering	1.2.3.2													
			Impact resistance	1.2.2.3													
			Mildew resistance	1.2.3.3													
			Salt spray resistance	1.2.3.4													
			vapor transmission	1.2.4													
			Absorption-freeze-thaw	1.2.3.6													
			Flame spread														
			Water penetration	1.2.1.1													
			Water resistance	1.2.3.5													
			Surface Burning Characteristics	1.2.2.1													
			Radiant heat	1.2.2.2													
			Substrate	3.1													
			Wind load	1.2.1.2													
			SD-07 Certificates														
			Qualifications of EFS	1.4.1													
			Manufacturer														
			Qualification of EFS Installer	1.4.2													
			Qualification of Sealant Applicator	1.4.3													
			Qualifications of Third Party														
			Inspector														
			Inspection Check List	3.5.1													
			SD-08 Manufacturer's Instructions														
			Installation	3.3													

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION

VEHICLE PAINT & PREP SHOP

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				REMARKS		
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	DATE RCD FRM APPR AUTH
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		07240	SD-10 Operation and Maintenance Data														
			EFS	1.7													
		07412A	SD-02 Shop Drawings														
			Metal Roofing														
			SD-04 Samples														
			Accessories	2.2													
			Roof Panels	2.1													
			Fasteners	2.3													
			Gaskets	2.6													
			Sealant	2.5													
			SD-07 Certificates														
			Roof Panels	2.1													
			Installation	3.1													
			Accessories	2.2													
			Installer	1.3.3													
			Warranties	1.7													
		07520	SD-03 Product Data														
			Acrylic roof coating														
			SD-04 Samples														
			Acrylic roof coating														
			SD-07 Certificates														
			Acrylic roof coating														
			SD-08 Manufacturer's Instructions														
			Manufacturer's material safety data sheets (MSDS)														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION
VEHICLE PAINT & PREP SHOP

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS	
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE			DATE OF ACTION
		07600	SD-02 Shop Drawings														
			Gutters	3.1.9													
			Downspouts	3.1.10													
			Expansion joints														
			Flashing at roof penetrations	3.1.13													
			SD-11 Closeout Submittals														
			Quality Control Plan	3.4													
		07840A	SD-02 Shop Drawings														
			Firestopping Materials	2.1													
			SD-07 Certificates														
			Firestopping Materials	2.1													
			Installer Qualifications	1.5													
			Inspection	3.3													
		07900A	SD-03 Product Data														
			Backing	2.1													
			Bond-Breaker	2.2													
			Sealant	2.4													
			SD-07 Certificates														
			Sealant	2.4													
		08115	SD-02 Shop Drawings														
			Doors	2.1													
			Frames	2.4													
			Accessories	2.2													
			SD-03 Product Data														
			Doors	2.1													
			Frames	2.4													

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		08115	Accessories	2.2													
		08210	SD-02 Shop Drawings														
			Doors	2.1													
			SD-03 Product Data														
			Doors	2.1													
			Accessories	2.2													
			warranty	1.4													
			SD-04 Samples														
			Doors	2.1													
		08330A	SD-02 Shop Drawings														
			Approved Detail Drawings	3.1													
			Installation	3.1													
			SD-03 Product Data														
			Stainless Steel Overhead Rolling	2.1													
			Doors														
			SD-10 Operation and Maintenance														
			Data														
			Operation and Maintenance	1.6													
			Manuals														
		08560	SD-02 Shop Drawings														
			Windows	2.2.1													
			SD-03 Product Data														
			Windows	2.2.1													
			Fasteners	2.4.4													
			Accessories	2.4.5													
			SD-04 Samples														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION

CONTRACTOR

VEHICLE PAINT & PREP SHOP

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				REMARKS		
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	DATE RCD FRM APPR AUTH
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		08560	Windows	2.2.1	G												
			SD-10 Operation and Maintenance Data														
			Windows	2.2.1													
		08710	SD-02 Shop Drawings														
			Hardware schedule	1.3	G												
			Keying System	2.3.5	G												
			SD-03 Product Data														
			Hardware items	2.3													
			SD-08 Manufacturer's Instructions														
			Installation	3.1													
			SD-11 Closeout Submittals														
			Key bitting	1.4													
		08810A	SD-03 Product Data														
			Insulating Glass	2.1													
			Glazing Accessories	2.4													
			SD-04 Samples														
			Insulating Glass	2.1													
			SD-07 Certificates														
			Insulating Glass	2.1													
		09100N	SD-02 Shop Drawings														
			Metal support systems	2.1													
		09215	SD-03 Product Data														
			Gypsum base	2.1.2													
			Gypsum veneer plaster	2.1.3													
		09250	SD-03 Product Data														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION

CONTRACTOR

VEHICLE PAINT & PREP SHOP

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS	
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE			DATE OF ACTION
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		09250	Cementitious backer units	2.1.4													
			Water-Resistant Gypsum Backing Board	2.1.2													
			Accessories	2.1.7													
			SD-07 Certificates														
			Asbestos Free Materials	2.1													
		09310	SD-03 Product Data														
			Tile	2.1													
			Setting-Bed	2.2													
			Mortar and Grout	2.4													
			SD-04 Samples														
			Tile	2.1													
			Accessories	2.1.3													
			Marble Thresholds	2.5													
			SD-06 Test Reports														
			Testing														
			SD-07 Certificates														
			Tile	2.1													
			Mortar and Grout	2.4													
		09510	SD-02 Shop Drawings														
			Approved Detail Drawings	1.3													
			SD-03 Product Data														
			Acoustical Ceiling Systems														
			SD-04 Samples														
			Acoustical Units	2.1													
			SD-06 Test Reports														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		09510	Ceiling Attenuation Class and Test	1.3.1													
			SD-07 Certificates														
			Acoustical Units	2.1													
		09650	SD-02 Shop Drawings														
			Tile Flooring	2.1													
			SD-03 Product Data														
			Tile Flooring	2.1													
			Adhesive for Vinyl Composition Tile	2.1.2													
			Adhesive for Wall Base	2.1.3													
			SD-04 Samples														
			Tile Flooring	2.1	G												
			Wall Base	2.3	G												
			SD-06 Test Reports														
			Moisture Test	3.3													
			SD-08 Manufacturer's Instructions														
			Tile Flooring	2.1													
			SD-10 Operation and Maintenance Data														
			Tile Flooring	2.1													
		09900	SD-03 Product Data														
			Coating	2.1													
			Manufacturer's Technical Data Sheets	2.1													
			SD-04 Samples														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION

VEHICLE PAINT & PREP SHOP

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				REMARKS		
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		09900	Color	1.9	G												
			SD-07 Certificates														
			Applicator's qualifications	1.3													
			Qualification Testing	1.4.1.2													
			SD-08 Manufacturer's Instructions														
			Application instructions														
			Mixing	3.6.2													
			Manufacturer's Material Safety	1.7.2													
			Data Sheets														
			SD-10 Operation and Maintenance														
			Data														
			Coatings	2.1													
		10153	SD-02 Shop Drawings														
			Toilet Partition System														
			SD-03 Product Data														
			Toilet Partition System														
			SD-04 Samples														
			Toilet Partition System														
		10201	SD-02 Shop Drawings														
			Metal Wall Louvers	2.1													
			SD-03 Product Data														
			Metal Wall Louvers	2.1													
		10260	SD-02 Shop Drawings														
			Corner Guards	2.2													
			SD-03 Product Data														
			Corner Guards	2.2													

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION
VEHICLE PAINT & PREP SHOP

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS	
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE			DATE OF ACTION
		10260	SD-04 Samples Finish	2.3	G												
			SD-06 Test Reports Corner Guards	2.2													
			SD-07 Certificates Corner Guards	2.2													
		10430	SD-02 Shop Drawings Approved Detail Drawings	3.1													
			SD-04 Samples Exterior Signs														
			SD-10 Operation and Maintenance Data Protection and Cleaning														
		10440	SD-02 Shop Drawings Detail Drawings	3.1													
			SD-03 Product Data Installation	3.1													
			SD-04 Samples Interior Signage	1.3	G												
		10505	SD-02 Shop Drawings Solid plastic lockers	2.1													
			SD-03 Product Data Solid plastic lockers	2.1													
			SD-04 Samples Solid plastic lockers	2.1													
		10520	SD-03 Product Data														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION

VEHICLE PAINT & PREP SHOP

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS	
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE			DATE OF ACTION
		10520	Fire Extinguishers														
			Fire Extinguisher Cabinets														
		10800	SD-03 Product Data														
			Finishes	2.1.2													
			Accessory Items	2.2													
			SD-04 Samples														
			Finishes	2.1.2													
			Accessory Items	2.2													
			SD-07 Certificates														
			Accessory Items	2.2													
		11312	SD-03 Product Data														
			Pipe and fittings														
			Check valves														
			Gate valves														
			Submersible sewage pumps														
			Pump motor														
			Flexible flanged coupling														
			SD-10 Operation and Maintenance														
			Data														
			Submersible Sewage Pumps														
		11502	SD-02 Shop Drawings														
			Paint spray booth														
			Air intake system														
			Exhaust system with 3-stage paint														
			arrestor filter system														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION						CONTRACTOR											
VEHICLE PAINT & PREP SHOP						CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
		11502	Electric automatic roll-up metal doors with manual override														
			Lighting system														
			Breathing air supply system and piping to paint booth														
			Compressed (service) air supply piping to paint booth														
			Electrical Controls, Alarms & Starter Disconnect														
			Two-stage air makeup pocket salt filter and paint booth ceiling air makeup filter system														
			Electrical Distribution System														
			SD-03 Product Data														
			Paint Spray Booth														
			Air Intake System														
			Exhaust System with 3-stage Paint arrestor Filter system														
			Electric Automatic Roll-up Metal Doors with manual override														
			Lighting System														
			Breathing Air Supply System, purifiers, carbon monoxide monitor, alarm, filter, and hoses														
			Spare Parts Data														
			Posted Instructions														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION						CONTRACTOR											
VEHICLE PAINT & PREP SHOP						CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	GOVT CLASSIFICATION OR REVIEW NUMBER	SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
		11502	Verification of Dimensions														
			System Performance Test														
			Demonstrations														
			SD-05 Design Data														
			Paint Spray Booth - Side-Draft														
			Calculations														
			SD-06 Test Reports														
			System Performance Tests														
			SD-10 Operation and Maintenance														
			Data														
			Operation Manuals														
			Maintenance Manuals														
		11503	SD-02 Shop Drawings														
			Abrasive Blast Room														
			Recovery System														
			Equipment Room														
			Dust Collector														
			Salt Filter Air Makeup System and														
			Ductwork														
			Air Intake System														
			SD-03 Product Data														
			Dust Collector														
			Recovery System														
			Abrasive Reclaim Machine														
			Blast Machine														
			Operator Safety Gear														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	GOVT CLASSIFICATION REVIEW NUMBER	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		11503	Storage Hopper														
			Spare Parts Data														
			Posted Instructions														
			Verification of Dimensions														
			System Performance Test														
			Demonstrations														
			SD-05 Design Data														
			Dust Collector														
			Grit recovery system														
			Abrasive reclaim machine														
			Blast machine														
			Abrasive Calculations														
			SD-06 Test Reports														
			System Performance Tests														
			SD-07 Certificates														
			Abrasive Blast System														
			SD-10 Operation and Maintenance														
			Data														
			Operation Manuals														
			Maintenance Manuals														
		11504	SD-02 Shop Drawings														
			Hydro Blast System														
			Residue Collector														
			SD-03 Product Data														
			Spare Parts Data														
			Posted Instructions														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION						CONTRACTOR											
VEHICLE PAINT & PREP SHOP						CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
		11504	Verification of Dimensions														
			System Performance Test														
			Demonstrations														
			SD-06 Test Reports														
			System Performance Tests														
			SD-07 Certificates														
			Hydro Blast System														
			SD-10 Operation and Maintenance														
			Data														
			Operation Manuals														
			Maintenance Manuals														
		11505	SD-03 Product Data														
			Metalization Booth (acoustical)														
			Make up air system														
			Dust Collector														
			Electric acoustical automatic														
			Roll-up Metal Doors with manual														
			override														
			Lighting System														
			Breathing Air purifiers and supply														
			air piping to Metalization Booth														
			Compressed (Service) Air Supply														
			Piping to Paint Booth														
			Electrical Controls, Alarms &														
			Starter Disconnect														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		11505	Two-stage Air Makeup Pocket Salt Filter and Metalization Booth Air Makeup Filter System Spare Parts Data Posted Instructions Verification of Dimensions System Performance Test Demonstrations SD-05 Design Data Metalization Booth - Ventilation Calculations SD-06 Test Reports System Performance Tests Metalization Booth Dust Collector Breathing Air Supply System, purifiers, carbon monoxide monitor, alarm, filter, and hoses SD-07 Certificates Metalization Booth Dust Collector SD-10 Operation and Maintenance Data Operation Manuals Maintenance Manuals Metalization Booth														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		11505	Dust Collector														
			Electrical Controls, Alarms & Starter Disconnect														
			Electric acoustical automatic Roll-up Metal Doors with manual override														
			Posted Operating Instructions														
		12490A	SD-02 Shop Drawings														
			Approved Detail Drawings	3.1													
			SD-03 Product Data														
			Window Treatments	3.1													
			Hardware	1.3													
			SD-04 Samples														
			Window Treatments	3.1													
		13080	SD-02 Shop Drawings														
			Bracing	3.1													
			Resilient Vibration Isolation Devices	3.4													
			Equipment Requirements	1.4													
			SD-03 Product Data														
			Bracing	3.1													
			Equipment Requirements	1.4													
		13281A	SD-03 Product Data														
			Materials and Equipment	1.18													
			Expendable Supplies	1.19													
			Qualifications	1.5	G												

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		13281A	SD-06 Test Reports														
			Pressure Differential Log	3.1.3													
			Licences, Permits, and Notifications		G												
			Accident Prevention Plan (APP)	1.7	G												
			Sampling and Analysis	1.13	G												
			Clearance Report	3.7	G												
		13286N	SD-07 Certificates														
			Qualifications of CIH	1.8.1	G												
			Training Certification	1.8.1	G												
			PCB and Lamp Removal Work Plan	1.8.2	G												
			PCB and Lamp Disposal Plan	1.8.3	G												
			SD-11 Closeout Submittals														
			Transporter certification	3.5.2	G												
			Certification of Decontamination	3.2.4													
			Certificate of Disposal and/or recycling	3.5.2.1													
			Testing results														
		13851A	SD-02 Shop Drawings														
			Fire Alarm Reporting System	1.4.1	G												
			SD-03 Product Data														
			Storage Batteries	2.2	G												
			Voltage Drop		G												
			Special Tools and Spare Parts	2.7.3	G												

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		13851A	Technical Data and Computer Software	1.5	G												
			Training	3.6	G												
			Testing	3.5	G												
			SD-06 Test Reports														
			Testing	3.5	G												
			SD-07 Certificates														
			Equipment		G												
			Qualifications	1.3.7	G												
			SD-10 Operation and Maintenance														
			Data														
			Technical Data and Computer Software	1.5	G												
		13920A	SD-02 Shop Drawings														
			Installation Requirements	3.3	G												
			As-Built Drawings		G												
			SD-03 Product Data														
			Fire Pump Installation Related	3.1	G												
			Submittals														
			Installation Requirements	3.3	G												
			Spare Parts		G												
			Preliminary Test	3.8.2	G												
			System Diagrams		G												
			Fire Protection Specialist	1.9	G												
			Manufacturer's Representative	1.10	G												
			Field Training	3.10	G												

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION REVIEW NO	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		13920A	Final Acceptance Test	3.8.3	G												
			SD-06 Test Reports														
			Preliminary Test	3.8.2	G												
			Final Acceptance Test	3.8.3	G												
			SD-07 Certificates														
			Qualifications of Installer		G												
			Fire Protection Specialist	1.9	G												
			SD-10 Operation and Maintenance														
			Data														
			Fire Pumps	3.8.2	G												
		13930A	SD-02 Shop Drawings														
			Shop Drawings	1.12	G												
			As-Built Drawings	3.11	G												
			SD-03 Product Data														
			Fire Protection Related Submittals	3.1	G												
			Sway Bracing	3.4.1	G												
			Materials and Equipment	2.3	G												
			Hydraulic Calculations	1.7	G												
			Spare Parts	1.11	G												
			Preliminary Tests	3.10	G												
			Final Acceptance Test	3.11	G												
			On-site Training	3.12	G												
			Fire Protection Specialist	1.8	G												
			Sprinkler System Installer	1.9	G												
			SD-06 Test Reports														
			Preliminary Test Report	3.11	G												

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION
VEHICLE PAINT & PREP SHOP

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS	
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE			DATE OF ACTION
		13930A	Final Acceptance Test Report	3.11	G												
			SD-07 Certificates														
			Inspection by Fire Protection Specialist	3.3	G												
			SD-10 Operation and Maintenance Data														
			Operating and Maintenance Instructions	3.12	G												
		15070A	SD-02 Shop Drawings														
			Coupling and Bracing	3.1													
			Flexible Couplings or Joints	3.3													
			Equipment Requirements	1.3													
			Contractor Designed Bracing	1.2.4													
			SD-03 Product Data														
			Coupling and Bracing	3.1													
			Equipment Requirements	1.3													
			Contractor Designed Bracing	1.2.4													
			SD-07 Certificates														
			Flexible Ball Joints	2.2													
		15080A	SD-02 Shop Drawings														
			Mica Plates	3.2.2.4													
			SD-03 Product Data														
			General Materials	2.1													
			SD-04 Samples														
			Thermal Insulation Materials														
		15182A	SD-02 Shop Drawings														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		15182A	Refrigerant Piping System	2.3													
			SD-03 Product Data														
			Materials and Equipment	2.1													
			Spare Parts	1.6.3													
			Qualifications	1.3													
			Refrigerant Piping Tests	3.3													
			Demonstrations	3.4													
			Verification of Dimensions	1.6.1													
			SD-06 Test Reports														
			Refrigerant Piping Tests	3.3													
			SD-07 Certificates														
			Service Organization	2.1													
			SD-10 Operation and Maintenance														
			Data														
			Operation Manual	3.3													
			Maintenance Manuals	3.4													
		15400A	SD-02 Shop Drawings														
			Plumbing System	3.8.1													
			Electrical Work	1.4													
			SD-03 Product Data														
			Welding	1.5.1													
			Plumbing Fixture Schedule	3.9													
			Vibration-Absorbing Features	3.4													
			Plumbing System	3.8.1													
			SD-06 Test Reports														
			Tests, Flushing and Disinfection	3.8													

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION

VEHICLE PAINT & PREP SHOP

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS	
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE			DATE OF ACTION
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	15400A		Test of Backflow Prevention Assemblies	3.8.1.1													
			SD-07 Certificates														
			Materials and Equipment	1.3													
			Bolts	2.1.1													
			SD-10 Operation and Maintenance Data														
			Plumbing System	3.8.1													
	15700A		SD-02 Shop Drawings														
			Drawings														
			SD-03 Product Data														
			Unitary Equipment, Rooftop Package System (RTU-1)	2.4													
			Unitary Equipment, Rooftop Package System (RTU-2)	2.5													
			Spare Parts Data														
			Posted Instructions	3.5													
			Verification of Dimensions	1.5.1													
			System Performance Tests	3.4													
			Demonstrations	3.5													
			SD-06 Test Reports														
			Refrigerant Tests, Charging, and Start-Up	3.3													
			System Performance Tests	3.4													
			SD-07 Certificates														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION

CONTRACTOR

VEHICLE PAINT & PREP SHOP

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS	
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE			DATE OF ACTION
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		15700A	Unitary Equipment, Rooftop Package System (RTU-1)	2.4													
			Unitary Equipment, Rooftop Package System (RTU-2)	2.5													
			Service Organization	2.1													
			SD-10 Operation and Maintenance Data														
			Operation Manuals														
			Maintenance Manuals	3.5													
		15895	SD-02 Shop Drawings														
			Drawings	3.1.4													
			Installation	3.1													
			SD-03 Product Data														
			Components and Equipment	2.1													
			Test Procedures														
			Welding Procedures														
			Diagrams	3.1													
			Manufacturer's Exerience														
			Welded Joints														
			Performance Tests	3.4													
			Field Training	3.6													
			SD-06 Test Reports														
			Performance Tests	3.4													
			Testing, Adjusting, and Balancing	3.3													
			SD-07 Certificates														
			Bolts														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION

VEHICLE PAINT & PREP SHOP

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS		
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE			DATE OF ACTION	
																		(g)
		15895	SD-10 Operation and Maintenance Data															
			Operating and Maintenance Instructions	3.6														
		15950A	SD-02 Shop Drawings Drawings	1.3.2														
			SD-03 Product Data HVAC Control System	1.5														
			Service Organizations	2.1														
			Equipment Compliance Booklet	1.6														
			Commissioning Procedures	3.4														
			Performance Verification Test Procedures	1.6														
			Training Course Requirements	3.6.1														
			SD-06 Test Reports Commissioning Report	3.5.3														
			Performance Verification Test	3.5.3														
			SD-07 Certificates Air Storage Tank															
			SD-10 Operation and Maintenance Data															
			Operation Manual	1.5														
			Maintenance and Repair Manual	1.6														
		15990A	SD-02 Shop Drawings TAB Schematic Drawings and Report Forms	3.3														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION

CONTRACTOR

VEHICLE PAINT & PREP SHOP

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				REMARKS		
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	DATE RCD FRM APPR AUTH
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		15990A	SD-03 Product Data														
			TAB Related HVAC Submittals	3.2													
			TAB Procedures	3.5.1													
			Calibration	1.4													
			Systems Readiness Check	3.5.2													
			TAB Execution	3.5.1													
			TAB Verification	3.5.4													
			SD-06 Test Reports														
			Design Review Report	3.1													
			Systems Readiness Check	3.5.2													
			TAB Report	3.5.3													
			TAB Verification Report	3.5.4													
			SD-07 Certificates														
			Ductwork Leak Testing	3.4													
			TAB Firm	1.5.1													
			TAB Specialist	1.5.2													
		15995A	SD-03 Product Data														
			Commissioning Team	3.1													
			Tests	3.2													
			Pre-Commissioning Checks	3.2.1													
			SD-06 Test Reports														
			Test Reports	3.2													
		16070A	SD-02 Shop Drawings														
			Lighting Fixtures in Buildings	3.2													
			Equipment Requirements	1.4													
			SD-03 Product Data														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		16070A	Lighting Fixtures in Buildings	3.2													
			Equipment Requirements	1.4													
			Contractor Designed Bracing	1.3.4													
		16375A	SD-02 Shop Drawings														
			Electrical Distribution System	3.10.3													
			As-Built Drawings														
			SD-03 Product Data														
			Fault Current Analysis	2.17.4													
			Protective Device	2.17													
			Coordination Study	2.17.5													
			Nameplates	2.2													
			Material and Equipment	2.1													
			General Installation Requirements	3.1													
			SD-06 Test Reports														
			Factory Tests	2.16													
			Field Testing	3.10													
			Operating Tests	3.10.8													
			Cable Installation	3.2.1.4													
			SD-07 Certificates														
			Material and Equipment	2.1													
			Cable Joints	3.3													
			Cable Installer Qualifications														
			SD-10 Operation and Maintenance Data														
			Electrical Distribution System	3.10.3													
		16415A	SD-02 Shop Drawings														

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION VEHICLE PAINT & PREP SHOP						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		16415A	Interior Electrical Equipment														
			SD-03 Product Data														
			Fault Current and Protective														
			Device Coordination Study														
			Manufacturer's Catalog														
			Material, Equipment, and Fixture														
			Lists														
			Installation Procedures														
			As-Built Drawings	1.2.6													
			Onsite Tests	3.20.2													
			SD-06 Test Reports														
			Factory Test Reports														
			Field Test Plan														
			Field Test Reports	3.18	G												
			SD-07 Certificates														
			Materials and Equipment	1.4													
		16528A	SD-02 Shop Drawings														
			Lighting System	1.3.1													
			Detail Drawings														
			As-Built Drawings														
			SD-03 Product Data														
			Equipment and Materials	1.3.4													
			Spare Parts														
			SD-06 Test Reports														
			Operating Test	3.6.1													

SUBMITTAL REGISTER

CONTRACT NO.
PN50845

TITLE AND LOCATION
VEHICLE PAINT & PREP SHOP

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				REMARKS		
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	DATE RCD FRM APPR AUTH
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		16528A	Ground Resistance Measurements														
			SD-10 Operation and Maintenance Data														
			Lighting System	1.3.1													
		16710A	SD-02 Shop Drawings														
			Premises Distribution System Installation	1.7 3.1													
			SD-03 Product Data														
			Record Keeping and Documentation														
			Spare Parts	3.1.8													
			Manufacturer's Recommendations	3.1.2													
			Test Plan	3.6													
			Qualifications	1.5													
			SD-06 Test Reports														
			Test Reports	3.6													
			SD-07 Certificates														
			Premises Distribution System	1.7													
			Materials and Equipment	2.1													
			Installers	1.5.1													
		16711A	SD-02 Shop Drawings														
			Telephone System														
			Installation	3.1													
			Record Drawings														
			SD-03 Product Data														

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01525

SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 SUBMITTALS
- 1.3 DEFINITIONS
- 1.4 REGULATORY REQUIREMENTS
- 1.5 DRUG PREVENTION PROGRAM
- 1.6 SITE QUALIFICATIONS, DUTIES AND MEETINGS
 - 1.6.1 Personnel Qualifications
 - 1.6.1.1 Site Safety and Health Officer (SSHO)
 - 1.6.2 Personnel Duties
 - 1.6.2.1 Site Safety and Health Officer (SSHO)
 - 1.6.3 Meetings
 - 1.6.3.1 Safety Coordination Meeting
 - 1.6.3.2 Weekly Safety Meetings
 - 1.6.3.3 3-Phase Control Meetings
- 1.7 TRAINING
 - 1.7.1 New Employee Indoctrination
 - 1.7.2 Periodic Training
 - 1.7.3 Training on Activity Hazard Analysis (AHA)
- 1.8 ACCIDENT PREVENTION PLAN (APP)
 - 1.8.1 EM 385-1-1 Contents
 - 1.8.2 Plan Acceptance
- 1.9 ACTIVITY HAZARD ANALYSIS (AHA)
- 1.10 DISPLAY OF SAFETY INFORMATION
- 1.11 SITE SAFETY REFERENCE MATERIALS
- 1.12 EMERGENCY MEDICAL TREATMENT
- 1.13 REPORTS
 - 1.13.1 Accident Reports
 - 1.13.2 Accident Notification
 - 1.13.3 Monthly Exposure Reports
 - 1.13.4 Regulatory Citations and Violations
 - 1.13.5 Crane Reports
- 1.14 HOT WORK

PART 2 PRODUCTS

- 2.1 CONFINED SPACE SIGNAGE

PART 3 EXECUTION

- 3.1 CONSTRUCTION AND/OR OTHER WORK
 - 3.1.1 Hazardous Material Use
 - 3.1.2 Hazardous Material Exclusions
 - 3.1.3 Unforeseen Hazardous Material
- 3.2 PRE-OUTAGE COORDINATION MEETING

- 3.3 FALL HAZARD PROTECTION AND PREVENTION PROGRAM
 - 3.3.1 Training
 - 3.3.2 Fall Protection Equipment
 - 3.3.2.1 Personal Fall Arrest Equipment
 - 3.3.3 Fall Protection for Roofing Work
 - 3.3.4 Safety Nets
 - 3.3.5 Existing Anchorage
 - 3.3.6 Horizontal Lifelines
 - 3.3.7 Guardrail Systems
 - 3.3.8 Rescue and Evacuation Procedures
- 3.4 SCAFFOLDING
 - 3.4.1 Stilts
- 3.5 EQUIPMENT
 - 3.5.1 Material Handling Equipment
 - 3.5.2 Equipment and Mechanized Equipment
- 3.6 EXCAVATIONS
 - 3.6.1 Utility Locations
 - 3.6.2 Utility Location Verification
 - 3.6.3 Utilities with Concrete Slabs
 - 3.6.4 Shoring Systems
 - 3.6.5 Trenching Machinery
- 3.7 ELECTRICAL
 - 3.7.1 Conduct of Electrical Work
 - 3.7.2 Portable Extension Cords
- 3.8 WORK IN CONFINED SPACES
- 3.9 CRYSTALLINE SILICA
- 3.10 HOUSEKEEPING
 - 3.10.1 Clean-Up
 - 3.10.2 Falling Object Protection

-- End of Section Table of Contents --

SECTION 01525

SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS

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 Z359.1 (1992; R 1999) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 241 (2000) Safeguarding Construction, Alteration, and Demolition Operations

NFPA 51B (2003) Fire Prevention During Welding, Cutting, and Other Hot Work

NFPA 70 (2002) National Electrical Code

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2003) Safety and Health Requirements Manual

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910 Occupational Safety and Health Standards

29 CFR 1910.146 Permit-required Confined Spaces

29 CFR 1910.94 Ventilation

29 CFR 1915 Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment

29 CFR 1926 Safety and Health Regulations for Construction

29 CFR 1926.500 Fall Protection

1.2 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

Accident Prevention Plan (APP); G

Activity Hazard Analysis (AHA); G

Crane Critical Lift Plan; G

Crane Work Plan; G

Proof of qualification for Crane Operators; G

SD-06 Test Reports

Reports

Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."

Accident Reports

Monthly Exposure Reports

Regulatory Citations and Violations

Crane Reports

SD-07 Certificates

Confined Space Entry Permit

1.3 DEFINITIONS

- a. Associate Safety Professional (ASP). An individual who is currently certified as an ASP by the Board of Certified Safety Professionals.
- b. Certified Construction Health & Safety Technician (CHST). An individual who is currently certified as a CHST by the Board of Certified Safety Professionals.
- c. Certified Industrial Hygienist (CIH). An individual who is currently certified as a CIH by the American Board of Industrial Hygiene.
- d. Certified Safety Professional (CSP). An individual who is currently certified as a CSP by the Board of Certified Safety Professionals.
- e. Certified Safety Trained Supervisor (CSTS). An individual who is currently certified as an STS by the Board of Certified Safety Professionals.
- f. Competent Person for Fall Protection. A person who is capable of identifying hazardous or dangerous conditions in the personal fall

arrest system or any component thereof, as well as their application and use with related equipment, and has the authority to take prompt corrective measures to eliminate the hazards of falling.

- g. High Visibility Accident. Any mishap which may generate publicity and/or high visibility.
- h. Low-slope roof. A roof having a slope less than or equal to 4 in 12 (vertical to horizontal).
- i. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.
- j. Multi-Employer Work Site (MEWS). A multi-employer work site, as defined by OSHA, is one in which many employers occupy the same site. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors.
- k. Operating Envelope. The area surrounding any crane. Inside this "envelope" is the crane, the operator, riggers, rigging gear between the hook and the load, the load and the crane's supporting structure (ground, rail, etc.).
- l. Qualified Person for Fall Protection. A person with a recognized degree or professional certificate, extensive knowledge, training and experience in the field of fall protection who is capable of performing design, analysis, and evaluation of fall protection systems and equipment.
- m. Recordable Injuries or Illnesses. Any work-related injury or illness that results in:
 - (1) Death, regardless of the time between the injury and death, or the length of the illness;
 - (2) Days away from work;
 - (3) Restricted work;
 - (4) Transfer to another job;
 - (5) Medical treatment beyond first aid;
 - (6) Loss of consciousness; or
 - (7) A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.
- n. Site Safety and Health Officer (SSHO). The superintendent or other qualified or competent person who is responsible for the on-site safety and health required for the project. The CQC System Manager (CQCSM) cannot be the SSHO, even though the CQCSM has safety inspection responsibilities as part of the QC duties.

- o. Steep roof. A roof having a slope greater than 4 in 12 (vertical to horizontal).
- p. "USACE" property and equipment specified in USACE EM 385-1-1 should be interpreted as Government property and equipment.

1.4 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, work performed shall comply with USACE EM 385-1-1, and the following Federal, State, and local, laws, ordinances, criteria, rules and regulations of USAKA, Marshall Islands. Submit matters of interpretation of standards 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.

1.5 DRUG PREVENTION PROGRAM

Conduct a proactive drug and alcohol use prevention program for all workers, prime and subcontractor, on the site. Ensure that no employee uses illegal drugs or consumes alcohol during work hours. Ensure there are no employees under the influence of drugs or alcohol during work hours. After accidents, collect blood, urine, or saliva specimens and test the injured and involved employees for the influence of drugs and alcohol. A copy of the test shall be made available to the Contracting Officer upon request.

1.6 SITE QUALIFICATIONS, DUTIES AND MEETINGS

1.6.1 Personnel Qualifications

1.6.1.1 Site Safety and Health Officer (SSHO)

Site Safety and Health Officer (SSHO) shall be provided at the work site at all times to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. The SSHO shall meet the following requirements:

Level 3:

- A minimum of 5 years safety work on similar projects.
- 30-hour OSHA construction safety class or equivalent within the last 5 years.
- An average of at least 24 hours of formal safety training each year for the past 5 years.
- Competent person training as needed.

1.6.2 Personnel Duties

1.6.2.1 Site Safety and Health Officer (SSHO)

- a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Safety inspection logs shall be attached to the Contractors' daily quality control report.
- b. Conduct mishap investigations and complete required reports. Maintain the OSHA Form 300 and Daily Production reports for prime

and sub-contractors.

- c. Maintain applicable safety reference material on the job site.
- d. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.
- e. Implement and enforce accepted APPS and AHAs.
- f. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. A list of unresolved safety and health deficiencies shall be posted on the safety bulletin board.
- g. Ensure sub-contractor compliance with safety and health requirements.

Failure to perform the above duties may result in dismissal of the SSHO, and/or a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

1.6.3 Meetings

1.6.3.1 Safety Coordination Meeting

- a. The Contractor will be informed, in writing, of the date of the safety coordination meeting. The purpose of the safety coordination meeting is for the Contractor and the Contracting Officer's representatives to become acquainted and explain the functions and operating procedures of their respective organizations and to reach mutual understanding relative to the administration of the overall project's Accident Prevention Plan (APP) before the initiation of work.
- b. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the safety coordination meeting. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).
- c. The Contractor shall discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the meeting and an agreement will be reached between the Contractor and the Contracting Officer's representative as to which phases will require an analysis. In addition, a schedule for the preparation, submittal, review, and acceptance of AHAs shall be established to preclude project delays.
- d. Deficiencies in the submitted APP will be brought to the attention of the Contractor at the safety coordination meeting, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Work shall not begin until there is an accepted APP.

- e. The functions of a safety coordination meeting may take place at the Post-Award Kickoff meeting for Design Build Contracts.

1.6.3.2 Weekly Safety Meetings

Conduct weekly safety meetings at the project site for all employees. The Contracting Officer will be informed of the meeting in advance and be allowed attendance. Minutes showing contract title, signatures of attendees and a list of topics discussed shall be attached to the Contractors' daily quality control report.

1.6.3.3 3-Phase Control Meetings

The appropriate AHA shall be reviewed and attendance documented by the Contractor at the preparatory, initial, and follow-up phases of quality control inspection. The analysis should be used during daily inspections to ensure the implementation and effectiveness of safety and health controls.

1.7 TRAINING

1.7.1 New Employee Indoctrination

New employees (prime and sub-contractor) will be informed of specific site hazards before they begin work. Documentation of this orientation shall be kept on file at the project site.

1.7.2 Periodic Training

Provide Safety and Health Training in accordance with USACE EM 385-1-1 and the accepted APP. Ensure all required training has been accomplished for all onsite employees.

1.7.3 Training on Activity Hazard Analysis (AHA)

Prior to beginning a new feature of work, training will be provided to all affected employees to include a review of the AHA to be implemented.

1.8 ACCIDENT PREVENTION PLAN (APP)

The Contractor shall use a qualified person to prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of USACE EM 385-1-1 and as supplemented herein. Cover all paragraph and subparagraph elements in USACE EM 385-1-1, Appendix A, "Minimum Basic Outline for Preparation of Accident Prevention Plan". Where a paragraph or subparagraph element is not applicable to the work to be performed indicate "Not Applicable" next to the heading. Specific requirements for some of the APP elements are described below at paragraph 1.8.1. The APP shall be job-specific and shall address any unusual or unique aspects of the project or activity for which it is written. The APP shall interface with the Contractor's overall safety and health program. The APP shall include an executed POD Form 248-R rev (1 Jun 98), Accident Prevention Program, Administrative Plan.

Any portions of the Contractor's overall safety and health program referenced in the APP shall be included in the applicable APP element and made site-specific. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their

subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP shall be signed by the person and firm (senior person) preparing the APP, the Contractor, the on-site superintendent, the designated site safety and health officer and any designated CSP and/or CIH.

Submit the APP to the Contracting Officer 15 calendar days prior to the date of the safety coordination meeting for acceptance. Work cannot proceed without an accepted APP. The Contracting Officer reviews and comments on the Contractor's submitted APP and accepts it when it meets the requirements of the contract provisions.

Once accepted by the Contracting Officer, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified.

Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and quality control manager. Should any unforeseen hazard become evident during the performance of work, the project superintendent shall inform 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.

Copies of the accepted plan will be maintained at the resident engineer's office and at the job site. The APP shall be continuously reviewed and amended, as necessary, throughout the life of the contract. Unusual or high-hazard activities not identified in the original APP shall be incorporated in the plan as they are discovered.

1.8.1 EM 385-1-1 Contents

In addition to the requirements outlined in Appendix A of USACE EM 385-1-1, the following is required:

- a. Names and qualifications (resumes including education, training, experience and certifications) of all site safety and health personnel designated to perform work on this project to include the designated site safety and health officer and other competent and qualified personnel to be used such as CSPs, CIHs, STSs, CHSTs. The duties of each position shall be specified.
- b. Qualifications of competent and of qualified persons. As a minimum, competent persons shall be designated and qualifications submitted for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; personal protective equipment and clothing to include selection, use and maintenance.
- c. Confined Space Entry Plan. Develop a confined space entry plan in accordance with USACE EM 385-1-1, applicable OSHA standards 29 CFR 1910, 29 CFR 1915, and 29 CFR 1926, and any other federal, state

and local regulatory requirements identified in this contract. Identify the qualified person's name and qualifications, training, and experience. Delineate the qualified person's authority to direct work stoppage in the event of hazardous conditions. Include procedure for rescue by contractor personnel and the coordination with emergency responders. (If there is no confined space work, include a statement that no confined space work exists and none will be created.)

- d. Health Hazard Control Program. The Contractor shall designate a competent and qualified person to establish and oversee a Health Hazard Control Program in accordance with USACE EM 385-1-1, Section 6. The program shall ensure that employees, on-site Government representatives, and others, are not adversely exposed to chemical, physical and biological agents and that necessary controls and protective actions are instituted to ensure health.
- e. Crane Critical Lift Plan. Prepare and sign weight handling critical lift plans for lifts over 75 percent of the capacity of the crane or hoist (or lifts over 50 percent of the capacity of a barge mounted mobile crane's hoists) at any radius of lift; lifts involving more than one crane or hoist; lifts of personnel; and lifts involving non-routine rigging or operation, sensitive equipment, or unusual safety risks. The plan shall be submitted 15 calendar days prior to on-site work and include the requirements of USACE EM 385-1-1, paragraph 16.c.18. and the following:
 - (1) For lifts of personnel, the plan shall demonstrate compliance with the requirements of 29 CFR 1926.550(g).
 - (2) For barge mounted mobile cranes, barge stability calculations identifying barge list and trim based on anticipated loading; and load charts based on calculated list and trim. The amount of list and trim shall be within the crane manufacturer's requirements.
- f. Alcohol and Drug Abuse Plan
 - (1) Describe plan for random checks and testing with pre-employment screening in accordance with the DFAR Clause subpart 252.223-7004, "Drug Free Work Force."
 - (2) Description of the on-site prevention program
- g. Fall Protection and Prevention (FP&P) Plan. The plan shall be site specific and address all fall hazards in the work place and during different phases of construction. It shall address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 1.8 m (6 feet). A qualified person for fall protection shall prepare and sign the plan. The plan shall include fall protection and prevention systems, equipment and methods employed for every phase of work, responsibilities, assisted rescue, self-rescue and evacuation procedures, training requirements, and monitoring methods. Fall Protection and Prevention Plan shall be revised every six months for lengthy projects, reflecting any changes during the course of construction due to changes in personnel, equipment, systems or work habits. The accepted Fall Protection and Prevention Plan shall be kept and maintained at the job site for the duration of

the project. The Fall Protection and Prevention Plan shall be included in the Accident Prevention Plan (APP).

- h. Training Records and Requirements. List of mandatory training and certifications which are applicable to this project (e.g. explosive actuated tools, confined space entry, fall protection, crane operation, vehicle operator, forklift operators, personal protective equipment); list of requirements for periodic retraining/certification; outline requirements for supervisory and employee safety meetings.

1.8.2 Plan Acceptance

The Contractor shall not commence physical work at the site until the plan has been accepted by the Contracting officer, or his authorized representative. In developing and implementing its Accident Prevention Plan, the Contractor is also responsible for reviewing Section 1 of the most current edition of U.S. Army Corps of Engineers Safety and Health Requirement Manual EM 385-1-1.

1.9 ACTIVITY HAZARD ANALYSIS (AHA)

The Activity Hazard Analysis (AHA) format shall be prepared using POD Form 184-R, rev 16 Oct 98. Submit the AHA for review at least 15 calendar days prior to the start of each feature of work. Format subsequent AHA as amendments to the APP. An AHA will be developed by the Contractor for every operation involving a type of work presenting hazards not experienced in previous project operations or where a new work crew or subcontractor is to perform work. The analysis must identify and evaluate hazards and outline the proposed methods and techniques for the safe completion of each feature of work. At a minimum, define activity being performed, sequence of work, specific safety and health hazards anticipated, control measures (to include personal protective equipment) to eliminate or reduce each hazard to acceptable levels, equipment to be used, inspection requirements, training requirements for all involved, and the competent person in charge of that feature of work. For work with fall hazards, including fall hazards associated with scaffold erection and removal, identify the appropriate fall protection methods used. For work with materials handling equipment, address safeguarding measures related to materials handling equipment. For work requiring excavations, include requirements for safeguarding excavations. An activity requiring an AHA shall not proceed until the AHA has been accepted by the Contracting Officer's representative and a meeting has been conducted by the Contractor to discuss its contents with everyone engaged in the activity, including on-site Government representatives. The Contractor shall document meeting attendance at the preparatory, initial, and follow-up phases of quality control inspection. The AHA shall be continuously reviewed and, when appropriate, modified to address changing site conditions or operations. The analysis should be used during daily inspections to ensure the implementation and effectiveness of the activity's safety and health controls.

The AHA list will be reviewed periodically (at least monthly) at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change.

Activity hazard analyses shall be updated as necessary to provide an effective response to changing work conditions and activities. The on-site superintendent, site safety and health officer and competent persons used to develop the AHAs, including updates, shall sign and date the AHAs before

they are implemented.

1.10 DISPLAY OF SAFETY INFORMATION

Within 1 calendar days after commencement of work, erect a safety bulletin board at the job site. The following information shall be displayed on the safety bulletin board in clear view of the on-site construction personnel, maintained current, and protected against the elements and unauthorized removal:

- a. Map denoting the route to the nearest emergency care facility.
- b. Emergency phone numbers.
- c. Copy of the most up-to-date APP.
- d. Current AHA(s).
- e. OSHA 300A Form.
- f. OSHA Safety and Health Protection-On-The-Job Poster.
- g. Confined space entry permit.
- h. Hot work permit.
- i. A sign indicating the number of hours worked since last lost workday accident.
- j. Safety and Health Warning Posters.

1.11 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

1.12 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

1.13 REPORTS

1.13.1 Accident Reports

- a. All injuries, illness, and property damage, regardless of severity or magnitude are reportable. Reports shall be prepared on POD Form 265R and shall be submitted to the Contracting Officer no later than the end of the business day on which the incident occurred.
- b. For recordable injuries and illnesses, and property damage accidents resulting in at least \$2,000 in damages, the Prime Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the USACE Accident Report Form 3394 and provide the report to the Contracting Officer within 5 calendar day(s) of the accident. The Contracting Officer will provide copies of any required or special forms.

1.13.2 Accident Notification

Notify the Contracting Officer as soon as practical, but not later than four hours, after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than \$2,000. Information shall include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted.

1.13.3 Monthly Exposure Reports

Monthly exposure reporting to the Contracting Officer is required to be attached to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor. The Contracting Officer will provide copies of any special forms.

1.13.4 Regulatory Citations and Violations

Contact the Contracting Officer immediately of any OSHA or other regulatory agency inspection or visit, and provide the Contracting Officer with a copy of each citation, report, and contractor response. Correct violations and citations promptly and provide written corrective actions to the Contracting Officer.

1.13.5 Crane Reports

Submit crane inspection reports required in accordance with USACE EM 385-1-1, Appendix H and as specified herein with Daily Reports of Inspections.

1.14 HOT WORK

Prior to performing "Hot Work" (welding, cutting, etc.) or operating other flame-producing/spark producing devices, a written permit shall be requested from the Fire Department. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. The Contractor will provide at least two (2) twenty (20) pound 4A:20 BC rated extinguishers for normal "Hot Work". All extinguishers shall be current inspection tagged, approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch shall be trained in accordance with NFPA 51B and remain on-site for a minimum of 30 minutes after completion of the task or as specified on the hot work permit.

- a. Oil painting materials (paint, brushes, empty paint cans, etc.), and all flammable liquids shall be removed from the facility at quitting time. All painting materials and flammable liquids shall be stored outside in a suitable metal locker or box and will require re-submittal with non-hazardous materials.
- b. Accumulation of trays, paper, shavings, sawdust, boxes and other packing materials shall be removed from the facility at the close of each workday and such material disposed of in the proper

containers located away from the facility.

- c. The storage of combustible supplies shall be a safe distance from structures.
- d. Area outside the facility undergoing work shall be cleaned of trash, paper, or other discarded combustibles at the close of each workday.
- e. All portable electric devices (saws, sanders, compressors, extension chord, lights, etc.) shall be disconnected at the close of each workday. When possible, the main electric switch in the facility shall be deactivated.
- f. When starting work in the facility, Contractors shall require their personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency Fire Department phone number. ANY FIRE, NO MATTER HOW SMALL, SHALL BE REPORTED TO THE RESPONSIBLE FIRE DEPARTMENT IMMEDIATELY.

PART 2 PRODUCTS

2.1 CONFINED SPACE SIGNAGE

The Contractor shall provide permanent signs integral to or securely attached to access covers for new permit-required confined spaces. Signs wording: "DANGER--PERMIT-REQUIRED CONFINED SPACE - DO NOT ENTER -" in bold letters a minimum of 25 mm (one inch) in height and constructed to be clearly legible with all paint removed. The signal word "DANGER" shall be red and readable from 1.52 m (5 feet).

PART 3 EXECUTION

3.1 CONSTRUCTION AND/OR OTHER WORK

The Contractor shall comply with USACE EM 385-1-1, NFPA 241, the APP, the AHA, Federal and/or State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard shall prevail.

3.1.1 Hazardous Material Use

Each hazardous material must receive approval prior to being brought onto the job site or prior to any other use in connection with this contract. Allow a minimum of 10 working days for processing of the request for use of a hazardous material. Any work or storage involving hazardous chemicals or materials must be done in a manner that will not expose Government or Contractor employees to any unsafe or unhealthful conditions. Adequate protective measures must be taken to prevent Government or Contractor employees from being exposed to any hazardous condition that could result from the work or storage. The Prime Contractor shall keep a complete inventory of hazardous materials brought onto the work-site. Approval by the Contracting Officer of protective measures and storage area is required prior to the start of the work.

3.1.2 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing

ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with USACE EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials.

3.1.3 Unforeseen Hazardous Material

The design should have identified materials such as PCB, lead paint, and friable and non-friable asbestos. If additional material, not indicated, that may be hazardous to human health upon disturbance during construction operations is encountered, stop that portion of work and notify the Contracting Officer immediately. Within 14 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions."

3.2 PRE-OUTAGE COORDINATION MEETING

Contractors are required to apply for utility outages at least 15 days in advance. As a minimum, the request should include the location of the outage, utilities being affected, duration of outage and any necessary sketches. Special requirements for electrical outage requests are contained elsewhere in this specification section. Once approved, and prior to beginning work on the utility system requiring shut down, the Contractor shall attend a pre-outage coordination meeting with the Contracting Officer and the KRS Utilities Department to review the scope of work and the lock-out/tag-out procedures for worker protection. No work will be performed on energized electrical circuits unless proof is provided that no other means exist.

3.3 FALL HAZARD PROTECTION AND PREVENTION PROGRAM

The Contractor shall establish a fall protection and prevention program, for the protection of all employees exposed to fall hazards. The program shall include company policy, identify responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and escape procedures.

3.3.1 Training

The Contractor shall institute a fall protection training program. As part of the Fall Hazard Protection and Prevention Program, the Contractor shall provide training for each employee who might be exposed to fall hazards. A competent person for fall protection shall provide the training. Training requirements shall be in accordance with USACE EM 385-1-1, section 21.A.16.

3.3.2 Fall Protection Equipment

The Contractor shall enforce use of the fall protection equipment designated for each specific work activity in the Fall Protection and Prevention Plan and/or AHA at all times when an employee is on a surface

1.8 m (6 feet) or more above lower levels. Fall protection systems such as guardrails, personnel fall arrest system, safety nets, etc., are required when working within 1.8 m (6 feet) of any leading edge. In addition to the required fall protection systems, safety skiff, personal floatation devices, life rings etc., are required when working above or next to water in accordance with USACE EM 385-1-1, paragraphs 05.I. and 05.J. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall arrest systems are required when operating other equipment such as scissor lifts if the work platform is capable of being positioned outside the wheelbase. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, or travel. Fall protection must comply with 29 CFR 1926.500, Subpart M and USACE EM 385-1-1.

3.3.2.1 Personal Fall Arrest Equipment

Personal fall arrest equipment, systems, subsystems, and components shall meet ANSI Z359.1. Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest device. Body belts may only be used as a positioning device system (for uses such as steel reinforcing assembly and in addition to an approved fall arrest system). Harnesses shall have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Only locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber. The maximum free fall distance when using fall arrest equipment shall not exceed 1.8 m (6 feet). The total fall distance and any swinging of the worker (pendulum-like motion) that can occur during a fall shall always be taken into consideration when attaching a person to a fall arrest system.

3.3.3 Fall Protection for Roofing Work

Fall protection controls shall be implemented based on the type of roof being constructed and work being performed. The roof area to be accessed shall be evaluated for its structural integrity including weight-bearing capabilities for the projected loading.

a. Low Sloped Roofs:

(1) For work within 1.8 m (6 feet) of an edge, on low-slope roofs, personnel shall be protected from falling by use of personal fall arrest systems, guardrails, or safety nets. A safety monitoring system is not adequate fall protection and is not authorized.

(2) For work greater than 1.8 m (6 feet) from an edge, warning lines shall be erected and installed in accordance with 29 CFR 1926.500 and USACE EM 385-1-1.

b. Steep Roofs: Work on steep roofs requires a personal fall arrest system, guardrails with toe-boards, or safety nets. This requirement also includes residential or housing type construction.

3.3.4 Safety Nets

If safety nets are used as the selected fall protection system on the project, they shall be provided at unguarded work places, leading edge work

or when working over water, machinery, dangerous operations or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors, fall arrest systems or restraint/positioning systems are impractical. Safety nets shall be tested immediately after installation with a drop test of 181.4 kg (400 pounds) dropped from the same elevation a person might fall, and every six months thereafter.

3.3.5 Existing Anchorage

Existing anchorages, to be used for attachment of personal fall arrest equipment, shall be certified (or re-certified) by a qualified person for fall protection in accordance with ANSI Z359.1. Existing horizontal lifeline anchorages shall be certified (or re-certified) by a registered professional engineer with experience in designing horizontal lifeline systems.

3.3.6 Horizontal Lifelines

Horizontal lifelines shall be designed, installed, certified and used under the supervision of a qualified person for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (29 CFR 1926.500).

3.3.7 Guardrail Systems

Guardrails shall consist of top and mid-rails, post and toe boards. The top edge height of standard railing must be 42 inches plus or minus 3 inches above the walking/working level. When mid-rails are used, they must be installed at a height midway between the top edge of the guardrail system and the walking/working level. Posts shall be placed no more than 8 feet apart (29 CFR 1926.500 and USACE EM 385-1-1).

3.3.8 Rescue and Evacuation Procedures

When personal fall arrest systems are used, the contractor must ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. A Rescue and Evacuation Plan shall be prepared by the contractor and include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. The Rescue and Evacuation Plan shall be included in the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP).

3.4 SCAFFOLDING

Employees shall be provided with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Access to scaffold platforms greater than 6 m (20 feet) in height shall be accessed by use of a scaffold stair system. Vertical ladders commonly provided by scaffold system manufacturers shall not be used for accessing scaffold platforms greater than 6 m (20 feet) in height. The use of an adequate gate is required. Contractor shall ensure that employees are qualified to perform scaffold erection and dismantling. Do not use scaffold without the capability of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection and prevention plan. Stationary scaffolds must be attached to structural

building components to safeguard against tipping forward or backward. Special care shall be given to ensure scaffold systems are not overloaded. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material is prohibited. The first tie-in shall be at the height equal to 4 times the width of the smallest dimension of the scaffold base. Work platforms shall be placed on mud sills. Scaffold or work platform erectors shall have fall protection during the erection and dismantling of scaffolding or work platforms that are more than six feet. Delineate fall protection requirements when working above six feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work.

3.4.1 Stilts

The use of stilts for gaining additional height in construction, renovation, repair or maintenance work is prohibited.

3.5 EQUIPMENT

3.5.1 Material Handling Equipment

- a. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions.
- b. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions.
- c. Operators of forklifts or power industrial trucks shall be licensed in accordance with OSHA.

3.5.2 Equipment and Mechanized Equipment

- a. Equipment shall be operated by designated qualified operators. Proof of qualifications shall be kept on the project site for review.
- b. Manufacture specifications or owner's manual for the equipment shall be on-site and reviewed for additional safety precautions or requirements that are sometimes not identified by OSHA or USACE EM 385-1-1. Such additional safety precautions or requirements shall be incorporated into the AHAs.
- c. Equipment and mechanized equipment shall be inspected in accordance with manufacturer's recommendations for safe operation by a competent person prior to being placed into use.
- d. Daily checks or tests shall be conducted and documented on equipment and mechanized equipment by designated competent persons.

3.6 EXCAVATIONS

The competent person for excavations performed as a result of contract work shall be on-site when excavation work is being performed, and shall inspect, and document the excavations daily prior to entry by workers. The competent person must evaluate all hazards, including atmospheric, that may be associated with the work, and shall have the resources necessary to correct hazards promptly. The competent person shall perform soil

classification in accordance with 29 CFR 1926.

3.6.1 Utility Locations

Prior to digging, the appropriate digging permit must be obtained. All underground utilities in the work area must be positively identified by a private utility locating service in addition to any station locating service and coordinated with the station utility department. Any markings made during the utility investigation must be maintained throughout the contract.

3.6.2 Utility Location Verification

The Contractor must physically verify underground utility locations by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground system. Digging within 0.061 m (2 feet) of a known utility must not be performed by means of mechanical equipment; hand digging shall be used. If construction is parallel to an existing utility the utility shall be exposed by hand digging every 30.5 m (100 feet) if parallel within 1.5 m (5 feet) of the excavation.

3.6.3 Utilities with Concrete Slabs

Utilities located within concrete slabs or pier decks, bridges, and the like are extremely difficult to identify. The location must be coordinated with station utility departments in addition to a private locating service.

Outages on system utilities shall be used in circumstances where concrete chipping, saw cutting, or core drilling is required and utilities are unable to be completely identified.

3.6.4 Shoring Systems

Trench and shoring systems must be identified in the accepted safety plan and AHA. Manufacture tabulated data and specifications or registered engineer tabulated data for shoring or benching systems shall be readily available on-site for review. Job-made shoring or shielding shall have the registered professional engineer stamp, specifications, and tabulated data.

Extreme care must be used when excavating near direct burial electric underground cables.

3.6.5 Trenching Machinery

Trenching machines with digging chain drives shall be operated only when the spotters/laborers are in plain view of the operator. Operator and spotters/laborers shall be provided training on the hazards of the digging chain drives with emphasis on the distance that needs to be maintained when the digging chain is operating. Documentation of the training shall be kept on file at the project site.

3.7 ELECTRICAL

3.7.1 Conduct of Electrical Work

Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Positive cable identification must be made prior to submitting any outage request for electrical systems. Arrangements are to be coordinated with the

Contracting Officer and Station Utilities for identification. The Contracting Officer will not accept an outage request until the Contractor satisfactorily documents that the circuits have been clearly identified. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator will be allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method. When working in energized substations, only qualified electrical workers shall be permitted to enter. When work requires Contractor to work near energized circuits as defined by the NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves with leather protective sleeves, fire retarding shirts, coveralls, face shields, and safety glasses. In addition, provide electrical arc flash protection for personnel as required. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA.

3.7.2 Portable Extension Cords

Portable extension cords shall be sized in accordance with manufacturer ratings for the tool to be powered and protected from damage. All damaged extension cords shall be immediately removed from service. Portable extension cords shall meet the requirements of NFPA 70.

3.8 WORK IN CONFINED SPACES

The Contractor shall comply with the requirements in Section 06.I of USACE EM 385-1-1 and OSHA 29 CFR 1910.146. Any potential for a hazard in the confined space requires a permit system to be used.

- a. Entry Procedures. Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. (See Section 06.I.05 of USACE EM 385-1-1 for entry procedures.) All hazards pertaining to the space shall be reviewed with each employee during review of the AHA.
- b. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its' action level.
- c. Ensure the use of rescue and retrieval devices in confined spaces greater than 1.5 m (5 feet) in depth. Conform to Sections 06.I.09, 06.I.10 and 06.I.11 of USACE EM 385-1-1.
- d. Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.
- e. Include training information for employees who will be involved as entrants and attendants for the work. Conform to Section 06.I.06 of USACE EM 385-1-1.
- f. Daily Entry Permit. Post the permit in a conspicuous place close to the confined space entrance.

3.9 CRYSTALLINE SILICA

Grinding, abrasive blasting, and foundry operations of construction materials containing crystalline silica, shall comply with OSHA regulations, such as 29 CFR 1910.94, and USACE EM 385-1-1, Appendix C. The Contractor shall develop and implement effective exposure control and elimination procedures to include dust control systems, engineering controls, and establishment of work area boundaries, as well as medical surveillance, training, air monitoring, and personal protective equipment.

3.10 HOUSEKEEPING

3.10.1 Clean-Up

All debris in work areas shall be cleaned up daily or more frequently if necessary. Construction debris may be temporarily located in an approved location, however garbage accumulation must be removed each day.

3.10.2 Falling Object Protection

All areas must be barricaded to safeguard employees. When working overhead, Barricade the area below to prevent entry by unauthorized employees. Construction warning tape and signs shall be posted so they are clearly visible from all possible access points. When employees are working overhead all tools and equipment shall be secured so that they will not fall. When using guardrail as falling object protection, all openings shall be small enough to prevent passage of potential falling objects.

-- End of Section --

WEIGHT HANDLING EQUIPMENT ACCIDENT REPORT				Report Date:
From:		To:		
UIC:				
Activity:				Report No:
Crane No:	Cat:	Accident Date:	Time: hrs	
SPS:	GPS:	Crane Type:	Crane Manufacturer:	
Location:			Weather:	
Crane Capacity:		Hook Capacity:		Weight of Load on Hook:
Fatality or Permanent Total Disability		YES	NO	Material/Property Cost Estimate:
Loss of Work Time Beyond the Day or Shift on Which it Occurred?		YES	NO	
Accident Type:				
<input type="checkbox"/> Personal Injury <input type="checkbox"/> Overload <input type="checkbox"/> Derail <input type="checkbox"/> Damaged Rigging Gear <input type="checkbox"/> Load Collision <input type="checkbox"/> Two Blocked <input type="checkbox"/> Dropped Load <input type="checkbox"/> Damaged Crane <input type="checkbox"/> Crane Collision <input type="checkbox"/> Damaged Load <input type="checkbox"/> Other Specify _____				
Cause of Accident:				
<input type="checkbox"/> Improper Operation <input type="checkbox"/> Equipment Failure <input type="checkbox"/> Inadequate Visibility <input type="checkbox"/> Improper Rigging <input type="checkbox"/> Switch Alignment <input type="checkbox"/> Inadequate Communication <input type="checkbox"/> Track Condition <input type="checkbox"/> Procedural Failure <input type="checkbox"/> Other Specify _____				
Chargeable to:				
<input type="checkbox"/> Track Walker <input type="checkbox"/> Rigger <input type="checkbox"/> Operator <input type="checkbox"/> Maintenance <input type="checkbox"/> Management/Supervision <input type="checkbox"/> Other Specify _____				
Crane Function:				
<input type="checkbox"/> Travel <input type="checkbox"/> Hoist <input type="checkbox"/> Rotate <input type="checkbox"/> Luffing <input type="checkbox"/> Telescoping <input type="checkbox"/> Other				
Is this accident indicative of a recurring problem? <input type="checkbox"/> Yes <input type="checkbox"/> No				
If Yes, list Accident Report Nos.: _____				
ATTACH COMPLETE AND CONCISE SITUATION DESCRIPTION AND CORRECTIVE/PREVENTIVE ACTIONS TAKEN AS ENCLOSURE (1). Include probable cause and contributing factors. Assess damages and define responsibility. For equipment malfunction or failure include specific description of the component and the resulting effect or problem caused by the malfunction or failure. List Corrective/Preventive Actions assigned and responsible codes.				
Preparer's Signature		Code	Date	
CONCURRENCES (Include Signature, Code, and Date)				
CERTIFYING OFFICIAL				Date

FIGURE 12-1 (1 of 2)

WEIGHT HANDLING EQUIPMENT ACCIDENT REPORT INSTRUCTIONS

1. **Report Date:** The date the accident report is completed and signed by the certifying official.
2. **From:** The naval activity that owns the crane and UIC number.
3. **Activity:** The naval activity where the accident took place.
4. **Report No.:** The activity assigned accident number (e.g., 95-001).
5. **Crane No.:** The activity assigned crane number (e.g., PC-5).
6. **Category:** Identify category of crane (i.e., 1, 2, 3, or 4).
7. **Accident Date:** The date the accident occurred.
8. **Time:** The time (24 hour clock) the accident occurred (e.g., 1300).
9. **Category of Service:** Special purpose service (SPS) or general purpose service (GPS).
10. **Crane Type:** The type of crane involved in the accident (e.g., mobile, bridge).
11. **Crane Manufacturer:** The manufacturer of the crane (e.g., Dravo, Grove, P&H).
12. **Location:** The detailed location where the accident took place (e.g., building 213, dry dock 5).
13. **Weather:** The weather conditions at time of accident (e.g., wind, rain, cold).
14. **Crane Capacity:** The certified capacity of the crane (e.g., 120,000 pounds).
15. **Hook Capacity:** The capacity of the hook involved in the accident at the maximum radius of the operation.
16. **Weight of Load on Hook:** If applicable, the weight of the load on the hook.
17. **Fatality or permanent total disability?:** Check yes or no.
18. **Material/Property Cost Estimate:** Estimate total cost of damage resulting from the accident.
19. **Loss of work time beyond the day or shift on which it occurred?:** Check yes or no.
20. **Accident Type:** Check all that apply.
21. **Cause of Accident:** Check all that apply.
22. **Chargeable to:** Check all that apply.
23. **Crane Function:** Check the function(s) in operation at time of accident. Check all that apply.
24. **Is this a recurring problem?:** Check yes or no. Identify any other similar accidents.
25. **Situation Description/Corrective Actions:** Self-explanatory.
26. **Concurrence:** Signatures of activity personnel concurring with the accident report.
27. **Certifying Official.** Signature of crane certifying official approving the report

FIGURE 12-1 (2 of 2)

APPENDIX P-CONTRACTOR CRANE REQUIREMENTS

CERTIFICATE OF COMPLIANCE

This certificate shall be signed by an official of the company that provides cranes for any application under this contract. Post a completed certificate on each crane brought onto Navy property.

PRIME CONTRACTOR /PHONE:

CONTRACT NUMBER:

CRANE SUPPLIER/PHONE:
(if different from prime contractor)

CRANE NUMBER:
(i.e., ID number)

CRANE MANUFACTURER/TYPE/CAPACITY:

CRANE OPERATOR'S NAME(S):

I certify that:

1. The above noted crane conforms to applicable OSHA regulations (host country regulations for naval activities in foreign countries). The following regulations apply: EM 385-1-1, SECTION 16.C, Appendix G, H and I, Where more stringent crane standards are set forth, the more stringent standards shall apply.

2. That the operator(s) noted above have been trained, tested (orally or written and practical operating examination) and are qualified for the operation of the above noted crane.

3. That the operators noted above have been trained not to bypass safety devices during lifting operations.

COMPANY OFFICIAL SIGNATURE:

DATE:

**POST ON CRANE
(IN CAB OR VEHICLE)**

FIGURE P-1

CONTRACTOR CRANE OPERATION CHECKLIST

		YES	NO
1.	Does the operator know the weight of the load to be lifted?		
2.	Is the load to be lifted within the crane manufacturer's rated capacity in its present configuration?		
3.	Is the crane level and on firm ground?		
4.	Are outriggers required?		
5.	If so, are outriggers fully extended and down, and the crane load off the wheels?		
6.	If blocking is required, is the entire surface of the outrigger pad supported and is the blocking material of sufficient strength to safely support the loaded outrigger pad?		
7.	If outriggers are not used, is the crane rated for on-rubber lifts by the manufacturer's load chart?		
8.	Is the swing radius of the crane counterweight clear of people and obstructions and accessible areas within the swing area barricaded to prevent injury or damage?		
9.	Has the hook been centered over the load in such a manner to minimize swing?		
10.	Is the load well secured and balanced in the sling or lifting device before it is lifted more than a few inches?		
11.	Is the lift and swing path clear of obstructions?		
12.	If rotation of the load being lifted is hazardous, is a tag or restraint line being used?		
13.	Are personnel prevented from standing or passing under a suspended load?		
14.	Is the crane operator's attention diverted?		
15.	Are proper signals being used at all times?		
16.	Do the operations ensure that side loading is prohibited?		
17.	Are personnel prevented from riding on a load?		
18.	Are start and stop motions in a smooth fluid motion (no sudden acceleration or deceleration)?		
19.	If the load is to be suspended and left unattended, have prior planning and written procedures been completed?		
20.	If operating near electric power lines, are the rules and guidelines understood and adhered to?		
21.	Is the lift a critical lift?		
22.	If so, are all regulations understood and check-off sheets initialed and signed off?		
23.	Is the operator qualified to operate crane? Viewed documentation?		
Contractor:		Subcontractor:	
Location:		Date:	
Notes:			

Figure P-2

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01900

MISCELLANEOUS PROVISIONS

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 SUBMITTALS
- 1.3 PROJECT MANAGEMENT ORGANIZATION
 - 1.3.1 General
 - 1.3.2 Organization Plan
 - 1.3.3 Organizational Changes
 - 1.3.4 Project Manager
 - 1.3.5 Project Engineer
 - 1.3.6 Project Superintendent
 - 1.3.7 Contractor Quality Control System Manager (CQCSM)
 - 1.3.8 Contract Safety Officer
- 1.4 CONTRACTOR QUALITY CONTROL
- 1.5 AS-BUILT DRAWINGS
- 1.6 DUST CONTROL
- 1.7 PROTECTION
 - 1.7.1 Protection of Trees and Plants
 - 1.7.2 Protection of Building From the Weather
- 1.8 RESTORATION WORK
- 1.9 REMOVAL AND DISPOSAL
 - 1.9.1 Title to Materials
 - 1.9.2 Rubbish and Debris
- 1.10 INTERFERENCE WITH GOVERNMENT OPERATIONS
 - 1.10.1 Coordination
 - 1.10.2 Materials and Equipment
 - 1.10.3 Utilities and Facilities
 - 1.10.4 Staking and Flagging Existing Utilities
- 1.11 CONTRACTOR'S OPERATIONS OR STORAGE AREA
- 1.12 WORKING HOURS
- 1.13 STAINLESS STEEL TYPE 316

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section Table of Contents --

SECTION 01900

MISCELLANEOUS PROVISIONS

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 A 240/A 240M (2000) Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2003) Safety and Health Requirements Manual

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

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 Engineer, Project Superintendent, and Contract Safety Officer. 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; G.

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.

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.

1.3 PROJECT MANAGEMENT ORGANIZATION

1.3.1 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.

1.3.2 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 Engineer, Project Superintendent, and Contract Safety Officer. Each of the individuals selected to fill these positions is subject to acceptance by the Contracting Officer.

1.3.3 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.

All of the members of the Contractor's management staff shall be familiar with the various codes and standards applicable to the facilities repair and construction tasks covered under this contract.

1.3.4 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 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 an accredited four-year degree in project engineering or ten years experience in engineering or construction.

1.3.5 Project Engineer

A Project Engineer shall be assigned to assist the Project Manager with coordination and scheduling, and other management duties. The Project Engineer shall have no other duties. This individual shall have an accredited four-year degree in engineering, or ten years experience in engineering or construction.

1.3.6 Project Superintendent

A Project Superintendent shall be assigned. This individual shall have a minimum of five years experience as a superintendent on federal government construction projects similar in size and scope to this contract. The project superintendent shall have overall responsibility for all field construction operations. The superintendent shall have no other duties.

1.3.7 Contractor Quality Control System Manager (CQCSM)

The CQCSM shall have direct responsibility for the overall management of the Contractor's entire Quality Control Program for this contract, as described in Section 01451. A staff of Quality Control Representatives shall support the CQCSM. In addition, the offeror's Contractor Quality Control System Manager shall have a minimum of 5 years construction experience. Offeror must address how the proposed Contractor Quality Control System Manager has met or will meet the requirement for completing the course entitled, "Construction Quality Management for Contractors" prior to beginning work.

1.3.8 Contract Safety Officer

The Contract Safety Officer 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, EM 385-1-1, and other applicable safety standards. This individual shall have a minimum of seven years experience in safety on federal government construction projects similar in size and scope to this contract. A staff of Site Safety Officers shall support the Contract Safety Officer.

1.4 CONTRACTOR QUALITY CONTROL

To assure compliance with contract requirements, the Contractor shall establish and maintain quality control for materials and work 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.

1.5 AS-BUILT DRAWINGS

As-built drawings shall be in accordance with Section 01780 CLOSEOUT SUBMITTALS.

1.6 DUST CONTROL

Dust control shall be in accordance with Section 02220 DEMOLITION. Measures shall also be taken for dust control along haul routes and equipment parking areas.

1.7 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.

1.7.1 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, they may be pruned, subject to written approval by the Contracting Officer.

1.7.2 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.

1.8 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.

1.9 REMOVAL AND DISPOSAL

Removal and disposal shall be in accordance with Section 02220 DEMOLITION. 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.

1.9.1 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 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.

1.9.2 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.

1.10 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 which is to remain undisturbed.

1.10.1 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.

1.10.2 Materials and Equipment

All materials and equipment required to complete the project shall be on hand before work is started.

1.10.3 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.

1.10.4 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. Utility lines so located shall be noted on the drawings.

1.11 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.

1.12 WORKING HOURS

All work shall be performed between the hours of 0730 to 1600 Kwajalein time, Tuesday through Saturday. No work shall be accomplished on Sundays, Mondays, and all federal holidays without written permission from the Contracting Officer. Such written permission shall be available at the job site at all times during construction.

1.13 STAINLESS STEEL TYPE 316

All steel indicated on the drawings and specifications for construction in exterior and non-air conditioned spaces shall be stainless steel, type 316, conforming to ASTM A 240/A 240M. This requirement shall supersede all requirements noted on other sections in this Project Specifications and shall include but not be limited to sheet metal, fasteners, screens, frames, etc.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 11 - EQUIPMENT

SECTION 11503

ABRASIVE BLAST BOOTH

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 DESCRIPTION OF WORK
- 1.3 SUBMITTALS
- 1.4 LOGISTICS
- 1.5 DELIVERY, STORAGE, AND HANDLING
- 1.6 SIGNS

PART 2 PRODUCTS

- 2.1 ABRASIVE BLAST SYSTEM (ABS) DESCRIPTION
- 2.2 ABRASIVE BLAST SYSTEM FABRICATION AND CONSTRUCTION
 - 2.2.1 Maintainability
 - 2.2.2 Interchangeability
 - 2.2.3 Dust
 - 2.2.4 Safety
 - 2.2.4.1 Guards and Screens
 - 2.2.4.2 Mechanical Safety
 - 2.2.5 Electrical
 - 2.2.6 Controls and Alarms
 - 2.2.6.1 Power on Signal
 - 2.2.6.2 Operator Signal
 - 2.2.7 Painting
 - 2.2.8 Mechanical Devices
 - 2.2.8.1 Lubrication
 - 2.2.8.2 Fastening Devices
 - 2.2.8.3 Support Bearings for Blocks and Bearings
 - 2.2.8.4 Chain-driven Mechanisms
 - 2.2.8.5 Gauges and Meters
 - 2.2.8.6 Equipment Access
 - 2.2.9 Transportability
 - 2.2.10 Color Coding
- 2.3 ABRASIVE BLAST BOOTH MATERIALS AND FABRICATION
 - 2.3.1 Ceiling
 - 2.3.2 Lighting
 - 2.3.3 Interior Painting
 - 2.3.4 Man Access Doors
 - 2.3.5 Electric Roll-Up Doors
 - 2.3.6 Floor Grating
 - 2.3.7 Floor
 - 2.3.8 Abrasive Blast Booth, Capacity and Dimensions
 - 2.3.9 Abrasive Blast Booth, Accessories
- 2.4 DUST COLLECTION SYSTEM
 - 2.4.1 Dust Collector Capacity and Dimensions
 - 2.4.2 Ducting
 - 2.4.3 Dust Collector Accessories
 - 2.4.4 Vertical Receiver

- 2.4.5 Photohelic Pressure Switch Gauge
- 2.4.6 Control Tubing
- 2.4.7 Cartridge Filters
- 2.5 ABRASIVE BLAST EQUIPMENT
 - 2.5.1 Service Air
 - 2.5.2 Blast Machines
 - 2.5.2.1 Pressure Vessel
 - 2.5.2.2 Media Flow Valve
 - 2.5.2.3 Blast Nozzles
 - 2.5.2.4 Blast Hose
 - 2.5.2.5 Abrasive Cut-Off Switch
 - 2.5.2.6 Operator Remote Controls
- 2.6 ABRASIVE MATERIAL RECLAIM SYSTEM
 - 2.6.1 Stainless Steel Grit Abrasive Media Reclaim Separator
- 2.7 MAKE-UP AIR INTAKE SYSTEM
 - 2.7.1 Materials and Fabrication
 - 2.7.2 Supply Air Fans and Salt Filters

PART 3 EXECUTION

- 3.1 INSTALLATION
- 3.2 VERIFICATION OF DIMENSIONS
- 3.3 FIELD INSPECTIONS AND TESTS
 - 3.3.1 Pre-Acceptance Test
 - 3.3.2 Acceptance Test
 - 3.3.2.1 Performance
 - 3.3.3 Dust Collector
 - 3.3.3.1 Visible Emissions
 - 3.3.3.2 Nuisance
 - 3.3.3.3 Particulate Matter
 - 3.3.4 Blast Room Emissions

-- End of Section Table of Contents --

SECTION 11503

ABRASIVE BLAST BOOTH

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.

AIR MOVEMENT AND CONTROL ASSOCIATION (AMCA)

AMCA 201 (1990) Fan Application Manual - Fans and Systems

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z9.4 (1997) Ventilation and Safe Practices of Abrasive Blast Operations

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 91 (1999) Standards for Blower and Exhaust Systems for Vapor Removal

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910 Occupational Safety and Health Standards

29 CFR 1910.27 Fixed Ladders

29 CFR 1910.94 Ventilation

29 CFR 1910.134 Respiratory Protection

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)

ACGIH-2093 (2001) Industrial Ventilation, Manual of Recommended Practice

1.2 DESCRIPTION OF WORK

Provide a complete turnkey Abrasive Blast System (ABS). The principal components of the system are the Abrasive Blast Room, Dust Collector, Recovery System, Abrasive Reclaim Machine, Blast Machine, CO Monitor, Operator Safety Gear, Compressed Air System, and Breathing Air System. The work required under this section includes furnishing, installing, and testing new equipment. Provide and make utility connections to equipment in accordance with requirements specified in other sections of this specification and in accordance with the physical dimensions, capacities and other requirements of the equipment furnished. A factory trained installation supervisor shall be present for installation and start up.

1.3 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-02 Shop Drawings

Abrasive Blast Room

Submit within 60 days of receipt of contract or notice to proceed, a minimum 1:100-mm scale layout drawings of the abrasive blast equipment room. Indicate the detailed arrangement of all Contractor supplied equipment, in their exact locations. Include elevations of the abrasive blast equipment room, to establish that the equipment will fit the allotted spaces with clearance for installation, operation, and maintenance. Provide details of the air intake and exhaust system of the abrasive blast and the abrasive blast equipment rooms. Provide elevations and details of the abrasive blast rooms product and man doors.

Recovery System

Equipment Room

Dust Collector

Submit within 60 days of receipt of contract or notice to proceed, a minimum 1:100 scale layout drawings of the dust collection system. Indicate the detailed arrangement of all Contractor supplied equipment, in their exact locations. Include elevations of the dust collector, to establish that access to its trash bins is easily obtained with a standard 1814 Kg capacity forklift truck.

Salt Filter Air Makeup System and Ductwork

Air Intake System

Provide manufacturer's recommended installation procedures. Provide detailed drawings for Make up air unit and air salt pocket filters. Provide detailed drawings for Make up air supply delivery openings

SD-03 Product Data

Manufacturer's standard catalog data, at least 5 weeks prior to the purchase or installation of a particular component, highlighted to show material, size, options, performance charts and curves, etc. in adequate detail to demonstrate compliance with contract requirements. Data shall include manufacturer's recommended installation instructions and procedures. Data shall be submitted for each of the specified component:

Dust Collector

Recovery System

Abrasive Reclaim Machine

Blast Machine

Operator Safety Gear

Storage Hopper

If the catalogs supplied refer to more than one model or type of equipment, the catalogs should be clearly annotated to show which product is being supplied under this contract.

Spare Parts Data

Spare parts data for each different item of equipment specified, after approval of detail drawings no later than 2 months prior to the date of beneficial occupancy. The data shall include a complete list of parts and supplies, with current unit prices and source of supply, a recommended spare parts list for 1 year of operation, and a list of parts recommended by the manufacturer to be replaced on a routine basis.

Posted Instructions

Posted instructions, at least 4 weeks prior to construction completion, including equipment layout, wiring and control diagrams, piping, and control sequences, and typed condensed operation instructions. The condensed operation instructions shall include preventive maintenance procedures, methods of checking the system for normal and safe operation, and procedures for safely starting and stopping the system. The posted instructions shall be framed under glass or laminated plastic and posted where indicated by the Contracting Officer.

Verification of Dimensions

A letter at least 4 weeks prior to beginning construction, including the date the site was visited, conformation of existing conditions, and any discrepancies found.

System Performance Test

A schedule, at least 4 weeks prior to the start of related testing, for the system performance tests. The Schedules shall identify the proposed date, time, and location for each test.

Demonstrations

A schedule, at least 4 weeks prior to the date of the proposed training course, which identifies the date, time, and location of the training.

SD-05 Design Data

Dust Collector

Submit cross draft calculations

Grit recovery system

Submit calculations for balancing blast media recovery system.

Abrasive reclaim machine

Submit calculations for balancing the flow rate of the abrasive reclaim machine.

Blast machine

Submit calculations for balancing the abrasive reclaim machine recovery rate with the blast machine.

Abrasive Calculations

Calculations for maximum amount of abrasive that the entire system may contain during normal blasting operation

SD-06 Test Reports

System Performance Tests

Six copies of each test containing the information described below in bound 216 x 279 mm booklets. The report shall document compliance with the specified performance criteria upon completion of testing of the system. The report shall indicate the number of days covered by the tests and any conclusions as to the adequacy of the system.

- a. Abrasive Blast Room
- b. Dust Collector
- c. Screw media recovery system
- d. Abrasive Reclaim Machine
- e. Blast Machine
- f. Operator Safety Gear
- g. Storage Hopper

SD-07 Certificates

Abrasive Blast System

Provide a certificate of compliance with ANSI Z9.4 and 29 CFR 1910.

SD-10 Operation and Maintenance Data

Operation Manuals

Six complete copies of operation manual in bound 216 x 279 mm booklets listing step-by-step procedures required for system startup, operation, abnormal shutdown, emergency shutdown, and

normal shutdown at least 4 weeks prior to the first training course. The booklets shall include the manufacturer's name, model number, and parts list. The manuals shall include the manufacturer's name, model number, service manual, and a brief description of all equipment and their basic operating features.

Maintenance Manuals

Six complete copies of maintenance manual in bound 216 x 279 mm booklets listing routine maintenance procedures, possible breakdowns and repairs, and a trouble shooting guide. The manuals shall include equipment layouts and simplified wiring and control diagrams of the system as installed.

- a. Dust Collector
- b. Recovery System
- c. Abrasive Reclaim Machine
- d. Blast Machine
- e. Abrasive Blast Room Product Doors
- f. Abrasive Blast Booth
- g. Breathing Air Supply System, purifiers, carbon monoxide monitor, alarm, filter, and hoses.

Submit operations and maintenance data in accordance with Section 01781 OPERATION AND MAINTENANCE DATA.

In addition to the requirements of Section 01781 OPERATION AND MAINTENANCE DATA, submit the manual in a three-ring, hard cover, notebook. Provide index tabs that are specific to the required subject matter. Submit all drawings, illustrations, schematic and control, exploded views and diagrams as specific in Section 01781, OPERATION AND MAINTENANCE DATA in 216 mm by 279 mm by 432 mm format.

Submit one complete installation manual: an AutoCAD CD of electrical control system drawings, operating equipment and installation drawings manual to the Contracting Officer for review and approval, a minimum of 30 days prior to the performance of abrasive blast room tests. Seven copies of the approved manuals with all test results included shall be provided to the Contracting Officer after completion of satisfactory system testing.

1.4 LOGISTICS

Should the Contractor or equipment manufacturer or vendor provide special parts of components which have been created specifically for the execution of this contract and not for the purpose of uniform model field change or product line modifications, then these items shall be identified at their field replacement level as specialty items in all listings of equipment, components, spare parts or consumables.

1.5 DELIVERY, STORAGE, AND HANDLING

Inspect each piece of equipment upon delivery. Obtain and follow equipment manufacturer's recommendations to protect materials and equipment and prevent damage.

1.6 SIGNS

Provide signs as required by Section 10440 INTERIOR SIGNAGE.

PART 2 PRODUCTS

2.1 ABRASIVE BLAST SYSTEM (ABS) DESCRIPTION

- a. The ABS will house all blasting equipment necessary to provide an abrasive cleaning system using stainless steel grit media (SAE 330). The system will produce a clean product ready for preservation and/or painting. The ABS will include a pre-engineered blasting booth to accommodate the varied size workload required. Storage/recovery of the stainless steel grit media will be provided. The recovery system shall be serviced by a recovery system that transports the used abrasive media and fines from the blast room to the abrasive media reclaim separator. Provide a ventilation system for dust removal and collection. The dust collecting equipment shall be mounted on a concrete foundation outside the building. Provide a personnel two breathing air systems for two operator. The breathing air and electrical systems will be installed in an equipment room separate from the Abrasive Blast Room and the Blast Equipment Room. The ABS shall include a complete electric system including appropriate controllers. Necessary electrical connections for the controllers are specified in Section 16415A ELECTRICAL WORK, INTERIOR. All components of the ABS shall be compatible to meet the requirements of abrasive recovery, ventilation and dust collection and abrasive cleaning without causing overload, excessive down time for maintenance, or blast material short supply in the system. Exhaust ventilation shall be as specified in Section 15895 AIR SUPPLY, DISTRIBUTION, VENTILATION, AND EXHAUST SYSTEMS.
- b. Perform all work and testing required for the installation of the facility and all associated equipment.

2.2 ABRASIVE BLAST SYSTEM FABRICATION AND CONSTRUCTION

These requirements define the minimum design parameters for the ABS.

2.2.1 Maintainability

- a. All components that might be subject to failure shall be positioned for ease of accessibility for replacement. Such items shall be standard items from the manufacturer's catalog. The equipment shall be designed for maintenance by Government maintenance personnel.
- b. The Government shall specify which parts require periodic maintenance, overhaul, and replacement. A list of spare parts, including current prices shall be provided by the Contractor and shall be included in the operation and maintenance manuals.

- c. If special tools are required for maintenance, Contractor shall furnish two sets in lockable metal containers.

2.2.2 Interchangeability

Interchangeability between components of the equipment identical in size and function shall be maximized. Parts and assemblies shall be manufactured to standards that permit replacement or adjustment without modification.

2.2.3 Dust

All bearings, mechanical drive equipment, motors and electrical control equipment shall be enclosed and/or sealed to prevent entry of dust since the equipment will be located in close proximity to the blasting area.

2.2.4 Safety

The design of the equipment shall incorporate sufficient safety devices and features in accordance with 29 CFR 1910, with emphasis on Sections 94, 132, 133, 134, 135, 136, 212 and 219 to ensure protection of personnel, equipment, and maintenance of the equipment. The equipment shall not present safety hazards when subjected to side load forces that may occur. Cut-off switches for rotating parts shall be placed throughout the equipment to manually cut off equipment power to specific sections where continued operation of the equipment might result in damage to equipment or material or cause hazards to personnel.

2.2.4.1 Guards and Screens

Metal personnel safety guards shall be provided for normally accessible unducted fan inlets and discharges and moving power transmission components.

2.2.4.2 Mechanical Safety

- a. Equipment operation shall continue to function when any piping or tubing system is subjected to twice the maximum nominal working pressure.
- b. Pressure vessels, valves, and fittings shall withstand proof pressures.

2.2.5 Electrical

The equipment shall use power from a 115 volt 60 Hertz single-phase source, and 460 volt, 60 Hertz, three-phase source. Sections 16415A ELECTRICAL WORK, INTERIOR.

2.2.6 Controls and Alarms

Controls and alarms shall be located for convenient use and observation by the operator. Each control, indicator, and instrument shall be clearly and legibly marked for function and identification.

2.2.6.1 Power on Signal

A flashing red warning light shall be mounted over each access to the Abrasive Blast Room and shall automatically be activated when the ABS is in operation. A sign forbidding access except in an emergency while the red

light is on shall be mounted in the vicinity of the warning light. The warning light and sign shall be visible from a distance of 15.24 meters (minimum).

2.2.6.2 Operator Signal

During Abrasive Blast System operation inside the abrasive blast room, the operator shall be alerted to interrupt operations by a flashing red light and horn activated by push buttons mounted on outside east wall near each personnel access door. Place alarms as indicated.

2.2.7 Painting

Materials and color shall be the manufacturer's standard. All major equipment shall be cleaned, primed and painted, in shop, prior to shipment. All structural steel in non-air-conditioned spaces shall be primed and painted as specified in Section 09900 PAINTS AND COATINGS. All bolts, anchors, nuts and washers in non-air-conditioned spaces shall be 316 stainless steel. Following installation, all external metal surfaces of equipment and piping other than moving parts, instrument panels or label plates, which are unpainted, prime painted or damaged shall be cleaned, primer painted as necessary and field painted in accordance with Section 09900 PAINTS AND COATINGS.

2.2.8 Mechanical Devices

2.2.8.1 Lubrication

Adequate accessible and positive lubrication shall be provided to all bearings and working surfaces. Wherever necessary, means shall be provided for checking the level of lubricant in all parts and components.

2.2.8.2 Fastening Devices

All screws, pins, bolts and similar parts shall be installed with a means that prevents loss of tightness, or dislodgment. All such parts, if subject to removal or adjustment (maintenance) shall not be swaged, peened, stacked, or otherwise permanently deformed. All bolts, anchors, nuts and washers in non-air-conditioned spaces shall be Type 316 stainless steel.

2.2.8.3 Support Bearings for Blocks and Bearings

Rotating parts shall be mounted with dust tight, sealed, life lubricated anti-friction bearings. Bearing load capacity, including applicable safety and lift factors as recommended by the bearing manufacturer, shall be equal to or greater than maximum bearing loading under all operating conditions specified herein.

2.2.8.4 Chain-driven Mechanisms

Chain-driven mechanisms shall be equipped with chain idler tensioners and safety guards.

2.2.8.5 Gauges and Meters

Gauges and meters shall be English for units of measure and increments. Dual scale dials or indicator shall be used. Gauges and meters shall be easily removable for maintenance and provisions shall be made for in-place calibration.

2.2.8.6 Equipment Access

Sufficient space shall be provided so that all equipment is accessible for operation and maintenance. Components shall be accessible for repair or replacement without necessitating the removal of any major equipment or components.

2.2.9 Transportability

Lifting eyes, handles, or other devices shall be provided on the equipment as necessary to permit safe movement of equipment for relocation and maintenance without exposing the equipment to damage, deformation or misalignment.

2.2.10 Color Coding

Controls, moving parts, and piping shall be color coded in accordance with 29 CFR 1910 paragraph 144.

2.3 ABRASIVE BLAST BOOTH MATERIALS AND FABRICATION

2.3.1 Ceiling

The Abrasive Blast Booth ceiling panels shall be made of 11 gauge (English equivalent) mm steel (minimum). Panels shall be stiffened as indicated, pre-drilled, and bolted together with gaskets to prevent leakage. All bolts, anchors, nuts and washers in non-air-conditioned spaces shall be 316 stainless steel. Panel design shall exclude horizontal ledge or cavities and shall minimize vertical ribbing on the interior of the room. The design for all panels shall be standard for ease of replacement. The arrangement of the panels shall maximize the use of one common size. The design of the ceiling panels shall provide openings for light fixtures to be installed.

2.3.2 Lighting

Provide a minimum of 1,000 Lux of illumination when measured 914 mm above the finished floor in the center of the blast room. Fluorescent type lamps shall be used and shall be installed in the Abrasive Blast Room ceiling and side walls. They shall illuminate the blast room through sealed windows of polycarbonate window pane of a minimum thickness of 6 mm or wire reinforced safety glass. The fixtures shall be designed as removable, from inside the Abrasive Blast Room, for the purpose of lamp maintenance and installation. Lighting shall conform to Section 16415A ELECTRICAL WORK, INTERIOR.

2.3.3 Interior Painting

The interior walls and ceiling of the blast room shall be painted high gloss white enamel above the 3.96 meters level. The remainder of the wall shall be painted with a gray primer. All structural steel in non-air-conditioned spaces shall be primed and painted as specified in Section 09900 PAINTS AND COATINGS. Painting shall be performed prior to installation of light fixtures and air plenums.

2.3.4 Man Access Doors

Provide doors for operator access as indicated on the drawings. Doors shall be equipped with panic hardware and a safety interlock to inhibit

blasting if it is not secured.

2.3.5 Electric Roll-Up Doors

Electric Roll-Up Doors shall be installed as indicated. The doors shall be provided with explosion proof motor and manual pulley capabilities.

2.3.6 Floor Grating

Bar grating shall cover the media recovery pit. Bar grating shall be removable. Open ends of grating shall be banded. Material shall be supplied with Type 316 stainless steel. Bar grating shall be of a common size and shall be designed for easy replacement. Bar grating shall be designed to support the greater of 4,000 Kg wheel loads (impact included) or 2,000 Kg/m² live loading that result from product placement. The support and retention of the bar grating shall be of a design that is consistent with the requirements of the manufacturer of the Grit Recovery System.

2.3.7 Floor

The blast room shall be installed on a hardened concrete floor rated at 27.5 MPa. The blast room floor shall be provided with 316 stainless steel checkered plate secured to the concrete.

2.3.8 Abrasive Blast Booth, Capacity and Dimensions

The blast room shall be sized as indicated on the drawings.

2.3.9 Abrasive Blast Booth, Accessories

One complete operator safety outfit that complies with ANSI Z9.4, 29 CFR 1910.94, and 29 CFR 1910.134 shall be provided. Outfits shall be provided with blast hood respirator, air filter, air conditioner, gloves, pants, jacket, and CO Monitor. Operator safety outfit shall be approved by NIOSH.

- a. Respirator: Blast hood with self-adjusting headband, inner cape, and uniform air distribution. One piece mold with nylon cape, 14" x 5" replaceable plastic window. The hood shall meet NIOSH.
- b. **(DELETED)**
- c. **(DELETED)**
- d. Air Conditioner: Air conditioner shall be attached to the operator's belt and cool air coming into the hood.
- e. Jacket and Pants: jacket and pants shall be heavy duty canvas. Gloves shall be heavy duty leather.

2.4 DUST COLLECTION SYSTEM

Fan arrangements should be selected to eliminate system effects identified in AMCA 201. Ventilation and dust collection equipment shall prevent dust escaping from the enclosure and provide visibility within the booth to the levels established by 29 CFR 1910.94. The system shall be designed and arranged to provide a negative pressure in the room and prevent dust escaping from the room. A belt driven exhauster, Class III fan equipped, with a silencer that achieves a sound level that does not exceed 84 dBA on

scale A of a standard sound level meter at slow response setting, 3 meters, from the center of the fans exhaust, shall be installed. The fan shall be of sufficient capacity to provide air velocity of at least 1.53 meters per second at the louvered air inlet openings and 0.51 meters per second of cross draft ventilation. **Unit shall contain a combined total filter area with an air-to-media ratio not to exceed 2.0:1.** Filter housing shall be constructed of 4.55 mm, 3.42 mm and 2.66 mm carbon steel with bolted and welded construction (riveted construction will not be permitted). Unit shall utilize a factory-supplied abrasion-resistant inlet to minimize the effects of abrasive particulate in the air stream. Dirty air inlet must be on the top-side of the cartridge housing, creating a downward airflow direction inside the unit. Do not locate the dirty air inlet in the lower hopper portion of the unit. Dust Collector type/model must be field-proven. The dust collector shall have 99.9 percent weight arrestance efficiency according to ASHRAE 52.1. Fan shall be backward-inclined industrial blower capable of 11,800 liters/second at 2.5 kPa total static pressure. Fan package will include flanged inlet and outlet, quick clamp housing inspection door, housing drain coupling with gate valve, OSHA shaft and bearing guards, OSHA belt guard with expanded metal front, 37.3 kW. TEFC motor with variable pitch pulley, adjustable slide base, static and dynamic balanced, AMCA rated, and shipped assembled. Motor must meet or exceed EPA Act (Energy Policy Act) for efficiency on 60 cycle general-purpose motors. Unit will include manually adjustable outlet damper. The dust collector shall be fabricated with the housing stiffened to withstand 5000 Pa water gauge operating pressure and finished to withstand installation outside the building. All ventilation components and ducting shall be in compliance with the ACGIH-2093 and ANSI Z9.4. Differential Photohelic pressure gauge and alarm system shall be provided and installed to monitor the static pressure in the ducting, cartridges, and the blast enclosure. Provide high temperature Nylon tubing between the control panel and the dust collector housing. The tube fittings must be stainless steel. The alarm system shall alert operating personnel when a pressure change occurs, that is beyond manufacturer's recommended operating range.

2.4.1 Dust Collector Capacity and Dimensions

The air velocity within the enclosure must be no less than 0.51 meter per second for a cross draft ventilated room to conform to the requirements of ANSI Z9.4 and 29 CFR 1910.94. The blast room shall be arranged for cross draft end to end ventilation. Exhaust plenums shall be provided for connection to the dust collector and the abrasive blast room. They shall be constructed of 1.21 mm Type 316 stainless steel with 1.90 mm elbows. Plenums shall be located at the end of the room opposite roll-up doors. The plenums shall be installed on the sides of the Abrasive Blast Room as indicated. They shall be sized to maintain interior clearance and for minimum interior intrusion into the corners of the room. The exterior dimensions and weights of the dust collector vary according to manufacturer. The Contractor must coordinate the size of required mounting pad to accommodate the dust collector selected. Direct access shall be provided for a forklift truck to access the fines collection drum beneath the dust collector.

2.4.2 Ducting

Duct supports shall be designed to carry the weight of the duct system itself plus the anticipated weight of any conveyed materials. Since sprinkler protection is provided inside the duct system, the duct supports shall also be designed to support the anticipated weight of any accumulation of sprinkler discharge. Conform to NFPA 91.

2.4.3 Dust Collector Accessories

A caged ladder and railed platform to meet 29 CFR 1910.27 requirements shall be furnished to provide access to dust collection components for repair and maintenance. Handrails, ladders, grating, and exterior elevated walkways shall be Type 316 stainless steel, anodized aluminum, structural fiberglass reinforced polyester (FRP) or extruded fiberglass. When appropriate, marine grade aluminum, defined as copper free alloy such as 5052 or 6063 will be used. All structural steel in non-air conditioned spaces shall be primed and painted as specified in Section 09900 PAINTS AND COATINGS.

2.4.4 Vertical Receiver

Dust collector cartridge filters use a large quantity of compressed air for back pulse filter cartridge cleaning. A 2500 L vertical compressed air receiver tank shall be provided as a reservoir for the back pulse air. The contractor is responsible for supplying a 50 mm diameter NPT air supply pipe to the vertical compressed air receiver tank for the dust collector back pulse compressed air system. Provide a compressed air line regulator and gauge to reduce 690 kPa air to 414-483 kPa to the diaphragm valve manifold, which provides reverse pulse air to cartridge filters. Failure to adjust the diaphragm valve manifold pressure may result in premature failure of the cartridge filters.

2.4.5 Photohelic Pressure Switch Gauge

Dust collector shall have Dwyer (or equal) Photohelic pressure switch gauge air control to control the duration and frequency of the pulse, with high/low settings and warning light to indicate high static pressure.

2.4.6 Control Tubing

Provide 6.25 mm O.D. Nylon tubing and Type 316 stainless steel connectors between the Photohelic pressure switch gauge panel and the dust collector tube manifold.

2.4.7 Cartridge Filters

Filters shall be Torit-Tex cartridge type filter, which have a high tolerance for moisture with a minimum filter surface area of 21.8 m² /cartridge. Filter efficiency shall be a minimum of 99.995 percent at 0.5 microns.

2.5 ABRASIVE BLAST EQUIPMENT

Abrasive Blasting Equipment shall support the use of stainless steel grit blasting media (SAE 330) and operate at up to (English equivalent) 862 kPa of compressed air.

2.5.1 Service Air

A Service Air Control Station shall supply a continuous flow of 862 kPa compressed air at a rate of 0.113 cubic meter per second to the blast machine. The control station shall be supplied from the building service air system. The control station shall consist of a manual cutoff valve, ball type, a line pressure indicator gauge with individual stop, a splitter manifold for two solenoid cutoff valves, two manual stop valves and two

bleeder cocks. The control station shall be configured and mounted in the vicinity of the blast machine and readily accessible by the system operator. All piping and valves will be installed to support an 862 kPa operational system and (English equivalent) 32-mm ID blast hose using 10 mm orifice nozzles. The general air system shall be tested at 1-1/2 times operating pressure (minimum).

2.5.2 Blast Machines

Provide one 0.283 cubic meter, stainless steel grit capacity, blast machine, located as indicated. One operator hose shall supply the west side of the Abrasive Blast Booth.

2.5.2.1 Pressure Vessel

The pressure vessel shall conform to all appropriate ASME regulations and carry a National Board approval certificate, with a rating of 862 kPa.

2.5.2.2 Media Flow Valve

Blast media flow valve shall be designed so that the manually adjustable metering function and the pneumatically operated valve actuation function are accomplished separately.

2.5.2.3 Blast Nozzles

Provide one silicon carbide nozzle, with a 10 mm orifice, with the blast machine. The Blast Nozzle shall be bonded and grounded to prevent the generation of static charges. When bonded and grounded, no component of the equipment specified herein shall have a resistance to ground greater than 25 ohms when such measurements are made in normally dry weather, not less than 48 hours after rainfall. This requirement shall exclude all components of this equipment which are designed, intended and identified as conductors of electrical current or, electrostatic potential. The blast nozzles shall be provided with a "dead man" type switch. The abrasive control switch shall be electrically operated for instant response over the entire operating length of the hose system.

2.5.2.4 Blast Hose

The blast hose, which conveys the compressed air and media to the blast nozzle, shall have an inside diameter of 32 mm, an outside diameter of 47 mm, and shall weight approximately 15.9 Kg per each 15.24 meter length. This hose shall be gum rubber lined and wrapped with a dual layer of tough nylon. The hose bib shall be rated at a working pressure of 1173 kPa. The hose lining shall be not less than 6.35 mm thick carbon black-impregnated rubber for static dissipation. It shall be fitted with lightweight, nylon quick disconnect couplings that mate externally and incorporate automatically interlocking safety wires.

2.5.2.5 Abrasive Cut-Off Switch

Provide an electric cut-off switch to allow the use of compressed air from the blast nozzle for duct blow down on blasted surfaces. This switch controls the opening and closing of the grit valve from the remote control handle.

2.5.2.6 Operator Remote Controls

Provide remote controls of the electric type, which incorporate a normally closed inlet valve and normally open outlet valve. Air pressure shall open the inlet valve and close the outlet valve to begin the blasting process. If there is a loss of air pressure to the valves, springs shall return the valves to their normal position.

2.6 ABRASIVE MATERIAL RECLAIM SYSTEM

A Cross screw recovery system shall remove stainless steel abrasives, dust and debris from the media pit and pass it to the reclamation equipment mounted on top of the abrasive supply hopper. This equipment shall separate usable steel grit from unusable materials and re-circulate clean abrasive to the blast unit. Unusable material shall either be returned to the dust collector or to a trash bin located in the equipment room. All components provided for this operation shall be of a size and capacity to permit continuous blasting for at least 60 minutes once the system has been filled to capacity, without interruption for adding additional abrasive.

2.6.1 Stainless Steel Grit Abrasive Media Reclaim Separator

Provide a rotating screen type separator having the function of removing large foreign particles from the stainless steel grit abrasive mixture. The screen assembly shall continuously and automatically discharge all foreign material, which will not pass through the screen mesh, to floor level by gravity spouting into a refuse hopper. A 5 percent carryover of usable grit (shot size SAE 280) is the maximum allowed. The abrasive shall gravitate from the screen to an abrasive air wash separator that shall remove the dust particles and unusable abrasive fines from the operating mixture in the recycling system. The compensating flow type separator is recommended for this application. In intermittent operations, the abrasive blast and resultant abrasive load delivered to the air wash separator varies in quantity. The separator shall separate unusable steel shot and route reusable stainless steel grit to the blast machine.

2.7 MAKE-UP AIR INTAKE SYSTEM

2.7.1 Materials and Fabrication

The air intake system consists of in-line centrifugal fans, stainless steel supply air duct, salt filters, factory supplied air intake filters, differential pressure gauge and pressure switch.

2.7.2 Supply Air Fans and Salt Filters

Provide supply air fans and salt filters as indicated on the drawings and in accordance with Section 15895 AIR SUPPLY, DISTRIBUTION, VENTILATION, AND EXHAUST SYSTEMS,

PART 3 EXECUTION

3.1 INSTALLATION

System installation shall be conducted in accordance with manufacturer's printed instructions.

3.2 VERIFICATION OF DIMENSIONS

Contractor shall be responsible for coordination and proper relation of all work to the building structure and the work of all trades. The Contractor shall verify all dimensions of the building in the field that relate to fabrication and installation of the ABS and notify the Contracting Officer of any discrepancy before final installation.

3.3 FIELD INSPECTIONS AND TESTS

A Pre-Acceptance, Acceptance and Post-Acceptance Test shall be conducted. The tests shall be performed by the Contractor as directed herein. A step-by-step test plan and report shall be provided by the Contractor for each test. The equipment specified herein shall be operated for not less than 30 minutes to determine compliance with the acceptance test requirements. Proper operation of controls and other accessories shall be inspected and demonstrated. Reports of all test data, analysis of performance and conclusions shall be prepared and submitted to the procuring activity.

3.3.1 Pre-Acceptance Test

Conduct pre-acceptance test on all electrical, mechanical and pneumatic devices and components of the ABS to determine if each component is operating properly and conforms to specifications. The tests shall be of sufficient depth to assure that every component of the system is exercised. Problems and deficiencies identified during this test shall be corrected prior to commencing the acceptance test. The following conditions shall be tested during the pre-acceptance test:

- a. Before operation of the system, test all piping for air systems at 1-1/2 times the working pressure of the system. After piping tests are complete, the system shall be operated.
- b. Observe flow of blasting media through recovery and separation cycle for indications of overloading system during blasting operations. Minimum requirements for the recovery and separation cycle are:
 - (1) Process 181 Kg per minute of stainless steel grit.
 - (2) A maximum of 5 percent carryover of usable grit to waste from the separator.
 - (3) Separator effectiveness of 95 percent in removing fines and unusable blast media (all shot that sizes less than SAE 280).
- c. Inspect exterior of blast enclosure for indications of dust and/or blasting media escaping from enclosure, no leakage allowed.
- d. Test all electric motors installed in the system to determine that the working load is not in excess of motor rated capacity.
- e. Verify the grounded connection to the operator's nozzle controls.
- f. Verify the cut-off action of the operator's nozzle and the refill reaction in the blast generator.
- g. Test and inspect for proper installation and operation all alarm

and warning signs specified.

- h. Verify rate of airflow through inlet louvers, across the blast room and from the exhauster.
- i. Inspect, test and verify discharge from exhauster that visible and particle emissions are within specified limitations. Maximum allowable visible emissions no greater than Number 1 on the Ringelmann chart and particulate matter not in excess of 5 milligrams per dry standard cubic foot of air.
- j. Verify that illumination within the Abrasive Blast System is equal to or greater than that specified.
- k. Inspect and verify operation of dust collector.

The pre-acceptance test shall be used as a training exercise for activity personnel.

3.3.2 Acceptance Test

The Acceptance Test for the Abrasive Blast System shall be conducted by trained personnel from the activity performed under the Contractor's supervision, during which normal equipment system operations shall be conducted. This phase shall also include a test of each and every system element, as in the pre-acceptance test and:

- a. Demonstrate the ability to support a 60-minute minimum blasting period as specified.
- b. Prepare a test plate or using a test piece provided by the procuring activity, demonstrate the ability of the system to provide a "near white" surface on that test piece.
- c. Demonstrate training effectiveness.

3.3.2.1 Performance

The ability of the blast system to support the blast times required can be based on the amount of time required for the nozzles to eject 0.018 cubic meter of blasting material times the amount of blasting material available in a fully charged system. An allowance of 15 percent standby will be allowed. Any device or component that fails or otherwise does not perform to specification standards, shall be repaired or replaced by the Contractor, and that portion of the system shall be re-tested to determine acceptance.

3.3.3 Dust Collector

The exhaust to the atmosphere from the dust collector shall be tested during the acceptance and post-acceptance test periods. To meet environmental air permit requirements, the dust collector shall attain not less than 99.9 percent control efficiency and shall meet all other permitting agency requirements. If the dust collector fails to meet these specified requirements, it shall be repaired or replaced by the Contractor, at no cost to the government.

3.3.3.1 Visible Emissions

At no time shall the dust collector discharge into the atmosphere, any air contaminant emission for a period or periods aggregating to more than 3 minutes in any period of 60 consecutive minutes, which is darker in than that designated as Number 1 on the Ringelmann chart as published by the United States Bureau of Mines, or of such opacity as to obscure an observers view to a degree greater than does smoke of a shade designated as Number 1 on the Ringelmann chart. For the purpose of this rule "observer" means a certified human observer or a certified and calibrated opacity monitoring system.

3.3.3.2 Nuisance

The dust collector shall not discharge from any source whatsoever such, quantities of air contaminates or other material which cause injury, detriment, nuisance, or annoyance to personnel or to the public, or which endanger the comfort, repose, health, or safety of personnel or the public, or which cause or have a tendency to cause, injury or damage to business or property.

3.3.3.3 Particulate Matter

The dust collector shall not discharge into the atmosphere, from any source, particulate matter in excess of 5 milligrams per dry standard cubic meter of air.

3.3.4 Blast Room Emissions

The emissions from the abrasive blast shall not exceed the limits specified in this section, or National or USAKA/KMR ambient air quality standards (NAAQS or SAAQS).

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 11 - EQUIPMENT

SECTION 11504

HYDRO BLAST SYSTEM

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 DESCRIPTION OF WORK
- 1.3 SUBMITTALS
- 1.4 LOGISTICS
- 1.5 DELIVERY, STORAGE, AND HANDLING
- 1.6 SIGNS

PART 2 PRODUCTS

- 2.1 HYDRO BLAST SYSTEM DESCRIPTION
- 2.2 ABRASIVE BLAST SYSTEM FABRICATION AND CONSTRUCTION
 - 2.2.1 Maintainability
 - 2.2.2 Interchangeability
 - 2.2.3 Safety
 - 2.2.3.1 Guards and Screens
 - 2.2.3.2 Mechanical Safety
 - 2.2.4 Electrical
 - 2.2.5 Controls and Alarms
 - 2.2.5.1 Power on Signal
 - 2.2.5.2 Access Safety Interlocks
 - 2.2.5.3 Operator Signal
 - 2.2.6 Painting
 - 2.2.7 Mechanical Devices
 - 2.2.7.1 Gauges and Meters
 - 2.2.7.2 Equipment Access
 - 2.2.8 Transportability
 - 2.2.9 Color Coding
- 2.3 HYDRO BLAST ROOM MATERIALS AND FABRICATION
 - 2.3.1 Lighting
 - 2.3.2 Hydro Blast Room, Capacity and Dimensions
 - 2.3.3 Walls
 - 2.3.4 Floor
 - 2.3.5 Hydro Blast Room, Accessories
- 2.4 HYDRO BLAST EQUIPMENT
 - 2.4.1 Service Air
 - 2.4.2 High Pressure Pump
 - 2.4.2.1 Pressure Vessel
 - 2.4.2.2 Jetting Gun
 - 2.4.2.3 Nozzles
 - 2.4.2.4 Hose
 - 2.4.2.5 UHP Couplings
 - 2.4.2.6 Tool Kit
 - 2.4.2.7 Operator Remote Controls

PART 3 EXECUTION

- 3.1 INSTALLATION
- 3.2 VERIFICATION OF DIMENSIONS
- 3.3 FIELD INSPECTIONS AND TESTS
 - 3.3.1 Pre-Acceptance Test
 - 3.3.2 Acceptance Test

-- End of Section Table of Contents --

SECTION 11504

HYDRO BLAST SYSTEM

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 Z9.4 (1997) Ventilation and Safe Practices of
Abrasive Blast Operations

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910 Occupational Safety and Health Standards

29 CFR 1910.94 Ventilation

29 CFR 1910.134 Respiratory Protection

1.2 DESCRIPTION OF WORK

Provide a complete Hydro-Blast System. The principal components of the system are the Blast Room, Clear Fast/Deep Bed Water Filter Combination, Storage Tank, Settling Tank, Hydro-Blast Pump, Operator Safety Gear, Hydro Blast Compressed Air System, Breathing Air System, and Product Handling System. The Compressed Air System, the Breathing Air System, and the Product Handling System are specified in other sections of this specification as they also serve the Paint Spray Painting System. The work required under this section includes furnishing, installing, and testing new equipment. Provide rough in and make utility connections to equipment in accordance with requirements specified in other sections of this specification and in accordance with the physical dimensions, capacities and other requirements of the equipment furnished. Provide the hydro blast system as an Additive item in the Proposal Schedule.

1.3 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-02 Shop Drawings

Hydro Blast System

Residue Collector

Submit within 60 days of receipt of contract or notice to proceed a minimum 1:100-mm scale layout drawings of the hydro blast room and the hydro blast equipment room. Indicate the detailed arrangement of all Contractor supplied equipment, in their exact locations. Include elevations of the hydro blast equipment room, to establish that the equipment will fit the allotted spaces with clearance for installation, operation, and maintenance. Provide details of the air intake and exhaust system of the hydro blast equipment room.

SD-03 Product Data

Manufacturer's standard catalog data, at least 5 weeks prior to the purchase or installation of a particular component, highlighted to show material, size, options, performance charts and curves, etc. in adequate detail to demonstrate compliance with contract requirements. Data shall include manufacturer's recommended installation instructions and procedures. Data shall be submitted for each of the specified component:

- a. Hydro Blast Pump
- b. Clear/Deep Bedwater Filter Combination
- c. Operator Safety Gear
- d. **(DELETED)**

If the catalogs supplied refer to more than one model or type of equipment, the catalogs should be clearly annotated to show which product is being supplied under this contract.

Spare Parts Data

Spare parts data for each different item of equipment specified, after approval of detail drawings no later than 2 months prior to the date of beneficial occupancy. The data shall include a complete list of parts and supplies, with current unit prices and source of supply, a recommended spare parts list for 1 year of operation, and a list of parts recommended by the manufacturer to be replaced on a routine basis.

Posted Instructions

Posted instructions, at least 4 weeks prior to construction completion, including equipment layout, wiring and control diagrams, piping, and control sequences, and typed condensed operation instructions. The condensed operation instructions shall include preventive maintenance procedures, methods of checking the system for normal and safe operation, and procedures for safely starting and stopping the system. The posted instructions shall be framed under glass or laminated plastic and posted where indicated by the Contracting Officer.

Verification of Dimensions

A letter at least 4 weeks prior to beginning construction, including the date the site was visited, conformation of existing conditions, and any discrepancies found.

System Performance Test

A schedule, at least 4 weeks prior to the start of related testing, for the system performance tests. The Schedules shall identify the proposed date, time, and location for each test.

Demonstrations

A schedule, at least 4 weeks prior to the date of the proposed training course, which identifies the date, time, and location of the training.

SD-06 Test Reports

System Performance Tests

Six copies of each test containing the information described below in bound 216 x 279 mm booklets. The report shall document compliance with the specified performance criteria upon completion of testing of the system. The report shall indicate the number of days covered by the tests and any conclusions as to the adequacy of the system.

- a. Clear/Deep Bedwater Filter Combination
- b. Hydro Blast Pump
- c. Operator Safety Gear
- d. Training Plan
- e. Test Plan & Record

SD-07 Certificates

Hydro Blast System

Provide a certificate of compliance with ANSI Z9.4 and 29 CFR 1910.

SD-10 Operation and Maintenance Data

Operation Manuals

Six complete copies of operation manual in bound 216 x 279 mm booklets listing step-by-step procedures required for system startup, operation, abnormal shutdown, emergency shutdown, and normal shutdown at least 4 weeks prior to the first training course. The booklets shall include the manufacturer's name, model number, and parts list. The manuals shall include the manufacturer's name, model number, service manual, and a brief description of all equipment and their basic operating features.

Maintenance Manuals

Six complete copies of maintenance manual in bound 216 x 279 mm booklets listing routine maintenance procedures, possible breakdowns and repairs, and a trouble shooting guide. The manuals

shall include equipment layouts and simplified wiring and control diagrams of the system as installed.

- a. Hydro Blast Pump
- b. Clear/Deep Bedwater Filter Combination

Submit operations and maintenance data in accordance with Section 01781 OPERATION AND MAINTENANCE DATA. In addition to the requirements of Section 01781 OPERATION AND MAINTENANCE DATA, submit the manual in a three-ring, hard cover, notebook. Provide index tabs that are specific to the required subject matter. Submit all drawings, illustrations, schematic and control, exploded views and diagrams that are stipulated by Section 01781 OPERATION AND MAINTENANCE DATA, in 216 x 279 mm or 279 mm x 432 mm format.

Submit one complete installation manual: an AutoCAD CD of electrical control system drawings, operating equipment and installation drawings to the Contracting Officer for review and approval, a minimum of 30 days prior to the performance of hydro blast room tests. Seven copies of the approved manuals with all test results included shall be provided to the Contracting Officer after completion of satisfactory system testing.

1.4 LOGISTICS

Should the Contractor or equipment manufacturer or vendor provide special parts of components which have been created specifically for the execution of this contract and not for the purpose of uniform model field change or product line modifications, then these items shall be identified at their field replacement level as specialty items in all listings of equipment, components, spare parts or consumables. The Contractor and equipment manufacturer or vendor shall provide to the Government all rights to manufacture, for the Government's own use, specialty items. The manufacturing data, process, drawings, artwork, machine control data, and programming data which are necessary to prepare the specialty item for field installation shall be provided to the Government at the time of equipment acceptance.

1.5 DELIVERY, STORAGE, AND HANDLING

Inspect each piece of equipment upon delivery. Obtain and follow equipment manufacturer's recommendations to protect materials and equipment and prevent damage.

1.6 SIGNS

Provide signs as required by Section 10440 INTERIOR SIGNAGE.

PART 2 PRODUCTS

2.1 HYDRO BLAST SYSTEM DESCRIPTION

The system will house all Hydro blasting equipment necessary to provide a hydro cleaning system using high-pressure water provided from the Hydro Blast Equipment Room. The system will produce a clean product ready for preservation and/or painting. The HBS will include a blasting room to accommodate the varied size workload required. A compressed air system will

be provided for hydro blasting equipment and breathing air. The compressed air and electrical systems will be installed in the hydro blast equipment room, which is separate from the Hydro Blast Room. The HBS shall include a complete electric system including appropriate controllers. Necessary electrical connections for the controllers are specified in Section 16415. All components of the HBS shall be compatible to meet the requirements of water recycling system, ventilation and cleaning without causing overload, excessive down time for maintenance of the system. Exhaust and supply ventilation shall be as specified in Section 15895 AIR SUPPLY, DISTRIBUTION, VENTILATION, AND EXHAUST SYSTEM. The supplier shall perform all work and testing required for the installation of the facility and all associated equipment.

2.2 ABRASIVE BLAST SYSTEM FABRICATION AND CONSTRUCTION

These requirements define the minimum design parameters for the HBS.

2.2.1 Maintainability

All components that might be subject to failure shall be positioned for ease of accessibility for replacement. Such items shall be standard items from the manufacturer's catalog. The equipment shall be designed for maintenance by Government maintenance personnel. The contractor shall specify which parts require periodic maintenance, overhaul, and replacement. A list of spare parts, including current prices shall be provided by the Contractor with equipment maintenance manuals. If special tools are required for maintenance, two sets shall be supplied. Provide a one year supply of maintenance parts and accessories as required.

2.2.2 Interchangeability

Interchangeability between components of the equipment identical in size and function shall be maximized. Parts and assemblies shall be manufactured to standards that permit replacement or adjustment without modification.

2.2.3 Safety

The design of the equipment shall incorporate sufficient safety devices and features in accordance with 29 CFR 1910, with emphasis on Sections 94, 132, 133, 134, 135, 136, 212 and 219 to ensure protection of personnel, equipment, and maintenance of the equipment. The equipment shall not present safety hazards when subjected to side load forces that may occur in a seismic zone one as defined in the International Building code. Emergency cut-off switches for rotating parts shall be placed throughout the hydro blast room and the hydro blast equipment room to manually de-energize equipment power to specific sections where continued operation of the equipment might result in damage to equipment or material or cause hazards to personnel.

2.2.3.1 Guards and Screens

Metal personnel safety guards shall be provided for normally accessible unducted fan inlets and discharges and moving power transmission components.

2.2.3.2 Mechanical Safety

Equipment operation shall continue to function when any piping, hoses, or tubing system is subjected to twice the maximum nominal working pressure.

Pressure vessels, valves, and fittings shall withstand proof pressures.

2.2.4 Electrical

The equipment shall use power from a 115 volt 60 Hertz single-phase source, and 440 volt, 60 Hertz, three-phase source. Sections 16415, "Electrical Work, Interior".

2.2.5 Controls and Alarms

Controls and alarms shall be located for convenient use and observation by the operator. Each control, indicator, and instrument shall be clearly and legibly marked for function and identification.

2.2.5.1 Power on Signal

A flashing red warning light shall be mounted over each access to the Hydro Blast Booth and shall automatically be activated when the HBS is in operation. A sign forbidding access except in an emergency while the red light is on shall be mounted in the vicinity of the warning light. The warning light and sign shall be visible from a distance of 15.3 meters (minimum).

2.2.5.2 Access Safety Interlocks

Safety Interlock switches shall be mounted on all access doors to the hydro blast room which will cut off power to the Hydro Blast System equipment if the doors are opened while the equipment is in operations.

2.2.5.3 Operator Signal

During Abrasive Blast System operation inside the abrasive blast room, the operator shall be alerted to interrupt operations by a flashing red light and horn activated by push buttons mounted on outside walls near each personnel access door. The operator interrupt signal shall be different from the carbon monoxide alarm. Place alarms as indicated on drawings.

2.2.6 Painting

Materials and color shall be the manufacturer's standard. All major equipment in non-air conditioned spaces shall be cleaned, primed and painted in shop, prior to shipment as specified in Section 09900 PAINTS AND COATINGS. Following installation, all external metal surfaces of equipment and piping other than moving parts, instrument panels or label plates, which are unpainted, prime painted or damaged shall be cleaned, primer painted as necessary and field painted in accordance with Section 09900 PAINTS AND COATING. All bolts, anchors, nuts and washers in non-air-conditioned spaces shall be Type 316 stainless steel.

2.2.7 Mechanical Devices

2.2.7.1 Gauges and Meters

Gauges and meters shall be in English units of measure and increments. Dual scale dials or indicator shall not be used. Gauges and meters shall be easily removable for maintenance and provisions shall be made for in-place calibration.

2.2.7.2 Equipment Access

Sufficient space shall be provided so that all equipment is accessible for operation and maintenance. Components shall be accessible for repair or replacement without necessitating the removal of any major equipment or components.

2.2.8 Transportability

Lifting eyes, handles, or other devices shall be provided on the equipment as necessary to permit safe movement of equipment for relocation and maintenance without exposing the equipment to damage, deformation or misalignment.

2.2.9 Color Coding

Controls, moving parts and piping shall be color coded in accordance with 29 CFR 1910 paragraph 144.

2.3 HYDRO BLAST ROOM MATERIALS AND FABRICATION

2.3.1 Lighting

The Hydro Blast Room shall be illuminated as indicated on drawings. Metal Halide type lamps shall be used and shall be installed in the Hydro Blast Room ceiling. The fixtures shall be designed as enclosed and UL listed for wet location, removable from inside the Hydro Blast Room, for the purpose of lamp maintenance and installation. Lighting shall conform to Section 16415A, ELECTRICAL WORK, INTERIOR.

2.3.2 Hydro Blast Room, Capacity and Dimensions

The blast room shall be sized as indicated.

2.3.3 Walls

The hydro blast walls shall be provided with panels mounted to a minimum height of 2.4 meters above the finished floor as recommended by equipment manufacturer. All concrete beneath stainless steel panels shall be waterproofed. All bolts, anchors, nuts and washers shall be Type 316 stainless steel. The design for all panels shall be standard for ease of replacement. The arrangement of the panels shall maximize the use of one common size.

2.3.4 Floor

The hydro blast room shall be installed on a hardened concrete floor rated at 27.5 MPa. **The blast room floor shall be water-proofed and provided with checkered plate mechanically fastened to the concrete with epoxy covered joints as recommended by equipment manufacturer.**

2.3.5 Hydro Blast Room, Accessories

One complete operator safety outfits that comply with ANSI Z9.4, 29 CFR 1910.94, and 29 CFR 1910.134 shall be provided. **Outfits shall be provided with operator cooling air devices.**

a. (DELETED)

- b. **Personal Air Conditioner:** Provide one vest with vortex tube for consistent and continuous cooling. The vest shall allow full range of motion with no airflow restrictions and can be worn under welding leathers or protective clothing. The vortex tube shall be worn on a supplied belt, cool inlet temperature by 15.6 degree C, 225 kCal/hr, 425 SLPM capacity.
- c. **Personal Mask:** Provide one full mask with continuous flow of supplied air respirator made of silicone rubber, double sealing flange, polycarbonate len, and removable hairnet. The personal mask shall be NIOSH approved.

2.4 HYDRO BLAST EQUIPMENT

Blasting Equipment shall operate at up to (40,000 PSI) 275,800 KPa water pressure.

2.4.1 Service Air

A Service Air Control Station shall supply a continuous flow of 862 KPa compressed air. The control station shall be supplied from the building service air system.

2.4.2 High Pressure Pump

- a. **One each hydraulic powered intensifier pump, rated 15.2 liter per minute at 275,800 KPa and equipped with the following standard features.**
- b. **To minimize part consumption of high pressure pump, closed loop filter system and other system components, the pump should be capable of stopping the plunger stroking process when the blasting tool trigger is not in the pressed position.**
- c. **The pump must be capable of operating at any pressure from 34,500 KPa to 275,800 KPa and any flow rate from 3.81/min to 151/min with single or multiple tools, without having to bypass or "dump" water. The stroke rate for the high-pressure plunger should not exceed 100 strokes per minute.**
- d. **The pumps utilize a pressure-compensated hydraulic system to drive plunger style intensifiers. The use of hydraulic fluid power provides smooth flowing UHP water resulting in long system life. Reliable and precise PLC control of the electronically shifted intensifiers ensures superior performance standards with reduced operating costs. The pumps are built on a skid-mounted frame with lifting eyes and forklift guides provided for increased mobility.**
- e. **Pump should have a pressure switch in the water supply line to ensure adequate water flow to the high-pressure pump. If pressure drops below a predetermined set point, a switch energizes a relay to stop the pumping process.**
- f. **Pump should include a high-pressure bleed-down valve for relieving high-pressure water from the system when the pump is turned off or the c-stop is pressed.**

- g. Glycerin liquid filled pressure gauge assures accurate pressure readings in harsh operating conditions. Liquid in pressure gauges will not be silicone.
- h. **Pump unit should contain a high-pressure attenuator to dampen pressure fluctuations caused by the reciprocating motion of the plunger. The use of an attenuator increases hose and part life of the tools and reduces operator fatigue.**
- i. **The NEMA 12/13 rated enclosure provides protection for electrical components. The enclosure is mounted directly to the frame and houses components such as motor starters, power supplies, transformers, PLC, breakers, overloads and relays.**
- j. **Critical functions such as low incoming water pressure, pump overcycle, hydraulic oil temperature, clogged filters are monitored. In the event that any monitored function fails, the motor or pump shall shut down for safety and to prevent damage to the pump or motor.**
- k. The pump shall be driven by an electric motor, rated 74.6 kW at 1,750 RPM, T.E.F.C. 460 volts, 3 phase, 60 hz.
- l. **(DELETED)**
- m. **(DELETED)**
- n. **(DELETED)**
- o. **(DELETED)**

2.4.2.1 Pressure Vessel

The pressure vessel shall carry a TUV certificate, with a rating of 379,212 KPa.

2.4.2.2 Jetting Gun

The Jetting Gun shall be a positive shutoff dry-type jetting gun and incorporate in its design:

- a. **Dual triggers for safety.**
- b. **On/off valve rated for minimum 379,212 KPa.**
- c. Light weight.
- d. **(DELETED)**
- e. Trigger Guard.

2.4.2.3 Nozzles

Nozzle shall be a single piece nozzle, threaded style.

2.4.2.4 Hose

High Pressure Hose shall be 5 mm I.D. UHP hose rated at (English equivalent) 275,800 KPa working pressure.

2.4.2.5 UHP Couplings

UHP couplings shall be provided, which utilize a threaded design with weep-holes at all connections for safety.

2.4.2.6 Tool Kit

With the high-pressure pump, provide a customized tool repair kit, including any specialty wrenches to overhaul the wet-end.

2.4.2.7 Operator Remote Controls

The remote controls are of the pneumatic type, which incorporates a normally closed high-pressure water valve. When the wand trigger is activated the air pressure opens the high-pressure water valve to begin the blasting process. If there is a loss of air pressure to the valve the springs return the valve to its normal position.

PART 3 EXECUTION

3.1 INSTALLATION

System installation shall be conducted in accordance with manufacturer's printed instructions.

3.2 VERIFICATION OF DIMENSIONS

Contractor shall be responsible for coordination and proper relation of all work to the building structure and the work of all trades. The Contractor shall verify all dimensions of the building in the field that relate to fabrication and installation of the Hydro Blast System and notify the Contracting Officer of any discrepancy before final installation.

3.3 FIELD INSPECTIONS AND TESTS

A Pre-Acceptance, and Acceptance Test shall be conducted. The tests shall be performed by the Contractor as directed herein. A step-by-step test plan and report shall be provided by the Contractor for each test. The equipment specified herein shall be operated for not less than 30 minutes to determine compliance with the acceptance test requirements. Proper operation of controls and other accessories shall be inspected and demonstrated. Reports of all test data, analysis of performance and conclusions shall be prepared for submittal to the procuring activity.

3.3.1 Pre-Acceptance Test

Conduct pre-acceptance test on all electrical, mechanical and pneumatic devices and components of the HBS to determine if each component is operating properly and conforms to specifications. The tests shall be of sufficient depth to assure that every component of the system is exercised. Problems and deficiencies identified during this test shall be corrected prior to commencing the acceptance test. The following conditions shall be tested during the pre-acceptance test:

- a. Before operation of the system, test all piping for air systems (vertical receivers) at 1-1/2 times the working pressure of the system. After piping tests are complete, the system shall be operated.
- b. Test all electric motors installed in the system to determine that the working load is not in excess of motor rated capacity.
- c. Verify the cut-off action of the operator's nozzle and the refill reaction in the blast generator.
- d. Test and inspect for proper installation and operation all alarm and warning signs specified.
- e. Verify rate of airflow through inlet louvers, across the blast room and from the exhauster.
- f. Inspect, test and verify discharge from exhauster that visible and particle emissions are within specified limitations. Maximum allowable visible emissions no greater than Number 1 on the Ringelmann chart and particulate matter not in excess of .1 grain per dry standard cubic foot of gas.
- g. Verify that illumination within the Hydro Blast room is equal to or greater than that specified; i.e. 700 lux candles at 0.91 meter above floor.

The pre-acceptance test shall be used as a training exercise for activity personnel.

3.3.2 Acceptance Test

The Acceptance Test for the Hydro Blast System shall be conducted by trained personnel from the activity performed under the Contractor's supervision, during which normal equipment system operations shall be conducted and witnessed by an activity personnel and the contracting officer. This phase shall also include a test of each and every system element, as in the pre-acceptance test and:

- a. Demonstrate the ability to support a 60-minute minimum blasting period as specified.
- b. Prepare a test plate or using a test piece provided by the procuring activity, demonstrate the ability of the system to provide a cleaned surface on that test piece.
- c. Demonstrate training effectiveness.

-- End of Section --