

Specifications

100% Final Submittal

For

NASA DFRC EDM-1703

Facility Support Center

At

Edwards AFB, CA

05/23/2011

Rev. 06/29/11

PROJECT TABLE OF CONTENTS

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

00 01 15 LIST OF DRAWINGS
00 22 13 BID SCHEDULES

DIVISION 01 - GENERAL REQUIREMENTS

01 11 00.00 40 SUMMARY OF WORK
01 14 00 WORK RESTRICTIONS
01 20 00.00 20 PRICE AND PAYMENT PROCEDURES
01 30 00 ADMINISTRATIVE REQUIREMENTS
01 32 01.00 10 PROJECT SCHEDULE
01 33 00 SUBMITTAL PROCEDURES
01 33 29 LEED(TM) DOCUMENTATION
01 35 14.11 40 DRYDEN SAFETY REQUIREMENTS
01 42 00 SOURCES FOR REFERENCE PUBLICATIONS
01 45 00.10 40 CONTRACT QUALITY CONTROL
01 45 35 SPECIAL INSPECTION FOR SEISMIC-RESISTING SYSTEMS
01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS
01 62 35 RECYCLED / RECOVERED MATERIALS
01 74 19 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT
01 78 00 CLOSEOUT SUBMITTALS
01 78 23 OPERATION AND MAINTENANCE DATA

DIVISION 02 - EXISTING CONDITIONS

02 41 00 DEMOLITION AND DECONSTRUCTION

DIVISION 03 - CONCRETE

03 30 00 CAST-IN-PLACE CONCRETE

DIVISION 04 - MASONRY

04 20 00 MASONRY

DIVISION 05 - METALS

05 12 00 STRUCTURAL STEEL
05 30 00 STEEL DECKS
05 40 00 COLD-FORMED METAL FRAMING
05 50 13 MISCELLANEOUS METAL FABRICATIONS
05 51 00 METAL STAIRS
05 51 33 METAL ALTERNATING TREAD STAIRS
05 52 00 METAL RAILINGS

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

06 41 16.00 10 LAMINATE CLAD ARCHITECTURAL CASEWORK

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

07 12 00 BUILT-UP BITUMINOUS WATERPROOFING
07 21 16 NATURAL COTTON FIBER BLANKET INSULATION
07 22 00 RIGID INSULATION
07 42 13 METAL WALL PANELS
07 54 19 THERMOPLASTIC POLYEOLEFIN (TPO) ROOFING

NASA/DFRC - FACILITIES SUPPORT CENTER, EDM-1703
FINAL SUBMITTAL

07 60 00 FLASHING AND SHEET METAL
07 61 14.00 20 STEEL STANDING SEAM ROOFING
07 84 00 FIRESTOPPING
07 92 00 JOINT SEALANTS

DIVISION 08 - OPENINGS

08 11 13 STEEL DOORS AND FRAMES
08 11 16 ALUMINUM DOORS AND FRAMES
08 14 00 WOOD DOORS
08 33 23 OVERHEAD COILING DOORS
08 41 13.00 99 ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS
08 44 00 INSULATED TRANSLUCENT FIBERGLASS WALL PANEL UNITS
08 51 13.00 40 ALUMINUM WINDOWS
08 62 00 TUBULAR DAYLIGHTING DEVICES
08 71 00 DOOR HARDWARE
08 81 00 GLAZING
08 91 00 METAL WALL LOUVERS

DIVISION 09 - FINISHES

09 06 90 COLOR SCHEDULE
09 22 00 SUPPORTS FOR PLASTER AND GYPSUM BOARD
09 29 00 GYPSUM BOARD
09 30 00 CERAMIC TILE
09 51 00 ACOUSTICAL CEILINGS
09 65 00 RESILIENT FLOORING
09 68 00 CARPET
09 90 00 PAINTS AND COATINGS

DIVISION 10 - SPECIALTIES

10 28 13 TOILET ACCESSORIES
10 44 16 FIRE EXTINGUISHERS
10 51 13 PLASTIC LOCKERS

DIVISION 12 - FURNISHINGS

12 31 00 MANUFACTURED METAL CASEWORK
12 36 00 COUNTERTOPS
12 48 13.13 ENTRANCE FLOOR MATS

DIVISION 21 - FIRE SUPPRESSION

21 13 13.00 10 WET PIPE SPRINKLER SYSTEM, FIRE PROTECTION

DIVISION 22 - PLUMBING

22 00 00 PLUMBING, GENERAL PURPOSE
22 05 48.00 20 MECHANICAL SOUND, VIBRATION, AND SEISMIC CONTROL
22 07 19 PLUMBING PIPING INSULATION
22 15 09 GENERAL SERVICE COMPRESSED-AIR SYSTEMS CLEANING PROCEDURES
22 15 14 GENERAL SERVICE COMPRESSED-AIR SYSTEMS, LOW PRESSURE

DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING

23 00 00 AIR SUPPLY, DISTRIBUTION, VENTILATION, AND EXHAUST SYSTEMS
23 03 00.00 20 BASIC MECHANICAL MATERIALS AND METHODS
23 05 15 COMMON PIPING FOR HVAC

NASA/DFRC - FACILITIES SUPPORT CENTER, EDM-1703
FINAL SUBMITTAL

23 05 48	VIBRATION AND SEISMIC CONTROLS FOR HVAC PIPING AND EQUIPMENT
23 05 93	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 07 00	THERMAL INSULATION FOR MECHANICAL SYSTEMS
23 08 00.00 10	COMMISSIONING OF HVAC SYSTEMS
23 09 23.13 20	BACnet DIRECT DIGITAL CONTROL SYSTEMS FOR HVAC
23 11 25	FACILITY GAS PIPING
23 23 00	REFRIGERANT PIPING
23 25 00	CHEMICAL TREATMENT OF WATER FOR MECHANICAL SYSTEMS
23 35 19.00 20	INDUSTRIAL VENTILATION AND EXHAUST
23 52 00	HEATING BOILERS
23 64 10	WATER CHILLERS, VAPOR COMPRESSION TYPE
23 76 00.00 10	EVAPORATIVE COOLING SYSTEMS
23 82 02.00 10	UNITARY HEATING AND COOLING EQUIPMENT

DIVISION 26 - ELECTRICAL

26 00 00.00 20	BASIC ELECTRICAL MATERIALS AND METHODS
26 05 00.00 40	COMMON WORK RESULTS FOR ELECTRICAL
26 05 13.00 40	MEDIUM-VOLTAGE CABLES
26 05 48.00 10	SEISMIC PROTECTION FOR ELECTRICAL EQUIPMENT
26 08 00	APPARATUS INSPECTION AND TESTING
26 12 19.10	THREE-PHASE PAD-MOUNTED TRANSFORMERS
26 13 00.00 20	SF6 INSULATED PAD-MOUNTED SWITCHGEAR
26 18 23.00 40	MEDIUM-VOLTAGE SURGE ARRESTERS
26 20 00	INTERIOR DISTRIBUTION SYSTEM
26 23 00	SWITCHBOARDS
26 24 16.00 40	PANELBOARDS
26 29 23	VARIABLE FREQUENCY DRIVE SYSTEMS UNDER 600 VOLTS
26 35 33.00 40	PHOTOVOLTAIC SYSTEM
26 51 00	INTERIOR LIGHTING
26 52 00.00 40	EMERGENCY LIGHTING
26 56 00	EXTERIOR LIGHTING

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

28 31 76	INTERIOR FIRE ALARM AND MASS NOTIFICATION SYSTEM (READY)
----------	--

DIVISION 31 - EARTHWORK

31 23 00.00 20	EXCAVATION AND FILL
----------------	---------------------

DIVISION 32 - EXTERIOR IMPROVEMENTS

32 01 19	FIELD MOLDED SEALANTS FOR SEALING JOINTS IN RIGID PAVEMENTS
32 10 00	PERVIOUS AND HOT-MIX BITUMINOUS CONCRETE PAVEMENTS
32 11 24	GRADED CRUSHED AGGREGATE BASE COURSE FOR PERVIOUS PAVEMENT
32 13 13.06	PERVIOUS PORTLAND CEMENT CONCRETE PAVEMENT FOR ROADS AND SITE FACILITIES
32 13 15.20	CAST-IN-PLACE CONCRETE FOR SITE WORK
32 16 13	CONCRETE SIDEWALKS AND CURBS AND GUTTERS
32 93 00	EXTERIOR PLANTS

DIVISION 33 - UTILITIES

33 11 00	WATER DISTRIBUTION
33 30 00	SANITARY SEWERS
33 40 00	STORM DRAINAGE UTILITIES

33 71 02.00 20 UNDERGROUND ELECTRICAL DISTRIBUTION

DIVISION 41 - MATERIAL PROCESSING AND HANDLING EQUIPMENT

41 22 23.19 VERTICAL RECIPROCATING CONVEYORS (HYDRAULIC, STRADDLE)

DIVISION 44 - POLLUTION AND WASTE CONTROL EQUIPMENT

44 41 13 WATER REUSE SYSTEM

-- End of Project Table of Contents --

SECTION 00 01 15

LIST OF DRAWINGS
01/07

PART 1 GENERAL

1.1 SUMMARY

This section lists the drawings for the contract drawings.

1.2 CONTRACT DRAWINGS

Contract drawings are as follows:

DRAWING NO.	TITLE
T1.0	TITLE AND INDEX SHEET
T2.0	GENERAL NOTES
CIVIL	
C-1.1	CIVIL LEGEND & ABBREVIATIONS
C-1.2	SOIL BORINGS
C-1.3	SOIL BORINGS
C-2.1	DEMOLITION PLAN #1
C-2.2	DEMOLITION PLAN #2
C-3.1	PAVEMENT PLAN #1
C-3.2	PAVEMENT PLAN #2
C-3.3	PAVEMENT PLAN #3
C-4.1	UTILITY PLAN
C-5.1	GRADING PLAN A
C-5.2	GRADING PLAN B
C-6.1	LAYOUT PLAN
C-7.1	STRIPING PLAN
C-8.1	CIVIL DETAILS
C-8.2	CIVIL DETAILS
C-8.3	CIVIL DETAILS
C-8.4	CIVIL DETAILS
C-8.5	CIVIL DETAILS
C-8.6	CIVIL DETAILS
C-8.7	CIVIL DETAILS
C-8.8	STORM WATER PIPE PROFILE
C-8.9	PAVEMENT JOINT PLAN
C-8.10	CIVIL DETAILS
C-8.11	STORM WATER PIPE PROFILE
C-9.1	EROSION CONTROL PLAN
C-9.2	EROSION CONTROL NOTES
C-9.3	EROSION CONTROL DETAILS
LANDSCAPE	
L-1	LANDSCAPE IRRIGATION PLAN
L-2	LANDSCAPE IRRIGATION DETAILS
L-3	LANDSCAPE PLANTING PLAN
L-4	LANDSCAPE PLANTING DETAILS
ARCHITECTURAL	
A0.0	DEMOLITION SITE PLAN
A0.1	SITE PHOTOS

NASA/DFRC - FACILITIES SUPPORT CENTER, EDM-1703
FINAL SUBMITTAL

DRAWING NO.	TITLE
A0.2	SITE PHOTOS
A1.0	SITE PLAN
A2.0	BUILDING FLOOR PLAN
A2.1	NORTH SEGMENT SLAB PLAN
A2.2	SOUTH SEGMENT SLAB PLAN
A2.3	NORTH SEGMENT FLOOR PLAN
A2.4	SOUTH SEGMENT FLOOR PLAN
A2.5	MEZZANINE FLOOR PLAN
A2.6	ENLARGED PARTIAL FLOOR PLAN
A3.0	OVERALL REFLECTED CEILING PLAN
A3.1	NORTH SEGMENT REFLECTED CEILING PLAN
A3.2	SOUTH SEGMENT REFLECTED CEILING PLAN
A3.3	MEZZANINE RCP
A4.0	ROOF PLAN
A4.1	NORTH SEGMENT ROOF PLAN AT LOW ROOFS
A4.2	SOUTH SEGMENT ROOF PLAN AT LOW ROOFS
A5.0	EXTERIOR ELEVATIONS
A5.1	EXTERIOR ELEVATIONS
A6.0	BUILDING SECTIONS
A6.1	BUILDING SECTIONS
A6.2	BUILDING SECTIONS
A6.3	BUILDING SECTIONS
A6.4	BUILDING SECTIONS
A6.5	PARTIAL & BUILDING SECTIONS
A6.6	WALL SECTIONS
A6.7	WALL SECTIONS
A6.8	WALL TYPES
A6.9	WALL TYPES
A7.0	DOOR SCHEDULE
A7.1	FIRST AND FLAT ROOF LEVEL WINDOW SCHEDULE
A7.2	MEZZANINE LEVEL WINDOW SCHEDULE
A7.3	FINISH SCHEDULE
A8.0	ENLARGED RESTROOM PLANS
A8.1	RESTROOM INTERIOR ELEVATIONS
A8.2	CASEWORK ELEVATIONS AND DETAILS
A8.3	INTERIOR ELEVATIONS
A9.0	ENLARGED STAIR#1 PLAN AND SECTION
A9.1	ENLARGED STAIR#2 PLAN AND SECTION
A9.2	ENLARGED LIFT PLAN AND SECTION
A10.0	DOOR DETAILS
A10.1	DOOR DETAILS
A10.2	WINDOW DETAILS
A10.3	STAIR DETAILS
A10.4	STAIR DETAILS
A11.0	ROOF DETAILS
A11.1	ROOF DETAILS
A11.2	CEILING DETAILS
A11.3	TOILET ROOM ACCESSIBILITY DETAILS
A11.4	MILLWORK DETAILS
A12.0	EXTERIOR DETAILS
A12.1	EXTERIOR DETAILS
A12.2	WALL/COLUMN DETAILS
A12.3	WALL/COLUMN DETAILS
A13.0	MISC. DETAILS
STRUCTURAL	
S1.0	GENERAL NOTES

NASA/DFRC - FACILITIES SUPPORT CENTER, EDM-1703
FINAL SUBMITTAL

DRAWING NO.	TITLE
S1.1	GENERAL NOTES
S1.2	GENERAL NOTES
S2.0	TYPICAL DETAILS
S2.1	TYPICAL DETAILS
S2.2	TYPICAL DETAILS
S2.3	TYPICAL DETAILS
S2.4	TYPICAL DETAILS
S2.5	TYPICAL DETAILS
S3.0	NORTH - FOUNDATION PLAN
S3.1	SOUTH - FOUNDATION PLAN
S3.2	NORTH - LOW ROOF FRAMING PLAN
S3.3	SOUTH - LOW ROOF FRAMING PLAN AND MEZZANINE FRAMING PLAN
S3.4	NORTH - HIGH ROOF FRAMING PLAN
S3.5	SOUTH - HIGH ROOF FRAMING PLAN
S4.0	LATERAL LOAD RESISTING BRACED FRAME ELEVATIONS
S4.1	FRAME DETAILS
S6.0	FOUNDATION DETAILS
S7.0	FRAMING DETAILS
S7.1	FRAMING DETAILS
S7.2	FRAMING DETAILS
S7.3	FRAMING DETAILS
S7.4	FRAMING DETAILS
S7.5	FRAMING DETAILS
S7.6	FRAMING DETAILS
MECHANICAL	
M0.1	MECHANICAL GENERAL NOTES, LEGEND AND SYMBOLS LIST
M0.2	MECHANICAL SCHEDULES
M0.3	MECHANICAL SCHEDULES
M2.1	MECHANICAL PLAN - NORTH SEGMENT
M2.2	MECHANICAL PLAN - SOUTH SEGMENT
M2.3	MECHANICAL MEZZANINE
M3.1	MECHANICAL PIPING PLAN - NORTH SEGMENT
M3.2	MECHANICAL PIPING PLAN - SOUTH SEGEMENT
M3.3	MECHANICAL PIPING PLAN - MEZZANINE
M4.0	MECHANICAL ROOF PLAN - NORTH SEGMENT
M4.1	MECHANICAL ROOF PLAN - SOUTH SEGMENT
M5.0	ENLARGED PLAN
M6.0	MECHANICAL DETAILS
M6.1	MECHANICAL DETAILS
M6.2	MECHANICAL DETAILS
M6.3	MECHANICAL DETAILS
M6.4	MECHANICAL DETAILS
M6.5	MECHANICAL DETAILS
M6.6	MECHANICAL DETAILS
M6.7	MECHANICAL DETAILS
M7.0	MECHANICAL SECTIONS
M8.0	MECHANICAL VARIABLE REFRIGERANT FLOW CONTROL
M8.1	MECHANICAL CONTROLS
M8.2	MECHANICAL CONTROLS
M8.3	MECHANICAL CONTROLS
PLUMBING	
P0.1	PLUMBING NOTES, LEGEND AND ABBREVIATIONS
P0.2	SCHEDULES

NASA/DFRC - FACILITIES SUPPORT CENTER, EDM-1703
FINAL SUBMITTAL

DRAWING NO.	TITLE
P1.0	PLUMBING SITE PLAN
P2.0	PLUMBING OVERALL PLAN
P2.1	WATER, GAS & COMPRESSED AIR PIPING PLAN - NORTH SEGMENT
P2.2	WATER, GAS & COMPRESSED AIR PIPING PLAN - SOUTH SEGMENT
P2.3	WASTE, VENT & STORM DRAIN PIPING PLAN - NORTH SEGMENT
P2.4	WASTE, VENT & STORM DRAIN PIPING PLAN - SOUTH SEGMENT
P2.5	CONDENSATE DRAIN PIPING PLAN - NORTH SEGMENT
P2.6	CONDENSATE DRAIN PIPING PLAN - SOUTH SEGMENT
P2.7	PLUMBING MEZZANINE
P2.8	PARTIAL MEZZANINE PLAN - BOILER ROOM
P3.0	PLUMBING ROOF PLAN
P4.0	PLUMBING ENLARGED PLANS
P4.1	PLUMBING ENLARGED PLANS
P5.0	PLUMBING PIPING DIAGRAMS
P6.0	PLUMBING DETAILS

ELECTRICAL

E0.1	ELECTRICAL NOTES, LEGEND AND ABBREVIATION
E0.2	ELECTRICAL SCHEDULES
E0.3	ELECTRICAL SCHEDULES
E0.4	ELECTRICAL SCHEDULES
E0.5	ELECTRICAL SCHEDULES
E0.6	ELECTRICAL SINGLE LINE DIAGRAM
E0.7	ELECTRICAL SINGLE LINE DIAGRAM (CONT)
E1.0	ELECTRICAL SITE PLAN
E2.1	POWER AND SIGNAL - NORTH SEGMENT
E2.2	POWER AND SIGNAL - SOUTH SEGMENT
E2.3	POWER AND SIGNAL MEZZANINE
E3.1	LIGHTING PLAN - NORTH SEGMENT
E3.2	LIGHTING PLAN - SOUTH SEGMENT
E3.3	LIGHTING MEZZANINE
E4.0	POWER ROOF PLAN
E6.0	ELECTRICAL DETAILS
E7.0	BLDG 4810, BLDG 4827, WELD SHOP DEMOLITION
E8.0	LIGHTING CONTROL PANEL AND NOTES

FIRE ALARM & FIRE PROTECTION

FA0.1	FIRE ALARM PLAN
FA0.2	DRAWING SHEET LIST, NOTES, LEGENDS, FIRE ALARM SYSTEM OPERATIONS MATRIX
FA1.1	FIRE ALARM FLOOR PLAN FIRST FLOOR - NORTH
FA1.2	FIRE ALARM FLOOR PLAN FIRST FLOOR - SOUTH
FA1.3	FIRE ALARM FLOOR PLAN - SECOND FLOOR
FA2.1	FIRE ALARM RISER DIAGRAM CABINET #1
FA2.2	FIRE ALARM RISER DIAGRAM CABINET #2
FA3.1	FACP WIRING DIAGRAM CABINET #1
FA3.2	FACP WIRING DIAGRAM CABINET #2
FA3.3	LOC PANEL WIRING DIAGRAM
FA3.4	FIRE ALARM POWER SUPPLY WIRING DIAGRAMS
FA3.5	MASS NOTIFICATION POWER SUPPLY WIRING DIAGRAMS
FA4.1	DEVICE WIRING DETAILS
FA4.2	DEVICE WIRING DETAILS
FS1.0	FIRE PROTECTION PLAN
FS1.1	FIRE PROTECTION SITE PLAN
FS2.1	FIRE SPRINKLER PLAN FIRST FLOOR - SOUTH

NASA/DFRC - FACILITIES SUPPORT CENTER, EDM-1703
FINAL SUBMITTAL

DRAWING NO.	TITLE
FS2.2	FIRE SPRINKLER PLAN FIRST FLOOR - NORTH
FS2.3	FIRE SPRINKLER PLAN SECOND FLOOR
FS3.0	FIRE SPRINKLER PLAN BUILDING SECTIONS
FS4.0	FIRE SPRINKLER DETAILS

-- End of Document --

SECTION 00 22 13

BID SCHEDULES
08/08

PART 1 GENERAL

1.1 BID ITEM

The bid item shall be priced for the following items as delineated below and as instructed by the Contracting Officer:

0001. Base Bid Item: Provide all materials, equipment and labor to construct Facilities Support Center as shown and described in the Contract drawings and specifications; to be a complete and usable facility, at NASA Dryden Flight Research Center, Edwards AFB, CA 93523; with the exception of the work described hereafter and included in Additive Bid Options #1 through #7.

0002. Option Item No. 1 (Additive Item No.4)- Price includes the following:

Provide all materials, equipment and labor to safely terminate all underground utilities feeding buildings B4804, B4810, B4827, Weld Shop and Saw Shed; then completely demolish these structures to the top of the existing building slabs.

0003. Option Item No. 2 (Additive Item No. 1)- Price includes the following:

Provide all materials, equipment and labor to install roof-mounted photovoltaic power system, complete, as shown on Drawing E-0.7 and described in specification section 26 35 33.00 40 - Photovoltaic System.

0004. Option Item No. 3 (Additive Item No. 2)- Price includes the following:

Provide all materials, equipment and labor to install roof-mounted tubular daylighting devices as shown on Drawings A4.1 and A4.2 and described in specification section 08 62 00 - Tubular Daylighting Devices.

0005. Option Item No. 4 (Additive Item No. 3)- Price includes the following:

Provide all materials, equipment and labor to install all Landscaping as shown on Drawings L-1, L-2, L-3 and L-4, and described in specification division 32 - Exterior Improvements.

0006. Option Item No. 5 (Additive Item No.5)- Price includes the following:

Provide all materials, equipment and labor to safely demolish concrete slab foundations for buildings 4804, 4810, and 4827 and finish areas to natural grade. Cut and cap all utilities at foundation perimeter.

0007. Option Item No. 6 (Additive Item No. 6)- Price includes the following:

Provide all materials, equipment and labor to install asphalt paving area of slab demolition of buildings 4804, 4810, & 4827 and other demolished slabs in the demolition area.

0008. Option Item No. 7 (Additive Item No. 7)- Price includes the following:

Provide all materials, equipment and labor to install parking lot adjacent to Swann Ave. entrance to site. Parking lot option includes grading, pervious pavement, striping, signage, sidewalk at east side, parking lot landscaping & irrigation, and lighting (6 poles) as described in specificatio division 32 - Exterior Improvements.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 11 00.00 40

SUMMARY OF WORK
06/06

PART 1 GENERAL

1.1 SUMMARY

The work to be performed for this project consists of providing the labor, equipment and materials to build a facilities support center building of approximately 38,000 square feet for the National Aeronautics and Space Administration at the Dryden Flight Research Center (NASA/DFRC), Edwards, CA 93523.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval.

1.3 CONTRACT DRAWINGS

Two sets of compact disks (CD's) containing PDF files for the contract drawings, and specifications will be furnished to the Contractor without charge. Reference publications will not be furnished.

Contractor shall immediately check furnished drawings and notify the Government of any discrepancies.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SECTION 01 14 00

WORK RESTRICTIONS

07/07

PART 1 GENERAL

1.1 DEFINITIONS

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 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Submittal Requirements

List of Contact Personnel; G

1.3 SPECIAL SCHEDULING REQUIREMENTS

- a. The center will remain in operation during the entire construction period. The Contractor shall conduct his operations so as to cause the least possible interference with normal operations of the activity.

1.4 CONTRACTOR ACCESS AND USE OF PREMISES

1.4.1 Activity Regulations

1.4.1.1 Identification Badges

Identification badges will be issued to the Contractor and his employees in accordance with National Aeronautics and Space Administration security regulations. A copy of the security regulations may be obtained from the security office. All badges must be returned or accounted for to the NASA Center Pass and Identification Office upon expiration of the badge or contract, or termination of the employee.

1.4.1.2 No Smoking Policy

Smoking is prohibited within and outside of all buildings on installations under the cognizance of NASA except in designated smoking areas. This applies to existing buildings, buildings under construction and buildings under renovation. Discarding tobacco materials other than into designated tobacco receptacles is considered littering and is subject to fines. The Contracting Officer will identify designated smoking areas.

1.4.2 Working Hours

Regular working hours shall consist of an 8 hour period, between 7:00 a.m. and 4:00 p.m., Monday through Friday, excluding Government holidays.

1.4.3 Work Outside Regular Hours

Work outside regular working hours requires Contracting Officer approval.

Make application 14 calendar days prior to such work to allow arrangements to be made by the Government for inspecting the work in progress, giving the specific dates, hours, location, type of work to be performed, contract number and project title. Based on the justification provided, the Contracting Officer may approve work outside regular hours. During periods of darkness, the different parts of the work shall be lighted in a manner approved by the Contracting Officer. Make utility cutovers after normal working hours or on Saturdays, Sundays, and Government holidays unless directed otherwise.

1.4.4 SPACE SHUTTLE MISSION

The primary landing site for most space shuttle landings is Kennedy Space Center, Florida; although Edwards/DFRC is always a stand-by secondary landing site. Beginning the seven (7) days prior to a scheduled shuttle launch and continuing through shuttle landing, all construction work must be approved by the Contracting Officer. The Contractor shall submit for approval a written work plan describing all elements of work scheduled during this period. Any work that is judged to potentially affect shuttle operations will be suspended during this period.

In the event of an occasional shuttle landing at Edwards/DFRC, all construction work during the period of the shuttle turn-around (usually about 7 days) must be approved by the Contracting Officer. The Contractor shall submit for approval a written work plan describing all elements of work scheduled during this period. Any work that is judged to potentially affect shuttle turn-around operations will also be suspended during this time period.

Space Shuttle landing schedules are subject to change and information can be obtained from the Contracting Officer. The Contractor will be given at least 14 days advanced notice of potential launch dates. Upon written request, the Contractor will receive time extensions for all Space Shuttle landing delays at no additional cost to the government.

1.4.5 Occupied and Existing Buildings

The Contractor shall be working around existing buildings which are occupied. Do not enter the building without prior approval of the Contracting Officer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 20 00.00 20

PRICE AND PAYMENT PROCEDURES

02/10

PART 1 GENERAL

1.1 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00
SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Schedule of prices; G

SD-11 Closeout Submittals

As-Built Drawings for monthly invoices and final invoice

Contractor's Invoice shall be submitted in accordance with
Paragraph "CONTRACTOR'S INVOICE AND CONTRACT PERFORMANCE STATEMENT"

1.2 SCHEDULE OF PRICES

1.2.1 Data Required

Within 15 calendar days of notice of award, prepare and deliver to the Contracting Officer a schedule of prices on the forms furnished by the Government. Provide a detailed breakdown of the contract price, giving quantities for each definable feature of work. This shall include price per individual technical specifications section, work item quantities, unit material and labor costs, and extended sub-totals.

Line items for Bonds, Mobilization and Demobilization are allowable. All cost items shall be accurate and reasonable and reflect pricing figures from the subcontractors actually performing the various items of work.

1.2.2 Schedule Instructions

Payments will not be made until the Schedule of Prices has been submitted to and accepted by the Contracting Officer. Identify the cost for site work, and include incidental work to the 5 foot line. Identify costs for the building(s), and include work out to the 5 foot line. Work out to the 5 foot line shall include construction encompassed within a theoretical line 5 feet from the face of exterior walls and shall include attendant construction, such as cooling towers, placed beyond the 5 foot line.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

02/10

PART 1 GENERAL

1.1 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00
SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

List of contact personnel; G
View location map; G
Progress and completion pictures; G
Personnel list; G
Vehicle list; G

SD-04 Samples

Color boards; G

1.2 COLOR BOARDS

Submit five sets of color boards within 90 calendar days after Contract Award. Each set of boards shall include samples of colors and finishes of interior surfaces, such as walls, floors, and ceilings. The samples shall be presented on 8 by 10-1/2 inches boards (modules) with a maximum spread of 24 by 31-1/2 inches for foldouts. Modules shall be designed to fit in a standard loose-leaf, three-ring binder. Where special finishes such as architectural concrete, carpet, or prefinished textured metal panels are required, samples not less than 12 inches square shall be submitted with the board. If more space is needed, more than one board per set may be submitted. The Contractor shall certify that he has reviewed the color samples in detail and that the color samples are in strict accordance with contract drawings and specifications, except as may be otherwise explicitly stated. Submittal of color samples shall not relieve the Contractor of the responsibility to submit samples required elsewhere herein.

1.3 VIEW LOCATION MAP

Submit to the Contracting Officer, prior to or with the first digital photograph submittals, a sketch or drawing indicating the required photographic locations. Update as required if the locations are moved.

1.4 PROGRESS AND COMPLETION PICTURES

Photographically document site conditions prior to start of construction operations. Provide monthly, and within one month of the completion of work, digital photographs, 1600x1200x24 bit true color minimum resolution in JPEG file format showing the sequence and progress of work. Take regular digital photographs throughout the entire project from a minimum of ten views from points located by the Contracting Officer. Submit with the monthly invoice one set of digital photographs on a CD-R, cumulative of all photos to date. Indicate photographs demonstrating environmental procedures. Photographs for each month shall be in a separate monthly

directory and each file shall be named to indicate its location on the view location sketch. The view location sketch shall also be provided on the CD as digital file. All file names shall include a date designator. Cross reference submittals in the appropriate daily report. Photographs shall be provided for unrestricted use by the Government.

1.5 CONTRACTOR PERSONNEL REQUIREMENTS

1.5.1 Contractor Personnel Requirements

Failure to obtain entry approval will not affect the contract price or time of completion.

1.5.2 Personnel List

Submit for approval on NASA Form DFRC-735 or DFRC-736, at least 15 days prior to the desired date of entry, an original alphabetical list of personnel who require entry into Government property to perform work on the project. Furnish for each person:

- a. Name
- b. Date and place of birth
- c. Citizenship
- d. Driver's License Number
- e. Social security number
- f. Passport number, place of issue, and expiration date or Permanent Resident information

The request for personnel passes shall be accompanied with the following certification:

"I hereby certify that all personnel on this list are either born U.S. citizens, naturalized U.S. citizens with the naturalization number shown, or legal aliens with the alien registration number indicated."

Signature/Firm Name

1.6 SUPERVISION

Provide at least one (1) qualified Project Manager and one (1) on-site Project Superintendent.

The Project Manager in this context shall mean the individual with the responsibility for the overall management of the project and the Project Superintendent shall mean the individual with the responsibility for production. Both the Project Manager and Project Superintendent are subject to removal by the Contracting Officer for non-compliance with requirements specified in the contract and for failure to manage the project to insure timely completion. Furthermore, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time for excess costs or damages by the Contractor.

Approval of Project Manager and on-site Project Superintendent is required prior to start of construction. Provide resumes for the proposed Project Manager and on-site Project Superintendent describing their experience with references and qualifications to the Contracting Officer for approval. The Contracting Officer reserves the right to interview the proposed Project Manager and on-site Project Superintendent at any time in order to verify the submitted qualifications.

1.7 PROJECT MEETINGS

1.7.1 Preconstruction Conference

The Contractor shall attend a preconstruction conference scheduled by the Contracting Officer. Work shall not commence prior to the conference. Discussion shall address project orientation, personnel contact, safety issues, permits, deficiencies, quality control and the location of the Contractor's office.

1.7.2 Weekly Project Meetings

The Contractor shall attend weekly project meetings scheduled by the Government. Discussion shall address at a minimum: safety issues, quality control, submittals, progress schedule, schedule of submittals, as-built drawings, deficiencies, material delivery, permits, equipment delivery, invoices, potential factors of delay, request for information (RFIs), changes, and functional tests.

1.8 PARTNERING

To most effectively accomplish this contract, the Government requires the formation of a cohesive partnership with the Contractor and its subcontractors. The partnership will draw on the strength of each organization in an effort to achieve a quality project done right the first time, within budget, on schedule, and without any safety mishaps. This level of partnering discusses partnering concepts and benefits. This will be a one-day session. The partnering session should be held away from the project site. The contractor shall pay all costs associated with the partnering effort including facilitator, meeting room and other incidental items. Before the partnering session, the contractor shall coordinate with the facilitator requirements for incidental items (audio-visual equipment, two easels, flipchart paper, colored markers, note paper, pens/pencils, colored flashcards, etc.) and have these items available at the partnering session. The contractor will copy documents for distribution to all attendees. The participants shall bear their own costs for meals, lodging, and transportation associated with partnering.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SECTION 01 32 01.00 10

PROJECT SCHEDULE
07/07

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Submittal Requirements

Project Schedule; G
Progress Schedule; G

1.2 QUALIFICATIONS

Designate an authorized representative to be responsible for the preparation of the schedule and all required updating (activity status) and preparation of reports. The authorized representative shall be experienced in scheduling projects similar in nature and complexity to this project and shall be experienced in the use of the scheduling software that meets the requirements of this specification.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Prepare for approval a Project Schedule, as specified herein, pursuant to the Contract Clause, SCHEDULE FOR CONSTRUCTION CONTRACTS. Show in the schedule the sequence in which the Contractor proposes to perform the work and dates on which the Contractor contemplates starting and completing all schedule activities. The scheduling of the entire project, including the construction sequences, is required. The scheduling of construction is the responsibility of the Contractor. Contractor management personnel shall actively participate in its development. Subcontractors and suppliers working on the project shall also contribute in developing and maintaining an accurate Project Schedule. The schedule must be a forward planning as well as a project monitoring tool.

3.1.1 Approved Project Schedule

Use the approved Project Schedule to measure the progress of the work and to aid in evaluating time extensions. Make the schedule activity coded. The schedule will provide the basis for all progress payments. If the Contractor fails to submit any schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments until the Contractor submits the required schedule.

3.2 PROJECT SCHEDULE DETAILED REQUIREMENTS

The computer software system utilized to produce and update the Project Schedule shall be capable of meeting all requirements of this specification.

3.2.1 Level of Detail Required

Develop the Project Schedule to an appropriate level of detail. Failure to develop the Project Schedule to an appropriate level of detail, as determined by the Contracting Officer, will result in its disapproval. The Contracting Officer will consider, but is not limited to, the following characteristics and requirements to determine appropriate level of detail:

3.2.1.1 Progress Schedule Requirements

The Contractor shall prepare and submit to the Contracting Officer for approval a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the major salient features of the work, including acquiring materials and equipment. The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. The Contractor shall:

a. Prepare the progress chart in the form of a bar chart utilizing a comparable format acceptable to the Contracting Officer.

b. Include no less than the following information on the progress chart:

1. Break out by major headings for primary work activity.
2. A line item break out under each major heading sufficient to track the progress of the work.
3. A line item showing final contract tasks which include punchlist, clean-up, O&M data, and As-Built drawings.
4. The estimated cost and percentage weight of total contract cost for each line item on the chart. This shall be consistent with the Schedule of Prices.
5. Separate line items for submittal preparation and reviews. These shall be consistent with the "Schedule of Submittals" required in Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL. Submittal preparation and reviews are to show no associated costs.
6. Separate line items for mobilization and demobilization.

c. Update the progress schedule in 3 copies every 30 days throughout the contract performance period. The updated schedule shall be submitted with the monthly payment request.

3.2.1.2 Milestones

The schedule must include milestone activities for each significant project event including but not limited to: milestone activities for each design package released for construction; design complete; foundation/substructure

construction complete; superstructure construction complete; building dry-in or enclosure complete to allow the initiation of finish activities; permanent power complete; and building systems commissioning complete and will include an updated schedule of prices, and updated as-built drawings.

Show project milestone dates on the diagram or bar chart for start of project, any contract required interim completion dates, and contract completion dates.

3.2.1.3 Procurement Activities

The schedule must include activities associated with the submittal, approval, procurement, fabrication and delivery of long lead materials, equipment, fabricated assemblies and supplies. Long lead procurement activities are those with an anticipated procurement sequence of over 90 calendar days. A typical procurement sequence includes the string of activities: submit, approve, procure, fabricate, and deliver.

3.2.1.4 Government Activities

Show Government and other agency activities that could impact progress. These activities include, but are not limited to: approvals, design reviews, environmental permit approvals by State regulators, inspections, utility tie-in, Government Furnished Equipment (GFE) and Notice to Proceed (NTP) for phasing requirements.

3.2.1.5 Activity Work Area Coding (as applicable)

Assign Work Area code to activities based upon the work area in which the activity occurs. Define work areas based on resource constraints or space constraints that would preclude a resource, such as a particular trade or craft work crew, from working in more than one work area at a time due to restraints on resources or space. Examples of Work Area Coding include different areas within a floor of a building, different floors within a building, and different buildings within a complex of buildings. Activities shall not have more than one Work Area Code. Not all activities are required to be Work Area coded. A lack of Work Area coding will indicate the activity is not resource or space constrained.

3.2.2 Scheduled Project Completion and Activity Calendars

3.2.2.1 Project Start Date

The schedule shall start no earlier than the date on which the NTP was acknowledged. Include as the first activity in the project schedule an activity called "Start Project" (or NTP). The "Start Project" activity shall have an "ES" constraint date equal to the date that the NTP was acknowledged, and a zero day duration.

3.3 WEEKLY PROGRESS MEETINGS

a. The Government and the Contractor shall meet weekly (or as otherwise mutually agreed to) between the meetings described in paragraph PERIODIC SCHEDULE UPDATE MEETINGS for the purpose of jointly reviewing the actual progress of the project as compared to the as planned progress and to review planned activities for the upcoming two weeks. The then current and approved schedule update shall be used for the purposes of this meeting and for the production and review of reports. The Contractor's Project Manager and the Authorized

Representative of the Contracting Officer shall attend. The weekly progress meeting will address the status of RFI's, RFP's and Submittals.

b. The Government and the Contractor shall jointly review the reports. If it appears that activities on the longest path(s) which are currently driving the calculated completion date (driving activities), are not progressing satisfactorily and therefore could jeopardize timely project completion, corrective action must be taken immediately. Corrective action includes but is not limited to: increasing the number of work crews; increasing the number of work shifts; increasing the number of hours worked per shift; and determining if Government responsibility coded activities require Government corrective action.

-- End of Section --

SECTION 01 33 00

SUBMITTAL PROCEDURES

06/10

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Submittal Descriptions (SD)

Submittals requirements are specified in the technical sections.
Submittals are identified by Submittal Description (SD) numbers and titles
as follows:

SD-01 Preconstruction Submittals

Submittals which are required prior to the start of construction work
on-site, such as:

List of proposed products

Construction Progress Schedule

Network Analysis Schedule (NAS)

Submittal register

Schedule of prices

Accident Prevention Plan

Activity Hazard Analysis for Mobilization

Quality control (QC) plan

Environmental protection plan

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate
some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in
producing the product and as aids to the Contractor for integrating the
product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems
and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts,
instructions and brochures illustrating size, physical appearance and
other characteristics of materials, systems or equipment for some
portion of the work.

Samples of warranty language when the contract requires extended

product warranties.

SD-04 Samples

Fabricated or unfabricated physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-05 Design Data

Design calculations, mix designs, analyses or other data pertaining to a part of work.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accordance with specified requirements.

Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports.

Daily logs and checklists.

Final acceptance test and operational test procedure.

SD-07 Certificates

Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a manufacturer, supplier, installer or Subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and (MSDS) concerning impedances, hazards and safety precautions.

SD-09 Manufacturer's Field Reports

Documentation of the testing and verification actions taken by manufacturer's representative at the job site, in the vicinity of the job site, or on a sample taken from the job site, on a portion of the work, during or after installation, to confirm compliance with manufacturer's standards or instructions. The documentation must be signed by an authorized official of a testing laboratory or agency and must state the test results; and indicate whether the material, product, or system has passed or failed the test.

SD-10 Operation and Maintenance Data

Data that is furnished by the manufacturer, or the system provider, to the equipment operating and maintenance personnel, including manufacturer's help and product line documentation necessary to operate and maintain equipment. This data is needed by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

This data is intended to be incorporated in an operations and maintenance manual, database, or control system.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

Special requirements necessary to properly close out a construction contract. For example, Record Drawings, warranty certificates, training records, and as-built drawings. Also, submittal requirements necessary to properly close out a major phase of construction on a multi-phase contract.

Interim " Form D-WK 190 " with cost breakout for all assets 30 days prior to facility turnover.

1.1.2 Approving Authority

Office or designated person authorized to approve submittal.

1.1.3 Work

As used in this section, on- and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor QC approval. Submit the following in accordance with this section.

SD-01 Preconstruction Submittals

Updated Submittal Register; G

1.3 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.3.1 Contractor QC Approved (Submittals without a "G" designation)

Contractor shall review all construction submittals for quality control. When Government approval is not required, Contractor shall be held responsible for submittal approval and construction per contract documents.

1.3.2 Government Approved (Submittals with a "G" designation)

Government approval is required for critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Government approval is required for any deviations from the Solicitation or Accepted Proposal and other items as designated by the Contracting Officer.

1.4 PREPARATION

1.4.1 Transmittal Form

Transmit each submittal, except sample installations and sample panels to the Contracting Officer. Transmit submittals with transmittal form prescribed by Contracting Officer and standard for project. On the transmittal form identify Contractor, indicate date of submittal, and include information prescribed by transmittal form and required in paragraph entitled, "Identifying Submittals," of this section.

1.4.2 Identifying Submittals

When submittals are provided by a Subcontractor, the Prime Contractor is to prepare, review, and stamp with Contractor's approval all specified submittals prior to submitting for Government approval.

Identify submittals, except sample installations and sample panels, with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

- a. Project title and location.
- b. Construction contract number.
- c. Date of the drawings and revisions.
- d. Name, address, and telephone number of subcontractor, supplier, manufacturer and any other subcontractor associated with the submittal.
- e. Section number of the specification section and applicable drawing numbers by which submittal is required.
- f. Submittal description (SD) number of each component of submittal.
- g. When a resubmission, add alphabetic suffix on submittal description,

for example, submittal 18 would become 18A, to indicate resubmission.

1.4.3 Format for SD-02 Shop Drawings

Shop drawings are not to be less than 8 1/2 by 11 inches nor more than 30 by 42 inches, except for full size patterns or templates. Prepare drawings to accurate size, with scale indicated, unless other form is required. Drawings are to be suitable for reproduction and be of a quality to produce clear, distinct lines and letters with dark lines on a white background.

Present A4 8 1/2 by 11 inches sized shop drawings as part of the bound volume for submittals required by section. Present larger drawings in sets.

Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph entitled, "Identifying Submittals," of this section.

Number drawings in a logical sequence. Each drawing is to bear the number of the submittal in a uniform location adjacent to the title block. Place the Government contract number in the margin, immediately below the title block, for each drawing.

Dimension drawings, except diagrams and schematic drawings; prepare drawings demonstrating interface with other trades to scale. Use the same unit of measure for shop drawings as indicated on the contract drawings. Identify materials and products for work shown.

Include the nameplate data, size and capacity on drawings. Also include applicable federal, military, industry and technical society publication references.

1.4.4 Format of SD-03 Product Data and SD-08 Manufacturer's Instructions

Present product data submittals for each section as a complete, bound volume. Include table of contents, listing page and catalog item numbers for product data.

Indicate, by prominent notation, each product which is being submitted; indicate specification section number and paragraph number to which it pertains.

Supplement product data with material prepared for project to satisfy submittal requirements for which product data does not exist. Identify this material as developed specifically for project, with information and format as required for submission of SD-07 Certificates.

Include the manufacturer's name, trade name, place of manufacture, and catalog model or number on product data. Also include applicable federal, military, industry and technical society publication references. Should manufacturer's data require supplemental information for clarification, submit as specified for SD-07 Certificates.

Where equipment or materials are specified to conform to industry and technical society reference standards of the organizations such as American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), and Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance. In lieu of the label or listing,

submit a certificate from an independent testing organization, competent to perform testing, and approved by the Contracting Officer. State on the certificate that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard.

Collect required data submittals for each specific material, product, unit of work, or system into a single submittal and marked for choices, options, and portions applicable to the submittal. Mark each copy of the product data identically. Partial submittals will not be accepted for expedition of construction effort.

Submit manufacturer's instructions prior to installation.

1.4.5 Format of SD-04 Samples

Furnish samples in sizes below, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately same size as specified:

- a. Sample of Equipment or Device: Full size.
- b. Sample of Materials Less Than 2 by 3 inches: Built up to A4 8 1/2 by 11 inches.
- c. Sample of Materials Exceeding A4 8 1/2 by 11 inches: Cut down to A4 8 1/2 by 11 inches and adequate to indicate color, texture, and material variations.
- d. Sample of Linear Devices or Materials: 10 inch length or length to be supplied, if less than 10 inches. Examples of linear devices or materials are conduit and handrails.
- e. Sample of Non-Solid Materials: Pint. Examples of non-solid materials are sand and paint.
- f. Color Selection Samples: 2 by 4 inches. Where samples are specified for selection of color, finish, pattern, or texture, submit the full set of available choices for the material or product specified. Sizes and quantities of samples are to represent their respective standard unit.
- g. Sample Panel: 4 by 4 feet.

Samples Showing Range of Variation: Where variations in color, finish, pattern, or texture are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range. Mark each unit to describe its relation to the range of the variation.

Reusable Samples: Incorporate returned samples into work only if so specified or indicated. Incorporated samples are to be in undamaged condition at time of use.

Recording of Sample Installation: Note and preserve the notation of area constituting sample installation but remove notation at final clean up of project.

When color, texture or pattern is specified by naming a particular manufacturer and style, include one sample of that manufacturer and style,

for comparison.

1.4.6 Format of SD-05 Design Data and SD-07 Certificates

Provide design data and certificates on 8 1/2 by 11 inches paper. Provide a bound volume for submittals containing numerous pages.

1.4.7 Format of SD-06 Test Reports and SD-09 Manufacturer's Field Reports

Provide reports on 8 1/2 by 11 inches paper in a complete bound volume.

Indicate by prominent notation, each report in the submittal. Indicate specification number and paragraph number to which it pertains.

1.4.8 Format of SD-10 Operation and Maintenance Data (O&M)

Comply with the requirements as specified in each section.

1.5 QUANTITY OF SUBMITTALS

1.5.1 Number of Copies of SD-02 Shop Drawings

Submit two (2) copies and one (1) electronic copy (PDF Format) of shop drawings requiring review and approval by Contracting Officer.

1.5.2 Number of Copies of SD-03 Product Data and SD-08 Manufacturer's Instructions

Submit in compliance with quantity requirements specified for shop drawings.

1.5.3 Number of Samples SD-04 Samples

- a. Submit two samples, or two sets of samples showing range of variation, of each required item. One approved sample or set of samples will be retained by approving authority and one will be returned to Contractor.
- b. Submit one sample panel or provide one sample installation where directed. Include components listed in technical section or as directed.
- c. Submit one sample installation, where directed.
- d. Submit one sample of non-solid materials, where directed.

1.5.4 Number of Copies SD-05 Design Data and SD-07 Certificates

Submit in compliance with quantity requirements specified for shop drawings.

1.5.5 Number of Copies SD-06 Test Reports and SD-09 Manufacturer's Field Reports

Submit in compliance with quantity and quality requirements specified for shop drawings other than field test results that will be submitted with QC reports.

1.5.6 Number of Copies of SD-10 Operation and Maintenance Data

Submit two (2) copies and one (1) electronic copy (PDF Format) of Operations and Maintenance Data for review and approval by Contracting Officer.

1.5.7 Number of Copies of SD-01 Preconstruction Submittals and SD-11 Closeout Submittals

Unless otherwise specified, submit two (2) copies and one (1) electronic copy (PDF Format) of administrative submittals.

1.6 VARIATIONS

Variations from contract requirements require Government approval pursuant to contract Clause FAR 52.236-21 entitled, "Specifications and Drawings for Construction," and will be considered where advantageous to the Government.

Specifically point out variations from contract requirements in transmittal letters. Failure to point out deviations may result in the Government requiring rejection and removal of such work at no additional cost to the Government.

1.6.1 Considering Variations

Discussion with Contracting Officer prior to submission will help ensure functional and quality requirements are met and minimize rejections and re-submittals. When contemplating a variation which results in lower cost, consider submission of the variation as a Value Engineering Change Proposal (VECP).

1.6.2 Proposing Variations

When proposing variation, deliver written request to the Contracting Officer, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to Government, including the written analysis. If lower cost is a benefit, also include an estimate of the cost savings. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

1.6.3 Warranting That Variations Are Compatible

When delivering a variation for approval, Contractor, including the Contractor's Designer of Record, warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.6.4 Review Schedule Is Modified

In addition to normal submittal review period, the Government will be allowed a period of 30 working days to consider submittals with variations.

1.7 UPDATED SUBMITTAL REGISTER

The Contractor shall prepare and maintain submittal register, as the work progresses. The submittal register must have the following columns, as a minimum:

Specification Section in which submittal is required.

Submittal Description (SD No. and type, e.g. SD-02 Shop Drawings) required in each specification section.

Principal Paragraph Number, in specification section where a material or product is specified.

Thereafter, the Contractor is to track all submittals by maintaining a complete list, including completion of all data columns, including dates on which submittals are received and returned by the Government.

1.7.1 Use of Submittal Register

Submit Submittal Register with QC plan and project schedule. Verify that all submittals required for project are listed and add missing submittals. Coordinate and complete the following fields on the register submitted with the QC plan and the project schedule:

Activity number from the project schedule.

Scheduled date for approving authority to receive submittals.

Date Contractor needs approval of submittal.

Date that Contractor needs material delivered to Contractor control.

1.8 SCHEDULING

Within 30 calendar days of notice to proceed, provide, for approval by the Contracting Officer, a schedule of all submittals required by the specifications and drawings. Indicate the specification or drawing reference requiring the submittal, the material, item, or process for which the submittal is required, the "SD" number and identifying title of the submittal, the Contractor's anticipated submission date and the approval need date.

Schedule and submit concurrently submittals covering component items forming a system or items that are interrelated. Include certifications to be submitted with the pertinent drawings at the same time. No delay damages or time extensions will be allowed for time lost in late submittals.

- a. Coordinate scheduling, sequencing, preparing and processing of submittals with performance of work so that work will not be delayed by submittal processing. Allow for potential resubmittal of requirements.
- b. Submittals called for by the contract documents will be listed on the register.
- c. Re-submit register and annotate monthly by the Contractor with actual submission and approval dates. When all items on the register have been fully approved, no further re-submittal is required.
- d. Carefully control procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

1.9 GOVERNMENT APPROVING AUTHORITY

When the approving authority is the Contracting Officer, the Government will:

- a. Note date on which submittal was received.

- b. Review submittals for approval within scheduling period specified and only for conformance with project design concepts and compliance with contract documents.
- c. Identify returned submittals with one of the actions defined in paragraph entitled, "Review Notations," of this section and with markings appropriate for action indicated.

Upon completion of review of submittals requiring Government approval, the Government will apply a coversheet with "Review Notations", including date of review. Two (2) copies of the approved submittal will be retained by the Contracting Officer and One (1) copy of the submittal will be returned to the Contractor.

1.9.1 Review Notations

Contracting Officer review will be completed within 15 working days after date of submission. Submittals will be returned to the Contractor with the following notations:

- a. Submittals marked "approved" authorize the Contractor to proceed with the work covered.
- b. Submittals marked "approved as noted" authorize the Contractor to proceed with the work covered provided he takes no exception to the corrections.
- c. Submittals marked "return for correction" or "not approved," indicate noncompliance with the contract requirements or design concept, or the submittal is incomplete. Resubmit with appropriate changes. No work shall proceed for this item until resubmittal is approved.

1.10 SUBMITTALS NOT APPROVED

The Contractor shall make corrections required by the Contracting Officer. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications, notice as required under the FAR Contract Clause 52.243-4 entitled, "Changes," is to be given to the Contracting Officer.

If changes are necessary to submittals, the Contractor shall make such revisions and submission of the submittals in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

1.11 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals is not be construed as a complete check, and indicates only that:

Approval will not relieve the Contractor of the responsibility for any error which may exist. The Contractor shall fulfill Contractor Quality Control (CQC) requirements of this contract.

After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.12 APPROVED SAMPLES

Approval of a sample is only for the characteristics or use named in such approval and is not be construed to change or modify any contract requirements. Before submitting samples, the Contractor shall assure that the materials or equipment will be available in quantities required in the project. No change or substitution will be permitted after a sample has been approved.

Match the approved samples for materials and equipment incorporated in the work. If requested, approved samples, including those which may be damaged in testing, will be returned to the Contractor, at his expense, upon completion of the contract. Samples not approved will also be returned to the Contractor at its expense, if so requested.

Failure of any materials to pass the specified tests will be sufficient cause for refusal to consider, under this contract, and any further samples of the same brand or make of that material. Government reserves the right to disapprove any material or equipment which previously has proved unsatisfactory in service.

Samples of various materials or equipment delivered on the site or in place may be taken by the Contracting Officer for testing. Samples failing to meet contract requirements will automatically void previous approvals. The Contractor shall replace such materials or equipment to meet contract requirements at no additional cost to the Government.

Approval of the Contractor's samples by the Contracting Officer does not relieve the Contractor of his responsibilities under the contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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)	
	01 14 00		SD-01 Preconstruction Submittals															
			List of Contact Personnel		G													
	01 20 00.00 20		SD-01 Preconstruction Submittals															
			Schedule of prices	1.2	G													
			SD-11 Closeout Submittals															
			As-Built Drawings															
			Contractor's Invoice															
	01 30 00		SD-01 Preconstruction Submittals															
			List of contact personnel		G													
			View location map	1.3	G													
			Progress and completion pictures	1.4	G													
			Personnel list	1.5.2	G													
			Vehicle list		G													
			SD-04 Samples															
			Color boards	1.2	G													
	01 32 01.00 10		SD-01 Preconstruction Submittals															
			Project Schedule	3.1.1	G													
			Progress Schedule	3.2.1.1	G													
	01 33 00		SD-01 Preconstruction Submittals															
			Updated Submittal Register	1.7	G													
	01 33 29		SD-01 Preconstruction Submittals															
			LEED Implementation Plan	1.4	G													
			SD-11 Closeout Submittals															
			LEED Documentation Notebook	1.5	G													
	01 35 14.11 40		SD-01 Preconstruction Submittals															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE FWD TO OTHER REVIEWER	DATE OF ACTION	DATE OF ACTION	DATE OF ACTION		DATE RCD FROM APPR AUTH	DATE RCD FROM APPR AUTH	DATE RCD FROM APPR AUTH
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	01 45 00.10 40		SD-01 Preconstruction Submittals															
			QC Plan	1.5	G													
	01 45 35		SD-07 Certificates															
			Special Inspector	1.5	G													
			Quality Assurance Plan	1.4	G													
	01 50 00		SD-01 Preconstruction Submittals															
			Construction site plan	1.4														
			Traffic control plan	3.2.1	G													
			SD-06 Test Reports															
			Backflow Preventer Tests	1.5.2														
			SD-07 Certificates															
			Backflow Tester	1.5														
			Backflow Preventers															
	01 74 19		SD-01 Preconstruction Submittals															
			Waste Management Plan	1.5	G													
			SD-11 Closeout Submittals															
			Records	1.6														
			Salvage Material Records															
	01 78 00		SD-03 Product Data															
			As-Built Record of Equipment and Materials	1.3.2	G													
			Warranty Management Plan		G													
			Warranty Tags	1.6.1														
			Final Cleaning	1.8														
			Spare Parts Data	1.4														
			SD-08 Manufacturer's Instructions															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR																
NASA - Facility Support Center																		
TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	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			
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	01 78 00	Preventative Maintenance	1.5															
		Condition Monitoring (Predictive Testing)	1.5															
		Inspection	1.5															
		Instructions to be Posted																
		SD-10 Operation and Maintenance Data																
		Operation and Maintenance Manuals	1.7															
		SD-11 Closeout Submittals																
		As-Built Drawings	1.3.1	G														
		Certification of EPA Designated Items		G														
		NASA Form NF1046	1.9															
	02 41 00	SD-01 Preconstruction Submittals																
		Existing Conditions	1.6.2	G														
		SD-07 Certificates																
		Demolition Plan	1.8	G														
		Notifications	1.4.1	G														
	03 30 00	SD-02 Shop Drawings																
		Reinforcing steel	1.6.2.1	G														
		Locations of the concrete slab construction joints, expansion joints and contraction joints		G														
		SD-03 Product Data																
		Materials for curing concrete	2.4.7															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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)	
	03 30 00		Joint sealants	2.4.10														
			Joint filler	2.4.9														
			Plastic Forms	2.1.2														
			Carton Forms	2.1.3														
			Aggregate		G													
			Recycled Aggregate Materials	2.4.3.2	G													
			Cement	2.4.1	G													
			Portland Cement	2.4.1.3	G													
			Ready-Mix Concrete	2.3.2	G													
			Water-Vapor Barrier Subgrade	2.4.6.1														
			Cover															
			Bonding Materials	2.6														
			Floor Finish Materials	2.7														
			Concrete Curing Materials	2.3.3														
			Reinforcement	2.5	G													
			Reinforcement Materials															
			Liquid Chemical Floor Hardener	2.7.1														
			Vapor retarder															
			Vapor barrier	2.4.6														
			Epoxy bonding compound	2.4.11														
			Waterstops	2.2.1														
			Waterstops	2.4.10.3														
			Waterstops	3.14.2														
			Wood Forms	2.1.1														
			Local/Regional Materials	1.8.1	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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 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)	
	03 30 00		Biodegradable Form Release Agent	2.4.12														
			SD-04 Samples															
			Slab finish sample	1.6.5.1														
			Dumbbell Type	2.4.10.3														
			Rubber															
			Polyvinylchloride (PVC)	2.4.10.3														
			SD-05 Design Data mix design	2.3.1	G													
			SD-06 Test Reports															
			Concrete mix design	1.6.4.1	G													
			Fly ash	1.6.4.2	G													
			Pozzolan	1.6.4.2														
			Ground granulated blast-furnace slag	1.6.4.3	G													
			Compressive strength tests	3.12.2.3	G													
			Unit weight of structural lightweight concrete	3.12.2.5														
			Slump		G													
			SD-07 Certificates															
			Curing concrete elements	1.6.3.1														
			Pumping concrete	1.6.3.2														
			Biodegradable Form Release Agent	2.4.12														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	DATE RCD FROM APPR AUTH		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	03	30	00		VOC Content for form release agents, curing compounds, and concrete penetrating sealers	1.6.3.3												
					Material Safety Data Sheets	1.6.3.4												
					Forest Stewardship Council (FSC) Certification	1.8.2												
					SD-08 Manufacturer's Instructions													
					Fly ash	1.6.4.2	G											
					Ground granulated blast-furnace slag	1.6.4.3												
					Welding Procedures	1.10												
					Welding Procedures	1.10												
					Steel Bar	2.5.7												
					Welder Qualifications	1.10												
	04	20	00		SD-02 Shop Drawings													
					Detail Drawings	1.4.3	G											
					SD-03 Product Data													
					Local/Regional Materials	1.2.1												
					Concrete Masonry Units (CMU)	2.2	G											
					Cement	2.5.4	G											
					Insulation	2.10												
					Flashing	2.12												
					Water-Repellant Admixture	2.6												
					Cold Weather Installation	1.6.2												
					SD-04 Samples													
					Concrete Masonry Units (CMU)	2.2	G											

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	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 FROM APPR AUTH		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	04 20 00		Anchors, Ties, and Bar Positioners	2.8														
			Expansion-Joint Materials	2.11														
			Insulation	2.10														
			SD-05 Design Data	2.5.5	G													
			Pre-mixed Mortar	1.2.2.1	G													
			Unit Strength Method															
			SD-06 Test Reports															
			Field Testing of Mortar	3.20.1	G													
			Field Testing of Grout	3.20.2	G													
			Masonry Inspector Qualifications	1.4.2	G													
			SD-07 Certificates															
			Concrete Masonry Units (CMU)	2.2														
			Anchors, Ties, and Bar Positioners	2.8														
			Expansion-Joint Materials	2.11														
			Reinforcing Steel Bars and Rods	2.9														
			Mortar Coloring	2.5.2														
			Insulation	2.10														
			Insulation	2.10														
			Admixtures for Masonry Mortar	2.5.1														
			Admixtures for Grout	2.7.1														
			SD-10 Operation and Maintenance Data															
			Take-Back Program	3.19.2														
	05 12 00		SD-02 Shop Drawings															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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 FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	DATE RCD FROM APPR AUTH	MAILED TO CONTR/
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	05 12 00		Erection Plan	1.7.2.1	G													
			Fabrication drawings	1.7.1	G													
			SD-03 Product Data															
			Shop primer	2.4														
			Welding electrodes and rods	2.3.1														
			Load indicator washers	2.2.4														
			Non-Shrink Grout	2.3.2														
			Load indicator bolts	2.2.5														
			SD-06 Test Reports															
			Class B coating	2.4														
			Bolts, nuts, and washers	2.2														
			SD-07 Certificates															
			Steel	2.1														
			Bolts, nuts, and washers	2.2														
			Galvanizing	2.5														
			AISC Quality Certification	1.5														
			Welding procedures and qualifications	1.7.2.2														
	05 30 00		SD-02 Shop Drawings															
			Fabrication Drawings	1.3.5	G													
			Metal Floor Deck Units	2.3	G													
			Cant Strips	2.3.3.1														
			Ridge and Valley Plates	2.3.3.2														
			Metal Closure Strips	2.3.3.3	G													
			SD-03 Product Data															
			Accessories	2.2														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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)	
	05 30 00		Deck Units	2.3.1	G													
			Galvanizing Repair Paint	2.1.3.1														
			Galvanizing Repair Paint	2.1.6														
			Joint Sealant Material	2.1.5														
			Mechanical Fasteners	2.2.12														
			Piston Tool Operator	1.3.2														
			Welding Equipment	1.3.3														
			Welding Rods and Accessories	1.3.3														
			SD-04 Samples															
			Metal Roof Deck Units	2.3														
			SD-05 Design Data															
			Deck Units	2.3.1	G													
			SD-07 Certificates															
			Welder Qualifications	1.3.3	G													
			Fire Safety	1.3.4.1														
			Wind Storm Resistance	1.3.4.2														
	05 40 00		SD-02 Shop Drawings															
			Framing Components	1.6.1	G													
			SD-03 Product Data															
			studs,joists	2.1														
			SD-05 Design Data															
			Metal framing calculations	1.6.2	G													
			SD-07 Certificates															
			Load-bearing cold-formed metal framing	1.4														
			Welds	3.1.1														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	DATE RCD FROM APPR AUTH		ACTION CODE	DATE OF ACTION	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	05 50 13		SD-02 Shop Drawings															
			structural steel door frames	2.16														
			Access doors and panels	2.3														
			Cover plates and frames	2.6														
			Expansion joint covers	2.7														
			Floor gratings and roof walkways	2.9														
			Wheel guards	2.17														
			angles and plates	2.12	G													
			Roof hatch	3.11	G													
			SD-03 Product Data															
			Access doors and panels	2.3														
			Cover plates and frames	2.6														
			Control-joint covers	2.4														
			Expansion joint covers	2.7														
			Floor gratings and roof walkways	2.9														
			Structural steel door frames	2.16														
			Wheel guards	2.17														
			Roof hatch	3.11	G													
			SD-04 Samples															
			Expansion joint covers	2.7														
			Control-joint covers	2.4														
	05 51 00		SD-02 Shop Drawings															
			Iron and Steel Hardware	2.1														
			Steel Shapes, Plates, Bars and Strips	2.1														
			Metal Stair System	2.15														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	DATE RCD FROM APPR AUTH		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	05 51 00		SD-03 Product Data															
			Structural Steel Plates, Shapes, and Bars	2.2														
			Structural Steel Tubing	2.3														
			Hot-Rolled Carbon Steel Sheets and Strips	2.6														
			Cold Finished Steel Bars	2.5														
			Hot-Rolled Carbon Steel Bars	2.4														
			Cold-Rolled Carbon Steel Sheets	2.7														
			Galvanized Carbon Steel Sheets	2.8														
			Cold-Drawn Steel Tubing	2.9														
			Gray Iron Castings	2.10														
			Malleable Iron Castings	2.11														
			Concrete Inserts	2.13														
			Masonry Anchorage Devices															
			Protective Coating	2.16														
			Steel Pan Stairs	2.17														
			Steel Stairs	2.17.9														
			Steel Stairs, Circular															
			SD-07 Certificates															
			Welding Procedures															
			Welder Qualification	1.3														
			SD-08 Manufacturer's Instructions															
			Structural Steel Plates, Shapes, and Bars	2.2														
			Structural Steel Tubing	2.3														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACTOR NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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)	
	05 51 00		Hot-Rolled Carbon Steel Sheets and Strips	2.6														
			Cold Finished Steel Bars	2.5														
			Hot-Rolled Carbon Steel Bars	2.4														
			Cold-Rolled Carbon Steel Sheets	2.7														
			Galvanized Carbon Steel Sheets	2.8														
			Cold-Drawn Steel Tubing	2.9														
			Gray Iron Castings	2.10														
			Malleable Iron Castings	2.11														
			Protective Coating	2.16														
			Masonry Anchorage Devices															
	05 51 33		SD-02 Shop Drawings															
			Alternating tread stairs, platforms and handrails	2.3														
			SD-03 Product Data															
			Alternating tread stairs, platforms and handrails	2.3														
	05 52 00		SD-02 Shop Drawings															
			Fabrication Drawings	1.2.1	G													
			Iron and Steel Hardware	2.1	G													
			Iron and Steel Hardware	3.1	G													
			Steel Shapes, Plates, Bars and Strips	3.1														
			SD-03 Product Data															
			Masonry Anchorage Devices	1.2.1	G													
			Masonry Anchorage Devices	2.3	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.					
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS		
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE OF ACTION	DATE FWD TO APPR AUTH/ FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	DATE OF ACTION				
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	07 21 16		SD-03 Product Data														
			Blanket insulation	2.1	G												
			Sill sealer insulation	2.2													
			Pressure sensitive tape	2.4													
			Accessories	2.5													
			Certification	1.4													
			SD-08 Manufacturer's Instructions														
			Insulation	3.3.1													
	07 22 00		SD-02 Shop Drawings														
			Tapered roof insulation	2.1.4	G												
			SD-03 Product Data														
			Fasteners	2.3	G												
			Insulation	2.1	G												
			Certification	1.4.3													
			SD-06 Test Reports														
			Flame spread and smoke developed ratings	1.4.1													
			SD-07 Certificates qualifications	1.3													
			SD-08 Manufacturer's Instructions fasteners	2.3													
			Insulation	2.1													
	07 42 13		SD-01 Preconstruction Submittals														
			Qualification of Manufacturer	1.6.3													
			Qualification of Installer	1.6.1													
			Sample Warranty	1.6.1	G												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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)	
	07 42 13		SD-02 Shop Drawings															
			Installation Drawings	1.6.1.1	G													
			SD-03 Product Data															
			sustainable acquisition	1.6.1	G													
			Wall Panels	1.6.1	G													
			Factory Color Finish	2.2.2	G													
			Closure Materials	1.6.5														
			Pressure Sensitive Tape	2.5.4.4														
			Sealants and Caulking	2.5.4.1														
			Steel Repair Paint	2.7														
			Accessories	1.6.5	G													
			SD-04 Samples															
			Wall Panels	1.6.1	G													
			Fasteners	2.4	G													
			Metal Closure Strips, 10 inches	1.6.1	G													
			long of each type															
			color charts and chips	1.6.1														
			SD-05 Design Data															
			wind load design analysis	1.6.1.2	G													
			SD-06 Test Reports															
			Leakage Tests	3.7.2	G													
			Wind Load Tests	1.3.2	G													
			Coatings and Base Metal Tests	1.6.1														
			SD-08 Manufacturer's Instructions															
			Installation of Wall panels	1.6.1														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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)	
	07 42 13		SD-09 Manufacturer's Field Reports															
			Manufacturer's Field Reports	3.8.1	G													
			SD-11 Closeout Submittals															
			Warranty	1.9	G													
			Maintenance Instructions	1.6.1														
			20 year 'No Dollar Limit' warranty for labor and material	1.9.1	G													
	07 54 19		SD-02 Shop Drawings															
			Detail Drawings	1.8.4	G													
			SD-03 Product Data															
			TPO Roofing Membrane	3.2.2	G													
			Bonding Adhesive	2.1.1														
			Flashing	3.2.2.2														
			Membrane Fasteners and Plates	2.1.4														
			Roof Insulation	2.1.7	G													
			Water Cutoffs	3.3.1														
			Information Card	2.1	G													
			SD-05 Design Data															
			Wind uplift calculations	1.2.3	G													
			SD-07 Certificates															
			Qualifications of Applicator	1.4.1	G													
			Wind Uplift Resistance	1.2.3	G													
			Fire Resistance	1.2.2	G													
			warranty	1.8	G													
			SD-08 Manufacturer's Instructions															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	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)	
	07 54 19		Application Method	3.2	G													
			Membrane Flashing	2.1.3														
			Perimeter Attachment	3.2.4														
			Auxiliary Fasteners	2.1.4.2														
			cold weather	1.5.2														
			SD-10 Operation and Maintenance															
			Data															
			Instructions to Government	3.5														
			Personnel															
	07 60 00		SD-02 Shop Drawings															
			Covering on flat, sloped, or curved surfaces	3.1.22	G													
			Gutters	3.1.16	G													
			Downspouts	3.1.17	G													
			Expansion joints	3.1.23	G													
			Splash pans	3.1.21	G													
			Flashing for roof drains	3.1.18	G													
			Base flashing	3.1.11	G													
			Counterflashing	3.1.12	G													
			Flashing at roof penetrations	3.1.24	G													
			Reglets	3.1.13	G													
			Scuppers	3.1.19	G													
			Copings	3.1.26	G													
			Drip edge	3.1.15	G													
			Conductor heads	3.1.20														
			SD-11 Closeout Submittals															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION	DATE OF ACTION	DATE FWD TO APPR AUTH/	DATE RCD FROM OTH CONTR	DATE FWD DATE RCD FROM OTH REVIEWER		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)	
	07 60 00		Quality Control Plan	3.5														
	07 61 14.00 20		SD-02 Shop Drawings															
			Roofing	1.2.5	G													
			SD-03 Product Data															
			Roofing panels	2.1	G													
			Attachment clips	2.3														
			Closures	2.4.1														
			Accessories	2.4														
			Fasteners	2.4.2														
			Sealants	2.4.3														
			Insulation	2.5														
			warranty	1.7	G													
			SD-04 Samples															
			panel	2.1														
			Accessories	2.4														
			Sealants	2.4.3														
			Intermediate Support	2.2														
			SD-05 Design Data															
			Design calculations	1.5	G													
			SD-06 Test Reports															
			Field Inspection	3.6	G													
			Structural performance	1.3.3	G													
			Finish	1.6.6														
			SD-07 Certificates															
			Manufacturer's Technical	1.6.3	G													
			Representative															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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)	
	07 61 14.00 20		Installer's Qualifications	1.6.4														
			SD-08 Manufacturer's Instructions															
			Installation	3.3	G													
			SD-11 Closeout Submittals															
			Information card	3.8	G													
	07 84 00		SD-02 Shop Drawings															
			Firestopping Materials	2.1														
			SD-07 Certificates															
			Firestopping Materials	2.1														
			Installer Qualifications	1.4														
	07 92 00		SD-03 Product Data															
			Sealants	2.1	G													
			Primers	2.2														
			Bond breakers	2.3														
			Backstops	2.4														
			SD-07 Certificates															
			Sealant	3.3.6														
	08 11 13		SD-03 Product Data															
			Standard Steel Doors	2.1	G													
			Heavy Duty Doors	2.1.1.1	G													
			Fire and Smoke Doors and Frames	2.6	G													
			Accessories	2.3														
			Weatherstripping	2.7														
			Standard Steel Frames	2.5	G													
			Welded Frames	2.5.1	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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 FROM APPR AUTH
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	08 11 16		SD-08 Manufacturer's Instructions Doors and frames	2.1														
	08 14 00		SD-03 Product Data Doors	2.1	G													
			Accessories	2.2														
			Water-resistant sealer warranty	2.3.6 1.4														
			SD-04 Samples Doors	2.1														
	08 33 23		SD-02 Shop Drawings Overhead Coiling Doors	2.1														
			Counterbalancing Mechanism	1.6														
			Counterbalancing Mechanism	2.3														
			Manual Door Operators															
			Electric Door Operators	1.6														
			Electric Door Operators	2.4														
			Bottom Bar															
			Guides	1.5														
			Mounting Brackets	2.3.1														
			Overhead Drum	2.1.6														
			Hood	1.6														
			Painting	1.6														
			Installation Drawings	1.5														
			SD-03 Product Data															
			Overhead Coiling Doors	2.1														
			Hardware	2.2														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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	DATE OF ACTION	DATE FWD TO APPR AUTH/	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER			DATE RCD FROM OTH REVIEWER	ACTION	DATE OF ACTION
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	08 33 23		Counterbalancing Mechanism	1.6														
			Counterbalancing Mechanism	2.3														
			Manual Door Operators	1.6														
			Electric Door Operators	2.4														
			Fire-Rated Door Assembly	2.5														
			SD-05 Design Data															
			Overhead Coiling Doors	2.1														
			Hardware	2.2														
			Counterbalancing Mechanism	1.6														
			Counterbalancing Mechanism	2.3														
			Manual Door Operators															
			Electric Door Operators	1.6														
			Electric Door Operators	2.4														
			Fire-Rated Door	1.2														
			SD-10 Operation and Maintenance															
			Data															
			Operation and Maintenance	1.5														
			Manuals															
			Overhead Coiling Door	1.6														
			Assemblies															
			Materials	1.6														
			Devices	1.6														
			Procedures	1.6														
			Manufacture's Brochures	1.6														
			Parts Lists	1.6														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR															
NASA - Facility Support Center																	
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	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	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	08 33 23		Cleaning	3.3.2													
	08 41 13.00 99		SD-02 Shop Drawings														
			Shop drawings	2.6.1	G												
			SD-06 Test Reports														
			Certified Test Reports	1.6.1.2													
			SD-07 Certificates														
			Manufacturer's Product Warranty	1.6.1.2	G												
	08 44 00		SD-02 Shop Drawings														
			Shop Drawings	3.3	G												
			SD-03 Product Data														
			Installation methods														
			Maintenance instructions														
			SD-06 Test Reports														
			Flame spread and smoke development														
			Burn extent														
			Color change														
			Abrasion & Erosion Resistance														
			Impact strength, exterior face sheets														
			Accelerated aging														
			Bond tensile strength														
			Bond shear strength														
			Beam bending strength														
			Insulating U-factor		G												
			Self-ignition														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	DATE RCD FROM APPR AUTH	MILED TO CONTR/	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	08 44 00		Class A burning brand															
			Air infiltration															
			Water penetration															
			Uniform load deflection															
			Concentrated and Impact															
			Certification authorization under the NFRC PCP															
			SD-11 Closeout Submittals															
			WARRANTY	1.6	G													
			Documentation															
	08 51 13.00 40		SD-03 Product Data															
			Fixed Windows	2.1	G													
	08 62 00		SD-02 Shop Drawings															
			Shop Drawings	3.2	G													
			SD-03 Product Data															
			Tubular Daylighting Devices															
			Warranty	1.6														
			SD-06 Test Reports															
			Test Reports															
			SD-07 Certificates															
			Daylighting Devices															
			Qualifications	1.4														
	08 71 00		SD-02 Shop Drawings															
			Hardware schedule	1.3	G													
			Keying system		G													
			SD-03 Product Data															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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/ FROM CONTR	DATE RCD FROM OTH REVIEWER	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER			DATE OF ACTION	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	08 71 00		Hardware items	2.3														
			SD-08 Manufacturer's Instructions															
			Installation	3.1														
			SD-10 Operation and Maintenance															
			Data															
			Hardware Schedule	1.3	G													
			SD-11 Closeout Submittals															
			Key Bitting	1.4	G													
	08 81 00		SD-03 Product Data															
			Insulating Glass	2.2	G													
			Glazing Accessories	1.3														
			SD-04 Samples															
			Insulating Glass	2.2	G													
			Sealant	2.3.3.1														
			SD-07 Certificates															
			Insulating Glass	2.2														
			SD-08 Manufacturer's Instructions															
			Setting and sealing materials	2.3														
			Glass setting	3.2														
	08 91 00		SD-02 Shop Drawings															
			Wall louvers	1.4	G													
			SD-03 Product Data															
			Metal Wall Louvers	2.2	G													
			SD-04 Samples															
			Wall louvers	1.4														
	09 06 90		SD-04 Samples															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.							
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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/ FROM CONTR	DATE RCD FROM OTH REVIEWER	DATE FWD TO OTHER REVIEWER			ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)		
		09 06 90	Color Schedule	2.2	G														
		09 22 00	SD-02 Shop Drawings																
			Metal support systems	2.1															
		09 29 00	SD-03 Product Data																
			Cementitious backer units	2.1.5	G														
			Glass Mat Water-Resistant	2.1.4	G														
			Gypsum Tile Backing Board																
			Water-Resistant Gypsum	2.1.3	G														
			Backing Board																
			Accessories	2.1.10															
			Gypsum Board	2.1.1	G														
			Adhesives	2.1.8															
			Joint Treatment Materials	2.1.6															
			Local/Regional Materials	1.5.1	G														
			SD-07 Certificates																
			Asbestos Free Materials	2.1	G														
			SD-08 Manufacturer's Instructions																
			Material Safety Data Sheets	2.1															
			SD-10 Operation and Maintenance																
			Data																
			Manufacturer maintenance	2.1															
			instructions																
			Waste Management	3.8	G														
			SD-11 Closeout Submittals																
			Local/Regional Materials	1.5.1	G														
			Gypsum Board	2.1.1															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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)	
	09 29 00		Adhesives	2.1.8														
	09 30 00		SD-03 Product Data															
			Local/Regional Materials	1.2.2	G													
			Environmental Data	1.2.3	G													
			Tile	2.1	G(LEED													
			Setting-Bed	2.2	G													
			Mortar, Grout, and Adhesive	2.4	G													
			Reinforcing Wire Fabric	2.2.6														
			SD-04 Samples															
			Tile	2.1	G													
			Accessories	2.1.2														
			Marble Thresholds	2.5														
			Grout	2.4	G													
			SD-11 Closeout Submittals															
			Local/Regional Materials	1.2.2														
			Tile	2.1														
			Reinforcing Wire Fabric	2.2.6														
			Adhesives	2.4														
	09 51 00		SD-02 Shop Drawings															
			Approved Detail Drawings	1.2	G													
			SD-03 Product Data															
			Ceiling Units	2.1	G													
			Certification (LEED)		G													
			Suspension System	2.2	G													
			SD-04 Samples															
			Ceiling Units	2.1	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE FWD TO RCD FROM OTH REVIEWER	DATE OF ACTION	DATE OF ACTION	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)	
	09 51 00		Suspension System	2.2	G													
			SD-06 Test Reports															
			Ceiling Attenuation Class and Test	1.2.1	G													
			SD-07 Certificates															
			Ceiling Units	2.1														
			SD-11 Closeout Submittals															
			Documentation;															
			Adhesives															
	09 65 00		SD-02 Shop Drawings															
			Resilient Flooring and Accessories	2.9														
			SD-03 Product Data															
			Resilient Flooring and Accessories	2.9	G													
			Adhesives	2.5														
			Vinyl Composition Tile	2.1	G													
			Wall Base	2.2	G													
			Stair Treads, Risers and Stringers	2.3														
			Local/Regional Materials	1.2.1														
			SD-04 Samples															
			Resilient Flooring and Accessories	2.9	G													
			SD-06 Test Reports															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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)	
	09 65 00		Moisture, Alkalinity and Bond Tests	3.3	G													
			SD-08 Manufacturer's Instructions															
			Surface Preparation	3.2														
			Installation	3.1														
			SD-10 Operation and Maintenance															
			Data															
			Resilient Flooring and Accessories	2.9														
			SD-11 Closeout Submittals															
			Local/Regional Materials	1.2.1														
			Resilient Flooring and Accessories	2.9														
			Adhesives	2.5														
	09 68 00		SD-03 Product Data															
			Carpet	2.1	G													
			Carpet Pads	2.3														
			Carpet Moldings	2.4														
			Base	2.5	G													
			Surface Preparation	3.1														
			Installation	3.4														
			Regulatory Requirements	1.3														
			Environmental Data	1.6.2														
			SD-04 Samples															
			Carpet	2.1	G													
			SD-06 Test Reports															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	DATE OF ACTION	DATE OF ACTION	DATE OF ACTION		DATE RCD FROM APPR AUTH		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	09 68 00		Moisture and Alkalinity Tests	3.2														
			SD-07 Certificates															
			Carpet	2.1														
			Regulatory Requirements	1.3														
			SD-10 Operation and Maintenance															
			Data															
			Carpet	2.1	G													
			Cleaning and Protection	3.5														
			Operational Service	1.9														
			SD-11 Closeout Submittals															
			Local/Regional Materials	1.6.1	G													
			Carpet	2.1														
			Carpet	2.1														
			Adhesives and Concrete Primer	2.6														
	09 90 00		SD-03 Product Data															
			Coatings	1.11.4.3	G													
			Local/Regional Materials	1.8.1	G													
			Manufacturer's technical data sheets	1.4.8	G													
			SD-04 Samples															
			Color	1.10	G													
			SD-08 Manufacturer's Instructions															
			Mixing	3.6.2														
			Manufacturer's Material Safety Data Sheets	1.6.2														
			SD-11 Closeout Submittals															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE RCD FROM CONTR	DATE OF ACTION	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER		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)	
	09 90 00		Local/Regional Materials	1.8.1														
			Materials	1.6.2														
	10 28 13		SD-03 Product Data															
			Finishes	2.1.2														
			Accessory Items	2.2														
			SD-04 Samples															
			Finishes	2.1.2	G													
			Accessory Items	2.2														
			SD-07 Certificates															
			Accessory Items	2.2														
	10 44 16		SD-01 Preconstruction Submittals															
			Manufacturer's Data	2.1														
			SD-03 Product Data															
			Fire Extinguishers	2.1	G													
			Accessories	2.4														
			Cabinets	2.5	G													
			Replacement Parts	3.2.1														
			SD-07 Certificates															
			Fire Extinguishers	2.1														
			Manufacturer's Warranty with	2.1														
			Inspection Tag															
	10 51 13		SD-03 Product Data															
			Cleaning and Maintenance	1.2														
			Instructions															
			Lockers	2.1	G													
			Lockers	2.1	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	DATE OF ACTION	DATE OF ACTION	DATE OF ACTION		DATE RCD FROM APPR AUTH		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	10 51 13		Material	2.2														
			Handles	2.3.3														
			Locker Components	2.3														
			Assembly	3.1														
			Local/Regional Materials		G													
			Environmental Data	1.2.1.2														
			SD-04 Samples															
			Colors and Finishes	2.2.2	G													
			SD-07 Certificates															
			Warranty	1.6														
			SD-10 Operation and Maintenance															
			Data															
			Plastic Identification	1.2.2														
			SD-11 Closeout Submittals															
			Local/Regional Materials	1.2.1.1														
			Documentation															
			Lockers	2.1														
	12 31 00		SD-02 Shop Drawings															
			fabrication	2.3	G													
			Installation Drawings	3.1	G													
			SD-03 Product Data															
			Cabinets	2.6														
			Corrosion-Resistant Steel	2.2														
			Fasteners	2.2														
			Accessories and Hardware	2.2														
			Accessories and Hardware	2.5														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE			DATE OF ACTION	ACTION CODE	DATE OF ACTION
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	12 31 00		SD-04 Samples															
			Accessories and Hardware	2.2														
			Accessories and Hardware	2.5														
			Manufacturer's Standard Color Charts	2.1	G													
			SD-07 Certificates															
			Corrosion-Resistant Steel	2.2														
			Fasteners	2.2														
			Accessories and Hardware	2.2														
			Accessories and Hardware	2.5														
			SD-08 Manufacturer's Instructions															
			Manufacturer's Instructions	2.1														
	12 36 00		SD-02 Shop Drawings															
			Fabrication	2.3	G													
			SD-03 Product Data															
			Corrosion-Resistant Steel	2.2														
			Synthetic resin	2.3														
			Adhesives	2.5.1														
			Service Fixtures	2.2														
			Accessories and Hardware	2.5														
			SD-04 Samples															
			Countertop	2.3	G													
			Backsplash,	2.3	G													
			Accessories and Hardware	2.5														
			Manufacturer's Standard Color Charts	2.1														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/ FROM CONTR	DATE OF ACTION	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	DATE OF ACTION		DATE RCD FROM APPR AUTH			
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	12 36 00		SD-08 Manufacturer's Instructions															
			Manufacturer's Instructions	2.1														
	12 48 13.13		SD-03 Product Data															
			recycled material content	2.1	G													
			Entrance Mats	2.2.1	G													
			protective flooring materials	2.1														
	21 13 13.00 10		SD-02 Shop Drawings															
			Shop Drawings	1.4.3	G													
			As-Built Drawings	3.9	G													
			SD-03 Product Data															
			Fire Protection Related	1.4.1														
			Submittals															
			Materials and Equipment	2.3	G													
			Spare Parts	1.6														
			Preliminary Tests	3.8	G													
			Final Acceptance Test	3.9	G													
			Onsite Training	3.10	G													
			Fire Protection Specialist	1.4.1	G													
			Sprinkler System Installer	1.4.2	G													
			SD-05 Design Data															
			Sway Bracing	1.4.3	G													
			Hydraulic Calculations	1.2.1.3	G													
			SD-06 Test Reports															
			Preliminary Test Report	3.9	G													
			Final Acceptance Test Report	3.9	G													
			SD-07 Certificates															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.							
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE OF ACTION	DATE FWD TO APPR AUTH/ FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	DATE OF ACTION						
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)		
	21	13	13.00	10	3.3	G	Inspection by Fire Protection Specialist												
							SD-10 Operation and Maintenance Data												
					3.10		Operating and Maintenance Instructions												
	22	00	00		3.9.1	G	SD-02 Shop Drawings Plumbing System												
							SD-03 Product Data Fixtures												
					2.4		Flush valve water closets												
					2.4.3		Flush valve urinals Wheelchair flush valve urinal												
					2.4.6		Wall hung lavatories												
					2.4.7		Countertop lavatories												
					2.4.8		Kitchen sinks												
							Service sinks Laboratories												
							Automatic controls												
					2.4.10	G	Drinking-water coolers												
							Plastic shower stalls Precast terrazzo shower floors												
					2.8	G	Water heaters												
					2.10	G	Pumps												
					3.9.1.1		Backflow prevention assemblies												
							G Drains												
					2.6.2		Shower Faucets												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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)	
	22 00 00		G Traps Compressed air system															
			Welding	1.5.1														
			Vibration-Absorbing Features	3.4	G													
			Plumbing System	3.9.1														
			SD-06 Test Reports															
			Tests, Flushing and Disinfection	3.9														
			Test of Backflow Prevention	3.9.1.1	G													
			Assemblies															
			SD-07 Certificates															
			Materials and Equipment	1.3														
			Bolts	2.1.1														
			SD-10 Operation and Maintenance															
			Data															
			Plumbing System	3.9.1	G													
	22 05 48.00 20		SD-02 Shop Drawings															
			Inertia bases	2.7														
			Machinery bases	2.6														
			Platforms	2.6														
			Rails	2.6														
			Saddles	2.6														
			SD-03 Product Data															
			Isolators	2.3														
			Flexible connectors	2.8														
			Flexible duct connectors	2.9														
			Pipe guides	2.11														
			Seismic snubbers	2.10														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR															
NASA - Facility Support Center																	
ACTIVITY NO	TRANSMITTAL NO	SPECIES	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVERNOR CLASSIFICATION	SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	CONTRACTOR ACTION	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	22 05 48.00 20		Vertical stops	3.1.3													
			Thrust restraints	2.12													
			Inertia bases	2.7													
			Machinery bases	2.6													
			Machinery foundations and subbases	3.1.13													
			Platforms	2.6													
			Rails	2.6													
			Saddles	2.6													
			Machinery manufacturer's sound data	1.4.2													
			SD-05 Design Data														
			Inertia bases	2.7													
			Machinery bases	2.6													
			Platforms	2.6													
			Rails	2.6													
			Saddles	2.6													
			machinery	1.4.3													
			machinery over 300 pounds	1.4.4													
			SD-06 Test Reports														
			Seismic snubbers	2.10													
			Equipment vibration tests	3.2.3.1													
			Equipment sound level tests	3.2.3.2													
			Protected spring isolators	2.4													
			SD-08 Manufacturer's Instructions														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	DATE RCD FROM APPR AUTH		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
		22 05 48.00 20	Vibration and noise isolation components	3.1.1														
			Seismic protection components	2.13														
		22 07 19	SD-02 Shop Drawings															
			Installation Drawings	1.6														
			Installation Drawings	3.1														
			SD-03 Product Data															
			Adhesives	Part 2	G													
			Coatings	Part 2	G													
			Insulating Cement	Part 2														
			Insulation Materials	Part 2	G													
			Jacketing	Part 2														
			Tape	Part 2														
			SD-07 Certificates															
			Recycled Materials	1.5														
			Recycled Materials	1.5														
			SD-08 Manufacturer's Instructions															
			Installation Manual	1.6														
			Installation Manual	3.1														
		22 15 09	SD-01 Preconstruction Submittals															
			Pre-Qualification Statement	1.3														
			SD-03 Product Data															
			Deminerlized Water	2.1														
			Drying or Preservation Gas	2.2														
			Filter Discs	2.3														
			Nitric Acid	2.4														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.							
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS					
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE OF ACTION	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	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)		
	22 15 09		Citric Acid	2.5															
			Muriatic Acid	2.6															
			Hydrofluoric Acid	2.7															
			Normal - Propyl Bromide	2.8															
			Tape	2.9															
			Polyethylene Film	2.10															
			Low Water-Vapor Transmission Film	2.11															
			Aluminum Foil	2.12															
			SD-04 Samples																
			Polyethylene Film	2.10															
			Certification Tags	2.13															
			Low Water-Vapor Transmission Film	2.11															
			SD-06 Test Reports																
			Quality Assurance Tests	3.2															
			Inspection Records	1.5															
			SD-07 Certificates																
			Inspection Facilities and Services	1.5															
			Contractor's Procedures	1.5															
	22 15 14		SD-02 Shop Drawings																
			Installation Drawings	1.6															
			SD-03 Product Data																
			Equipment and Performance Data	1.4															
			Underground Piping Materials	2.1															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVERNOR A/E REVIEW 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)	
	22	15	14				Aboveground Piping Materials	2.2										
							Piping Specialties	2.3										
							Supporting Elements	2.7										
							Air Compressors	2.4										
							Valves	2.5										
							Accessories	3.2.1										
							Miscellaneous Materials	2.6										
							Vibration Isolation	3.2.6										
							SD-05 Design Data											
							Design Analysis and Calculations	1.4										
							Flow Rates	1.4										
							Air Distribution	1.4										
							Pressure Requirements	1.4										
							Insulation Requirements	1.4										
							Equipment and Performance	1.4										
							Data											
							SD-06 Test Reports											
							Hydrostatic Testing	3.3.1										
							Compressed Air Systems Testing	3.3										
							Valve-Operating Tests	3.3.1										
							Drainage Tests	3.3.1										
							Pneumatic Testing	3.3.1										
							SD-07 Certificates											
							Underground Piping Materials	2.1										
							Aboveground Piping Materials	2.2										
							Supporting Elements	2.7										

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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/ FROM CONTR	DATE RCD FROM OTH REVIEWER	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER			DATE OF ACTION	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	22	15	14		Riser Alarm Equipment	1.4												
					Sprinkler Heads	1.4												
					Valves	2.5												
					Miscellaneous Materials	2.6												
					SD-10 Operation and Maintenance													
					Data													
					Operation and Maintenance	1.5												
					Manuals													
	23	00	00		SD-02 Shop Drawings													
					Detail Drawings	1.4.5	G											
					SD-03 Product Data													
					Insulated Nonmetallic Flexible	2.8.1.1												
					Duct Runouts													
					Duct Connectors	2.8.1.1												
					Duct Access Doors	2.8.2	G											
					Manual Balancing Dampers	2.8.3	G											
					Manual Balancing Dampers	2.8.4	G											
					Automatic Smoke-Fire Dampers	2.8.6												
					Diffusers	2.8.10.1												
					Registers and Grilles	2.8.10.2												
					Louvers	2.8.11												
					Diagrams	1.2.1.2	G											
					SD-06 Test Reports													
					Performance Tests	3.12	G											
					Damper Acceptance Test	3.10	G											
					SD-07 Certificates													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.							
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	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)		
	23	05 15	Pipe and Fittings	2.2	G														
			Piping Specialties	2.3	G														
			Valves	2.4	G														
			Miscellaneous Materials	2.5	G														
			Supporting Elements	2.6	G														
			Equipment Foundation Data	1.2	G														
			SD-04 Samples																
			Manufacturer's Standard Color	1.2	G														
			Charts																
			SD-05 Design Data																
			Pipe and Fittings	2.2	G														
			Piping Specialties	2.3	G														
			Valves	2.4	G														
			SD-06 Test Reports																
			Hydrostatic Tests	3.1															
			Air Tests	3.1															
			Valve-Operating Tests	3.1															
			System Operation Tests	3.1															
			SD-07 Certificates																
			Listing of Product Installations	1.2															
			Records of Existing Conditions	1.2															
			Surface Resistance	3.1															
			Shear and Tensile Strengths	3.1															
			Temperature Ratings	3.1															
			Bending Tests	3.1															
			Flattening Tests	3.1															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR																
NASA - Facility Support Center																		
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION	DATE OF ACTION	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION		DATE OF ACTION	DATE RCD FROM APPR AUTH	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	23 05 15		Transverse Guided Weld Bend Tests	3.1														
			SD-10 Operation and Maintenance Data															
			Operation and Maintenance Manuals	3.11														
	23 05 48		SD-02 Shop Drawings Installation Drawings Outline Drawings	1.2 1.2 1.2	G G													
			SD-03 Product Data Equipment and Performance Data	1.2	G													
			Isolators	1.2														
			SD-06 Test Reports Type of Isolator Allowable Deflection Measured Deflection	2.1 2.1 2.1														
	23 05 93		SD-01 Preconstruction Submittals TAB Firm	1.5.4.1	G													
			TAB team assistants	1.2	G													
			TAB team engineer	1.2	G													
			TAB Specialist	1.5.4.2	G													
			TAB team field leader	1.2	G													
			SD-02 Shop Drawings TAB Schematic Drawings and Report Forms	1.3.3	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACTOR NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE FWD TO OTHER REVIEWER	DATE OF ACTION	DATE OF ACTION		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)	
	23 05 93		TAB Firm	1.5.4.1	G													
			DALT and TAB Submittal and Work Schedule	1.6.1	G													
			Design review report	1.3.3	G													
			Design review report	1.6.1.1	G													
			Pre-field DALT preliminary notification	1.6.1.2	G													
			Pre-field TAB engineering report	1.6.1.3	G													
			Advanced notice for TAB field work	1.6.1	G													
			Prerequisite HVAC Work Check	1.6.1	G													
			Out List															
	23 07 00		SD-03 Product Data															
			Pipe Insulation Systems	2.3	G													
			Pipe Insulation Systems	3.2	G													
			Duct Insulation Systems	3.3	G													
			Equipment Insulation Systems	3.4	G													
			SD-08 Manufacturer's Instructions															
			Pipe Insulation Systems	2.3	G													
			Pipe Insulation Systems	3.2	G													
			Duct Insulation Systems	3.3	G													
			Equipment Insulation Systems	3.4	G													
	23 08 00.00 10		SD-02 Shop Drawings															
			Commissioning Plan	1.5.2.2	G													
			SD-06 Test Reports															
			Commissioning Report	3.3	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.							
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE OF ACTION	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	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)		
	23		Gas Piping System	2.2	G														
			Gas Piping System	3.3	G														
			SD-03 Product Data																
			Pipe and Fittings	1.5	G														
			Gas equipment connectors	1.4.3	G														
			Gas Piping System	1.4.3	G														
			Gas Piping System	2.2	G														
			Gas Piping System	3.3	G														
			Pipe Coating Materials and application procedures	2.1	G														
			Pressure regulators	2.6	G														
			Risers	2.4	G														
			Transition fittings	2.2.12	G														
			Valves	2.3	G														
			Valve box	2.6	G														
			Warning and identification tape	2.2.8	G														
			SD-06 Test Reports																
			Testing	3.17	G														
			Pressure Tests	3.17.1	G														
			Pressure Tests for Liquefied Petroleum Gas	3.17.2															
			Test With Gas	3.17.3	G														
			SD-07 Certificates																
			Welders procedures and qualifications	1.4.1	G														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/ FROM CONTR	DATE OF ACTION	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		DATE RCD FROM APPR AUTH		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	23 11 25		assigned number, letter, or symbol	1.4.1														
			SD-08 Manufacturer's Instructions															
			PE pipe and fittings	1.4.2	G													
			pipe coating materials and application procedures	2.1														
			SD-10 Operation and Maintenance															
			Data															
			Gas facility system and equipment operation	1.2.1														
			Gas facility system maintenance	1.2.2														
			Gas facility equipment maintenance	1.2.3	G													
	23 23 00		SD-02 Shop Drawings															
			Refrigerant Piping System	2.3	G													
			SD-03 Product Data															
			Refrigerant Piping System	2.3	G													
			Spare Parts	1.5.2														
			Refrigerant Piping Tests	3.4	G													
			Demonstrations		G													
			Verification of Dimensions	3.1														
			SD-06 Test Reports															
			Refrigerant Piping Tests	3.4														
			SD-07 Certificates															
			Service Organization	2.1	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVERNOR CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE OF ACTION	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	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)	
	23 23 00		SD-10 Operation and Maintenance Data															
			Maintenance	1.5														
			Operation and Maintenance Manuals	3.2.4.2														
	23 25 00		SD-03 Product Data Water Treatment System		G													
			Water Analysis	2.3	G													
			Field Instructions															
			Tests	3.4	G													
			Demonstrations		G													
			SD-10 Operation and Maintenance Data															
			Water Treatment System															
	23 35 19.00 20		SD-02 Shop Drawings															
			Industrial ventilation and exhaust systems	1.2.3	G													
			SD-03 Product Data															
			Fans	2.1	G													
			Dampers	3.1.1	G													
			Flexible connectors	2.4.3														
			Flexible duct	2.4.4	G													
			Gaskets	2.4.5														
			Protective coating materials	2.4.6														
			Sealants	2.4.7														
			Access ports	2.5.1	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	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)	
		23 35 19.00 20	Blast gates	2.5.2	G													
			Vibration isolators	2.6.5	G													
			Ductwork, Dust and Fume Collection	2.7														
			Welding fume exhaust system	2.8	G													
			Local/Regional Materials	1.8.1														
			SD-07 Certificates															
			Welding procedures	1.4.2	G													
			Welding test agenda	3.1.6	G													
			Welding test procedures	1.4.2	G													
			Welders' identification	1.4.1	G													
			SD-06 Test Reports															
			Fan tests	2.1.1	G													
			start-up tests	1.2.4	G													
			Sound level tests	3.2.6	G													
			SD-10 Operation and Maintenance															
			Data															
			Fans	2.1	G													
			Welding fume exhaust system	2.8	G													
			Industrial ventilation and exhaust systems	1.2.3	G													
			SD-11 Closeout Submittals															
			Posted operating instructions	1.6														
		23 52 00	SD-02 Shop Drawings															
			Installation	2.2.1	G													
			SD-03 Product Data															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE FWD TO RCD FROM OTH REVIEWER	DATE OF ACTION	DATE OF ACTION	DATE OF ACTION		DATE RCD FROM APPR AUTH		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	23 52 00		Materials and Equipment	2.1.1														
			Spare Parts	1.5														
			Spare Parts	1.5														
			Heating System Tests	3.3														
			Fuel System Tests	3.6														
			Welding	1.3														
			Qualifications	3.3														
			Field Instructions	3.5														
			Tests	3.3														
			SD-06 Test Reports															
			Heating System Tests	3.3	G													
			Fuel System Tests	3.6	G													
			SD-10 Operation and Maintenance															
			Data															
			Operation and Maintenance	3.5														
			Instructions															
	23 64 10		SD-03 Product Data															
			Water Chiller	2.4	G													
			Water Chiller	2.4	G													
			Water Chiller	3.1	G													
			Water Chiller	3.1	G													
			Water Chiller	3.4.1	G													
			Water Chiller	3.4.1	G													
			Manufacturer's Multi-Year	1.7														
			Compressor Warranty															
			System Performance Tests	3.5														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE OF ACTION	DATE FWD TO APPR AUTH/ FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	DATE OF ACTION					
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	23 64 10		Demonstrations	3.6														
			SD-06 Test Reports															
			Field Acceptance Testing	3.4														
			Water Chiller	2.4														
			Water Chiller	3.1														
			Water Chiller	3.4.1														
			System Performance Tests	3.5														
			SD-07 Certificates															
			Refrigeration System	3.1.1	G													
			SD-08 Manufacturer's Instructions															
			Water Chiller	2.4	G													
			Water Chiller	3.1	G													
			Water Chiller	3.4.1	G													
			SD-10 Operation and Maintenance															
			Data															
			Operation and Maintenance	3.6	G													
			Manuals															
	23 76 00.00 10		SD-02 Shop Drawings															
			Evaporative Cooling Systems	2.1.1	G													
			Installation Drawings	1.3.2	G													
			SD-03 Product Data															
			Equipment	3.2	G													
			Test Procedures	1.3.2	G													
			Installation	3.2	G													
			Manufacturer's Representative	1.3.2														
			Service Organization	1.3.3														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE FWD TO RCD FROM OTH REVIEWER	DATE OF ACTION	DATE OF ACTION	DATE OF ACTION		DATE RCD FROM APPR AUTH	MAILED TO CONTR/	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
		23 76 00.00 10	Performance Tests	3.7														
			Training Course	3.5														
			SD-06 Test Reports															
			Testing, Adjusting, and Balancing	3.6	G													
			SD-07 Certificates															
			Installation Drawings	1.3.2														
			SD-10 Operation and Maintenance															
			Data															
			Evaporative Cooling Systems	2.1.1	G													
		23 82 02.00 10	SD-02 Shop Drawings															
			Drawings	1.4														
			SD-03 Product Data															
			Materials and Equipment	2.1.1														
			Spare Parts	1.6														
			Posted Instructions	3.4														
			Verification of Dimensions	3.1														
			Coil Corrosion Protection															
			System Performance Tests	3.6														
			Demonstrations	3.4	G													
			SD-06 Test Reports															
			Refrigerant Tests, Charging, and	3.5	G													
			Start-Up															
			System Performance Tests	3.6	G													
			SD-07 Certificates															
			Materials and Equipment	2.1.1														
			Service Organization	2.1.1														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	DATE RCD FROM APPR AUTH		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	23 82 02.00 10		SD-10 Operation and Maintenance															
			Data															
			Operation and Maintenance	3.4														
			Manuals															
	26 05 00.00 40		SD-03 Product Data															
			Conduits, Raceway and Fittings	3.1	G													
			Wire and Cable	2.2	G													
			Splices and Connectors	2.3	G													
			Switches	2.4	G													
			Receptacles	2.1.7	G													
			Receptacles	2.5	G													
			Receptacles	3.4.1	G													
			Outlets, Outlet Boxes, and Pull Boxes	2.6	G													
			Circuit Breakers	2.8	G													
			Lamps and Lighting Fixtures	2.9	G													
			Lamps and Lighting Fixtures	3.6	G													
			Spare Parts	1.3	G													
			SD-08 Manufacturer's Instructions															
			Manufacturer's Instructions	1.5														
	26 05 13.00 40		SD-03 Product Data															
			Single-Conductor Shielded Cables	2.3	G													
			SD-08 Manufacturer's Instructions															
			Medium-Voltage Power Cables	1.6	G													
	26 05 48.00 10		SD-02 Shop Drawings															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	DATE RCD FROM APPR AUTH		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	26 05 48.00	10	Lighting Fixtures in Buildings	3.2	G													
			Panelboards		G													
	26 08 00		SD-06 Test Reports															
			Acceptance tests and inspections	3.1	G													
			SD-07 Certificates															
			Qualifications	1.4.1	G													
			Acceptance test and inspections procedure	1.4.3	G													
	26 12 19.10		SD-02 Shop Drawings															
			Pad-mounted transformer drawings	1.5.1	G													
			SD-06 Test Reports															
			Acceptance checks and tests	3.7.1	G													
			SD-10 Operation and Maintenance Data															
			Transformer(s)	1.6.1	G													
			SD-11 Closeout Submittals															
			Transformer test schedule	2.7.1	G													
	26 13 00.00	20	SD-02 Shop Drawings															
			Switchgear Drawings	1.5.1	G													
			SD-03 Product Data															
			SF6 Insulated Pad-mounted Switchgear	2.1	G													
			Insulated High-Voltage Connectors	2.2	G													
			SD-06 Test Reports															

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.					
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS		
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	DATE OF ACTION	DATE OF ACTION	DATE OF ACTION		DATE RCD FROM APPR AUTH	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	26 13 00.00 20		Acceptance Checks and Tests	3.4.1	G												
			SD-09 Manufacturer's Field Reports														
			Switchgear design and production tests	2.4.1	G												
			SD-10 Operation and Maintenance Data														
			SF6 Insulated Pad-mounted Switchgear Operation and Maintenance	1.6.1	G												
	26 18 23.00 40		SD-03 Product Data														
			Equipment and Performance Data	1.2													
			Surge Arresters	2.2	G												
			Mounting Brackets	2.3	G												
			SD-08 Manufacturer's Instructions														
			Installation Instructions	3.1.1	G												
			Surge Arresters	2.2	G												
			SD-10 Operation and Maintenance Data														
			O & M Manuals	2.2.1	G												
			Surge Arresters	2.2	G												
	26 20 00		SD-02 Shop Drawings														
			Panelboards	2.10	G												
			Transformers	2.12	G												
			SD-03 Product Data														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	DATE OF ACTION	DATE OF ACTION	DATE OF ACTION		DATE RCD FROM APPR AUTH		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	26 20 00		Receptacles	2.9	G													
			Circuit breakers	2.10.3	G													
			Switches	2.7	G													
			Transformers	2.12	G													
			Enclosed circuit breakers	2.11	G													
			Motor controllers	2.13	G													
			Metering		G													
			SD-06 Test Reports															
			600-volt wiring test	3.5.2	G													
			Grounding system test	3.5.4	G													
			Ground-fault receptacle test	3.5.3	G													
	26 23 00		SD-02 Shop Drawings															
			Switchboard Drawings	1.5.2	G													
			SD-03 Product Data															
			Switchboard	2.2														
			SD-10 Operation and Maintenance															
			Data															
			Switchboard Operation and Maintenance	1.6.1	G													
			SD-11 Closeout Submittals															
			Assembled Operation and Maintenance Manuals	1.6.2	G													
			Equipment Test Schedule	2.5.1	G													
			Request for Settings	3.5	G													
	26 24 16.00 40		SD-02 Shop Drawings															
			Detail Drawings	1.2	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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)	
		26 24 16.00 40	Outline Drawings	1.2	G													
			SD-08 Manufacturer's Instructions															
			Panelboards	2.1	G													
		26 29 23	SD-02 Shop Drawings															
			Schematic diagrams	1.5.1	G													
			Interconnecting diagrams	1.5.2	G													
			Installation drawings	1.5.3	G													
			SD-03 Product Data															
			Variable frequency drives	2.1	G													
			Wires and cables	2.3														
			Equipment schedule	1.5.4														
			SD-06 Test Reports															
			VFD Test	3.2.1														
			Performance Verification Tests	3.2.2														
			Endurance Test	3.2.3														
			SD-08 Manufacturer's Instructions															
			Installation instructions	1.5.5														
			SD-09 Manufacturer's Field Reports															
			VFD Factory Test Plan	2.5.1	G													
			Factory test results	1.5.6														
			SD-10 Operation and Maintenance Data															
			Variable frequency drives	2.1														
		26 35 33.00 40	SD-02 Shop Drawings															
			Wiring Diagrams	1.4	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.					
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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/ FROM CONTR	DATE RCD FROM OTH REVIEWER	DATE FWD TO OTHER REVIEWER			ACTION CODE	DATE OF ACTION
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		26 35 33.00 40	shop drawings		G												
			SD-03 Product Data		G												
			PV Modules		G												
			Inverters		G												
			Combiner Boxes		G												
			Disconnect Switches		G												
			Panelboard		G												
			Mounting Hardware		G												
			Fuses		G												
			Cable		G												
			Connectors		G												
			SD-07 Certificates														
			Qualification of Installer		G												
		26 51 00	SD-03 Product Data		G												
			LED lighting fixtures	2.1	G												
			Dimmer switch	2.4.2	G												
			Lighting Control Panel		G												
			Photocell switch	2.5	G												
			Exit signs	2.6	G												
			Emergency lighting equipment	2.7	G												
			Occupancy sensors	2.8	G												
			Electronic dimming ballast	2.1.1	G												
			Electronic dimming ballast	3.1.3	G												
			Dimming ballast controls		G												
			Light Level Sensor	2.1.2	G												
			SD-06 Test Reports														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	DATE OF ACTION	DATE OF ACTION	DATE RCD FROM APPR AUTH		DATE OF ACTION	DATE OF ACTION	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	26 51 00		Operating test	3.3	G													
			SD-10 Operation and Maintenance															
			Data															
			Lighting Control System	1.4.1	G													
			Operational Service	1.8														
	26 52 00.00 40		SD-03 Product Data		G													
			Emergency Lighting Egress Units	2.2														
			SD-06 Test Reports															
			System Operational Tests	3.2	G													
	26 56 00		SD-03 Product Data															
			Energy Efficiency	1.6.1														
			Luminaires	2.2	G													
			Lamps	2.2.1	G													
			Ballasts		G													
			Lighting contactor	2.3	G													
			Lighting Control Panel		G													
			Photocell switch	2.5	G													
			Steel poles	2.6.1	G													
			Brackets	2.7														
			SD-10 Operation and Maintenance															
			Data															
			Operational Service	1.8														
	28 31 76		SD-02 Shop Drawings															
			Wiring Diagrams	3.1.1	G													
			System Layout	1.4.1	G													
			System Operation	2.3	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE			DATE OF ACTION	ACTION CODE	DATE OF ACTION
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	28 31 76		Notification Appliances	2.17	G													
			Amplifiers	2.14	G													
			As-Built Drawings	3.5.2														
			SD-03 Product Data															
			Technical Data And Computer Software	1.4.2	G													
			Fire alarm control panel	1.4.2	G													
			Fire Alarm And Mass Notification Control Panel (FACP/FMCP)	2.12	G													
			Printers	2.15	G													
			Terminal cabinets	3.1.2	G													
			Manual stations	2.16	G													
			Batteries	2.11.1	G													
			Battery chargers	2.11.2	G													
			Smoke sensors	2.9	G													
			Thermal sensors	2.10	G													
			Wiring		G													
			Notification appliances	2.17	G													
			Addressable interface devices	2.7	G													
			Graphic annunciator	2.3.2	G													
			Amplifiers	2.14	G													
			Tone generators	2.14	G													
			Digitalized voice generators	2.14	G													
			Waterflow detectors	2.20	G													
			Tamper switches	2.19	G													
			Remote fire alarm control units	2.13	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS			
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	DATE OF ACTION	DATE OF ACTION	DATE OF ACTION		DATE RCD FROM APPR AUTH		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	28	31	76		SD-05 Design Data													
					System Operation													
					Battery power		2.3											
					SD-06 Test Reports		2.11.1.2	G										
					Field Quality Control		3.5											
					Testing Procedures		3.5.1	G										
					Smoke sensor testing		2.9.4	G										
					SD-07 Certificates													
					Installer		1.6.1.4											
					SD-09 Manufacturer's Field Reports													
					Mass Notification System		1.6.2.2											
					SD-10 Operation and Maintenance Data													
					Operation and Maintenance (O&M) Instructions		1.8	G										
					Instruction of Government Employees		3.6											
	31	23	00.00	20	SD-01 Preconstruction Submittals													
					Shoring and Sheeting Plan		1.7.1	G										
					Dewatering work plan		1.7.2	G										
					SD-06 Test Reports													
					Borrow Site Testing		1.6	G										
					Fill and backfill		3.12.2.1											
					Density tests		3.12.2.2											
					Moisture Content Tests		3.12.2.3											

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR															
NASA - Facility Support Center																	
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	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	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	32 01 19		SD-03 Product Data	1.2.2.3	G												
			Manufacturer's Recommendations	1.2													
			Equipment														
			SD-04 Samples	1.4.2	G												
			Materials														
	32 10 00		SD-03 Product Data	1.7.1													
			Local/Regional Materials	2.1.1													
			Albedo														
			SD-05 Design Data	1.4.4	G												
			mix design	2.1	G												
			Asphalt concrete	1.7.4	G												
			Asphalt cement	1.7.4	G												
			Asphalt cement	2.3.1	G												
			Asphalt cement	2.2	G												
			Aggregates	2.3.2	G												
			Liquid asphalt	2.3.3	G												
			Asphaltic emulsion	3.2.8.2	G												
			Paint	3.2.8.2	G												
			Reflective media	2.6	G												
			Traffic signs														
			SD-06 Test Reports	2.1													
			Asphalt concrete														
			SD-07 Certificates	1.4.3													
			mix delivery record	2.1													
			Asphalt concrete														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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/ FROM CONTR	DATE RCD TO OTHER REVIEWER	DATE OF ACTION			ACTION CODE		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	32 10 00		Asphalt concrete	2.1														
			Traffic signs	2.6														
	32 11 24		SD-03 Product Data															
			Aggregates	2.1.1														
			Local/Regional Materials	1.7.1														
			SD-06 Test Reports															
			Gradation	3.7.2.1														
			Gradation	3.7.2.1														
			Bearing ratio	2.1.1														
			Liquid limit	2.1.1														
			Plasticity index	2.1.1														
			Percentage of wear	2.1.1														
			Density	3.7.2.3														
			Density	3.7.2.3														
			Smoothness	3.7.2.2														
			Thickness	3.7.2.5														
	32 13 13.06		SD-03 Product Data															
			Curing materials	2.1.6														
			Admixtures	2.1.4														
			Reinforcement															
			Cementitious Materials	2.1.1														
			Aggregate	2.1.3														
			Local/Regional Materials	1.6.1														
			Albedo	2.2.1														
			SD-04 Samples															
			Field-Constructed Mockup	1.5.4														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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 RCD FROM OTH REVIEWER	DATE FWD TO OTHER REVIEWER		DATE RCD FROM APPR AUTH	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FROM APPR AUTH
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	32	13	13.06				SD-05 Design Data											
							mix design											
							SD-06 Test Reports											
							Aggregate											
							Concrete slump tests											
							Air content tests											
							Flexural strength tests											
							Cementitious materials											
							Albedo											
							Permeability											
							SD-07 Certificates											
							Ready-mixed concrete plant											
							Batch tickets											
							Cementitious materials											
							SD-11 Closeout Submittals											
							Local/Regional Materials											
							Cementitious Materials											
							Aggregate											
							Albedo											
	32	13	15.20				SD-02 Shop Drawings											
							Formwork											
							Reinforcing steel											
							SD-03 Product Data											
							Materials for curing concrete											
							Local/Regional Materials											
							Local/Regional Materials											

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE RCD 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)	
		32 13 15.20	Joint sealants	2.4.8	G													
			Joint filler	2.4.7	G													
			Cement	2.4.1	G													
			Reinforcement	2.5	G													
			Epoxy bonding compound	2.4.9	G													
			Biodegradable Form Release	2.4.10	G													
			Agent															
			Handhole Frames and Covers	2.7														
			SD-05 Design Data															
			mix design	2.3.1	G													
			SD-06 Test Reports															
			Concrete mix design	1.6.4.1	G													
			Fly ash	1.6.4.2														
			Pozzolan	1.6.4.2														
			Ground iron blast-furnace slag	1.6.4.3														
			Aggregates	1.6.4.4														
			Compressive strength tests	3.10.2.3														
			Flexural strength tests	3.10.2.4														
			Air Content	3.10.2.5														
			SD-07 Certificates															
			Form removal schedule	1.6.3.3														
			Biodegradable Form Release	2.4.10														
			Agent															
			VOC Content for form release agents and curing compounds	1.6.3.4														
			Material Safety Data Sheets	1.6.3.5														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR																
NASA - Facility Support Center																		
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			MAILED TO CONTR/	DATE RCD FRM APPR AUTH	REMARKS	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	32 13 15.20		Forest Stewardship Council (FSC) Certification	1.8.2														
	32 16 13		SD-03 Product Data Concrete	2.1														
			SD-06 Test Reports Field Quality Control	3.8														
	32 93 00		SD-01 Preconstruction Submittals State Landscape Contractor's License	1.4.3														
			Time Restrictions and Planting Conditions	1.6														
			SD-03 Product Data Ground Stakes	2.7.1.2														
			Ground Stakes Weed control fabric	2.7.1.2 1.5.2.4	G													
			Root control barrier Rock ground cover/boulders	1.5.2.4	G													
			Staking Material Antidesiccants	2.7.1 2.8														
			Photographs SD-04 Samples	1.4.4	G													
			Rock ground cover/boulders SD-06 Test Reports		G													
			Topsoil composition tests Topsoil composition tests	1.4.1 2.2.3														
			Percolation Test	1.4.5														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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 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)	
	32	93	00				SD-07 Certificates											
							Nursery certifications	1.4.2										
							Nursery certifications	2.1.1										
							SD-10 Operation and Maintenance											
							Data											
							Plastic Identification											
	33	11	00				SD-03 Product Data											
							Piping Materials	2.1.1										
							Water distribution main	2.1	G									
							Water service line	2.2	G									
							Reduced pressure principle	2.3	G									
							backflow preventer assemblies											
							Turbine Type Meters	2.2-2.12	G									
							Valve boxes	2.1.2.5	G									
							Valve boxes	2.2.2.9	G									
							Service saddle	2.2.2.11	G									
							Tapping sleeves	2.2.2.10	G									
							Pressure Regulator	2.2.2.14	G									
							Insulation	2.2.2.13	G									
							Prest Concrete Vault	2.1.3	G									
							SD-06 Test Reports											
							Disinfection	3.1.5	G									
							SD-07 Certificates											
							Water distribution main	2.1										
							Water service line	2.2										

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.					
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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/ FROM CONTR	DATE RCD FROM OTH REVIEWER	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER			ACTION CODE
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	33 11 00		Reduced pressure principle backflow preventer assemblies	2.3													
			SD-08 Manufacturer's Instructions														
			Delivery, storage, and handling	1.4													
			Installation	3.1.1													
			Precast Concrete Vault	2.1.3													
	33 30 00		SD-02 Shop Drawings														
			Precast concrete manhole	2.3.1	G												
			Metal items	2.3.4	G												
			SD-03 Product Data														
			Pipeline materials	2.1													
			SD-06 Test Reports														
			Reports	2.4													
			SD-07 Certificates														
			Portland Cement	2.2.2													
			Gaskets														
	33 40 00		SD-03 Product Data														
			Placing Pipe	3.3													
			Fossil Filter Storm Drain Insert	2.3.5													
			Ball Valve														
			SD-07 Certificates														
			Resin Certification	2.1.1													
			Pipeline Testing	3.7													
			Hydrostatic Test on Watertight Joints	2.6													
			Determination of Density	3.6.5													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW 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/ FROM CONTR	DATE RCD FROM OTH REVIEWER	DATE FWD TO OTHER REVIEWER			DATE OF ACTION	ACTION CODE	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	33 40 00		Frame and Cover for Gratings	2.3.4														
	33 71 02.00 20		SD-02 Shop Drawings															
			Precast underground structures	1.4.1	G													
			SD-03 Product Data															
			Medium voltage cable	2.5	G													
			Medium voltage cable joints	2.7	G													
			Medium voltage cable terminations	2.6	G													
			Precast concrete structures	2.11.1.1	G													
			Sealing Material	2.11.1.4														
			Pulling-In Irons	3.5.2														
			Manhole frames and covers	2.11.2	G													
			Handhole frames and covers	2.11.3	G													
			Cable supports	2.12	G													
			SD-06 Test Reports															
			Arc-proofing test	2.14.1	G													
			Medium voltage cable qualification and production tests	2.14.2	G													
			Field Acceptance Checks and Tests	3.18.1	G													
			SD-07 Certificates															
			Cable splicer/terminator	1.4.2	G													
			Cable Installer Qualifications	1.4.3	G													
	41 22 23.19		SD-02 Shop Drawings															
			Vertical reciprocating conveyor system		G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.						
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT OR A/E REVIEW CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS				
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	DATE FWD TO APPR AUTH/	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE		DATE OF ACTION	DATE RCD FROM APPR AUTH		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
	41 22 23.19		Complete schematic wiring diagram with description of operation	1.2.2														
			SD-03 Product Data															
			Carriage		G													
			Lift structure		G													
			Hydraulic lifting system	1.2.1	G													
			Safety guarding		G													
			Call stations		G													
			Bi-panel vertical gate		G													
			SD-05 Design Data															
			Structural Design calculations	1.2.1	G													
			Structural and Load Capacity calculations		G													
			SD-10 Operation and Maintenance Data															
			Conveyor with hoist system, all components, Data Package 3		G													
	44 41 13		SD-02 Shop Drawings															
			Equipment Installation	3.3.2	G													
			SD-03 Product Data															
			Water Efficiency															
			Water Budget															
			SD-06 Test Reports															
			Testing	3.6.2														

SECTION 01 33 29

LEED(TM) DOCUMENTATION
02/10

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.

FOREST STEWARDSHIP COUNCIL (FSC)

FSC STD 01 001 (2000; R2008) Principles and Criteria for Forest Stewardship

U.S. GREEN BUILDING COUNCIL (USGBC)

LEED (2009; R 2010) Leadership in Energy and Environmental Design(tm) Green Building Rating System for New Construction (LEED-NC)

LEED Reference Guide (2009) LEED Reference Guide for Green Building Design and Construction

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

LEED Implementation Plan; G

SD-11 Closeout Submittals

LEED Documentation Notebook; G

1.3 DESCRIPTION

This project has been designed for, and shall be developed for a sustainable rating of platinum in accordance with LEED2009 Version 3.0. Table 1 (see paragraph Table) identifies the LEED credit items that are designed into or otherwise required for this project. No variations or substitutions to the LEED credits identified for this contract shall be allowed without written consent from the Contracting Officer. Should there be a case where there is any problem meeting the full requirements of a LEED credit identified for this project in Table 1, the Contractor must bring this to the attention of the Contracting Officer immediately.

1.3.1 Credit Validation

This project will be registered with USGBC for validation of credits

earned. Contractor is not responsible for registering the project with USGBC or for paying project registration fees to USGBC. Format and content of all construction documentation must be in accordance with the LEED Reference Guide requirements for supporting data required in event of USGBC audit of the particular credit. Contractor is required to coordinate through the Contracting Officer with Government's LEED consultant on assuring assembled data is acceptable to USGBC and responding to USGBC requests for additional construction data in the course of seeking project certification. Design documentation will be provided by others.

1.3.2 Contractor Responsibilities

Some LEED credits are inherent in the design provided and require no further submittal or documentation. For these credits, the Contractor shall notify the Contracting Officer in advance of selection of any specified material or use of any permissible construction methods that may result in a deviation from the LEED designer intent. Some LEED credits involve material selection and are generally identified within the technical sections with the notation "LEED," though not specifically identified in all occurrences. Some LEED credits are dependent on construction practices.

All LEED credits identified in Table 1 not inherent in the design provided shall be documented by the Contractor. Table 1 provides a general summary of applicable credits. Detailed submittal requirements are contained in the LEED Reference Guide and in the technical sections.

In all cases where a material, product, or execution requirement is identified by "LEED" in the contract documents, additional data or certificates shall be submitted with the individual component or process validating the material or component to the respective LEED credit item. These additional data or certificates shall be separable from the other submitted data and a copy shall be included in the LEED Documentation Notebook in addition to the distribution indicated in the submittal register.

1.4 LEED IMPLEMENTATION PLAN

LEED Implementation Plan shall be submitted within 30 days after notice to proceed. The plan, when completed, shall provide a detailed description of all activities that relate to accomplishing project LEED requirements, including construction practices, procurement practices, and proposed submittals and documentation for each LEED credit. Plan shall also include the following:

- a. Name of individual on the Contractor's staff responsible for ensuring LEED credits and prerequisites are earned and responsible for assembling documentation. A responsible individual shall be identified for each applicable credit. This individual may fill the role of QC Administrative Assistant specified in Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL.
- b. Templates to be used for tracking LEED credits. Listing of documents to be provided for each credit and schedule for their inclusion in LEED Documentation Notebook. Include proposed materials, associated estimated costs, and details necessary for LEED calculations in order to determine if the listed materials can be expected to achieve the project goal.
- c. List of all plans required in the technical sections for LEED

credit. Proposed submittal date for each plan. These shall be added to the LEED Implementation Plan as they are completed.

- d. Implementation plan for cumulative materials credits, which shall use applicable template with proposed materials, associated estimated costs, and details necessary for LEED Calculations added in order to determine if the listed materials can be expected to achieve the project goal. Submit cumulative materials implementation plans as part of the submittal procedure and before materials purchasing begins.

1.5 LEED DOCUMENTATION NOTEBOOK

The Contractor shall prepare a comprehensive notebook documenting compliance for each LEED credit identified in Table 1. LEED Documentation Notebook shall be formatted to match LEED numbering system and tabbed for each credit and prerequisite. LEED documentation in notebook shall contain up to date information through the previous week's work, and at least one set shall be available on the jobsite at all times. The Notebook shall also be maintained and available for reference electronically if preferred. Completed pages shall be prevented from being altered. If the Contractor fails to maintain the LEED Documentation Notebook as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the Notebook. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and the Contractor regarding the accuracy and completeness of the Notebook. The original, one copy, and an electronic version on CD of the notebook shall be submitted at project closeout.

1.5.1 Content

Notebook shall include Table 1, applicable product data for material selection, final calculations, certifications for construction practices, procurement data, cumulative calculations and other items as identified in the approved LEED Implementation Plan. Notebook must contain all required data to support full compliance with the indicated LEED credit. LEED credits that are inherent to the design will be documented by the designer of record.

1.5.2 LEED Calculations

Calculations showing compliance with a required LEED credit identified in Table 1 or within the LEED Implementation Plan. Calculations shall be current and available for monthly review. Final calculations shall be included in the LEED Documentation Notebook under the appropriate tab.

1.5.3 Submittals

All "G" designated submittals required for inclusion in the LEED Documentation Notebook shall be separable from other submitted data and shall be included in the LEED Documentation Notebook in addition to the distribution indicated on the submittal register.

1.6 REQUIREMENTS

LEED credits as identified in Table 1 shall be incorporated and documented as required by the Contract documents and in full compliance with the LEED Reference Guide. LEED credits not identified elsewhere in the Contract documents and those requiring further instruction are specified below.

Refer to the LEED Reference Guide for further definitions and requirements.

1.6.1 Materials and Resources Credit 4, Recycled Content

Notwithstanding the requirements of Section 01 62 35 RECYCLED/RECOVERED MATERIALS, Contractor shall select materials so that the sum of post-consumer recycled content value plus one-half of post-industrial recycled content value constitutes at least 30 percent of the total materials cost for the project. EPA Comprehensive Procurement Guidelines has a supplier database. California Integrated Waste Management Board (CIWMB) Recycled Content Directory also contains product and supplier data at www.ciwmb.ca.gov/rcp.

1.6.1.1 Calculations

LEED Letter Template forms shall be used for tracking and documentation. Recycled content value of project materials shall be determined by the method described in the LEED Reference Guide.

1.6.1.2 Substitutions

In the case of conflict between this requirement and individual technical section requirements, Contractor may submit for Government approval proposed alternative products or systems that provide equivalent performance and appearance and have greater contribution to project recycled content requirements. All such proposed substitutions shall be submitted with the LEED Implementation Plan accompanied by product data that demonstrates equivalence.

1.6.2 Materials and Resources Credit 5, Regional Materials

Contractor shall select materials so that a minimum of 20 percent (by dollar value) of materials and products for the project are extracted, harvested, or recovered, as well as manufactured, regionally within a 500 mile radius of the project site.

1.6.2.1 Calculations

LEED Letter Template forms shall be used for tracking and documentation. Amount of regional project materials shall be determined by the method described in the LEED Reference Guide.

1.6.3 Materials and Resources Credit 6, Rapidly Renewable Materials

A minimum of 2.5 percent (by dollar value) of materials and products for the project shall be rapidly renewable. Rapidly renewable materials are made from plants with a 10-year or shorter harvest cycle. The following rapidly renewable materials are specified: cotton, linseed (linoluem), biocomposites and rubber. Contractor shall track cumulative calculations for this credit.

1.6.4 Materials and Resources Credit 7, Certified Wood

Contractor shall select materials so that a minimum of 50 percent (by dollar value) of permanently installed wood-based materials and products for the project are certified in accordance with FSC STD 01 001.

1.6.4.1 Calculations

LEED Letter Template forms shall be used for tracking and documentation. Amount of FSC-certified project materials shall be determined by the method described in the LEED Reference Guide.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 COORDINATION MEETINGS

There will be three onsite coordination meetings. The first will be a preconstruction meeting to review the LEED Implementation Plan. The requirements for this meeting may be fulfilled 01 45 04.00 10 CONTRACTOR QUALITY CONTROL. The second will be a pre-closeout meeting to review LEED Documentation Notebook for completeness and identify any outstanding issues relating to final score and documentation requirements. The third is a closeout meeting to review the final LEED Documentation Notebook. All meetings shall be attended by Contractor's designated individual responsible for LEED documentation, Government representative and Installation representative. At closeout meeting a final score for the project will be determined based on review of project performance and documentation. Contractor shall make a set of contract drawings and specifications available for review at each meeting as well as an updated LEED Documentation Notebook.

3.2 TABLE

LEED credits as identified in Table 1 below are contract requirements and shall be incorporated in full compliance with the LEED Reference Guide.

-- End of Section --



LEED 2009 for New Construction and Major Renovation

Project Checklist

Project Name

Date

14	0	12	Sustainable Sites	Possible Points: 26
----	---	----	--------------------------	----------------------------

	Y	N	?		
				Prereq 1 Construction Activity Pollution Prevention	
	1			Credit 1 Site Selection	1
			5	Credit 2 Development Density and Community Connectivity	5
			1	Credit 3 Brownfield Redevelopment	1
			6	Credit 4.1 Alternative Transportation—Public Transportation Access	6
	1			Credit 4.2 Alternative Transportation—Bicycle Storage and Changing Rooms	1
	3			Credit 4.3 Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
	2			Credit 4.4 Alternative Transportation—Parking Capacity	2
	1			Credit 5.1 Site Development—Protect or Restore Habitat	1
	1			Credit 5.2 Site Development—Maximize Open Space	1
	1			Credit 6.1 Stormwater Design—Quantity Control	1
	1			Credit 6.2 Stormwater Design—Quality Control	1
	1			Credit 7.1 Heat Island Effect—Non-roof	1
	1			Credit 7.2 Heat Island Effect—Roof	1
	1			Credit 8 Light Pollution Reduction	1

10	0	0	Water Efficiency	Possible Points: 10
----	---	---	-------------------------	----------------------------

	Y	N	?		
				Prereq 1 Water Use Reduction—20% Reduction	
	4			Credit 1 Water Efficient Landscaping	2 to 4
				<input type="checkbox"/> Reduce by 50%	2
				<input checked="" type="checkbox"/> No Potable Water Use or Irrigation	4
	2			Credit 2 Innovative Wastewater Technologies	2
	4			Credit 3 Water Use Reduction	2 to 4
				<input type="checkbox"/> Reduce by 30%	2
				<input type="checkbox"/> Reduce by 35%	3
				<input checked="" type="checkbox"/> Reduce by 40%	4

29 0 0

Energy and Atmosphere

Possible Points: 35

Y

Prereq 1 Fundamental Commissioning of Building Energy Systems

Y

Prereq 2 Minimum Energy Performance

Y

Prereq 3 Fundamental Refrigerant Management

13

Credit 1 Optimize Energy Performance

1 to 19

- Improve by 12% for New Buildings or 8% for Existing Building Renovations 1
- Improve by 14% for New Buildings or 10% for Existing Building Renovations 2
- Improve by 16% for New Buildings or 12% for Existing Building Renovations 3
- Improve by 18% for New Buildings or 14% for Existing Building Renovations 4
- Improve by 20% for New Buildings or 16% for Existing Building Renovations 5
- Improve by 22% for New Buildings or 18% for Existing Building Renovations 6
- Improve by 24% for New Buildings or 20% for Existing Building Renovations 7
- Improve by 26% for New Buildings or 22% for Existing Building Renovations 8
- Improve by 28% for New Buildings or 24% for Existing Building Renovations 9
- Improve by 30% for New Buildings or 26% for Existing Building Renovations 10
- Improve by 32% for New Buildings or 28% for Existing Building Renovations 11
- Improve by 34% for New Buildings or 30% for Existing Building Renovations 12
- Improve by 36% for New Buildings or 32% for Existing Building Renovations 13
- Improve by 38% for New Buildings or 34% for Existing Building Renovations 14
- Improve by 40% for New Buildings or 36% for Existing Building Renovations 15
- Improve by 42% for New Buildings or 38% for Existing Building Renovations 16
- Improve by 44% for New Buildings or 40% for Existing Building Renovations 17
- Improve by 46% for New Buildings or 42% for Existing Building Renovations 18
- Improve by 48%+ for New Buildings or 44%+ for Existing Building Renovations 19

7

Credit 2 On-Site Renewable Energy

1 to 7

- 1% Renewable Energy 1
- 3% Renewable Energy 2
- 5% Renewable Energy 3
- 7% Renewable Energy 4
- 9% Renewable Energy 5
- 11% Renewable Energy 6
- 13% Renewable Energy 7

2

Credit 3 Enhanced Commissioning

2

2

Credit 4 Enhanced Refrigerant Management

2

3

Credit 5 Measurement and Verification

3

2

Credit 6 Green Power

2

8	2	4
---	---	---

Materials and Resources

Possible Points: 14

Y			Prereq 1	Storage and Collection of Recyclables	
		3	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
				Reuse 55%	1
				Reuse 75%	2
				Reuse 95%	3
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
				50% Recycled or Salvaged	1
				75% Recycled or Salvaged	2
	2		Credit 3	Materials Reuse	1 to 2
				Reuse 5%	1
				Reuse 10%	2
2			Credit 4	Recycled Content	1 to 2
				10% of Content	1
				X 20% of Content	2
2			Credit 5	Regional Materials	1 to 2
				10% of Materials	1
				X 20% of Materials	2
1			Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1

12	2	1
----	---	---

Indoor Environmental Quality

Possible Points: 15

Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
1			Credit 1	Outdoor Air Delivery Monitoring	1
	1		Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
1			Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems—Lighting	1
	1		Credit 6.2	Controllability of Systems—Thermal Comfort	1
1			Credit 7.1	Thermal Comfort—Design	1
1			Credit 7.2	Thermal Comfort—Verification	1
1			Credit 8.1	Daylight and Views—Daylight	1
		1	Credit 8.2	Daylight and Views—Views	1

5	1	0
---	---	---

Innovation and Design Process**Possible Points: 6**

1		
1		
1		
	1	
1		
1		

Credit 1.1 Innovation in Design: 95% diverted Construction waste
Credit 1.2 Innovation in Design: 30% recycled materials
Credit 1.3 Innovation in Design: 15% on-site renewable energy
Credit 1.4 Innovation in Design: Master Plan
Credit 1.5 Innovation in Design: Education and inclusion on DFRC tour
Credit 2 LEED Accredited Professional

1
1
1
1
1
1

4	0	0
---	---	---

Regional Priority Credits**Possible Points: 4**

1		
1		
1		
1		

Credit 1.1 Regional Priority: Specific Credit
Credit 1.2 Regional Priority: Specific Credit
Credit 1.3 Regional Priority: Specific Credit
Credit 1.4 Regional Priority: Specific Credit

1
1
1
1

82	5	17
----	---	----

Total**Possible Points: 110**

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

SECTION 01 35 14.11 40

DRYDEN SAFETY REQUIREMENTS

07/07

PART 1 GENERAL

1.1 SUMMARY

The requirements of this Section apply to, and are a component part of, each section of the specifications.

1.2 NASA's Commitment to Safety

The success of this historic agency starts with an unwavering commitment to safety. The culture of this institution is one of safe accomplishment of our missions, including construction projects. If something about this project, or any task, is unclear, it is required that you, the Contractor, ask for clarification. No activities on this project, or at this Agency, are important enough to compromise the safety of any person. If you suspect something isn't quite right, trust your instincts and your experience, and do something to correct the situation.

NASA's mission success starts with safety. A commitment to safety permeates everything we do. We are committed to protecting the safety and health of the general public, pilots and astronauts, the NASA workforce, and our high-value assets on and off the ground.

1.3 The Dryden Safety Culture

Safety at the Dryden Flight Research Center is of paramount concern. We assure a commitment to safety by employing systems and processes that ensure the safety of the public, the employees, and assets. We ensure safety in all aspects of personal endeavors and we are committed to ensuring the safety of others. We take ownership for safety. We know every accident is preventable. In the spirit of the Dryden Flight Research Center, the Contractor shall implement the safety provisions of this section to "make known the overlooked and unexpected" to keep all employees safe. The Contractor shall INSTRUCT ALL EMPLOYEES as to the hazards and the precautions to be taken in performance of this contract. The Contractor shall provide and maintain work environments and procedures which will safeguard Contractor employees, Subcontractors, the Public, Government personnel, and Government property, materials, supplies, and equipment exposed to Contractor operations and activities.

1.4 Construction Safety Goals

The safety provisions of this section are to be implemented by the Contractor so that:

- a. Everyone involved in this project goes home as healthy as they arrived.
- b. This construction work site is free of recognizable hazards.
- c. We have zero lost-time accidents.
- d. We have zero injuries in our workplace.

1.5 Construction Safety Strategy

In order to meet these goals every individual working onsite for the Contractor, including Subcontractors, Vendors and their employees, shall:

- a. Be involved in making this project safer.
- b. Know how to identify hazards.
- c. Know how to report hazards and get them fixed.
- d. Know their safety and health training needs, have obtained that training, and shall put the concepts to work each and every day while working on this project.

1.6 Compliance

The Contractor shall take safety and health measures in performing work under this Contract. The Contractor shall comply with all applicable federal, NASA/Dryden Flight Research Center (DFRC), and Edwards Air Force Base occupational safety and health requirements and standards. The Contractor shall take all precautions in the performance of work under this contract to protect the safety and health of the Contractor's employees, to protect the safety and health of all persons in or near the jobsite, and to prevent damage to property, materials, supplies and equipment. The Contractor shall comply with Federal OSHA Safety and Health Standards 29 CFR 1910 and 29 CFR 1926. The Contractor shall comply with the U.S. Army Corps of Engineers Safety and Health Requirements Manual in effect on the date of the solicitation.

1.7 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.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

NASA NPG 8621.1	(2004a) NASA Mishap Reporting, Investigating and Record Keeping Policy
NASA NPG 8715.3	(2004) NASA Safety Manual
NASA NSS 1740.12	(1993) NASA Safety Standard For Explosives, Propellants and Pyrotechnics
NASA STD 8719.11	(2000) NASA Safety Standard for Fire Protection

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

10 CFR 20	Standards for Protection Against Radiation
29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1926	Safety and Health Regulations for Construction

1.8 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

The following items shall be submitted in accordance with Paragraphs 1.8.1 "Contractor's Accident Prevention Plan" and 1.9.1 "Activity Hazard Analysis" of this section. (See also Paragraph 1.10.1 "Documents at the Jobsite" of this section).

Contractor's Accident Prevention Plan; G
Activity Hazard Analysis; G

The following Requests for Permit shall be submitted in accordance with Paragraph 1.17 "PERMIT REQUIRED OPERATIONS" of this section.

Request for Excavation and Digging Permit; G
Request for Confined Space Entry Permit; G
Request for Utility Outage/Facility Closure Permit; G
Request for Crane Operation Permit; G
Request for Open Flame and Hotwork Permit; G

SD-06 Test Reports

Records shall be submitted in accordance with paragraph entitled, "Gas Protection," of this section.

SD-07 Certificates

Statements shall be submitted for the following items in accordance with paragraphs entitled, "Contractor's Accident Prevention Plan" and "Protection Plan," of this section.

Contractor's Accident Prevention Plan

Protection Plan

License Certificates

The following shall be submitted with the Contractor's "Daily Report to the Inspector" by 10:00 am the next work day in accordance with Paragraph 1.12.2 "Daily Safety Meetings/Daily Safety Inspections" of this section:

Safety Meeting/Safety Inspection sheets

Safety Meeting Attendance sheets

Confined Space Entry Training Certificates shall be submitted for all Confined Space Entry Attendants/Entry Supervisors prior to any employees entering a confined space. (See also Paragraph 1.10.1 "Documents at the Jobsite" of this section.

SD-08 Manufacturer's Instructions

Material Safety Data Sheets (MSDS), G

MSDSs for all chemicals and hazardous materials brought to the jobsite. MSDSs shall be submitted in accordance with Paragraph titled "Material Safety Data Sheets (MSDS)" and Paragraph Titled "Chemicals and Hazardous Materials" of this section. (See also Paragraph Titled "Documents at the Jobsite" of this section.)

1.8.1 Contractor's Accident Prevention Plan

Contractor shall submit an Accident Prevention Plan to the Contracting Officer for approval within 17 calendar days after notice to proceed and prior to start of construction at project site. The Accident Prevention Plan written by the prime Contractor for the specific work and hazards of this contract, shall implement in detail the pertinent requirements of the US Army Corps of Engineers Safety and Health Requirements Manual. The plan shall define how the Contractor will comply with Federal OSHA Safety and Health Standards 29 CFR 1910 and 29 CFR 1926. Prior to initiation of work at the job site, the Contractor's Accident Prevention Plan shall be reviewed, found acceptable, and approved by the Contracting Officer.

Accident Prevention Plan shall be NASA/DFRC site specific and include, as a minimum, the following:

- a. Safety program objectives.
- b. Methods to attain safety objectives.
- c. Responsibility of key personnel for the Contractor.
- d. Safety meetings, surveys, inspections, and reports.
- e. Disaster and emergency programs as it applies to the NASA/DFRC site.
- f. Lists of key personnel to be contacted in times of emergency, along with appropriate phone numbers to be used in emergencies.
- g. Program to show compliance with Federal OSHA Safety and Health Standards 29 CFR 1910 and 29 CFR 1926 and various safety requirements of NASA NPG 8715.3.
- h. Methods to comply with the requirement for immediate reporting of mishaps to the Contracting Officer in accordance with NASA NPG 8621.1.
- i. Statement that the Contractor will not invalidate the integrity of safety systems without proper authorization.
- j. Procedures for emergency actions to be taken to secure dangerous conditions, to protect personnel, and secure work areas in the event of accident or an act of nature. This shall include procedures to secure dangerous conditions, protect personnel, and secure work areas. The plan must contain 911 telephone contact procedures specific to NASA/DFRC (See Paragraph "FIRST AID AND EMERGENCIES" of this section).
- k. Procedures for securing the mishap site so that the area remains secure until arrival of a safety investigator. Mishap site will

remain secured until released by the Contracting Officer.

- l. A map with the location and times of operation of the NASA/DFRC medical dispensary. (This information can be obtained from the Contracting Officer.)
- m. Procedures describing how chemicals, hazardous materials and hazardous wastes will be handled, managed and disposed of while at NASA/DFRC.
- n. Incorporate plans for the following, as applicable:
Lockout/Tagout, Confined Space, Fire Prevention, Electrical Safety, and Fall Prevention/Protection.
- o. Incorporate a comprehensive site-specific heat stress monitoring plan. Drinking water shall be made available to workers and workers shall be encouraged to frequently drink small amounts; the water shall be kept reasonably cool.

1.8.2 Protection Plan

Structures, utilities, sidewalks, pavements, and other facilities immediately adjacent to excavations shall be protected against damage.

1.9 GENERAL SAFETY PROVISIONS

Contractor shall take safety and health measures in performing work under this Contract. Contractor shall meet with the Contracting Officer to develop a mutual understanding relative to administration of the Accident Prevention Plan. Contractor is subject to applicable federal, state, and local laws, regulations, ordinances, codes, and orders relating to safety and health in effect on the date of this Contract.

During the performance of work under this Contract, the Contractor shall comply with procedures prescribed for control and safety of persons visiting the project site. Contractor is responsible for his personnel and for familiarizing each of his subcontractors with safety requirements. Contractor shall advise the Contracting Officer of any special safety restriction he has established so that Government personnel can be notified of these restrictions.

1.9.1 Activity Hazard Analysis

Prior to beginning each Definable Feature of Work (DFOW), an activity hazard analysis shall be prepared by the Contractor performing the work. A DFOW is defined as an operation involving a type of work presenting hazards not experienced in previous operations or where a new subcontractor or work crew is to perform. Work will not proceed on that phase until the activity hazard analysis has been accepted by the Contracting Officer and discussed with all engaged in the activity, including the Contractor, subcontractors, and government on-site representatives.

The Activity Hazard Analysis shall:

- a. define the activity to be performed and identify the sequence of work,
- b. define the specific hazards anticipated with the activity,

- c. define the control measures to be implemented to eliminate or reduce each hazard to an acceptable level,
- d. identify the equipment to be used,
- e. identify the inspection requirements for that equipment and activity, and
- f. list the training requirements for the workers.

1.9.2 Material Safety Data Sheets (MSDS)

Provide the Contracting Officer with a copy of the Material Safety Data Sheets for all chemicals and hazardous materials to be brought on site. All manufacturers' recommended precautions shall be followed during the use of any chemical and hazardous material. MSDSs must be submitted to the Contracting Officer for approval prior to the use of any chemical or hazardous substance. See also Paragraph 1.10.1 "Documents at the Jobsite" and Paragraph 1.27.1 "Chemicals and Hazardous Materials" of this section.

1.10 SAFETY COMMUNICATIONS

Accident Prevention Plans, hazard analyses, and MSDSs are only effective when the workers in the field are aware of the potential hazards for that day, and take mitigation measures to work safely in that area at that time. Therefore, daily safety communications are a critical requirement. Every work day shall begin with a brief safety meeting and every work day shall include a safety inspection by the Contractor's Site Safety Officer, see Paragraph Titled "Daily Safety Meetings/Daily Safety Inspections".

Also, prior to beginning any new DFOV the Contractor shall conduct an Activity Hazard Analysis on that new class of work and shall conduct a thorough discussion of that Activity Hazard Analysis with the workers performing the work. The Contractor shall ensure the workers understand the hazards and how to use any special tools, unique equipment, and personal protective equipment. Only after these safety analyses and communications occur shall the new class of work be allowed to proceed.

1.10.1 Documents at the Jobsite

To help maximize safety communications, the following list of documents shall be maintained on the jobsite and made easily available for the Contractor's employees and Subcontractors' employees. These records shall also be made available for Government inspection. They include but are not limited to:

- a. the approved Accident Prevention Plan,
- b. all approved Activity Hazard Analysis,
- c. all approved MSDSs,
- d. all approved permit documents for Permit Required Operations that have been completed,
- e. all records of lockout/tagout operations that have been completed,
- f. the jobsite OSHA 300 log,

g. all training records, including Confined Space Entry Training Certificates, and

h. other records that are deemed appropriate due to the nature of the work, i.e. certificates, permits, licenses, etc.

These records shall be stored at a convenient centralized location on the jobsite. These records shall be organized, filed, and labeled in binders or file folders in a fashion that all persons involved with the project can obtain the information quickly and easily.

1.10.2 Posted Warnings and Prohibitions

The Contractor shall comply with procedures prescribed for control and safety of all persons visiting the project site. The contractor shall install all barricades and signs needed. All points of entry to the project site shall have a sign warning of the requirement to wear hard hats. The Contractor is responsible for familiarizing each employee and each subcontractor employee with safety requirements.

All Contractor personnel are to obey all posted prohibitions, restrictions, warnings, and traffic control signs and devices. Contractor personnel shall not enter any area in which a red light is flashing without permission of the NASA area supervisor. When alarm bells are sounded in a building, secure the equipment in use and leave the building by the nearest exit. An egress passage must be maintained at all times in the work area. The Contractor shall advise employees of these requirements.

The Contractor shall advise the Contracting Officer of any special safety restrictions the Contractor has established so that Government personnel can be notified of these restrictions.

1.10.3 Display of Safety Information

The Contractor shall erect a safety bulletin board at the job site within 2 calendar days after the Contracting Officer has approved the Accident Prevention Plan. 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 Accident Prevention Plan.
- d. Current AHA(s) and MSDSs.
- e. OSHA 300A Form.
- f. OSHA Safety and Health Protection-On-The-Job Poster.
- g. Safety and Health Warning Posters.
- h. Active Permits.

1. Excavation and Digging,
2. Open Flame and Hot Work,
3. Confined Space Entry,
4. Utility Outages/Facility Closures
5. Crane Operations.

i. A sign indicating the number of years and days without a lost time construction accident at NASA's Dryden Flight Research Center.

1.10.4 TRAINING

1.10.4.1 New Employee Indoctrination

New employees (prime, subcontractor, vendors, and suppliers) onsite will be informed of specific site hazards before they begin work. Documentation of this orientation shall be kept on file at the project site.

1.10.4.2 Periodic Training

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

1.10.4.3 Training on Activity Hazard Analysis (AHA)

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

1.11 SAFETY LOCKOUT/TAGOUT PROCEDURES

Contractor shall ensure that each employee is familiar with and complies with these procedures and 29 CFR 1910.147. Specific Lockout/Tagout requirements are as follows:

- a. The tags shall be the same for both lockout and tagout, and shall only be used once. The information on the tag shall be printed legibly.
- b. For lockout the information shall include - name of person controlling the lock, the date the lock was put in place, telephone number of the person controlling the lock, name of the Project Inspector monitoring the work, name of the company serving as prime contractor for the work, and the name of the company for which the lock control person is employed.
- c. For tagout, the above information is required plus an explanation of why a lock could not be used, and what additional safety precautions were used.

The above information shall be documented, and the record made available for inspection. Upon completion of the Lockout/Tagout Operation the documents shall be stored at the jobsite.

Contracting Officer will, at the Contractor's request, apply lockout/tagout tags and take other actions that, because of experience and knowledge, are known to be necessary to make the particular equipment safe

to work on.

No person, regardless of position or authority, shall operate any switch, valve, or equipment that has an official lockout/tagout tag attached to it, nor shall such tag be removed except as provided in this section.

No person shall work on any equipment that requires a lockout/tagout tag unless he, his immediate supervisor, project leader, or a subordinate has in his possession the stubs of the required lockout/tagout tags.

When work is to be performed on electrical circuits, only qualified personnel shall perform work on electrical circuits.

A supervisor who is required to enter an area protected by a lockout/tagout tag will be considered a member of the protected group provided he notifies the holder of the tag stub each time he enters and departs from the protected area.

Identification markings on building light and power distribution circuits shall not be relied on for established safe work conditions.

Before clearance will be given on any equipment other than electrical (generally referred to as mechanical apparatus), the apparatus, valves, or systems shall be secured in a passive condition with the appropriate vents, pins, and locks.

Pressurized or vacuum systems shall be vented to relieve differential pressure completely.

Vent valves shall be tagged open during the course of the work.

Where dangerous gas or fluid systems are involved, or in areas where the environment may be oxygen deficient, system or areas shall be purged, ventilated, or otherwise made safe prior to entry.

1.11.1 Tag Placement

Lockout/tagout tags shall be completed in accordance with the regulations printed on the back thereof and attached to any device which, if operated, could cause an unsafe condition to exist.

If more than one group is to work on any circuit or equipment, the employee in charge of each group shall have a separate set of lockout/tagout tags completed and properly attached.

When it is required that certain equipment be tagged, the Government will review the characteristics of the various systems involved that affect the safety of the operations and the work to be done; take the necessary actions, including voltage and pressure checks, grounding, and venting, to make the system and equipment safe to work on; and apply such lockout/tagout tags to those switches, valves, vents, or other mechanical devices needed to preserve the safety provided. This operation is referred to as "Providing Safety Clearance."

1.11.2 Tag Removal

When any individual or group has completed its part of the work and is clear of the circuits or equipment, the supervisor, project leader, or individual for whom the equipment was tagged shall turn in his signed

lockout/tagout tag stub to the Contracting Officer. That group's or individual's lockout/tagout tags on equipment may then be removed on authorization by the Contracting Officer.

1.12 SAFETY MEETINGS AND INSPECTIONS

1.12.1 Mutual Understanding Meeting

Before commencing the work, the Contractor shall meet with representatives of the Contracting Officer to discuss and develop a mutual understanding relative to administration of the overall safety program. Items to be discussed shall include: COE EM-385-1-1, hard hats/safety shoes, other personal protective equipment (PPE), daily safety meetings, activity hazard analysis, frequency of inspections, 911 communications, stopping of unsafe activities, permit required operations and MSDSs.

1.12.2 Daily Safety Meetings/Daily Safety Inspections

The Contractor shall conduct daily safety meetings at the beginning of each work shift. This safety meeting shall be administered by the Contractor's Site Safety Officer and/or Job Superintendent, or qualified designated representatives of these elements. This safety meeting shall be attended by all of the Contractor's employees, as well as all subcontractors and their employees working at the project site for that day. If any of these persons are not present at the daily safety meeting, they shall be briefed of the issues discussed in the meeting on an individual basis by the Contractor's Site Safety Officer prior to starting work at the site that day. The safety meeting format and discussion shall include, but not be limited to: the schedule of events on the site for the day; addressing hazard analyses for the day's activities; allowing employees and subcontractors to submit hazard analyses and MSDSs for upcoming activities; planning permit required operations; discussing unsafe conditions and near misses on the job site; discussing new equipment and material deliveries to the job site; discussing corrective actions to be taken and assignment of responsibilities for the implementation of those corrective actions.

The Contractor's designated Site Safety Officer shall, at least once per shift, conduct at least one walk-through site safety inspection of all site activities. This inspection shall be conducted at a random time during each shift. The Site Safety Officer's sole purpose during the walk-through shall be to ensure compliance with the approved Accident Prevention Plan, approved Activity Hazard Analysis, and approved MSDSs. Additionally the Site Safety Officer must ensure the workers receive feedback as to their safety effectiveness and compliance with safety procedures.

The Contractor shall use the attached Safety Meeting/Safety Inspection sheets and Safety Meeting Attendance sheets, or an approved equal, to report the elements described herein. These sheets shall be submitted to the Contracting Officer on a daily basis by 10:00 am on the next work day, (with the Contractor's "Daily Report to the Inspector").

1.13 CONTRACTOR VEHICLES AND EQUIPMENT

Edwards AFB access passes for Contractor owned vehicles are issued at the Military Security Police building (Building 2860) on the main base. A letter from the Contracting Officer is required along with proof of registration and insurance, as well as a valid driver's license.

Contractor-owned, leased, or operated equipment must be in satisfactory

mechanical condition. Vehicle identification is required on both sides of all contractor vehicles, clearly identifying the contractor. While in use at the job site, rental equipment shall be kept in good working order and properly maintained. Contractor owned equipment brought on site must have copies of all operating air permits for the equipment.

Prior to a piece of rental equipment arriving on the job site, the Contractor shall present a hazard analysis for the use of the equipment. The hazard analysis shall include consideration for hazards associated with unloading, moving, and reloading the equipment. The Contractor is responsible to ensure that all employees working on or around that equipment are properly trained to use it and made aware of its associated hazards.

Hoisting and lifting devices and cranes must bear evidence of proof loading within the preceding 12 months. Operators of hoisting and lifting devices and cranes shall be trained in proper use and safety limitations. The Contractor shall provide written proof of qualification for all operators of fork lifts and personnel lifts (i.e. boom lifts, platform lifts, scissors lifts, etc.). Outdoor hoisting operations shall not commence if winds are above 20 knots (23 mph) steady state or if gusts exceed 35 knots (40 mph) and the Contractor shall also comply with the manufacturer's recommended operating limits; the more restrictive shall govern.

Crane operators shall meet the requirements in USACE EM 385-1-1, Section 16 and Appendix G. In addition, for mobile cranes, crane operators shall be designated as qualified by a source that qualifies crane operators (i.e., union, a government agency, or an organization that tests and qualifies crane operators). Written proof of current qualification shall be provided.

Contractor owned vehicles which will be driven on the flight line (aircraft hangars, aprons, ramps, tow-ways, and taxiways) must bear identifying signs and property damage insurance. Access to the flight line must be authorized by the Contracting Officer. The Contractor shall be responsible for performing daily inspections of these vehicles and shall secure, remove, or dispose of all foreign objects, materials, and debris that can cause damage to an aircraft. Objects and debris lodged between tire treads shall be removed prior to driving on the flight line. All vehicles which are permitted on aircraft maintenance ramps, fuel storage areas, fuel servicing areas, hangars, explosive areas, and any other fire hazard areas shall be equipped with an approved spark arrestor and authorized in writing by the Contracting Officer for use in these areas.

Operators of motor vehicles shall be licensed. Only Contractor work vehicles, delivery vehicles, and debris hauling vehicles, driven by licensed operators, will be allowed at the work site. Vehicles for transportation of personnel or personal tools (commuting) must be parked in designated parking spaces.

The use of seat belts is mandatory by all operators and passengers traveling in motor vehicles on Edwards Air Force Base and NASA/DFRC. Passengers are prohibited from riding in or on the back or bed of any truck. The speed limit, unless otherwise posted, is 15 miles per hour. The security police use radar units.

Use of Government owned equipment, tools, supplies, or materials is prohibited unless specifically authorized by the Contracting Officer.

1.13.1 VEHICLE FOREIGN OBJECT DEBREE (FOD) PREVENTION STEPS

Cars, trucks, trailers, and mobile service vehicles that have access to aircraft operational areas are a potential source of FOD. Prevention that should be taken includes:

- a. Regularly inspect all vehicles such as refueling trucks, supply trucks, contract vehicles, and maintenance vehicles that operate on the flight line and hangar areas for foreign objects.
- b. Before a vehicle is driven onto taxiways, runways, or into aircraft parking areas, the driver will stop and check that there are no rocks or pebbles caught in the tire treads and that the load is secure. The driver will also check pickup beds for loose tools, hardware, trash, and other debris.
- c. Vehicles must not be driven off the hard surface unless absolutely necessary. If it does become necessary to drive off to let an aircraft pass or for any other reason, the driver will once again check the load for security and the tires for foreign objects before re-entering the hard surfaced area. This does not apply to emergency vehicles responding to an emergency.
- d. All vehicles will enter and leave the flight line at controlled access points unless an emergency vehicle is responding to an emergency.

1.14 ACCIDENT TREATMENT AND RECORDS

Contractor shall post emergency first aid and ambulance information at project site.

1.15 FIRE PREVENTION AND PROTECTION

In addition to the requirements stated below, the Contractor shall also be familiar with guidelines located in NASA STD 8719.11 NASA Safety Standard for Fire Protection.

Open-flame heating devices will not be permitted except by approval in writing from the Contracting Officer. Approval for the use of open fires and open-flame heating devices will not relieve the Contractor from the responsibility for any damage incurred because of fires.

Burning trash, brush, or wood on the project site shall not be permitted.

Any fire hazard conditions shall be immediately reported to Contracting Officer. Any fire emergency situation shall be reported by calling 911 or the NASA/DFRC Security Post #1 at (661) 276-3256. Contractor vehicles must not block or encroach upon fire truck lanes at any time. The Contractor shall provide temporary fire protection equipment for the protection of personnel and property during construction.

All work sites shall be kept clean and orderly at all times. Combustible scrap, debris, and waste materials (oily rags, paper, packaging, scrap wood, etc.) shall be stored in covered metal receptacles and removed from the worksite daily to minimize potential hazards. Flammable and combustible materials shall be stored in a manner which minimizes the risk of fire including spontaneous combustion. "No Smoking" signs shall be posted in areas where flammable or combustible material are stored.

Only UL-approved containers and tanks shall be used for storage and handling of flammable and combustible liquid. All flammable and combustible liquids shall be kept in closed containers when not in use. Bulk drums of flammable or combustible liquids shall be grounded and bonded to containers during dispensing. The Contractor shall provide and be equipped with one full 10 pound 4-A:60 BC multipurpose dry chemical fire extinguisher placed within 20 feet where flammable/combustible liquids are stored.

The Contractor shall ensure the following are complied with when pressurized cylinders are on the jobsite:

- a. Cylinder contents shall be identified with a label.
- b. All cylinders shall be stored in an upright position at all times.
- c. Cylinders shall be secured at all times.
- d. Cylinders not in use shall have valve protector caps in place.

Smoking is not permitted in buildings or on roofs. Smoking is permitted in approved designated areas only. Smoking materials shall be disposed in an approved receptacle.

Nonspark producing tools and equipment or pneumatic type shall be utilized in fire hazardous areas such as hangars and other explosive environment areas. Burning of trash or rubbish is prohibited.

Dispensing of flammable and combustible liquids is not permitted in buildings or on roofs.

1.16 USE OF EXPLOSIVES

Explosives shall not be used or brought to the project site.

1.17 PERMIT REQUIRED OPERATIONS

The Contractor shall coordinate with the Contracting Officer and obtain written approval from the Contracting Officer on all Permit Required Operations before the operation begins. The Contractor shall initiate coordination with the Contracting Officer by writing and submitting a Request for Permit. The Contractor shall provide, with the Request for Permit the following:

- a. Work Plan - A written work plan describing the work to be accomplished during the Permit Required Operation including a schedule to be followed. The schedule shall include the dates and time period the Contractor contemplates performing the operation.
- b. Activity Hazard Analysis - An activity hazard analysis of the proposed activities during the Permit Required Operation including the Contractor's plan to minimize or eliminate any hazards associated with the performance of the work. See paragraph 1.9.1

The permits are primarily used to identify potentially hazardous work conditions in an attempt to prevent accidents. The permits are also used to coordinate the required work with key DFRC activities and keep customer inconvenience to a minimum. The permits shall be processed just prior to the start of the operation. Permit forms will be provided and filled out by the Government. The Contractor shall post approved permits at a conspicuous

location in the construction area near the permitted operation. Upon completion of the Permit Required Operation a copy of the approved permit documents shall be stored at the jobsite in accordance with Paragraph "Documents at the Jobsite" of this section. Permit required operations are:

1. Excavation and Digging
2. Open Flame and Hot Work
3. Confined Space Entry,
4. Utility Outages/Facility Closures, and
5. Crane Operations.

1.17.1 Excavation and Digging

Surface penetration, excavation, digging, and trenching are Permit Required Operations. Surface penetration, excavation, digging, and trenching operations must be approved by the Contracting Officer before operations begin. The Contractor shall obtain this approval by submitting a written Request for Excavation and Digging Permit in accordance with Paragraph 1.17 "PERMIT REQUIRED OPERATIONS". The Contractor shall submit this request to the Contracting Officer seven (7) calendar days prior to the start of digging operations, to enable the Contracting Officer to review measures being taken to prevent hazard to employees and possible damage to subsurface utilities.

The permit, a NASA - DRYDEN FACILITIES ENGINEERING WORK CLEARANCE REQUEST (Dryden form DWK-808-8), must be filled out by the Government and attached to the Contractor's Request for Excavation and Digging Permit. This package must be reviewed and approved by several DFRC and USAF organizations prior to start of surface penetration, excavation, digging, or trenching. During this review and approval period the Contractor can proceed with marking and staking activities described below.

Prior to performing any surface penetrations, excavation, digging, or trenching 6 inches or deeper (including driving stakes more than 6 inches in the ground) on any ground surface, the Contractor shall obtain from the Contracting Officer the current subsurface utility drawing of the particular area to be worked on. All utility lines shall be identified and marked in the field. The Contractor shall stake out, mark, paint lines, or other wise identify all subsurface pressurized gas pipes, high voltage cables, communication cables, other pipe lines, and other subsurface structures indicated within the area of the work before any surface penetration, excavation, digging, or trenching is done. After identification is complete, the Contractor shall obtain agreement from the Contracting Officer that identification is sufficient. After obtaining the approved permit package from the Contracting Officer and completing the marking and staking activities, the Contractor shall proceed with the excavating and digging operation in accordance with the approved permit documents.

The Contractor, however, shall temporarily halt any powered equipment digging and machine excavation work (i.e. backhoe, jackhammer, trencher, auger, etc.) when approaching within 10 feet of the staked-out/marked utility until the Contractor has exposed the utility by hand excavation to fix its location. The utility must be exposed using hand digging methods (i.e. "pot holing") with pick and shovel with care. The Contractor shall

obtain agreement from the Contracting Officer on how much closer to the utility the machine excavations can be allowed. Powered equipment digging shall not be performed within 5 feet of any utility. All powered equipment must be positioned so that it cannot come any closer than 5 feet from the utility. Backhoes must be positioned so that when the arm is in the full extension it cannot come any closer than 5 feet to the utility and the arm must always be drawn away from the utility thus pulling material toward the operator and away from the utility.

1.17.2 Open Flame and Hot Work

The use of an open flame is a Permit Required Operation. Hot work such as welding, torch cutting, sawing metals, flame cutting, burning, grinding, brazing, soldering, and cad welding are all Permit Required Operations. Applying, installing, or removing building materials through the use of heat are also Permit Required Operations. Any operation that can result in the generation of hot flying debris or sparks is a Permit Required Operation. During operations involving possible fire hazard, the Contractor shall notify the Contracting Officer and not proceed until approval is obtained in writing. Open flame and hot work operations must be approved by the Contracting Officer before operations begin. The Contractor shall obtain this approval by submitting a written Request for Open Flame and Hot Work Permit in accordance with Paragraph 1.17 "PERMIT REQUIRED OPERATIONS". The Contractor shall submit this request to the Contracting Officer three (3) calendar days prior to the start of these operations, to enable the Contracting Officer to review measures being taken to prevent hazard to employees, prevent possible fire damage to equipment and property, and prevent unnecessary activation of fire suppression/alarm systems.

The permit, a USAF WELDING, CUTTING AND BRAZING PERMIT, (AF Form 592), must be filled out by the Government and attached to the Contractor's Request for Open Flame and Hotwork Permit. This package must be reviewed and approved by the Dryden Safety Office and approved by the Contracting Officer prior to start of open flame and hot work. After obtaining the approved permit package from the Contracting Officer, the Contractor shall proceed with the open flame and hot work operation in accordance with the approved permit documents. The Contractor or Subcontractor performing the operation shall sign the permit before any open flame and hot work operation is started. The Contractor shall also comply with the requirements stated below.

The Contractor shall discontinue open flame or hot work operations 30 minutes prior to the end of the normal work day. A Contractor employee shall be assigned as Fire Watchman for every open flame and hot work operation. The Watchman shall be equipped with suitable fire extinguishers and shall check all areas around and below the welding or burning operation for fires. The check shall be continued for at least 30 minutes after completion of the open flame or hot work operation to ensure no possible sources of latent combustion.

The Contractor shall provide portable fire extinguishers for fire safety during open flame and hot work operations. When conducting open flame and hot work operations on roofs, the Contractor shall provide and be equipped with one full 20 pound 20-A:120 BC multipurpose dry chemical fire extinguisher and one 2.5 gallon water pressure/spray-pump type portable fire extinguisher placed within 30 feet of the operation. For all other open flame and hot work operations the Contractor shall provide and be equipped with one full 10 pound 4-A:60 BC multipurpose dry chemical fire extinguisher and one 2.5 gallon water pressure/spray-pump type portable

fire extinguisher placed within 30 feet of the operation. The Contracting Officer may request a standby from the Edwards Fire Department; this accommodation does not relieve the Contractor of responsibility for open flame and hot work safety.

Upon completion of open flame or hot work operation (or expiration of Permit), the permit shall be returned to the government.

1.17.3 Utility Outages/Facility Closures

Turning a utility off or on is a Permit Required Operation. Closing a facility or part of a facility is a Permit Required Operation. Streets, walks, and other facilities occupied and used by the Government shall not be closed or obstructed without written permission from the Contracting Officer. Utility outages and facility closures must be approved by the Contracting Officer before outages and closures begin. The Contractor shall obtain this approval by submitting a written Request for Utility Outage/Facility Closure Permit in accordance with Paragraph 1.17 "PERMIT REQUIRED OPERATIONS". The Contractor shall submit this request to the Contracting Officer fourteen (14) calendar days in advance of the planned outage or closure, to enable the Contracting Officer to review measures being taken to prevent hazard to employees and the public, to prevent interruption of any required service, to coordinate the required work with key DFRC activities, and keep Center impact to a minimum.

The permit, a DRYDEN UTILITY SYSTEM OUTAGE APPROVAL (form DFRC-113), must be filled out by the Government and attached to the Contractor's Request for Utility Outage/Facility Closure Permit. This package must be reviewed and approved by the Dryden Safety Office, the Dryden Facilities Engineering & Asset Management Office, the affected Building/Area Manager, and the Contracting Officer prior to initiation of the outage or closure. Notification must also be made to the DFRC Security Office, the DFRC Information Systems Branch, and Center Management. After obtaining the approved permit package from the Contracting Officer, the Contractor shall proceed with the work requiring an outage or closure in accordance with the approved permit documents. The Contractor shall also comply with the requirements stated below.

The shut-down and start-up of the utilities for the outage shall be performed by the government and not the Contractor.

Contractors shall not shut down, shut off, disconnect, block, or otherwise impair any fire protection sprinkler system, fire hydrant, fire alarm system, special extinguishing or other installed fire protection system without an approved Dryden Utility Outage Approval (form DFRC-113).

1.17.3.1 Utility Cutovers and Interruptions

- a. Make utility cutovers and interruptions after normal working hours or on Saturdays, Sundays, and Government holidays. Conform to procedures required in the paragraph "Work Outside Regular Hours."
- b. Ensure that new utility lines are complete, except for the connection, before interrupting existing service.
- c. Interruption to water, sanitary sewer, storm sewer, telephone service, electric service, air conditioning, heating, fire alarm, compressed air, and natural gas shall be considered utility cutovers pursuant to the paragraph entitled "Work Outside Regular

Hours."

- d. Operation of Station Utilities: The Contractor shall not operate nor disturb the setting of control devices in the station utilities system, including water, sewer, electrical, and steam services. The Government will operate the control devices as required for normal conduct of the work. The Contractor shall notify the Contracting Officer giving reasonable advance notice when such operation is required.

1.17.4 Crane Operations

Operating a crane is a Permit Required Operation. Setting up a crane is a Permit Required Operation. Cranes shall not be operated without written permission from the Contracting Officer. Crane operations must be approved by the Contracting Officer before crane setup begins. The Contractor shall obtain this approval by submitting a written Request for Crane Operation Permit in accordance with Paragraph 1.17 "PERMIT REQUIRED OPERATIONS". The Contractor shall submit this request to the Contracting Officer seven (7) calendar days in advance of the planned crane operation to enable the Contracting Officer to review measures being taken to prevent hazard to employees and the public, to prevent interruption of any required service, to coordinate the required work with key DFRC activities, and keep Center impact to a minimum.

The permit, a CRANE OPERATION APPROVAL (D-WK-800-8), must be filled out by the Government and attached to the Contractor's Plans. The contractor shall prepare the following plans/documents:

1. Description of Work,

List the work to be accomplished during the lifting operation

2. Center Impact Analysis,

List the affects this activity will have on Center occupants and Center operations, i.e. evacuate portions of a building, close a fire lane, require special secure access, close a building exit/entrance, etc.

3. Activity Hazard Analysis

Per paragraph 1.9.1

4. Lift Plan

- a. The exact size and weight of the load.
- b. The maximum load limits for the entire range of the lift.
- c. Height of the lift.
- d. The lift geometry and sequence of actions.
- e. The load radius.
- f. The boom length and angle, for the entire range of the lift.

- g. Ground conditions and outrigger and mats requirements.
- h. A drawing showing the location of the crane and the "from" and "to" pick points, including adjacent buildings, utilities, and other obstructions or hazards.
- i. Rigging procedures and rigging hardware.
- j. Proof of qualification for the crane operator, including a current physician's certificate that meets the requirements of EM 385-1-1, Appendix G (Procedures for the Examination and Qualification of Crane Operators).
- k. Environmental conditions under which lift operations are to be stopped.
- l. Communication and coordination requirements.
- m. The Contractor shall make Personnel Assignments and clearly list by name who will be the Lift Director, Crane Operator, Signalman, Rigger, and Tag Line Persons.
- n. The Contractor shall also complete the Crane Safety Checklist prior to commencing lifting operations.
- o. The Contractor shall perform a practice pick without the load to verify estimated boom angle(s) required to pick, rotate, and set the load.

This package must be reviewed and approved by the Dryden Lift Supervisor and the Chief of Facilities Engineering & Asset Management Office prior to initiation of the crane setup. The Chief of Facilities Engineering & Asset Management Office will assign the Lift Supervisor. Notification must also be made, by NASA project personnel, to the DFRC Security Office, the DFRC Safety Office, and Center Management prior to lifting operations. After obtaining the approved permit package from the Contracting Officer, the Contractor shall proceed with the crane operation in accordance with the approved permit documents.

Crane Safety Checklist for Facility Lifts:

Things to check

- 1. Crane certifications and documents have been checked and are current, including:
 - a. Current physician's certificate.
 - b. Insurance.
 - c. Pre-lift Safety Meeting minutes.
- 2. Operator certifications have been checked and are current.
- 3. Ancillary lifting equipment certifications (slings, chokers, etc.) are current.
- 4. Boom angle needed to reach both pick point and set points have been checked and capacity of the crane (AT THOSE BOOM ANGLES) is sufficient to lift the intended load.
- 5. Capacity of the crane at the horizontal angles required for the pick, rotation, and set have been checked against crane manual and capacity is sufficient for the intended load. (Note: Some cranes, especially crawler cranes that don't have outriggers, DO NOT have the same capacity to the side that they do to the front.)

6. There is sufficient room for crane counterweights to miss all obstructions when the crane rotates horizontally.
7. Clip on crane hook has sufficient spring tension.
8. All people in area are wearing hard hats and safety shoes.
9. Person who is signaling crane operator has been designated and everyone understands who that person is for this operation.
10. Lift Supervisor has been designated and everyone understands who that person is for this operation.
11. Personnel handling tag lines have been designated and they understand that they are not allowed under the load.
12. Ground where outriggers are set has sufficient capacity to resist "punching shear" force which is generated from load and expected geometric configuration of crane.
13. Check for overhead electrical lines within boom radius + 20 feet. Brief the Chief, Facilities Engineering & Asset Management Office on proposed mitigation procedures.
14. Check for underground vaults, tanks, or utilities near the crane location that might collapse or shift causing the crane to shift or sink while under load.
15. Ensure the lifting/hazardous zone is delineated clearly to public (use cones, caution tape, fencing, or other.)

Things to do

1. Practice pick shall be made prior to actual lift in order to verify estimated boom angle(s) required to pick the load, rotate the load, and set the load. (Note: This is done without the load.)

1.18 ELECTRICAL SAFETY

Contractor shall appoint an individual responsible for the electrical safety of each work team to restrict entry to dangerous locations to those authorized by him jointly with the Government. Lockout/Tagout controls will be strictly enforced.

When ever possible, all lines, circuits, and equipment to be worked on shall be deenergized before work is started. If equipment or circuits cannot be deenergized, the Contractor shall provide all necessary personal protective equipment and other protective controls to work on energized lines, circuits, and equipment. Additionally, approval from the Contracting Officer shall be obtained by the Contractor prior to performing work on energized lines, circuits, and equipment.

The Contractor shall use Ground Fault Circuit Interrupters (GFCI) in all circuits used for electric tools and equipment in the construction site. The Contractor shall use GFCIs in all circuits used for temporary lighting in the construction site. GFCIs shall be installed in accordance with the most recent edition of the National Electric Code.

1.19 UNDERGROUND UTILITIES

Safety clearance from the Contracting Officer is required before any Contractor personnel enters a manhole. Contractor shall contact the Contracting Officer for support services at least 24 hours in advance.

Contractor shall be responsible for removing water and debris before commencement and during execution of work in manholes.

1.19.1 PROTECTION OF EXISTING UTILITIES

Existing utilities that are indicated, or the location of which is made known to the Contractor prior to beginning of operations, and utility lines constructed during the Contractor's operation, shall be protected from damage. If the Contractor damages any of these utilities they shall be repaired by the Contractor at no additional cost to the Government. In the event that the Contractor damages any existing utility lines that are not indicated or the locations of which are not known to the Contractor, report thereof shall be made immediately to the Contracting Officer. If the Contracting Officer determines that repairs shall be made by the Contractor, such repairs will be ordered under the clause of the general provisions of the contract entitled "Differing Site Conditions".

1.20 RADIATION SAFETY REQUIREMENTS

License Certificates for radiation materials and equipment shall be submitted to the Contracting Officer for all specialized material and equipment that could cause fatal harm to construction personnel or to the construction project.

Workers shall be protected from radiation exposure in accordance with 10 CFR 20. Standards for Protection Against Radiation.

Loss of radioactive material shall be reported immediately to the Contracting Officer.

Actual exposure of the radiographic film or unshielding the source shall not be initiated until after 5 p.m. on weekdays.

In instances where radiography is scheduled near or adjacent to buildings or areas having limited access or one-way doors, no assumptions shall be made as to building occupancy. Where necessary, the Contracting Officer will direct the Contractor to conduct an actual building entry, search, and alert. Where removal of personnel from such a building cannot be accomplished and it is otherwise safe to proceed with the radiography, a fully instructed employee shall be positioned inside such building or area to prevent exiting while external radiographic operations are in process.

Use of equipment containing radioactive isotopes or any nuclear sources such as density test, moisture detectors, radiography, etc. must be approved by the Dryden Safety Office and the Contracting Officer. If such equipment is to be used in the work, the Contractor must notify the Dryden Safety Office through the Contracting Officer no less than 14 days prior to the use of such equipment. During the use of such equipment the Dryden Safety Office is authorized to make periodic checks to insure that proper health precautions are being followed. If the Dryden Safety Office determines that these precautions are not being followed, the Dryden Safety Office will immediately notify the Contracting Officer to initiate corrective actions.

1.21 FACILITY OCCUPANCY CLOSURE

Streets, walks, and other facilities occupied and used by the Government shall not be closed or obstructed without written permission from the Contracting Officer.

1.22 PROTECTION OF WORK

Prior to performing any excavation work or any surface penetrations 6 inches or deeper (such as driving stakes more than 6 inches in the ground) on any ground surface, the Contractor shall obtain from the Contracting Officer the current subsurface utility drawing of the particular area to be worked on. Contractor shall stake out subsurface utilities, communication cables and pipe lines indicated within the area of work.

Contractor shall notify the Contracting Officer, 48 hours prior to the start of excavation work or surface penetration, to enable the Contracting Officer to review measures being taken to prevent hazard to employees and possible damage to subsurface utilities. Where emergency conditions preclude the 48 hours advance notification, the Contractor shall immediately inform the Contracting Officer of his intention to initiate work prior to actual start of activity.

After obtaining clearance from the Contracting Officer, the Contractor shall proceed with excavating work, or other surface penetration work. Contractor shall temporarily halt any machine excavation work or other surface penetration when approaching 10 feet 3 meters of an existing utility line until the Contractor has exposed the utility line by hand excavation.

1.23 GAS PROTECTION

Contractor shall have one or more employees properly trained in operation of gas testing equipment and formally qualified as gas inspectors who shall be on duty during times workmen are in confined spaces. Their primary functions shall be to test for gas and operate testing equipment. Unless equipment of constant supervisory type with automatic alarm is employed, gas tests shall be made at least every 2 hours or more often when character of ground or experience indicates gas may be encountered. A gas test shall be made before workmen are permitted to enter the excavation after an idle period exceeding one-half hour.

Readings shall be permanently recorded daily, indicating the concentration of gas, point of test, and time of test. Submit copies of the gas test readings to the Contracting Officer at the end of each work day.

Special requirements, coordination, and precautions will apply to areas that contain a hazardous atmosphere or, by virtue of their use or physical character, may be oxygen deficient. A check by Government is required prior to entering confined space. Surveillance and monitoring shall be required in these types of work spaces by both Contractor and Government personnel.

1.24 ROOFING AND COATING

At the beginning of each work day the Contractor shall check with the Contracting Officer before proceeding to work on the roof to ensure safe work conditions. Contractor shall comply with 29 CFR 1926.

1.25 HIGH NOISE LEVEL PROTECTION

Operations performed by the Contractor that involve the use of equipment with output of high noise levels (jackhammers, drill hammers, generators, tractors, saws, air compressors, and explosive activated tools, etc.) shall be scheduled for weekends and/or outside normal duty hours. Contractor operations that result in noise levels above 60 dBA in any occupied

buildings (offices, laboratories, control rooms, hangars, etc.) and are disruptive to NASA/DFRC business operations shall be performed on weekends or outside normal duty hours. Use of any such equipment shall be approved in writing by the Contracting Officer prior to commencement of work. (Normal duty hours defined in Section 01 14 00 "Work Restrictions", Paragraph 1.4.2 "Working Hours").

Contractor personnel working at NASA/DFRC may need to wear hearing protection as a result of normal aircraft operations. Sonic boom shock waves are a normal everyday occurrence at NASA/DFRC that cause momentary surprise to personnel. The Contractor shall instruct all employees to be aware of this hazard, especially working outdoors at heights.

1.26 SEVERE STORM PLAN

In the event of a severe storm warning, or indications of impending severe weather (e.g. dust storms, damaging wind, heavy rains, floods, tornados, hail, or lightning) the Contractor shall monitor weather conditions and take appropriate precautions including but not limited to:

- a. Secure outside equipment and materials and place materials possible to damage in protected locations.
- b. Check surrounding area, including roof, for loose material, equipment, debris, and other objects that could be blown away or against existing facilities.
- c. Ensure that temporary erosion controls are adequate.
- d. Secure materials and equipment that should not be exposed to, or contaminated with, dirt and dust to protect the materials and equipment from damage. This includes mechanical, electrical, and electronic equipment to ensure their function is not compromised. This also includes materials that have aesthetic purpose to ensure appearance is not damaged.

1.27 HAZARDOUS WASTE

When working with hazardous waste and materials, Contractor personnel must wear or use personal protective articles such as protective clothing, respiratory devices, protective shields, etc., appropriate to the task being performed. Provisions are to be made by the Contractor for continuous contact with personnel working with hazardous waste/materials in remote areas.

Contractor shall identify all wastes produced and dispose of them in the following approved manners:

Identify all wastes and waste producing processes including chemicals, paints, Petroleum, Oil and Lubricant (POL) products and solvents, and their containers. All unknown wastes shall be chemically identified.

Obtain a determination of whether the waste is hazardous from the Contracting Officer.

Notify the Contracting Officer prior to taking disposal action for any hazardous waste.

For disposal, provide either laboratory analysis data documenting the

chemical content of the waste or certification by appropriate organization authority as to the chemical constituents of the waste. Technical assistance on disposal analysis requirements will be provided on request by contacting the Contracting Officer.

Document the waste type, quantity, location, and personnel/contractor/agency responsible so the material can be tracked from generation through ultimate disposal as required by Environmental Protection Agency under Resource Conservation and Recovery Act.

1.27.1 Chemicals and Hazardous Materials

No chemicals and no hazardous materials such as explosives, flammables, sources of ionizing radiation, corrosives, or toxic substances may be brought onto NASA/DFRC premises without authorization from the Contracting Officer. Provide the Contracting Officer with a copy of the Material Safety Data Sheets (MSDSs) for all chemicals and hazardous materials to be brought on site. All manufacturer recommended precautions shall be followed during the use of any chemicals and hazardous material. MSDSs will be required of all substances deemed to be hazardous by the Contracting Officer. MSDSs must be submitted to the Contracting Officer for approval prior to the use of any chemicals and hazardous substance. Explosives shall not be used or brought to the project site.

Refer to NASA NSS 1740.12 for further guidelines regarding safety with explosives, propellants and pyrotechnics.

1.27.2 Asbestos, Lead Paint, and PCBs

Any work in or around asbestos containing material (ACM) or suspect ACM, including but not limited to insulation; fire proofing; ceiling tiles; flooring materials; roofing materials; or transite, gypsum board, plaster and hollow cell walls, must be approved by the Contracting Officer prior to commencing work.

The use of any construction materials containing asbestos is prohibited.

In the event suspect ACM is identified, and was not previously identified, the contractor shall immediately cease work in the vicinity and inform the Contracting Officer.

Any work involving the disturbance of lead based paint or suspect lead based paint must be approved by the Contracting Officer prior to commencing work.

In the event suspect lead based paint is identified, and was not previously identified, the contractor shall immediately cease work in the vicinity and inform the Contracting Officer.

The use of any paints containing lead or zinc chromate is prohibited.

Any work involving the disturbance of PCBs must be cleared through the Contracting Officer.

1.28 CONFINED SPACE

Comply with the requirements in 29 CFR 1910.146. Any potential for a hazard in the confined space requires a permit system to be used. Comply with the requirements in 29 CFR 1910.146. NASA NPG 8715.3 is available on the

internet at <http://nodis3.gsfc.nasa.gov>.

- 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 Local Authority for entry procedures prior to entering confined space).

All hazards pertaining to the space shall be reviewed with each employee before entry.

- b. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained.
- c. Ensure the use of rescue and retrieval devices in confined spaces greater than 5 feet in depth.
- d. Sewer waste walls require continuous atmosphere monitoring with audible alarm for toxic gas detection.
- e. Include training information for employees who will be involved as entrant attendants for the work.
- f. Entry Permit. Use forms DFRC-223, DFRC-224, and/or DFRC-225 or other form with the same minimum information for the Confined Space Entry Permit, completed by the qualified person. Post the permit in a conspicuous place close to the confined space entrance.

Entering a confined space is a Permit Required Operation. Entering a manhole, underground vault, sewage pit, vessel, tank, subfloor area, or other confined space is a permit required operation. Safety clearance from the Contracting Officer is required before any Contractor personnel enter a manhole or vault or any other confined space. Entry must be assessed under Confined Space guidelines. Permit Required Confined Space regulations shall be followed during all confined space entries. Confined space operations must be approved by the Contracting Officer before operations begin. The Contractor shall obtain this approval by submitting a written Request for Confined Space Entry Permit in accordance with Paragraph 1.8 "PERMIT REQUIRED OPERATIONS". The Contractor shall submit this request to the Contracting Officer three (3) calendar days prior to the start of these operations, to enable the Contracting Officer to review measures being taken to prevent hazard to employees.

The permit, a CONFINED SPACE ENTRY PERMIT (forms DFRC-223, DFRC-224, and/or DFRC-225), must be filled out by the Government and attached to the Contractor's Request for Confined Space Entry Permit. This package must be reviewed and approved by the Dryden Safety Office and approved by the Contracting Officer prior to entry. After obtaining the approved permit package from the Contracting Officer, the Contractor shall proceed with the confined space operation in accordance with the approved permit documents. The Contractor shall also comply with the requirements stated below.

All work within manholes and other confined spaces shall be considered permit required confined space entry work, unless otherwise designated by the Contracting Officer. Contractor shall be responsible for removing water and debris before commencement and during execution of work in manholes and

vaults. The Contractor shall have one or more confined space entry attendants/entry supervisors who are properly trained in the operation of gas monitoring equipment and formally qualified as confined space entry attendants/entry supervisors who shall be on duty during times workmen are in confined spaces. Their primary functions shall be to monitor the confined space. Gas monitoring shall be performed prior to entry and continuously when anyone is in the confined space. Readings shall be permanently recorded daily, indicating the concentration of gas, location and time the space was monitored.

Special requirements, coordination, and precautions will apply to areas that contain a hazardous atmosphere or, by virtue of their use or physical character, may be oxygen deficient. A breathing hazard check by the Government is required prior to entering areas that contain a hazardous atmosphere or, by virtue of their use or physical character, may be oxygen deficient. Surveillance and monitoring shall be required in these types of workspaces by both Contractor and Government personnel.

1.29 BARRICADING WORK AREAS

Areas made hazardous to workers, project personnel, the public, or other persons by Contractor operations shall be barricaded as follows:

- a. All lay down areas, excavations, breaks in roads, breaks in floors, and similar conditions shall be barricaded to prevent injury to personnel and reduce the possibility of damage to moving equipment. The Contractor shall continuously barricade all lay down areas, excavations, breaks in roads, breaks in floors, and similar conditions with temporary vertical chain link fencing or vertical plywood fencing.
- b. When the lay down areas, excavations, breaks in roads, breaks in floors, and similar conditions are within 20 feet of the edge of roads, parking lots, and pedestrian routes, the Contractor shall furnish and install battery powered flasher type warning lights on a maximum spacing of not less than one flasher every 15 feet on at least one side of any excavation or opening.
- c. Steel plates used to cover excavations in roadways shall be sufficient to safely support all vehicle loads.
- d. Identify and flag all fire sprinkler heads when using ladders in work area.

1.30 FALL HAZARDS

When work is performed at heights which expose workers, project personnel, the public, or other persons to falling objects, such areas shall be barricaded, restricted, or protected.

When work is performed at heights which expose workers, and inspectors to falls, the Contractor shall provide fall protection. The Contractor shall check with the Contracting Officer before commencing roofing work or any activity on a roof and shall ensure safe work conditions. When working from an aerial lift workers shall use a body harness and lanyard system appropriately attached to the boom or basket.

Each employee on a walking/working surface 4 feet or more above lower levels shall be protected from falling by a guardrail system, safety net system, or personal fall arrest system.

1.31 PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

All construction areas at DFRC are considered hard hat areas. All persons working on or visiting the project site shall wear hard hats (ANSI Z89.1 Type I or Type II).

All Contractor employees and Subcontractors shall wear clothing suitable for the weather and work conditions. The minimum for field work shall be short sleeve shirt, long trousers, and steel-toed safety boots (ANSI Z41).

For purposes of inspecting the work under this contract, the Contractor shall provide personal protective and safety equipment to the Government inspector for use during inspections. This includes but is not limited to body harnesses, lanyards, lifelines, ladders, aerial lifts, respirators, safety glasses, face shields, shade lenses, etc. This does not include hard hats and steel-toed safety boots.

1.32 ENVIRONMENTAL PROTECTION

The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract.

1.32.1 Desert Tortoise Protection

The Desert Tortoise is a federally endangered species, and the Contractor shall ensure that they are protected throughout the project site. The superintendent and all contract employees involved in earthwork operations shall view a NASA training film about the Desert Tortoise, approximately 1 hour long. The Contractor shall take extreme care to protect the Desert Tortoise when in the clean soil disposal site.

1.32.2 Cultural Resource Protection

In the event cultural or historical materials are found during the performance of this contract, work will cease immediately in the find area and the Contracting Officer shall be notified accordingly.

1.32.3 Air Quality

The Contractor's operations shall satisfy air quality requirements for Kern County Air Pollution Control District, including permits for all temporary, portable construction equipment with a rated engine over 50 bhp.

1.32.4 Water Quality

The Contractor's operations shall satisfy water quality requirements for the Lahontan Regional Water Quality Control Board.

1.33 DUST CONTROL

The Contractor shall maintain excavations, embankments, stockpiles, temporary roads, plant sites, waste areas, borrow areas, and other work areas within or beyond the project site free from dust which would cause a hazard or nuisance to others. Methods of stabilization consisting of water sprinkling, chemical treatment, light bituminous treatment or similar methods will be permitted to control dust. Sprinkling shall be repeated at such intervals as to keep the disturbed area damp at all times. Dust

control shall be performed as the work proceeds and whenever a nuisance or hazard occurs.

When the jobsite is inside an occupied building, the Contractor shall provide and install dust barriers to control dust movement so that dirt and dust does not migrate out of the construction site and into occupied sections of the building. Any corridors, offices, and other rooms that become contaminated by dirt and dust migrating from the Contractor's activity shall be cleaned, dusted, and vacuumed by the Contractor at no expense to the Government.

1.34 FIRST AID AND EMERGENCIES

The contractor shall maintain a 16-unit first aid kit on the job site clearly located and marked. The Contractor's Site Safety Officer shall inspect the kit every work day; see Paragraph 1.12.2 "Daily Safety Meetings/Daily Safety Inspections".

Contractor personnel who sustain injury or become ill, on-site during normal duty hours, may be examined and/or given first aid treatment at the NASA/DFRC Dispensary in Building 4822, telephone (661) 276-3258 or (661) 276-3570. Outside normal duty hours the Contractor is responsible for first aid treatment of employees and transportation to a medical facility off-site. All injuries sustained on-site must be reported to the Contracting Officer whether treated at the NASA/DFRC facility or elsewhere. (Normal duty hours are defined in Section 01 14 00 "Work Restrictions".)

Emergency telephone numbers and reporting instructions shall be conspicuously posted at the job site. Fire, rescue, and first aid are available by contacting 911 on a NASA/DFRC telephone. If a NASA/DFRC phone is not available in an emergency, call Security post 1 at (661) 276-5916 and clearly explain the emergency. A direct 911 contact cannot be made by use of a personal or cellular phone. To summarize, in an emergency from:

- | | | |
|-------------------------------|------|----------------|
| a. NASA/DFRC phone | dial | 911 |
| b. Personal or Cellular phone | dial | (661) 276-5916 |

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SECTION 01 42 00

SOURCES FOR REFERENCE PUBLICATIONS
08/10

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization, (e.g. ASTM B 564 Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the standards producing organization should be ordered from the source by title rather than by number.

ACI INTERNATIONAL (ACI)
38800 Country Club Drive
Farmington Hills, MI 48331
Ph: 248-848-3700
Fax: 248-848-3701
E-mail: bkstore@concrete.org
Internet: <http://www.concrete.org>

ACOUSTICAL SOCIETY OF AMERICA (ASA)
2 Huntington Quadrangle, Suite 1N01
Melville, NY 11747-4502
Ph: 516-576-2360
Fax: 516-576-2377
E-mail: asa@aip.org
Internet: <http://asa.aip.org>

AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL (AMCA)
30 West University Drive
Arlington Heights, IL 60004-1893
Ph: 847-394-0150
Fax: 847-253-0088
E-mail: amca@amca.org
Internet: <http://www.amca.org>

AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE (AHRI)
2111 Wilson Blvd, Suite 500
Arlington, VA 22201
Ph: 703-600-0355
Fax: 703-562-1942
E-mail: fdietz@ahrinet.org

Internet: <http://www.ahrinet.org>

ALUMINUM ASSOCIATION (AA)
National Headquarters
1525 Wilson Boulevard, Suite 600
Arlington, VA 22209
Ph: 703-358-2960
Fax: 703-358-2961
Internet: <http://www.aluminum.org>

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)
1827 Walden Office Square
Suite 550
Schaumburg, IL 60173-5774
Ph: 847-303-5664
Fax: 847-303-5774
E-mail: webmaster@aamanet.org
Internet: <http://www.aamanet.org>

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)
444 North Capital Street, NW, Suite 249
Washington, DC 20001
Ph: 202-624-5800
Fax: 202-624-5806
E-Mail: info@ashto.org
Internet: <http://www.aashto.org>

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)
1 Davis Drive
P.O. Box 12215
Research Triangle Park, NC 27709
Ph: 919-549-8141
Fax: 919-549-8933
E-mail: leonardc@aatcc.org
Internet: <http://www.aatcc.org>

AMERICAN BEARING MANUFACTURERS ASSOCIATION (ABMA)
2025 M Street, NW, Suite 800
Washington, DC 20036
Ph: 202-367-1155
Fax: 202-367-2155
E-mail: info@americanbearings.org
Internet: <http://www.abma-dc.org>

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)
1330 Kemper Meadow Drive
Cincinnati, OH 45240
Ph: 513-742-2020 or 513-742-6163
Fax: 513-742-3355
E-mail: mail@acgih.org
Internet: <http://www.acgih.org>

AMERICAN GAS ASSOCIATION (AGA)
400 North Capitol Street N.W.
Suite 450
Washington, D.C. 20001
Ph: 202-824-7000
Fax: 202-824-7115

E-mail: website@aga.org
Internet: <http://www.aga.org>

AMERICAN HARDBOARD ASSOCIATION (AHA)
c/o Composite Panel Association
19465 Deerfield Ave., Suite 306
Leesburg, VA 20176
Ph: 703-724-1128
Fax: 703-724-1588
Internet: <http://www.pbmdf.org>

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
One East Wacker Drive, Suite 700
Chicago, IL 60601-1802
Ph: 312-670-2400
Fax: 312-670-5403
Publications: 800-644-2400
E-mail: pubs@aisc.org
Internet: <http://www.aisc.org>

AMERICAN IRON AND STEEL INSTITUTE (AISI)
1140 Connecticut Avenue, NW, Suite 705
Washington, DC 20036
Ph: 202-452-7100
Fax: 202-463-6577
E-mail: webmaster@steel.org
Internet: <http://www.steel.org>

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
1819 L Street, NW, 6th Floor
Washington, DC 20036
Ph: 202-293-8020
Fax: 202-293-9287
E-mail: info@ansi.org
Internet: <http://www.ansi.org/>

AMERICAN PETROLEUM INSTITUTE (API)
1220 L Street, NW
Washington, DC 20005-4070
Ph: 303-397-7993
Fax: 303-397-2740
E-mail: greg.kallio@ihs.com
Internet: <http://www.api.org>

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
1801 Alexander Bell Drive
Reston, VA 20191-4400
Ph: 703-295-6300 - 800-548-2723
Fax: 703-295-6333
E-mail: member@asce.org
Internet: <http://www.asce.org>

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING
ENGINEERS (ASHRAE)
1791 Tullie Circle, NE
Atlanta, GA 30329
Ph: 800-527-4723 or 404-636-8400
Fax: 404-321-5478
E-mail: ashrae@ashrae.org

Internet: <http://www.ashrae.org>

AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)
1800 East Oakton Street
Des Plaines, IL 60018-2187
Ph: 847-699-2929
Fax: 847-768-3434
E-mail: customerservice@asse.org
Internet: <http://www.asse.org>

AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE)
901 Canterbury, Suite A
Westlake, OH 44145
Ph: 440-835-3040
Fax: 440-835-3488
E-mail: info@asse-plumbing.org
Internet: <http://www.asse-plumbing.org>

AMERICAN WATER WORKS ASSOCIATION (AWWA)
6666 West Quincy Avenue
Denver, CO 80235
Ph: 800-926-7337
Fax: 303-347-0804
E-mail: smorrison@awwa.org
Internet: <http://www.awwa.org>

AMERICAN WELDING SOCIETY (AWS)
550 N.W. LeJeune Road
Miami, FL 33126
Ph: 800-443-9353 - 305-443-9353
Fax: 305-443-7559
E-mail: info@aws.org or customerservice@awspubs.com
Internet: <http://www.aws.org>

ARCHITECTURAL WOODWORK INSTITUTE (AWI)
46179 Westlake Drive, Suite 120
Potomac Falls, VA 20165
Ph: 571-323-3636
Fax: 571-323-3630
E-mail: info@awinet.org
Internet: <http://www.awinet.org>

ARCNET TRADE ASSOCIATION (ATA)
E-M-mail: info@arnet.com
Internet: <http://www.arcnet.com/index.htm></URL

ASME INTERNATIONAL (ASME)
Three Park Avenue, M/S 10E
New York, NY 10016-5990
Ph: 800-854-7179 or 800-843-2763
Fax: 212-591-7674
E-mail: infocentral@asme.org
Internet: <http://www.asme.org>

ASSOCIATED AIR BALANCE COUNCIL (AABC)
1518 K Street, NW
Washington, DC 20005
Ph: 202-737-0202
Fax: 202-638-4833

E-mail: info@aabc.com
Internet: <http://www.aabchq.com>

ASSOCIATION OF EDISON ILLUMINATING COMPANIES (AEIC)
600 North 18th Street
P.O. Box 2641
Birmingham, AL 35291
Ph: 205-257-2530
Fax: 205-257-2540
E-Mail: aeicdir@bellsouth.net
Internet: <http://www.aeic.org>

ASTM INTERNATIONAL (ASTM)
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959
Ph: 610-832-9500
Fax: 610-832-9555
E-mail: service@astm.org
Internet: <http://www.astm.org>

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)
355 Lexington Avenue
15th Floor
New York, NY 10017
Ph: 212-297-2122
Fax: 212-370-9047
E-mail: assocmgmt@aol.com
Internet: <http://www.buildershardware.com>

CSA STANDARDS (CSA)
8501 East Pleasant Valley Road
Cleveland, OH 44131-5575
Ph: 216-524-4990 or 1-877-235-9791
Fax: 216-520-8979
E-mail: cathy.rake@csa-america.org
Internet: <http://www.csa-america.org>

CARPET AND RUG INSTITUTE (CRI)
P.O. Box 2048
Dalton, GA 30722-2048
Ph: 800-882-8846 or 706-278-3176
Fax: 706-278-8835
Internet: <http://www.carpet-rug.com>

CAST IRON SOIL PIPE INSTITUTE (CISPI)
5959 Shallowford Road, Suite 419
Chattanooga, TN 37421
Ph: 423-892-0137
Fax: 423-892-0817
Internet: <http://www.cispi.org>

COMPOSITE PANEL ASSOCIATION (CPA)
19465 Deerfield Avenue, Suite 306
Leesburg, VA 20176
Ph: 703-724-1128
Fax: 703-724-1588
Internet: <http://www.pbmdf.com>

NASA/DFRC - FACILITIES SUPPORT CENTER, EDM-1703
FINAL SUBMITTAL

COMPRESSED GAS ASSOCIATION (CGA)
4221 Walney Road, 5th Floor
Chantilly, VA 20151
Ph: 703-788-2700
Fax: 703-961-1831
E-mail: cga@cganet.com
Internet: <http://www.cganet.com>

CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
933 North Plum Grove Road
Schaumburg, IL 60173-4758
Ph: 847-517-1200 or 800-328-6306
Fax: 847-517-1206
Internet: <http://www.crsi.org/>

COPPER DEVELOPMENT ASSOCIATION (CDA)
260 Madison Avenue
New York, NY 10016
Ph: 212-251-7200
Fax: 212-251-7234
E-mail: questions@cda.copper.org
Internet: <http://www.copper.org>

ELECTRONIC INDUSTRIES ALLIANCE (EIA)
2500 Wilson Boulevard
Arlington, VA 22201-3834
Ph: 703-907-7500
Fax: 703-907-7501
E-mail: infor@eca.us
Internet: <http://www.eia.org>

FM GLOBAL (FM)
270 Central Avenue
P.O. Box 7500
Johnston, RI 02919
Ph: 401-275-3000 ext. 1945
Fax: 401-275-3029
E-mail: servicedesk.myrisk@fmglobal.com
Internet: <http://www.fmglobal.com>

FOREST STEWARDSHIP COUNCIL (FSC)
212 Third Avenue North
Suite 280
Minneapolis, MN 55401
Ph: 612-353-4511
Fax: 612-208-1565
E-mail: info@fscus.org
Internet: <http://www.fscus.org>

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH
(FCCCHR)
University of South California
Kaprielian Hall 200
Los Angeles, CA 90089-2531
Ph: 213-740-2032 or 866-545-6340
Fax: 213-740-8399
E-mail: fccchr@usc.edu
Internet: <http://www.usc.edu/dept/fccchr>

GLASS ASSOCIATION OF NORTH AMERICA (GANA)
2945 SW Wanamaker Drive, Suite A
Topeka, KS 66614
Ph: 785-271-0208
Fax: 785-271-0166
E-mail: gana@glasswebsite.com
Internet: <http://www.glasswebsite.com>

GREEN SEAL (GS)
1001 Connecticut Avenue, NW
Suite 827
Washington, DC 20036-5525
Ph: 202-872-6400
Fax: 202-872-4324
E-mail: green seal@green seal.org
Internet: <http://www.green seal.org>

GREENGUARD ENVIRONMENTAL INSTITUTE (GEI)
2211 Newmarket Parkway, Suite 110
Marietta, GA 30067
Ph: 800-427-9681
Fax: 770-980-0072
E-mail: info@greenguard.org
Internet: <http://www.greenguard.org/>

GYPSUM ASSOCIATION (GA)
6525 Belcrest Road, Suite 480
Hyattsville, MD 20782
Ph: 301-277-8686
Fax: 301-277-8747
E-mail: info@gypsum.org
Internet: <http://www.gypsum.org>

HYDRONICS INSTITUTE DIVISION OF GAMA (HYI)
35 Russo Place
P.O. Box 218
Berkeley Heights, NJ 07922-0218
Ph: 908-464-8200
Fax: 908-464-7818
E-mail: information@gamanet.org
Internet: <http://www.gamanet.org>

ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA)
120 Wall Street, 17th Floor
New York, NY 10005
Ph: 212-248-5000
Fax: 212-248-5018
E-mail: iesna@iesna.org
Internet: <http://www.iesna.org>

INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION (ISEA)
1901 North Moore Street
Arlington, VA 22209-1762
Ph: 703-525-1695
Fax: 703-528-2148
E-mail: isea@safety equipment.org
Internet: <http://www.safetyequipment.org/>

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
445 Hoes Lane or 2001 L Street, NW. Suite 700
Piscataway, NJ 08855-1331 or Washington, DC 20036-4910 USA
Ph: 732-981-0060 or 800-701-4333
Fax: 732-562-6380
E-mail: onlinesupport@ieee.org or ieeeusa@ieee.org
Internet: <http://www.ieee.org>

INSULATING GLASS MANUFACTURERS ALLIANCE (IGMA)
27 N. Wacker Dr. Suite 365
Chicago, IL 60606-2800
Ph: 613-233-1510
Fax: 613-482-9436
E-mail: info@igmaonline.org
Internet: <http://www.igmaonline.org>

INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS
(IAPMO)
5001 E. Philadelphia St.
Ontario, CA 91761
Ph: 909-472-4100
Fax: 909-472-4150
E-mail: iampo@iampo.org
Internet: www.iampo.org

INTERNATIONAL CODE COUNCIL (ICC)
5360 Workman Mill Road
Whittier, CA 90601
Ph: 562-699-0541
Fax: 562-699-8031
E-mail: webmaster@iccsafe.org
Internet: www.iccsafe.org

INTERNATIONAL ELECTRICAL TESTING ASSOCIATION (NETA)

3050 Centre Ave. Suite 102
Portage, MI 49024
Ph: 269-488-6382
Fax: 269-488-6383
E-mail: neta@netaworld.org
Internet: <http://www.netaworld.org>

INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)
3, rue de Varembe, P.O. Box 131
CH-1211 Geneva 20, Switzerland
Ph: 41-22-919-0211
Fax: 41-22-919-0300
E-mail: custserv@iec.ch
Internet: <http://www.iec.ch>

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)
1, ch. de la Voie-Creuse
Case Postale 56
CH-1211 Geneve 20 Switzerland
Ph: 41-22-749-01-11
Fax: 41-22-733-34-30
E-mail: central@iso.ch
Internet: <http://www.iso.org>

ISA - INTERNATIONAL SOCIETY OF AUTOMATION (ISA)
67 Alexander Drive
Research Triangle Park, NC 27709
Ph: 919-549-8411
Fax: 919-549-8288
E-mail: info@isa.org
Internet: <http://www.isa.org>

KITCHEN CABINET MANUFACTURERS ASSOCIATION (KCMA)
1899 Preston White Drive
Reston, VA 20191-5435
Ph: 703-264-1690
Fax: 703-620-6530
E-mail: info@kcma.org
Internet: <http://www.kcma.org>

L.H. BAILEY HORTORIUM (LHBH)
Dept of Plant Biology
c/o Cornell University
412 Mann Library Building
Ithaca, NY 14853
Ph: 607-255-4477 (Dr. William L. Crepet)
Internet: <http://www.plantbio.cornell.edu/Hort.html>

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS
INDUSTRY (MSS)
127 Park Street, NE
Vienna, VA 22180
Ph: 703-281-6613
Fax: 703-281-6671
E-mail: info@mss-hq.com
Internet: <http://www.mss-hq.com>

MARBLE INSTITUTE OF AMERICA (MIA)
28901 Clemens Road, Suite 100
Cleveland, OH 44145
Ph: 440-250-9222
Fax: 440-250-9223
E-mail: info@marble-institute.com
Internet: <http://www.marble-institute.com>

MASTER PAINTERS INSTITUTE (MPI)
2800 Engleton Avenue
Burnaby, BC CANADA V5C 6G7
Ph: 604-298-7578
Fax: 604-298-7571
E-mail: info@paintinfo.com, jody@mpi.net, bgl@mpi.net
Internet: <http://www.paintinfo.com/mpi>

METAL BUILDING MANUFACTURERS ASSOCIATION (MBMA)
1300 Sumner Avenue
Cleveland, OH 44115-2851
Ph: 216-241-7333
Fax: 216-241-0105
E-mail: mbma@mbma.com
Internet: <http://www.mbma.com>

MIDWEST INSULATION CONTRACTORS ASSOCIATION (MICA)
16712 Elm Circle

NASA/DFRC - FACILITIES SUPPORT CENTER, EDM-1703
FINAL SUBMITTAL

Omaha, NE 68130
Ph: 800-747-6422
Fax: 402-330-9702
E-mail: mica@tconl.com
Internet: <http://www.micainsulation.org>

NACE INTERNATIONAL (NACE)
1440 South Creek Drive
Houston, TX 77084-4906
Ph: 281-228-6200
Fax: 281-228-6300
E-mail: firstservice@nace.org
Internet: <http://www.nace.org>

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

Superintendent of Documents at
U.S. Government Printing Office
732 North Capitol Street, NW
Washington, DC 20401-0001
Ph: 202-783-3238
Fax: 202-512-1800
E-mail: ContactCenter@gpo.gov
Internet: <http://www.gpoaccess.gov/help>

NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM)
800 Roosevelt Road, Bldg C, Suite 312
Glen Ellyn, IL 60137
Ph: 630-942-6591
Fax: 630-790-3095
E-mail: wlewis7@cox.net (Vernon Lewis, technical consultant)
Internet: <http://www.naamm.org>

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
1300 North 17th Street, Suite 1752
Rosslyn, VA 22209
Ph: 703-841-3200
Fax: 703-841-5900
Internet: <http://www.nema.org/>

NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB)
8575 Grovemont Circle
Gaithersburg, MD 20877
Ph: 301-977-3698
Fax: 301-977-9589
E-Mail: elana@nebb.org
Internet: <http://www.nebb.org>

NATIONAL FENESTRATION RATING COUNCIL (NFRC)
6305 Ivy Lane, Suite 140
Greenbelt, MD 20770
Ph: 301-589-1776
Fax: 301-589-3884
E-Mail: info@nfrfc.org
Internet: <http://www.nfrfc.org>

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
1 Batterymarch Park
Quincy, MA 02169-7471

NASA/DFRC - FACILITIES SUPPORT CENTER, EDM-1703
FINAL SUBMITTAL

Ph: 617-770-3000 or 800-344-3555
Fax: 617-770-0700
E-mail: webmaster@nfpa.org
Internet: <http://www.nfpa.org>

NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES
(NICET)
1420 King Street
Alexandria, VA 22314-2794
Ph: 888-476-4238 (1-888 IS-NICET)
E-mail: tech@nicet.org
Internet: <http://www.nicet.org>

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)
100 Bureau Drive
Stop 1070
Gaithersburg, MD 20899-1070
Ph: 301-975-NIST (6478)
E-mail: inquiries@nist.gov
Internet: <http://www.nist.gov>

NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
10255 West Higgins Road, Suite 600
Rosemont, IL 60018-5607
Ph: 847-299-9070
Fax: 847-299-1183
E-mail: form available online
Internet: <http://www.nrca.net>

NATIONAL WOOD WINDOW AND DOOR ASSOCIATION (NWWDA)
601 N. Michigan Avenue, Suite 2200
Chicago, IL 60611
Ph: 312-321-6802
Fax: 312-673-6922
E-mail: admin@wdma.com
Internet: <http://www.wdma.com>

NSF INTERNATIONAL (NSF)
789 North Dixboro Road
P.O. Box 130140
Ann Arbor, MI 48113-0140
Ph: 734-769-8010 or 800-NSF-MARK
Fax: 734-769-0109
E-mail: info@nsf.org
Internet: <http://www.nsf.org>

PLASTIC PIPE AND FITTINGS ASSOCIATION (PPFA)
800 Roosevelt Road, Building C, Suite 312
Glen Ellyn, IL 60137
Ph: 630-858-6540
Fax: 630-790-3095
Internet: <http://www.ppfahome.org>

PLUMBING AND DRAINAGE INSTITUTE (PDI)
800 Turnpike Street, Suite 300
North Andover, MA 01845
Ph: 978-557-0720 or 800-589-8956
Fax: 978-557-0721

E-Mail: pdi@PDIONline.org
Internet: <http://www.pdionline.org>

SCIENTIFIC EQUIPMENT AND FURNITURE ASSOCIATION (SEFA)
1205 Franklin Avenue, Suite 320
Garden City, N.Y. 11530
Ph: 516-294-5424
Fax: 516-294-4765
E-mail: david@sefalabs.com, barbara@sefalabs.com, sefalabs@aol.com
Internet: <http://www.scs1.com>

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)
2200 Powell Street, Suite 725
Emeryville, CA 94608
Ph: 510-452-8000
Fax: 510-452-8001
Internet: <http://www.scs1.com>

SEMICONDUCTOR EQUIPMENT AND MATERIALS INTERNATIONAL (SEMI)
3081 Zanker Road
San Jose, CA 95134
Ph: 408-943-6900
Fax: 408-428-9600
E-mail: semihq@semi.org
Internet: <http://www.semi.org>

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
(SMACNA)
4201 Lafayette Center Drive
Chantilly, VA 20151-1219
Ph: 703-803-2980
Fax: 703-803-3732
E-mail: info@smacna.org
Internet: <http://www.smacna.org>

SOCIETY OF AUTOMOTIVE ENGINEERS INTERNATIONAL (SAE)
400 Commonwealth Drive
Warrendale, PA 15096-0001
Ph: 724-776-4970
Fax: 724-776-0790
E-mail: customerservice@sae.org
Internet: <http://www.sae.org>

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Ph: 909-396-2000
Internet: <http://www.aqmd.gov>

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION (CDT)
Publication Distribution Unit
1900 Royal Oaks Dr.
Sacramento, CA 95815-3800
Ph: 916-263-0822 or 916-263-0865
Fax: 916-263-0469
E-mail: publications@dot.ca.gov
Internet: www.caltrans-opac.ca.gov/publicathtm

NASA/DFRC - FACILITIES SUPPORT CENTER, EDM-1703
FINAL SUBMITTAL

STEEL DECK INSTITUTE (SDI)
P.O. Box 25
Fox River Grove, IL 60021
Ph: 847-458-4647
Fax: 847-458-4648
E-mail: Steve@sdi.org
Internet: <http://www.sdi.org>

STEEL DOOR INSTITUTE (SDI/DOOR)
c/o Steel Door Institute
30200 Detroit Road
Cleveland, OH 44145-1967
Ph: 440-899-0010
Fax: 440-892-1404
E-mail: info@steeldoor.org
Internet: <http://www.steeldoor.org>

STEEL WINDOW INSTITUTE (SWI)
1300 Sumner Avenue
Cleveland, OH 44115-2851
Ph: 216-241-7333
Fax: 216-241-0105
E-mail: swi@steelwindows.com
Internet: <http://www.steelwindows.com>

THE SOCIETY FOR PROTECTIVE COATINGS (SSPC)
40 24th Street, 6th Floor
Pittsburgh, PA 15222-4656
Ph: 412-281-2331
Fax: 412-281-9992
E-mail: info@sspc.org
Internet: <http://www.sspc.org>

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA)
2500 Wilson Blvd, . Suite 300
Arlington, VA 22201
Ph: 703-907-7700
Fax: 703-907-7727
Internet: <http://www.tiaonline.org>

UNDERWRITERS LABORATORIES (UL)
2600 N.W. Lake Road
Camas, WA 98607-8542
Ph: 877-854-3577
Fax: 360-817-6278
E-mail: CEC.us@us.ul.com
Internet: <http://www.ul.com/>

UNI-BELL PVC PIPE ASSOCIATION (UBPPA)
2711 Villa Creek Drive, Suite 1000
Dallas, TX 75234
Ph: 972-243-3902
Fax: 972-243-3907
E-mail: info@uni-bell.org
Internet: <http://www.uni-bell.org>

U.S. ARMY CORPS OF ENGINEERS (USACE)
Order CRD-C DOCUMENTS from:
Headquarters Points of contact

NASA/DFRC - FACILITIES SUPPORT CENTER, EDM-1703
FINAL SUBMITTAL

441 G Street NW
Washington, DC 20314-1000
Ph: 202-761-0011
E-mail: hq-publicaffairs@usace.army.mil
Internet: <http://www.wes.army.mil/SL/MTC/handbook.htm>
Order Other Documents from:
USACE Publications Depot
Attn: CEHEC-IM-PD
2803 52nd Avenue
Hyattsville, MD 20781-1102
Ph: 301-394-0081
Fax: 301-394-0084
E-mail: pubs-army@usace.army.mil
Internet: <http://www.usace.army.mil/publications>
or <http://www.hnd.usace.army.mil/techinfo/engpubs.htm>

U.S. DEFENSE LOGISTICS AGENCY (DLA)
Andrew T. McNamara Building
8725 John J. Kingman Road
Fort Belvoir, VA 22060-6221
Ph: 1-877-352-2255 or 703-767-5525
Fax: DSN 427-3316
Internet: <http://www.dla.mil>

U.S. DEPARTMENT OF AGRICULTURE (USDA)
Order AMS Publications from:
AGRICULTURAL MARKETING SERVICE (AMS)
Seed Regulatory and Testing Branch
801 Summit Crossing Place, Suite C
Gastonia, NC 28054-2193
Ph: 704-810-8871
Fax: 704-852-4189
E-mail: seed.ams@usda.gov
Internet: <http://www.ams.usda.gov/lsg/seed.htm>
Order Other Publications from:
U.S. Department of Agriculture, Rural Utilities Service
14th and Independence Avenue, SW, Room 4028-S
Washington, DC 20250
Ph: 202-720-2791
Fax: 202-720-2166
Internet: <http://www.usda.gov/rus>

U.S. DEPARTMENT OF COMMERCE (DOC)
1401 Constitution Avenue, NW
Washington, DC 20230
Ph: 202-482-2000
Fax: 703-605-6900
E-mail: webmaster@doc.gov
Internet: <http://www.commerce.gov/>
Order Publications From:
National Technical Information Service (NTIS)
5301 Shawnee Road
Alexandria, VA 22312
Ph: 703-605-6050 or 1-888-584-8332
Fax: 703-605-6900
E-mail: info@ntis.gov
Internet: <http://www.ntis.gov>

NASA/DFRC - FACILITIES SUPPORT CENTER, EDM-1703
FINAL SUBMITTAL

U.S. DEPARTMENT OF DEFENSE (DOD)
Order DOD Documents from:
Room 3A750-The Pentagon
1400 Defense Pentagon
Washington, DC 20301-1400
Ph: 703-571-3343
FAX: 215-697-1462
E-mail: pia@hq.afis.asd.mil
Internet: <http://www.dod.gov>
Obtain Military Specifications, Standards and Related Publications
from:
Acquisition Streamlining and Standardization Information System
(ASSIST)
Department of Defense Single Stock Point (DODSSP)
Document Automation and Production Service (DAPS)
Building 4/D
700 Robbins Avenue
Philadelphia, PA 19111-5094
Ph: 215-697-6396 - for account/password issues
Internet: <http://assist.daps.dla.mil/online/start/>; account
registration required
Obtain Unified Facilities Criteria (UFC) from:
Whole Building Design Guide (WBDG)
National Institute of Building Sciences (NIBS)
1090 Vermont Avenue NW, Suite 700
Washington, DC 20005
Ph: 202-289-7800
Fax: 202-289-1092
Internet: http://www.wbdg.org/references/docs_refs.php

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20004
Ph: 202-272-0167
for Fax and E-mail see below
Internet: <http://www.epa.gov>
--- Some EPA documents are available only from:
National Technical Information Service (NTIS)
5301 Shawnee Road
Alexandria, VA 22312
Ph: 703-605-6050 or 1-688-584-8332
Fax: 703-605-6900
E-mail: info@ntis.gov
Internet: <http://www.ntis.gov>

U.S. FEDERAL AVIATION ADMINISTRATION (FAA)
Order for sale documents from:
Superintendent of Documents
U.S. Government Printing Office (GPO)
732 North Capitol Street, NW
Washington, DC 20401
Ph: 202-512-1800
Fax: 202-512-2104
E-mail: contactcenter@gpo.gov
Internet: <http://www.gpoaccess.gov>
Order free documents from:
Federal Aviation Administration
Department of Transportation

NASA/DFRC - FACILITIES SUPPORT CENTER, EDM-1703
FINAL SUBMITTAL

800 Independence Avenue, SW
Washington, DC 20591
Ph: 1-866-835-5322
Internet: <http://www.faa.gov>

U.S. FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
500 C Street, SW
Washington, D.C. 20472
Ph: 1-202-646-2500
Internet: <http://www.fema.gov>

U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)
FHWA, Office of Safety
1200 New Jersey Ave., SE
Washington, DC 20590-
Ph: 202-366-0411
Fax: 202-366-2249
E-mail: contactcenter@gpo.gov
Internet: <http://www.safety.fhwa.dot.gov>

Order from:
Superintendent of Documents
U. S. Government Printing Office (GPO)
732 North Capitol Street, NW
Washington, DC 20401
Ph: 202-512-1800
Fax: 202-512-2104
E-mail: contactcenter@gpo.gov
Internet: <http://www.gpoaccess.gov>

U. S. GREEN BUILDING COUNCIL (USGBC)
2101 L St NW, Suite 500
Washington, D.C. 20037
Fax: 202-828-5110
E-mail: info@usgbc.org
Internet: <http://www.usgbc.org>

U.S. GENERAL SERVICES ADMINISTRATION (GSA)
General Services Administration
1800 F Street, NW
Washington, DC 20405
Ph: 202-501-0800
Internet: www.GSA.gov
Obtain documents from:
Acquisition Streamlining and Standardization Information System
(ASSIST)
Department of Defense Single Stock Point (DODSSP)
Document Automation and Production Service (DAPS)
Building 4/D
700 Robbins Avenue
Philadelphia, PA 19111-5094
Ph: 215-697-6396 - for account/password issues
Internet: <http://assist.daps.dla.mil/online/start/>; account
registration required

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)
8601 Adelphi Road
College Park, MD 20740-6001
Ph: 866-272-6272
Fax: 301-837-0483

NASA/DFRC - FACILITIES SUPPORT CENTER, EDM-1703
FINAL SUBMITTAL

E-mail: contactcenter@gpo.gov
Internet: <http://www.archives.gov>
Order documents from:
Superintendent of Documents
U.S. Government Printing Office (GPO)
732 North Capitol Street, NW
Washington, DC 20401
Ph: 202-512-1800
Fax: 202-512-2104
E-mail: contactcenter@gpo.gov
Internet: <http://www.gpoaccess.gov>

U.S. NAVAL FACILITIES ENGINEERING COMMAND (NAVFAC)
1322 Patterson Ave. SE, Suite 1000
Washington Navy Yard, DC 20374
Ph: 757-322-4200
Fax: 757-322-4416
Internet: <http://www.navfac.navy.mil>

WINDOW AND DOOR MANUFACTURERS ASSOCIATION (WDMA)
401 N. Michigan Ave., Suite 2200
Chicago, IL 60611
Ph: 312-321-6802
Fax: 312-673-6922
E-mail: wdma@wdma.com
Internet: <http://www.wdma.com>

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not used

-- End of Section --

SECTION 01 45 00.10 40

CONTRACT QUALITY CONTROL
02/10

PART 1 GENERAL

1.1 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00
SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

QC Plan; G

Submit a QC plan within 14 calendar days after receipt of Notice
to Proceed (NTP).

1.2 INFORMATION FOR THE CONTRACTING OFFICER (CO)

During construction, report forms to be used include: Contractor Quality
Control (CQC) Report, Preparatory Phase Checklist, Initial Phase Checklist,
Discrepancy List, and Testing Plan and Log.

Deliver the following to the CO:

- a. CQC Report: Original and one copy, by 10:00 AM the next
working day after each day that work is performed;
- c. Preparatory Phase Checklist: Original attached to the
original CQC Report and one copy attached to each copy;
- d. Initial Phase Checklist: Original attached to the original
CQC Report and one copy attached to each copy;
- e. Field Test Reports (per the Testing Plan & Log): One copy,
within two working days after the test is performed, attached to
the CQC Report;
- f. QC Meeting Minutes: One copy, within two working days after
the meeting; and
- g. QC Certifications: As required by the paragraph entitled "QC
Certifications."

1.3 QC PROGRAM REQUIREMENTS

Establish and maintain a QC program as described in this section. The QC
program consists of a QC Manager, a QC plan, participation in weekly
project meetings, QC meetings, three phases of control, submittal review
and approval, testing, and QC certifications and documentation necessary to
provide materials, equipment, workmanship, fabrication, construction and
operations which comply with the requirements of this contract. The QC
program shall cover on-site and off-site work and shall be keyed to the
work sequence. No work or testing may be performed unless the QC Manager is
on the work site.

1.3.1 Preliminary Work Authorized Prior to Acceptance

The only work that is authorized to proceed prior to the acceptance of the QC plan is mobilization of storage and office trailers, temporary utilities, and surveying.

1.3.2 Acceptance

Acceptance of the QC plan is required prior to the start of construction. The CO reserves the right to require changes in the QC plan and operations as necessary, including removal of personnel, to ensure the specified quality of work. The CO reserves the right to interview any member of the QC organization at any time in order to verify the submitted qualifications.

1.3.3 Notification of Changes

Notify the CO, in writing, of any proposed change, including changes in the QC organization personnel, a minimum of seven calendar days prior to a proposed change. Proposed changes shall be subject to the acceptance by the CO.

1.4 QC ORGANIZATION

1.4.1 QC Manager

1.4.1.1 Duties

Provide a QC Manager at the work site to implement and manage the QC program. In addition to implementing and managing the QC program, the QC Manager may perform the duties of project superintendent. The QC Manager is required to attend the weekly project meetings, conduct the QC meetings, perform the three phases of control, perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required in this contract. The QC Manager is responsible for managing and coordinating the three phases of control and documentation performed by others.

1.4.1.2 Qualifications

An individual with a minimum of 5 years combined experience as a superintendent, inspector, QC Manager, project manager, or construction manager on similar size and type construction contracts which included the major trades that are part of this contract. The individual must be familiar with the requirements of the EM 385-1-1 and have experience in the areas of hazard identification and safety compliance. This requirement can be waived by the Contracting Officer.

1.4.1.3 Construction Quality Management Training

In addition to the above experience and education requirements, the QC Manager shall have completed the course Construction Quality Management for Contractors and will have a current certificate. This requirement can be waived by the Contracting Officer.

1.4.2 Alternate QC Manager Duties and Qualifications

Designate an alternate for the QC Manager to serve in the event of the designated QC Manager's absence. The period of absence may not exceed two weeks at one time, and not more than 30 workdays during a calendar year.

The qualification requirements for the Alternate QC Manager shall be the same as for the QC Manager.

1.5 QC PLAN

1.5.1 Requirements

Provide, for acceptance by the CO, a QC plan submitted in a three-ring binder that covers both on-site and off-site work and includes the following with a table of contents listing the major sections identified with tabs.

- I. QC ORGANIZATION: A chart showing the QC organizational structure and its relationship to the production side of the organization.
- II. NAMES AND QUALIFICATIONS: In resume format, for each person in the QC organization. Include the CQM for Contractors course certification required by the paragraph entitled "Construction Quality Management Training".
- III. DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONAL: Of each person in the QC organization.
- IV. OUTSIDE ORGANIZATIONS: A listing of outside organizations such as consulting engineering firms that will be employed by the Contractor and a description of the services these firms will provide.
- V. APPOINTMENT LETTERS: Letters signed by an officer of the firm appointing the QC Manager and Alternate QC Manager and stating that they are responsible for managing and implementing the QC program as described in this contract. Include in this letter the QC Manager's authority to direct the removal and replacement of non-conforming work.
- VI. SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER: Procedures for reviewing, approving and managing submittals. Provide the name(s) of the person(s) in the QC organization authorized to review and certify submittals prior to approval.
- VII. TESTING LABORATORY INFORMATION: Testing laboratory information required by the paragraphs "Accredited Laboratories" or "Testing Laboratory Requirements", as applicable.
- VIII. TESTING PLAN AND LOG: A Testing Plan and Log that includes the tests required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test.
- IX. PROCEDURES TO COMPLETE DISCREPANCY LIST: Procedures to identify, record, track and complete discrepancies.
- X. DOCUMENTATION PROCEDURES: Use Government formats.
- XI. LIST OF DEFINABLE FEATURES: A Definable Feature of Work (DFOW) is a task, which is separate and distinct from other tasks, has the same control requirements and work crews. The list shall be cross-referenced to the Contractor's Construction Schedule and the specification sections. For projects requiring a Progress Chart,

the list of definable features of work shall include but not be limited to all items of work on the schedule.

XII. PROCEDURES FOR PERFORMING THREE PHASES OF CONTROL: For each DFW provide Preparatory and Initial Phase Checklists. Each list shall include a breakdown of quality checks that will be used when performing the quality control functions, inspections, and tests required by the contract documents. The preparatory and initial phases shall be conducted with a view towards obtaining quality construction by planning ahead and identifying potential problems.

XIII. PROCEDURES FOR COMPLETION INSPECTION: See the paragraph entitled "COMPLETION INSPECTIONS".

1.6 THREE PHASES OF CONTROL

The three phases of control shall adequately cover both on-site and off-site work and shall include the following for each DFW.

1.6.1 Preparatory Phase

Notify the CO at least five work days in advance of each preparatory phase. Conduct the preparatory phase with the superintendent and the foreman responsible for the definable feature of work. Document the results of the preparatory phase actions in the daily CQC Report and in the QC checklist. Perform the following prior to beginning work on each definable feature of work:

- a. Review each paragraph of the applicable specification sections;
- b. Review the contract drawings;
- c. Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required;
- d. Review the testing plan and ensure that provisions have been made to provide the required QC testing;
- e. Examine the work area to ensure that the required preliminary work has been completed;
- f. Examine the required materials, equipment and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data;
- g. Review the APP and appropriate Activity Hazard Analysis (AHA) to ensure that applicable safety requirements are met, and that required Material Safety Data Sheets (MSDS) are submitted; and
- h. Discuss specific controls used and the construction methods and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each DFW.

1.6.2 Initial Phase

Notify the CO at least five work days in advance of each initial phase. When construction crews are ready to start work on a DFW, conduct the Initial Phase with the foreman responsible for that DFW. Observe the

initial segment of the work to ensure that it complies with contract requirements. Document the results of the Initial Phase in the daily CQC Report and in the QC checklist. Perform the following for each DFO:

- a. Establish the quality of workmanship required;
- b. Resolve conflicts;
- c. Ensure that testing is performed by the approved laboratory; and
- d. Check work procedures for compliance with the APP and the appropriate AHA to ensure that applicable safety requirements are met.

1.6.3 Follow-Up Phase

Perform the following for on-going work daily, or more frequently as necessary, until the completion of each DFO and document in the daily CQC Report and in the QC checklist:

- a. Ensure the work is in compliance with contract requirements;
- b. Maintain the quality of workmanship required;
- c. Ensure that testing is performed by the approved laboratory;
- d. Ensure that discrepancies are being corrected; and
- e. Assure manufacturers representatives have performed necessary inspections, if required.

1.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same DFO if the quality of on-going work is unacceptable, if there are changes in the applicable QC organization, if there are changes in the on-site production supervision or work crew, if work on a DFO is resumed after substantial period of inactivity, or if other problems develop.

1.6.5 Notification of Three Phases of Control for Off-Site Work

Notify the CO at least two weeks prior to the start of the preparatory and initial phases.

1.7 SUBMITTAL REVIEW AND APPROVAL

Procedures for submission, review, and approval of submittals are described in the submittal section of the specification.

1.8 TESTING

Except as stated otherwise in the specification sections, perform sampling and testing required under this contract.

1.8.1 Accreditation Requirements

Construction materials testing laboratories must be accredited by a laboratory accreditation authority and will be required to submit a copy of the Certificate of Accreditation and Scope of Accreditation. The

laboratory's scope of accreditation must include the appropriate ASTM standards (i.e.; E 329, C 1077, D 3666, D 3740, A 880, E 543) listed in the technical sections of the specifications. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA. The policy applies to the specific laboratory performing the actual testing, not just the "Corporate Office."

1.8.2 Laboratory Accreditation Authorities

Laboratory Accreditation Authorities include the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology, the American Association of State Highway and Transportation Officials (AASHTO), International Accreditation Services, Inc. (IAS), U. S. Army Corps of Engineers Materials Testing Center (MTC), and the American Association for Laboratory Accreditation (A2LA).

1.8.3 Capability Check

The CO retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician's testing procedures, techniques, and other items pertinent to testing, for compliance with the standards set forth in this contract.

1.8.4 Test Results

Cite applicable Contract requirements, tests or analytical procedures used. Provide actual results and include a statement that the item tested or analyzed conforms or fails to conform to specified requirements. If the item fails to conform, notify the CO immediately. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable. Test results shall be signed by a testing laboratory representative authorized to sign certified test reports. Furnish the signed reports, certifications, and other documentation to the CO.

1.9 QC CERTIFICATIONS

1.9.1 Contractor Quality Control Report Certification

Each CQC Report shall contain the following statement: "On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report."

1.9.2 Completion Certification

Upon completion of work under this contract, the QC Manager shall furnish a certificate to the CO attesting that "the work has been completed, inspected, tested and is in compliance with the contract."

1.10 COMPLETION INSPECTIONS

1.10.1 Pre-Final Inspection

The QC Manager and the Superintendent will perform this inspection to verify that the facility is complete and ready to be occupied. A Contractor pre-final punch list may be developed as a result of this inspection. The

QC Manager shall ensure that all items on this list are corrected prior to notifying the Government that a "Final" inspection with the customer can be scheduled. Any items noted on the "Contractor Inspection" shall be corrected in a timely manner and shall be accomplished before the contract completion date for the work or any particular increment thereof if the project is divided into increments by separate completion dates.

1.10.2 Final Acceptance Inspection

The QC Manager, the superintendent or other Contractor management Personnel, the COTR, and the CO will be in attendance at this inspection. Additional Government personnel may be in attendance. This inspection may be done in conjunction with an Operational Readiness Review (ORR) inspection. Notice shall be given by the Contractor at least 14 days prior to the final inspection for Final Inspection. The results of this inspection will create the Punch List. The Punch List shall list all specific items previously identified to the Contractor as being unacceptable will be complete by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the CO to bill the Contractor for the Government's additional inspection cost in accordance with the FAR contract clause 52.246-1 "Inspection of Construction".

1.11 DOCUMENTATION

Maintain current and complete records of on-site and off-site QC program operations and activities. The forms identified under the paragraph "INFORMATION FOR THE CONTRACTING OFFICER (CO)" shall be used. Reports are required for each day work is performed. Account for each calendar day throughout the life of the contract. The superintendent and the QC Manager must prepare and sign the Contractor Production and CQC Reports, respectively. The reporting of work shall be identified by terminology consistent with the construction schedule. In the "remarks" section in this report which will contain pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered and a record of visitors to the work site. For each remark given, identify the Schedule Activity No. that is associated with the remark.

1.11.1 Quality Control Validation

Establish and maintain the following in a series of three ring binders. Binders shall be divided and tabbed as shown below. These binders shall be readily available to the Government's Quality Assurance Team during all business hours.

- a. All completed Preparatory and Initial Phase Checklists, arranged by specification section.
- b. All milestone inspections, arranged by Activity/Event Number.
- c. A current up-to-date copy of the Testing and Plan Log with supporting field test reports, arranged by specification section.
- d. Copies of all contract modifications, arranged in numerical order. Also include documentation that the modified work was accomplished.

- e. A current up-to-date copy of the Discrepancy List.
- f. Maintain up-to-date copies of all punch lists issued by the QC Staff on the Contractor and Sub-Contractors and all punch lists issued by the Government.

1.11.2 As-Built Drawings

The QC Manager is required to review the as-built drawings, required by Section 01 78 00 CLOSEOUT SUBMITTALS, are kept current on a daily basis and marked to show deviations, which have been made from the Contract drawings. Ensure each deviation has been identified with the appropriate modifying documentation, e.g. modification number, RFI number, etc. The QC Manager shall initial each deviation or revision that was approved by the CO. Upon completion of work, the QC Manager shall submit a certificate attesting to the accuracy of the as-built drawings prior to submission to the CO.

The Contractor shall maintain at the jobsite two sets of full-size prints of the contract drawings, accurately marked in red with adequate dimensions, to show all variations between the construction actually provided and that indicated or specified in the contract documents, including buried or concealed construction. Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the contract drawings. Existing utility lines and features revealed during the course of construction shall also be accurately located and dimensioned. Variations in the interior utility systems shall be clearly defined and dimensioned; and coordinated with exterior utility connections at the building five-foot line, where applicable. Existing topographic features which differ from those shown on the contract drawings shall also be accurately located and recorded. Where a choice of materials or methods is permitted herein, or where variations in scope or character of methods is permitted herein, or where variations in scope or character of work from that of the original contract are authorized, the drawings shall be marked to define the construction actually provided. The representations of such changes shall conform to standard drafting practice and shall include such supplementary notes, legends, and details as necessary to clearly portray the as-built construction. These drawings shall be available for review by the Contracting Officer at all times. Upon completion of the work, both sets of the marked up prints shall be certified as correct, signed by the Contractor, and delivered to the Contracting Officer for his approval before acceptance.

1.12 NOTIFICATION OF NON-COMPLIANCE

The CO will notify the Contractor of any detected non-compliance with the foregoing requirements. The Contractor shall take immediate corrective action. If the contractor fails or refuses to correct the non-compliant work, the CO will issue a non compliance notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the CO may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall make no part of the time lost due to such stop orders the subject of claim

for extension of time, for excess costs, or damages.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SECTION 01 45 35

SPECIAL INSPECTION FOR SEISMIC-RESISTING SYSTEMS
08/08

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.

ACI INTERNATIONAL (ACI)

- ACI 318 (2008; Errata 2008; Errata 2009; Errata 2009; Errata 2009; Errata 2009; Errata 2009) Building Code Requirements for Structural Concrete and Commentary
- ACI 530/530.1 (2008; Errata 2008; Errata 2009) Building Code Requirements and Specification for Masonry Structures; Containing Building Code Requirements for Masonry Structures, Specification for Masonry Structures and Companion Commentaries

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

- AISC 341 (2005; Supp 2005) Seismic Provisions for Structural Steel Buildings
- AISC 360 (2005) Specification for Structural Steel Buildings, with Commentary

ASTM INTERNATIONAL (ASTM)

- ASTM A 435/A 435M (1990; R 2007) Standard Specification for Straight-Beam Ultrasonic Examination of Steel Plates
- ASTM A 615/A 615M (2009b) Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
- ASTM A 898/A 898M (2007) Standard Specification for Straight Beam Ultrasonic Examination of Rolled Steel Structural Shapes

U.S. FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

- FEMA 450 (2003) NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures

1.2 SYSTEM DESCRIPTION

Perform the Special Inspection for seismic-resisting system components as specified. Special Inspector personnel shall be in addition to the quality control inspections and inspectors required elsewhere in this section.

1.2.1 Continuous Special Inspection

Continuous special inspection is the full time observation of the work by the Special Inspector present in the work area whenever work is being performed. Perform continuous special inspection where specified for items as shown on the drawings and/or specifications.

1.2.2 Periodic Special Inspection

Periodic special inspection is the intermittent observation of the work by a Special Inspector present in the work area while work is being performed. The intermittent observation periods shall be: at times of significant work; recurrent over the complete work period; and total at least 25 percent of the total work time. Perform periodic special inspection where specified for items as shown on the drawings and/or specifications.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-07 Certificates

Special Inspector; G

Certification attesting that the Special Inspector is qualified by knowledge and experience to perform the specified Special Inspections. Information, which provides evidence of the knowledge and experience necessary to qualify a person as a Special Inspector for the category of work being certified, will accompany the qualification.

Quality Assurance Plan; G

A copy of the Quality Assurance Plan covered by a certificate indicating that the plan meets the content specified in this section.

1.4 QUALITY ASSURANCE PLAN

Develop a quality assurance plan containing the following:

- a. A list of all items that require quality assurance Special Inspection and testing, including the type, frequency, extent, and duration of the special inspection for each item on this list.
- b. A list of all items that require quality assurance testing, including the type and frequency of testing for each item on this list.
- c. The content, distribution, and frequency of special inspection reports.

- d. The content, distribution, and frequency of testing reports.
- e. The procedures, controls, and people used within the Contractor's organization to develop, sign, and distribute Special Inspection and Testing reports along with the position title and pertinent qualifications of all Contractor personnel involved.

1.5 SPECIAL INSPECTOR

Use a Special Inspector to perform Special Inspections required by this section. The Special Inspector is a person employed by the Contractor and approved by the Government as being qualified by knowledge and experience to perform the Special Inspection for the category of work being constructed. Special Inspectors shall perform their duties independent from the construction quality control staff employed by the Contractor. More than one Special Inspector may be required to provide the varied knowledge and experience necessary to adequately inspect all of the categories of work requiring Special Inspection.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PERFORMANCE OF INSPECTIONS

Perform Special Inspections for the following where designated on the drawings:

3.1.1 Reinforcing Steel

- a. Periodic special inspection during and upon completion of the placement of reinforcing steel in shear walls.
- b. Continuous special inspection during the welding of reinforcing steel.

3.1.2 Structural Concrete

Periodic special inspection during and on completion of the placement of concrete.

3.1.3 Structural Masonry

- a. Periodic special inspection during the preparation of mortar, the laying of masonry units, and placement of reinforcement and prior to placement of grout.
- b. Continuous special inspection during the welding of reinforcement, grouting, consolidation and reconsolidation.

3.1.4 Structural Steel

- a. Continuous special inspection for all structural welding, except that periodic special inspection is permitted for single-pass fillet welds or resistance welds provided the qualifications of the welder and the welding electrodes are inspected at the beginning of the work and

all welds are inspected for compliance with the approved construction documents at the completion of welding.

b. Periodic special inspection in accordance with AISC 360 for the installation of high strength bolts in concentrically braced frames except that bolts not required to be fully tensioned need not be inspected for bolt tension, other than to ensure that the plies of the connected elements have been brought into snug contact

3.1.5 Architectural Components

Perform special inspection of the architectural components ensuring that the methods of anchoring and fastening indicated on the drawings are being complied with at the onset of construction of the components, and that the specified or shown number, spacing, and types of fasteners were actually installed. Special inspection for architectural components shall be as follows:

a. Periodic special inspection during the anchorage of suspended ceilings and storage racks 8 feet or greater in height.

3.1.6 Mechanical and Electrical Components

Perform special inspection of the mechanical and electrical components ensuring that the methods of anchoring and fastening indicated on the drawings are being complied with at the onset of construction of the component, and that the specified or shown number, spacing, and types of fasteners were actually installed. Special inspection for mechanical and electrical components shall be as follows:

a. Periodic special inspection during the anchorage of electrical equipment for emergency or standby power systems.

b. Periodic special inspection during the installation of anchorage of all other electrical equipment. Weighing more than 400 pounds for floor mounted items or weighing more than 20 pounds for ceiling or wall mounted items.

c. Periodic special inspection during installation for flammable, combustible, or highly toxic piping systems and their associated mechanical units.

d. Periodic special inspection during the installation of HVAC ductwork that will contain hazardous materials.

3.1.7 Seismic Isolation System

Periodic special inspection during the fabrication and installation of isolator units.

3.2 TESTING

The special inspector shall be responsible for verifying that the testing requirements are performed by an approved testing agency for compliance with the following, where shown on the drawings:

a. Reinforcing Steel: Special testing of reinforcing steel shall be as follows:

(1) Examine certified mill test reports for each shipment of reinforcing steel used in reinforced concrete reinforced masonry shear walls. The special inspector shall determine conformance with the construction documents.

(2) Examine the reports for chemical tests, done in accordance with Sec. 3.5.2 of ACI 318, which were performed to determine the weldability of ASTM A 615/A 615M reinforcing steel.

b. Structural Concrete: Verify that samples of structural concrete obtained at the project site, along with all material components obtained at the batch plant, have been tested in accordance with the requirements of ACI 318 and comply with all acceptance provisions contained therein.

c. Structural Masonry: Verify that all quality assurance testing of structural masonry along with all material components is in accordance with the requirements of ACI 530/530.1 and complies with all acceptance provisions contained therein.

d. Structural Steel:

(1) Verify that all quality assurance testing needed to confirm required material properties contained in Section 05 12 00 STRUCTURAL STEEL has been done in accordance with applicable provisions in AISC 341 and AISC 360 and that the test results comply with all acceptance provisions contained therein.

(2) When a flange or a plate of steel member with a base metal thickness greater than 1.5 inches, is joined by welding so that the flange or plate is subjected to through-thickness weld shrinkage strains, verify that the required ultrasonic testing for discontinuities behind and adjacent to such welds has been done after joint completion. Further verify that any material discontinuities rejected on the basis of the requirements contained in Section 05 12 00 STRUCTURAL STEEL and ASTM A 435/A 435M or ASTM A 898/A 898M, (Level 1 Criteria) were repaired and were retested after the repairs and found acceptable.

e. Seismically Isolated Structures: Verify that the required system and component tests for seismically isolated structures have been done in accordance with FEMA 450 and comply with all acceptance provisions contained therein.

f. Energy Dissipation Systems: Verify that the required system and component tests for seismic energy dissipation systems have been done in accordance with FEMA 450 and comply with all acceptance provisions contained therein.

3.3 REPORTING AND COMPLIANCE PROCEDURES

a. On the first day of each month, furnish to the Government five copies of the combined progress reports of the special inspector's observations listing all special inspections of construction or reviews of testing performed during that month, noting all uncorrected deficiencies, and describing the corrections made both to these deficiencies and to previously reported deficiencies. Each monthly report shall be signed by all special inspectors who performed special inspections of construction or reviewed testing during that month,

regardless of whether they reported any deficiencies. Each monthly report shall be signed by the Contractor.

b. At completion of construction, each special inspector shall prepare and sign a final report attesting that all work they inspected and all testing and test reports they reviewed were completed in accordance with the approved construction documents and that deficiencies identified were satisfactorily corrected. Submit a combined final report containing the signed final reports of all the special inspectors. Sign the combined final report attesting that all final reports of special inspectors that performed work to comply with these construction documents are contained therein, and that the Contractor has reviewed and approved all of the individual inspector's final reports.

-- End of Section --

SECTION 01 50 00

TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS
08/09

PART 1 GENERAL

1.1 SUMMARY

Requirements of this Section apply to, and are a component of, each section of the specifications.

1.2 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 WATER WORKS ASSOCIATION (AWWA)

AWWA C511 (2007) Standard for Reduced-Pressure
Principle Backflow Prevention Assembly

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH
(FCCCHR)

FCCCHR List (continuously updated) List of Approved
Backflow Prevention Assemblies

FCCCHR Manual (1988e9) Manual of Cross-Connection Control

U.S. FEDERAL AVIATION ADMINISTRATION (FAA)

FAA AC 70/7460-1 (2007; Rev K) Obstruction Marking and
Lighting

U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)

MUTCD (2000) Manual of Uniform Traffic Control
Devices

1.3 SUBMITTALS

Submitted the following in accordance with Section 01 33 00 SUBMITTAL
PROCEDURES:

SD-01 Preconstruction Submittals

Construction site plan
Traffic control plan; G

SD-06 Test Reports

Backflow Preventer Tests

SD-07 Certificates

Backflow Tester Certification
Backflow Preventers Certificate of Full Approval

1.4 CONSTRUCTION SITE PLAN

Prior to the start of work, submit a site plan showing the locations and dimensions of temporary facilities (including layouts and details, equipment and material storage area (onsite and offsite), and access and haul routes, avenues of ingress/egress to the fenced area and details of the fence installation). Identify any areas which may have to be graveled to prevent the tracking of mud. Indicate if the use of a supplemental or other staging area is desired. Show locations of safety and construction fences, site trailers, construction entrances, trash dumpsters, temporary sanitary facilities, and worker parking areas.

1.5 Backflow Tester Certificate

Prior to testing, submit to the Contracting Officer certification issued by the State or local regulatory agency attesting that the backflow tester has successfully completed a certification course sponsored by the regulatory agency. Tester must not be affiliated with any company participating in any other phase of this Contract.

1.5.1 Backflow Prevention Training Certificate

Submit a certificate recognized by the State or local authority that states the installer has completed at least 10 hours of training in backflow preventer installations. The certificate must be current.

1.5.2 Backflow Preventers

Reduced pressure principle type conforming to the applicable requirements AWWA C511. The particular make, model/design, and size of backflow preventers to be installed must be included in the latest edition of the List of Approved Backflow Prevention Assemblies issued by the FCCCHR List and be accompanied by a Certificate of Full Approval from FCCCHR List. After installation conduct Backflow Preventer Tests and provide test reports verifying that the installation meets the FCCCHR Manual Standards.

PART 2 PRODUCTS

PART 3 EXECUTION

3.1 AVAILABILITY AND USE OF UTILITY SERVICES

3.1.1 Temporary Utilities

Contractor shall provide temporary utilities required for construction. Materials may be new or used, shall be adequate for the required usage, shall not create unsafe conditions, and shall not violate applicable codes and standards.

3.1.1.1 Electricity

Contractor shall provide connections, sized to provide service required for power and lighting. Feeder and branch wiring with area distribution boxes shall be located so that power is available throughout the project site by use of power cords. 120/208 and 480 electrical volt feeder service is available. Lighting shall be provided by the Contractor. Electricity used

will be furnished by the Government.

3.1.1.2 Water

Contractor shall make connections to existing facilities to provide water for construction purposes. Water used will be furnished by the Government.

3.1.1.3 Telephone Service

The Contractor shall provide telephone service for Contractor use. The Contractor shall pay costs of service. The Contractor shall coordinate with the Contracting Officer who will coordinate with NASA/DFRC telecommunications to allow system coordination for emergency 911 services.

3.1.2 Sanitation

Provide and maintain within the construction area minimum temporary sanitary facilities.

3.1.3 Obstruction Lighting of Cranes

Provide a minimum of 2 aviation red or high intensity white obstruction lights on temporary structures (including cranes) over 100 feet above ground level. Light construction and installation must comply with FAA AC 70/7460-1. Lights must be operational during periods of reduced visibility, darkness, and as directed by the Contracting Officer.

3.1.4 Fire Protection

Provide temporary fire protection equipment for the protection of personnel and property during construction. Remove debris and flammable materials daily to minimize potential hazards.

3.2 TRAFFIC PROVISIONS

3.2.1 Maintenance of Traffic

- a. Conduct operations in a manner that will not close any thoroughfare or interfere in any way with traffic except with written permission of the Contracting Officer at least 14 calendar days prior to the proposed modification date, and provide a Traffic Control Plan detailing the proposed controls to traffic movement for approval. The plan must be in accordance with State and local regulations and the MUTCD, Part VI. Contractor may move oversized and slow-moving vehicles to the worksite provided requirements of the highway authority have been met.
- b. Conduct work so as to minimize obstruction of traffic, and maintain traffic on at least half of the roadway width at all times. Obtain approval from the Contracting Officer prior to starting any activity that will obstruct traffic.
- c. Provide, erect, and maintain, at contractors expense, lights, barriers, signals, passageways, detours, and other items, that may be required by the Life Safety Signage, overhead protection authority having jurisdiction.

3.2.2 Protection of Traffic

Maintain and protect traffic on all affected roads during the construction

period except as otherwise specifically directed by the Contracting Officer. Provide and maintain, at Contractor's own expense, measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment the work, and the erection and maintenance of adequate warning, danger, and direction signs, as required by the State and local authorities having jurisdiction. Protect the traveling public from damage to person and property. Minimize the interference with public traffic on roads selected for hauling material to and from the site. Investigate the adequacy of existing roads and their allowable load limit. Contractor is responsible for the repair of any damage to roads caused by construction operations.

3.2.3 Dust Control

The Contractor shall provide dust control in accordance with Section 01 35 14.11 40 "Dryden Safety Requirements."

3.3 CONTRACTOR'S TEMPORARY FACILITIES

3.3.1 TEMPORARY STRUCTURES

Contractor-owned or leased trailers and temporary structures, where telephone service is installed and connected to 911 emergency system, shall be identified by Government assigned numbers. The required building number shall be furnished by the Government. The Contractor shall apply the number to the trailers within 14 days of placement, or sooner, if directed by the Government.

3.3.2 Administrative Field Offices

Provide and maintain administrative field office facilities within the construction area at the designated site. Government office and warehouse facilities will not be available to the Contractor's personnel.

3.3.3 Storage Area

Construct a view-obstructing temporary 6 foot high chain link fence around trailers and materials. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Do not place or store Trailers, materials, or equipment outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the Contracting Officer away from the vicinity of the construction site but within the installation boundaries. Trailers, equipment, or materials must not be open to public view with the exception of those items which are in support of ongoing work on any given day. Do not stockpile materials outside the fence in preparation for the next day's work. Park mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment within the fenced area at the end of each work day.

3.3.4 Appearance of Trailers

- a. Trailers utilized by the Contractor for administrative or material storage purposes must present a clean and neat exterior appearance and be in a state of good repair. Trailers which, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on installation property.
- b. Paint using suitable paint and maintain the temporary facilities.

Failure to do so will be sufficient reason to require their removal.

3.3.5 Maintenance of Storage Area

- a. Keep fencing in a state of good repair and proper alignment.

3.3.6 Security Provisions

Provide adequate outside security lighting at the Contractor's temporary facilities. The Contractor will be responsible for the security of its own equipment.

3.3.7 Weather Protection of Temporary Facilities and Stored Materials

Take necessary precautions to ensure that roof openings and other critical openings in the building are monitored carefully. Take immediate actions required to seal off such openings when rain or other detrimental weather is imminent, and at the end of each workday. Ensure that the openings are completely sealed off to protect materials and equipment in the building from damage.

3.4 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, furnish and erect temporary project safety fencing at the work site. Maintain the safety fencing during the life of the contract and, upon completion and acceptance of the work, will become the property of the Contractor and be removed from the work site.

3.5 CLEANUP

Remove construction debris, waste materials, packaging material and the like from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways must be cleaned away. Store within the fenced area described above or at the supplemental storage area any materials resulting from demolition activities which are salvageable. Neatly stack stored materials not in trailers, whether new or salvaged.

3.6 RESTORATION OF STORAGE AREA

Upon completion of the project remove the bulletinboard, signs, barricades, haulroads, and any other temporary products from the site. After removal of trailers, materials, and equipment from within the fenced area, remove the fence that will become the property of the Contractor. Restore to the original or better condition, areas used by the Contractor for the storage of equipment or material, or other use. Gravel used to traverse grassed areas must be removed and the area restored to its original condition, including top soil and seeding as necessary.

-- End of Section --

SECTION 01 62 35

RECYCLED / RECOVERED MATERIALS

07/06

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

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

40 CFR 247

Comprehensive Procurement Guideline for
Products Containing Recovered Materials

1.2 OBJECTIVES

Government procurement policy is to acquire, in a cost effective manner, items containing the highest percentage of recycled and recovered materials practicable consistent with maintaining a satisfactory level of competition without adversely affecting performance requirements or exposing suppliers' employees to undue hazards from the recovered materials. The Environmental Protection Agency (EPA) has designated certain items which must contain a specified percent range of recovered or recycled materials. EPA designated products specified in this contract comply with the stated policy and with the EPA guidelines. Make all reasonable efforts to use recycled and recovered materials in providing the EPA designated products and in otherwise utilizing recycled and recovered materials in the execution of the work.

1.3 EPA DESIGNATED ITEMS INCORPORATED IN THE WORK

Various sections of the specifications contain requirements for materials that have been designated by EPA as being products which are or can be made with recovered or recycled materials. These items, when incorporated into the work under this contract, shall contain at least the specified percentage of recycled or recovered materials unless adequate justification (non-availability) for non-use is provided. When a designated item is specified as an option to a non-designated item, the designated item requirements apply only if the designated item is used in the work.

1.4 EPA PROPOSED ITEMS INCORPORATED IN THE WORK

Products other than those designated by EPA are still being researched and are being considered for future Comprehensive Procurement Guideline (CPG) designation. It is recommended that these items, when incorporated in the work under this contract, contain the highest practicable percentage of recycled or recovered materials, provided specified requirements are also met.

1.5 EPA LISTED ITEMS USED IN CONDUCT OF THE WORK BUT NOT INCORPORATED IN
THE WORK

There are many products listed in 40 CFR 247 which have been designated or proposed by EPA to include recycled or recovered materials that may be used by the Contractor in performing the work but will not be incorporated into the work. These products include office products, temporary traffic control products, and pallets. It is recommended that these non-construction products, when used in the conduct of the work, contain the highest practicable percentage of recycled or recovered materials and that these products be recycled when no longer needed.

PART 2 TITLE

Not Used

PART 3 TITLE

Not Used

-- End of Section --

SECTION 01 74 19

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT
01/07

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.

ASTM INTERNATIONAL (ASTM)

ASTM E 1609 (2001) Development and Implementation of a
Pollution Prevention Program

1.2 GOVERNMENT POLICY

Government policy is to apply sound environmental principles in the design, construction and use of facilities. As part of the implementation of that policy: (1) practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction and demolition waste from landfills and incinerators and to facilitate their recycling or reuse. A minimum of 35 percent by weight of total project solid waste shall be diverted from the landfill in support of EO 13423, Section 2 and NASA Procedural Requirements (NPR) 8530.1.

1.3 MANAGEMENT

Develop and implement a waste management program in accordance with ASTM E 1609 and as specified. Take a pro-active, responsible role in the management of construction and demolition waste and require all subcontractors, vendors, and suppliers to participate in the effort. Construction and demolition waste includes products of demolition or removal, excess or unusable construction materials, packaging materials for construction products, and other materials generated during the construction process but not incorporated into the work. In the management of waste consideration shall be given to the availability of viable markets, the condition of the material, the ability to provide the material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates. The Contractor is responsible for implementation of any special programs involving rebates or similar incentives related to recycling of waste. Revenues or other savings obtained for salvage, or recycling accrue to the Contractor. Appropriately permit firms and facilities used for recycling, reuse, and disposal for the intended use to the extent required by federal, state, and local regulations. Also, provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

1.4 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00
SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Waste Management Plan; G

SD-11 Closeout Submittals

Records

Salvage Material Records shall be submitted in accordance with Paragraph "SALVAGE MATERIALS AND EQUIPMENT"

1.5 WASTE MANAGEMENT PLAN

A waste management plan shall be submitted within 14 days after notice to proceed . The plan shall demonstrate how the project waste diversion goal shall be met and shall include the following:

- a. Name of individuals on the Contractor's staff responsible for waste prevention and management.
- b. Actions that will be taken to reduce solid waste generation, including coordination with subcontractors to ensure awareness and participation.
- c. Description of the regular meetings to be held to address waste management.
- d. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas on site and equipment to be used for processing, sorting, and temporary storage of wastes.
- e. Characterization, including estimated types and quantities, of the waste to be generated.
- f. Name of landfill and/or incinerator to be used and the estimated costs for use, assuming that there would be no salvage or recycling on the project.
- g. Identification of local and regional reuse programs, including non-profit organizations such as schools, local housing agencies, and organizations that accept used materials such as materials exchange networks and Habitat for Humanity. Include the name, location, and phone number for each reuse facility to be used, and provide a copy of the permit or license for each facility.
- h. List of specific waste materials that will be salvaged for resale, salvaged and reused on the current project, salvaged and stored for reuse on a future project, or recycled. Recycling facilities that will be used shall be identified by name, location, and phone number, including a copy of the permit or license for each facility.
- i. Identification of materials that cannot be recycled/reused with an explanation or justification, to be approved by the Contracting Officer.
- j. Description of the means by which any waste materials identified in item (h) above will be protected from contamination.

k. Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site).

l. Anticipated net cost savings determined by subtracting Contractor program management costs and the cost of disposal from the revenue generated by sale of the materials and the incineration and/or landfill cost avoidance.

Revise and resubmit Plan as required by the Contracting Officer. Approval of Contractor's Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations or meeting project cumulative waste diversion requirement. Distribute copies of the Waste Management Plan to each subcontractor, the Quality Control Manager, and the Contracting Officer.

1.6 RECORDS

Records shall be maintained to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration. The records shall be made available to the Contracting Officer during construction, and a copy of the records shall be delivered to the Contracting Officer upon completion of the construction.

1.7 SALVAGE MATERIALS AND EQUIPMENT

All metals and items of historic value shall be salvaged and shall remain the property of the Government. Salvage Material Records shall be made available to the Contracting Officer during construction, and a copy of the records shall be delivered to the Contracting Officer upon completion of the construction. The contractor shall coordinate with the local waste removal agency to identify remaining recyclable materials. Salvage items shall be marked, segregated, itemized, delivered, and off-loaded by the Contractor at the storage area near Building 4876.

The Contractor shall maintain adequate property control records for all materials or equipment designated as salvage. These records may be in accordance with the Contractor's system of property control, if approved by the Contracting Officer. The Contractor shall be responsible for adequate storage and protection of salvaged materials and equipment and shall replace, at no cost to the Government, salvage materials.

1.8 COLLECTION

Separate, store, protect, and handle at the site identified recyclable and salvageable waste products in a manner that maximizes recyclability and salvagability of identified materials. Provide the necessary containers, bins and storage areas to facilitate effective waste management and clearly and appropriately identify them. Provide materials for barriers and enclosures around recyclable material storage areas which are nonhazardous and recyclable or reusable. Locate out of the way of construction traffic. Provide adequate space for pick-up and delivery and convenience to subcontractors. Recycling and waste bin areas are to be kept neat and clean, and recyclable materials shall be handled to prevent contamination of materials from incompatible products and materials. Clean contaminated materials prior to placing in collection containers. Use cleaning materials that are nonhazardous and biodegradable. Handle hazardous waste and

hazardous materials in accordance with applicable regulations and coordinate with Section 01 35 14.11 40 DRYDEN SAFETY REQUIREMENTS.

Separate materials by one of the following methods:

1.8.1 Source Separated Method.

Waste products and materials that are recyclable shall be separated from trash and sorted as described below into appropriately marked separate containers and then transported to the respective recycling facility for further processing. Deliver materials in accordance with recycling or reuse facility requirements (e.g., free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process). Separate materials into the following category types as appropriate to the project waste and to the available recycling and reuse programs in the project area:

- a. Land clearing debris.
- b. Asphalt.
- c. Concrete and masonry.
- d. Metal (e.g. banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, lead brass, bronze).
 - (1) Ferrous.
 - (2) Non-ferrous.
- e. Wood (nails and staples allowed).
- f. Debris.
- g. Glass (colored glass allowed).
- h. Paper.
 - (1) Bond.
 - (2) Newsprint.
 - (3) Cardboard and paper packaging materials.
- i. Plastic.
 - (1) Type 1: Polyethylene Terephthalate (PET, PETE).
 - (2) Type 2: High Density Polyethylene (HDPE).
 - (3) Type 3: Vinyl (Polyvinyl Chloride or PVC).
 - (4) Type 4: Low Density Polyethylene (LDPE).
 - (5) Type 5: Polypropylene (PP).
 - (6) Type 6: Polystyrene (PS).

(7) Type 7: Other. Use of this code indicates that the package in question is made with a resin other than the six listed above, or is made of more than one resin listed above, and used in a multi-layer combination.

- j. Gypsum.
- k. Non-hazardous paint and paint cans.
- l. Carpet.
- m. Ceiling tiles.
- n. Insulation.
- o. Beverage containers.

1.9 DISPOSAL

Control accumulation of waste materials and trash. Recycle or dispose of collected materials off-site at intervals approved by the Contracting Officer and in compliance with waste management procedures. Except as otherwise specified in other sections of the specifications, disposal shall be in accordance with the following:

1.9.1 Reuse.

First consideration shall be given to salvage for reuse since little or no re-processing is necessary for this method, and less pollution is created when items are reused in their original form. Coordinate reuse with the Contracting Officer. Sale or donation of waste suitable for reuse shall be considered.

1.9.2 Recycle.

Waste materials not suitable for reuse, but having value as being recyclable, shall be made available for recycling. All fluorescent lamps, HID lamps, and mercury-containing thermostats removed from the site shall be recycled. Arrange for timely pickups from the site or deliveries to recycling facilities in order to prevent contamination of recyclable materials.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used. -- End of Section --

SECTION 01 78 00

CLOSEOUT SUBMITTALS
05/10

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.

ASTM INTERNATIONAL (ASTM)

ASTM E 1971 (2005) Stewardship for the Cleaning of
Commercial and Institutional Buildings

GREEN SEAL (GS)

GS-37 (2000; R 2009) Industrial and
Institutional Cleaners

1.2 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL
PROCEDURES:

SD-03 Product Data

As-Built Record of Equipment and Materials; G
Warranty Management Plan; G
Warranty Tags
Final Cleaning
Spare Parts Data

SD-08 Manufacturer's Instructions

Preventative Maintenance schedule and instructions
Condition Monitoring (Predictive Testing) schedule and instructions
Inspection schedule and instructions
Instructions to be Posted

SD-10 Operation and Maintenance Data

Operation and Maintenance Manuals

SD-11 Closeout Submittals

As-Built Drawings; G
Certification of EPA Designated Items; G
NASA Form NF1046

1.3 PROJECT RECORD DOCUMENTS

1.3.1 As-Built Drawings

Drawings showing final as-built conditions of the project. This paragraph

covers complete record drawings, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working record drawings," "as-built drawings" and "final record drawings" refer to contract drawings which are revised to be used for final record drawings showing as-built conditions. The red-lined drawings must consist of 2 sets of completed final as-built original drawings, and the approved deviation documentation.

1.3.1.1 Working Record and Final Record Drawings

Revise 2 sets of paper drawings by red-line process to show the as-built conditions during the execution of the project. Keep these working as-built marked drawings current on a weekly basis and at least one set available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction must be accurately and neatly recorded as they occur by means of details and notes. Prepare final record (as-built) drawings after the completion of each definable feature of work as listed in the Contractor Quality Control Plan (Foundations, Utilities, Structural Steel, etc., as appropriate for the project). The working as-built marked prints and final record (as-built) drawings will be jointly reviewed for accuracy and completeness by the Contracting Officer and the Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the working and final record drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the record drawings. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and the Contractor regarding the accuracy and completeness of updated drawings. Show on the working and final record drawings, but not limited to, the following information:

- a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, show by offset dimensions to two permanently fixed surface features the end of each run including each change in direction on the record drawings. Locate valves, splice boxes and similar appurtenances by dimensioning along the utility run from a reference point. Also record the depth below the surface of each run.

In addition, GPS survey shall be completed by Contractor when required by contract drawings.

- b. The location and dimensions of any changes within the building structure.
- c. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.
- d. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.
- e. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

- f. Changes or modifications which result from the final inspection.
- g. Where contract drawings or specifications present options, show only the option selected for construction on the final as-built prints.
- h. If borrow material for this project is from sources on Government property, or if Government property is used as a spoil area, furnish a contour map of the final borrow pit/spoil area elevations.
- i. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.
- j. Modifications (include within change order price the cost to change working and final record drawings to reflect modifications) and compliance with the following procedures.
 - (1) Follow directions in the modification for posting descriptive changes.
 - (2) Place a Modification Circle at the location of each deletion.
 - (3) For new details or sections which are added to a drawing, place a Modification Circle by the detail or section title.
 - (4) For minor changes, place a Modification Circle by the area changed on the drawing (each location).
 - (5) For major changes to a drawing, place a Modification Circle by the title of the affected plan, section, or detail at each location.
 - (6) For changes to schedules or drawings, place a Modification Circle either by the schedule heading or by the change in the schedule.
 - (7) The Modification Circle size shall be 1/2 inch diameter unless the area where the circle is to be placed is crowded. Smaller size circle shall be used for crowded areas.

1.3.1.2 Drawing Preparation

Modify the record drawings as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with approved working as-built prints, and adding such additional drawings as may be necessary. These working as-built marked prints must be neat, legible and accurate. These drawings are part of the permanent records of this project and must be returned to the Contracting Officer after approval by the Government. Any drawings damaged or lost by the Contractor must be satisfactorily replaced by the Contractor at no expense to the Government.

1.3.1.3 Payment

No separate payment will be made for record drawings required under this contract, and all costs accrued in connection with such drawings are considered a subsidiary obligation of the Contractor.

1.3.2 As-Built Record of Equipment and Materials

Furnish two (2) copies of preliminary record of equipment and materials

used on the project 15 days prior to final inspection. This preliminary submittal will be reviewed and returned 2 days after final inspection with Government comments. Submit two (2) sets of final record of equipment and materials 10 days after final inspection. Key the designations to the related area depicted on the contract drawings. At a minimum, list the following data:

RECORD OF DESIGNATED EQUIPMENT AND MATERIALS DATA

Description	Specification Section	Manufacturer and Catalog, Model, and Serial Number	Composition and Size	Where Used
-------------	--------------------------	---	-------------------------	---------------

1.3.3 Final Approved Shop Drawings

Furnish final approved project shop drawings 30 days after transfer of the completed facility.

1.3.4 Construction Contract Specifications

Furnish final record (as-built) construction contract specifications, including modifications thereto, 30 days after transfer of the completed facility.

1.3.5 Real Property Equipment

Furnish a list of installed equipment furnished under this contract. Include all information usually listed on manufacturer's name plate. In the "EQUIPMENT-IN-PLACE LIST" include, as applicable, the following for each piece of equipment installed: description of item, location (by room number), date installed, equipment cost, model number, serial number, capacity, name and address of manufacturer, name and address of equipment supplier, condition, spare parts list, manufacturer's catalog, estimated service life, and warranty. Furnish a draft list at time of transfer. Furnish the final list 30 days after transfer of the completed facility.

1.4 SPARE PARTS DATA

Submit two copies of the Spare Parts Data list.

- a. Indicate manufacturer's name, part number, nomenclature, and stock level required for maintenance and repair. List those items that may be standard to the normal maintenance of the system.
- b. The Government will identify what equipment for which to provide spare parts and the number of spare parts to provide. Supply this number of items of each part for spare parts inventory as requested by the Government. Provision of spare parts does not relieve the Contractor of responsibilities listed under the contract guarantee provisions.

1.5 PREVENTATIVE MAINTENANCE

Submit Preventative Maintenance, Condition Monitoring (Predictive Testing) and Inspection schedules with instructions that state when systems should be retested.

- a. Define the anticipated length of each test, test apparatus, number of personnel identified by responsibility, and a testing validation

procedure permitting the record operation capability requirements within the schedule. Provide a signoff blank for the Contractor and Contracting Officer for each test feature; e.g., gpm, rpm, psi. Include a remarks column for the testing validation procedure referencing operating limits of time, pressure, temperature, volume, voltage, current, acceleration, velocity, alignment, calibration, adjustments, cleaning, or special system notes. Delineate procedures for preventative maintenance, inspection, adjustment, lubrication and cleaning necessary to minimize corrective maintenance and repair.

- b. Repair requirements must inform operators how to check out, troubleshoot, repair, and replace components of the system. Include electrical and mechanical schematics and diagrams and diagnostic techniques necessary to enable operation and troubleshooting of the system after acceptance.

1.6 WARRANTY MANAGEMENT

1.6.1 Warranty Tags

At the time of installation, tag each warranted item with a durable, oil and water resistant tag approved by the Contracting Officer. Attach each tag with a copper wire and spray with a silicone waterproof coating. Also, submit two record copies of the warranty tags showing the layout and design. The date of acceptance and the QC signature must remain blank until the project is accepted for beneficial occupancy. Show the following information on the tag.

- a. Type of product/material _____.
- b. Model number _____.
- c. Serial number _____.
- d. Contract number _____.
- e. Warranty period _____ from _____ to _____.
- f. Inspector's signature _____.
- g. Construction Contractor _____.
Address _____.
Telephone number _____.
- h. Warranty contact _____.
Address _____.
Telephone number _____.
- i. WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.

1.7 OPERATION AND MAINTENANCE MANUALS

Submit 2 copies of the project operation and maintenance manuals 30 calendar days prior to testing the system involved. Update and resubmit

data for final approval no later than 30 calendar days prior to contract completion.

1.7.1 Configuration

Operation and Maintenance Manuals must be consistent with the manufacturer's standard brochures, schematics, printed instructions, general operating procedures, and safety precautions. Bind information in manual format and grouped by technical sections. Test data must be legible and of good quality. Light-sensitive reproduction techniques are acceptable provided finished pages are clear, legible, and not subject to fading. Pages for vendor data and manuals must be bound in 3-ring, loose-leaf binders. Organize data by separate index and tabbed sheets, in a loose-leaf binder. Binder must lie flat with printed sheets that are easy to read. Caution and warning indications must be clearly labeled.

1.7.2 Training and Instruction

Submit classroom and field instructions in the operation and maintenance of systems equipment where required by the technical provisions. These services must be directed by the Contractor, using the manufacturer's factory-trained personnel or qualified representatives. Contracting Officer will be given 7 calendar days written notice of scheduled instructional services. Instructional materials belonging to the manufacturer or vendor, such as lists, static exhibits, and visual aids, must be made available to the Contracting Officer.

1.8 WORK AREA CLEANUP

Provide final cleaning of contract work area in accordance with ASTM E 1971 and submit two copies of the listing of completed final clean-up items. Leave premises "broom clean." Comply with GS-37 for general purpose cleaning and bathroom cleaning. Use only nonhazardous cleaning materials, including natural cleaning materials, in the final cleanup. Clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. Remove waste and surplus materials, rubbish and construction facilities from the site. Recycle, salvage, and return construction and demolition waste from project in accordance with the Waste Management Plan. Promptly and legally transport and dispose of any trash. Do not burn, bury, or otherwise dispose of trash on the project site.

1.9 REAL PROPERTY TRANSFER DOCUMENTATION

Near the completion of Project, but not later than final transfer, complete and submit an accounting of all installed property with NASA Form NF1046 "Transfer and/or Notification of Acceptance of Accountability of Real Property."

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

07/06

PART 1 GENERAL

1.1 SUBMISSION OF OPERATION AND MAINTENANCE DATA

Submit Operation and Maintenance (O&M) Data specifically applicable to this contract and a complete and concise depiction of the provided equipment, product, or system, stressing and enhancing the importance of system interactions, troubleshooting, and long-term preventative maintenance and operation. The subcontractors shall compile and prepare data and deliver to the Contractor prior to the training of Government personnel. The Contractor shall compile and prepare aggregate O&M data including clarifying and updating the original sequences of operation to as-built conditions. Organize and present information in sufficient detail to clearly explain O&M requirements at the system, equipment, component, and subassembly level. Include an index preceding each submittal. Submit in accordance with this section and Section 01 33 00 SUBMITTAL PROCEDURES.

1.1.1 Package Content

Data package content shall be as shown in the paragraph titled "Schedule of Operation and Maintenance Data Packages." Comply with the data package requirements specified in the individual technical sections, including the content of the packages and addressing each product, component, and system designated for data package submission, except as follows. Commissioned items without a specified data package requirement in the individual technical sections shall use Data Package 4. Commissioned items with a Data Package 1 or 2 requirement shall use instead Data Package 4.

1.1.2 Changes to Submittals

Manufacturer-originated changes or revisions to submitted data shall be furnished by the Contractor if a component of an item is so affected subsequent to acceptance of the O&M Data. Changes, additions, or revisions required by the Contracting Officer for final acceptance of submitted data, shall be submitted by the Contractor within 30 calendar days of the notification of this change requirement.

1.1.3 Review and Approval

The Contractor's Commissioning Authority (CA) shall review the commissioned systems and equipment submittals for completeness and applicability. The CA shall verify that the systems and equipment provided meet the requirements of the Contract documents and design intent, particularly as they relate to functionality, energy performance, water performance, maintainability, sustainability, system cost, indoor environmental quality, and local environmental impacts. The CA shall communicate deficiencies to the Contracting Officer. Upon a successful review of the corrections, the CA shall recommend approval and acceptance of these O&M manuals to the Contracting Officer. This work shall be in addition to the normal review procedures for O&M data.

1.2 TYPES OF INFORMATION REQUIRED IN O&M DATA PACKAGES

1.2.1 Operating Instructions

Include specific instructions, procedures, and illustrations for the following phases of operation for the installed model and features of each system:

1.2.1.1 Safety Precautions

List personnel hazards and equipment or product safety precautions for all operating conditions.

1.2.1.2 Operator Prestart

Include procedures required to install, set up, and prepare each system for use.

1.2.1.3 Startup, Shutdown, and Post-Shutdown Procedures

Provide narrative description for Startup, Shutdown and Post-shutdown operating procedures including the control sequence for each procedure.

1.2.1.4 Normal Operations

Provide narrative description of Normal Operating Procedures. Include Control Diagrams with data to explain operation and control of systems and specific equipment.

1.2.1.5 Emergency Operations

Include Emergency Procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Include Emergency Shutdown Instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance and procedures for emergency operation of all utility systems including required valve positions, valve locations and zones or portions of systems controlled.

1.2.1.6 Operator Service Requirements

Include instructions for services to be performed by the operator such as lubrication, adjustment, inspection, and recording gage readings.

1.2.1.7 Environmental Conditions

Include a list of Environmental Conditions (temperature, humidity, and other relevant data) that are best suited for the operation of each product, component or system. Describe conditions under which the item equipment should not be allowed to run.

1.2.2 Preventive Maintenance

Include the following information for preventive and scheduled maintenance to minimize corrective maintenance and repair for the installed model and features of each system. Include potential environmental and indoor air quality impacts of recommended maintenance procedures and materials.

1.2.2.1 Lubrication Data

Include preventative maintenance lubrication data, in addition to instructions for lubrication provided under paragraph titled "Operator Service Requirements":

- a. A table showing recommended lubricants for specific temperature ranges and applications.
- b. Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities.
- c. A Lubrication Schedule showing service interval frequency.

1.2.2.2 Preventive Maintenance Plan and Schedule

Include manufacturer's schedule for routine preventive maintenance, inspections, tests and adjustments required to ensure proper and economical operation and to minimize corrective maintenance. Provide manufacturer's projection of preventive maintenance work-hours on a daily, weekly, monthly, and annual basis including craft requirements by type of craft. For periodic calibrations, provide manufacturer's specified frequency and procedures for each separate operation.

1.2.3 Corrective Maintenance (Repair)

Include manufacturer's recommended procedures and instructions for correcting problems and making repairs.

1.2.3.1 Troubleshooting Guides and Diagnostic Techniques

Include step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or require replacement.

1.2.3.2 Wiring Diagrams and Control Diagrams

Wiring diagrams and control diagrams shall be point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job specific wiring and control work. On diagrams, number electrical and electronic wiring and pneumatic control tubing and the terminals for each type, identically to actual installation configuration and numbering.

1.2.3.3 Maintenance and Repair Procedures

Include instructions and a list of tools required to repair or restore the product or equipment to proper condition or operating standards.

1.2.3.4 Removal and Replacement Instructions

Include step-by-step procedures and a list required tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings and adjustments required. Instructions shall include a combination of text and illustrations.

1.2.3.5 Spare Parts and Supply Lists

Include lists of spare parts and supplies required for maintenance and repair to ensure continued service or operation without unreasonable delays. Special consideration is required for facilities at remote locations. List spare parts and supplies that have a long lead-time to obtain.

1.2.4 Corrective Maintenance Work-Hours

Include manufacturer's projection of corrective maintenance work-hours including requirements by type of craft. Corrective maintenance that requires completion or participation of the equipment manufacturer shall be identified and tabulated separately.

1.2.5 Appendices

Provide information required below and information not specified in the preceding paragraphs but pertinent to the maintenance or operation of the product or equipment. Include the following:

1.2.5.1 Product Submittal Data

Provide a copy of all SD-03 Product Data submittals required in the applicable technical sections.

1.2.5.2 Manufacturer's Instructions

Provide a copy of all SD-08 Manufacturer's Instructions submittals required in the applicable technical sections.

1.2.5.3 O&M Submittal Data

Provide a copy of all SD-10 Operation and Maintenance Data submittals required in the applicable technical sections.

1.2.5.4 Parts Identification

Provide identification and coverage for all parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing shall show the index, reference, or key number that will cross-reference the illustrated part to the listed part. Parts shown in the listings shall be grouped by components, assemblies, and subassemblies in accordance with the manufacturer's standard practice. Parts data may cover more than one model or series of equipment, components, assemblies, subassemblies, attachments, or accessories, such as typically shown in a master parts catalog

1.2.5.5 Warranty Information

List and explain the various warranties and clearly identify the servicing and technical precautions prescribed by the manufacturers or contract documents in order to keep warranties in force. Include warranty

information for primary components such as the compressor of air conditioning system.

1.2.5.6 Personnel Training Requirements

Provide information available from the manufacturers that is needed for use in training designated personnel to properly operate and maintain the equipment and systems.

1.2.5.7 Testing Equipment and Special Tool Information

Include information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components.

1.2.5.8 Testing and Performance Data

Include completed prefunctional checklists, functional performance test forms, and monitoring reports. Include recommended schedule for retesting and blank test forms.

1.2.5.9 Contractor Information

Provide a list that includes the name, address, and telephone number of the General Contractor and each Subcontractor who installed the product or equipment, or system. For each item, also provide the name address and telephone number of the manufacturer's representative and service organization that can provide replacements most convenient to the project site. Provide the name, address, and telephone number of the product, equipment, and system manufacturers.

1.3 TYPES OF INFORMATION REQUIRED IN CONTROLS O&M DATA PACKAGES

Include Data Package 5 and the following for control systems:

- a. Narrative description on how to perform and apply all functions, features, modes, and other operations, including unoccupied operation, seasonal changeover, manual operation, and alarms. Include detailed technical manual for programming and customizing control loops and algorithms.
- b. Full as-built sequence of operations.
- c. Copies of all checkout tests and calibrations performed by the Contractor (not Cx tests).
- d. Full points list. A listing of rooms shall be provided with the following information for each room:
 - (1) Floor
 - (2) Room number
 - (3) Room name
 - (4) Air handler unit ID
 - (5) Reference drawing number