



Replace and Modernize Surgery / Intensive Care Unit

**Boise VA Medical Center
Solicitation No.: VA-260-10-RP-0559
Contract No.: VA260-P-0854
VA Project Number: 531-317**

FINAL Specifications

November 01, 2011

The logo for ZSA, consisting of the letters 'ZSA' in a stylized, red, handwritten font.

**DEPARTMENT OF VETERANS AFFAIRS
MASTER SPECIFICATIONS**

**TABLE OF CONTENTS
Section 00 01 10**

	DIVISION 00 - SPECIAL SECTIONS	DATE
00 01 15	List of Drawing Sheets	10-07
	DIVISION 01 - GENERAL REQUIREMENTS	
01 00 00	General Requirements	03-09
01 01 50	OSHA Requirements / Specific Boise VAMC Fire & Safety Policies, procedures & Regulations / Submittals & Deviations	04-10
01 32 16.15	Project Schedules (Small Projects - Design/Bid/Build	04-10
01 33 23	Shop Drawings, Product Data, and Samples (Substitution Procedures)	11-08M
01 42 19	Reference Standards	11-08M
01 45 29	Testing Laboratory Services	05-08M
01 74 19	Construction Waste Management	07-08M
	DIVISION 02 - EXISTING CONDITIONS	
02 41 00	Demolition	11-08M
02 82 11	Asbestos Abatement	09-05M
	DIVISION 03 - CONCRETE	
03 30 00	Cast-in-Place Concrete	03-09M
03 45 00	Precast Architectural Concrete	
	DIVISION 04 - MASONRY	
04 05 13	Masonry Mortaring	06-08M
04 20 00	Unit Masonry	08-08M
04 73 13	Calcium Silicate Manufactured Stone Masonry	
	DIVISION 05 - METALS	
05 12 00	Structural Steel Framing	10-06M
05 31 00	Steel Decking	11-08M
05 36 00	Composite Metal Decking	12-05M
05 40 00	Cold-Formed Metal Framing	05-04M
05 50 00	Metal Fabrications	10-07M
05 51 00	Metal Stairs	10-07M
	DIVISION 06 - WOOD, PLASTICS AND COMPOSITES	
06 10 00	Rough Carpentry	10-07M
06 16 63	Cementitious Sheathing	10-07M
06 20 00	Finish Carpentry, Millwork, and Countertops	10-07M

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	DIVISION 07 - THERMAL AND MOISTURE PROTECTION	
07 21 13	Thermal Insulation	03-09M
07 22 00	Roof and Deck Insulation	03-09M
07 25 00	Weather Barriers	
07 40 00	Roofing and Siding Panels	04-08M
07 54 23	Thermoplastic Polyolefin (TPO) Roofing	
07 60 00	Flashing and Sheet Metal	04-08M
07 71 00	Roof Specialties	10-07M
07 81 00	Applied Fireproofing	12-08M
07 84 00	Firestopping	08-08M
07 92 00	Joint Sealants	08-08M
07 95 13	Expansion Joint Cover Assemblies	10-07M
	DIVISION 08 - OPENINGS	
08 11 13	Hollow Metal Doors and Frames	02-09M
08 14 00	Interior Wood Doors	02-09M
08 31 13	Access Doors and Frames	10-07M
08 41 13	Aluminum-Framed Entrances and Storefronts	10-07M
08 42 43	Intensive Care Unit/Critical Care Unit (ICU/CCU) Entrances	
08 63 00	Metal-Framed Skylights	08-08M
08 71 00	Builders Hardware	10-07M
08 71 13	Automatic Door Operators	08-08M
08 80 00	Glazing	04-09M
08 90 00	Louvers and Vents	01-08M
	DIVISION 09 - FINISHES	
09 06 00	Schedule for Finishes	10-07M
09 22 16	Non-Structural Metal Framing	10-07M
09 29 00	Gypsum Board and Gypsum Sheathing	
09 30 13	Ceramic/Porcelain Tiling	03-09M
09 51 00	Acoustical Ceilings	
09 65 13	Resilient Base and Accessories	08-08M
09 65 16	Resilient Sheet Flooring	08-08M
09 68 00	Carpeting	08-08M
09 72 16	Vinyl-Coated Fabric Wall Coverings	04-08M
09 91 00	Painting	04-09M
	DIVISION 10 - SPECIALTIES	
10 14 00	Signage	06-08M
10 21 23	Cubicle Curtain Tracks	02-08M
10 26 00	Wall and Door Protection	03-08M
10 28 00	Toilet, Bath, and Laundry Accessories	02-08M
10 44 13	Fire Extinguisher Cabinets	10-07M
10 50 00	Lockers	07-11
	DIVISION 11 - EQUIPMENT (Not Used)	

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	DIVISION 12 - FURNISHINGS	
12 24 00	Window Shades	02-08M
	DIVISION 13 - SPECIAL CONSTRUCTION	
13 05 41	Seismic Restraint Requirements for Non-Structural Components	12-07M
	DIVISION 14- CONVEYING EQUIPMENT (Not Used)	
	DIVISION 21- FIRE SUPPRESSION	
21 05 11	Common Work Results for Fire Suppression	04-04M
21 08 00	Commissioning of Fire Suppression Systems	
21 13 13	Wet-Pipe Sprinkler Systems	05-08M
	DIVISION 22 - PLUMBING	
22 05 11	Common Work Results for Plumbing	04-04M
22 05 12	General Motor Requirements for Plumbing Equipment	05-03M
22 05 23	General-Duty Valves for Plumbing Piping	11-04M
22 08 00	Commissioning of Plumbing Systems	
22 11 00	Facility Water Distribution	10-06M
22 13 00	Facility Sanitary and Vent Piping	11-04M
22 14 00	Facility Storm Drainage	11-04M
22 40 00	Plumbing Fixtures	05-08M
22 62 00	Vacuum Systems for Laboratory and Healthcare Facilities	11-04M
22 63 00	Gas Systems for Laboratory and Healthcare Facilities	12-07M
	DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)	
23 05 11	Common Work Results for HVAC	12-07M
23 05 12	General Motor Requirements for HVAC and Steam Generation Equipment	05-03M
23 05 41	Noise and Vibration Control for HVAC Piping and Equipment	12-06M
23 05 93	Testing, Adjusting, and Balancing for HVAC	12-06M
23 07 11	HVAC, Plumbing, and Boiler Plant Insulation	12-06M
23 09 23	Controls and Instrumentation (DDC)	09-08M
23 21 13	Hydronic Piping	12-06M
23 21 23	Hydronic Pumps	06-07M
23 22 13	Steam and Condensate Heating Piping	12-06M
23 25 00	HVAC Water Treatment	12-06M
23 31 00	HVAC Ducts and Casings	10-04M
23 34 00	HVAC Fans	06-04M
23 36 00	Air Terminal Units	12-06M
23 37 00	Air Outlets and Inlets	10-04M
23 40 00	HVAC Air Cleaning Devices	03-06M
23 73 00	Indoor Central-Station Air-Handling Units	04-03M
23 82 16	Air Coils	12-04M
	DIVISION 26 - ELECTRICAL	
26 05 11	Requirements for Electrical Installations	05-05M

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26 05 21	Low-Voltage Electrical Power Conductors and Cables (600 Volts and Below)	12-05M
26 05 26	Grounding and Bonding for Electrical Systems	10-06M
26 05 33	Raceway and Boxes for Electrical Systems	12-05M
26 05 71	Electrical System Protective Device Study	10-05M
26 08 00	Commissioning of Electrical Systems	
26 09 23	Lighting Controls	
26 22 00	Low-Voltage Transformers	06-05M
26 24 16	Panelboards	10-06M
26 27 26	Wiring Devices	03-03M
26 29 11	Motor Starters	07-04M
26 29 21	Disconnect Switches	12-05M
26 51 00	Interior Lighting	03-03M
26 55 71	Medical and Surgical Lighting Fixtures	10-06M
26 56 00	Exterior Lighting	10-06M
	DIVISION 27 - COMMUNICATIONS	
27 05 11	Requirements for Communications Installations	02-07M
27 05 26	Grounding and Bonding for Communications Systems	10-06M
27 05 33	Raceways and Boxes for Communications Systems	12-05M
27 10 00	Structured Cabling	12-05M
27 15 00	Communications Horizontal Cabling	10-06M
	DIVISION 28 - ELECTRONIC SAFETY AND SECURITY	
28 05 11	Requirements for Electronic Safety and Security Installations	05-05M
28 05 13	Conductors and Cables for Electronic Safety and Security	12-05M
28 05 26	Grounding and Bonding for Electronic Safety and Security	10-06M
28 05 33	Raceways and Boxes for Electronic Safety and Security	12-05M
28 08 00	Commissioning of Electronic Safety and Security Systems	
28 13 11	Physical Access Control System (PACS)	09-08M
28 13 16	Access Control System and Database Management	09-08M
28 23 00	Video Surveillance	09-08M
28 26 00	Electronic Personal Protection System (EPPS)	09-08M
28 31 10	Fire Alarm System (Network)	
	DIVISION 31 - EARTHWORK	
31 20 00	Earth Moving	10-06M
31 63 16	Grout Injection Bored Piles	10-06M
	DIVISION 32 - EXTERIOR IMPROVEMENTS	
32 05 23	Cement and Concrete for Exterior Improvements	12-05M
	DIVISION 33 - UTILITIES	
33 10 00	Water Utilities	12-05M
33 40 00	Storm Drainage Utilities	11-05M

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	DIVISION 34 - TRANSPORTATION (Not Used)	

SECTION 00 01 15
LIST OF DRAWING SHEETS

The drawings listed below accompanying this specification form a part of
the contract.

<u>Drawing No.</u>	<u>Title</u>
	<u>GENERAL</u>
G1.0	COVER SHEET
G2.0	SYMBOLS LEGEND AND CODE DATA
G3.0	SITE STAGING PLAN
G3.1	FIRST FLOOR LIFE SAFETY PLAN
G3.2	SECOND FLOOR LIFE SAFETY PLAN
G3.3	THIRD FLOOR LIFE SAFETY PLAN
G3.4	PENTHOUSE LIFE SAFETY PLAN
G4.0	FIRESTOPPING ASSEMBLIES
	<u>CIVIL</u>
C0.0	SITE SURVEY
C1.0	DEMOLITION PLAN
C2.0	SITE IMPROVEMENT PLAN
C3.0	CIVIL DETAILS
	<u>ARCHITECTURAL</u>
A1.1	FIRST FLOOR DEMOLITION PLAN
A1.2	SECOND FLOOR DEMOLITION PLAN
A1.3	THIRD FLOOR DEMOLITION PLAN
A2.1A	FIRST FLOOR PLAN
A2.1B	FIRST FLOOR NOTATED PLAN-AREA 'A'
A2.1C	FIRST FLOOR NOTATED PLAN-AREA 'B'
A2.2	SECOND FLOOR PLAN
A2.3A	THIRD FLOOR DIMENSION PLAN
A2.3B	THIRD FLOOR NOTATED PLAN - AREA 'A'
A2.3C	THIRD FLOOR NOTATED PLAN - AREA 'B'
A2.4	PENTHOUSE PLAN
A2.5	ROOF PLAN
A2.6	STAIR PLANS & SECTIONS
A2.8	FIRST FLOOR FINISH PLAN
A2.9	THIRD FLOOR FINISH PLAN
A3.0	BUILDING EXTERIOR ELEVATIONS
A4.0	BUILDING SECTIONS
A4.1	BUILDING SECTIONS
A5.0	WALL SECTIONS
A5.1	WALL SECTIONS
A5.2	WALL SECTIONS
A6.0	DOOR SCHEDULE AND FRAME TYPES
A7.0	ASSEMBLY DETAILS
A7.1	EXTERIOR DETAILS
A7.2	DOOR AND WINDOW DETAILS
A7.3	ROOF DETAILS
A7.4	INTERIOR DETAILS
A8.0	FIRST FLOOR INTERIOR ELEVATIONS
A8.1	INTENSIVE CARE UNIT INTERIOR ELEVATIONS
A8.2	INTENSIVE CARE UNIT INTERIOR ELEVATIONS
A8.3	INTENSIVE CARE UNIT INTERIOR ELEVATIONS
A8.4	SURGERY INTERIOR ELEVATIONS

A8.5	RESTROOM ELEVATIONS AND ACCESSORY SCHEDULE
A8.6	INTERIOR CASEWORK SECTIONS
A8.7	INTERIOR CASEWORK SECTIONS
A8.8	EQUIPMENT SCHEDULE
A9.1	FIRST FLOOR REFLECTED CEILING PLAN
A9.2	SECOND FLOOR REFLECTED CEILING PLAN
A9.3	THIRD FLOOR REFLECTED CEILING PLAN
A10.3A	THIRD FLOOR DEDUCT ALTERNATE DEMOLITION PLAN
A10.3B	THIRD FLOOR DEDUCT ALTERNATE FLOOR PLAN
A10.3C	THIRD FLOOR DEDUCT ALTERNATE REFLECTED CEILING PLAN

STRUCTURAL

S0.1	GENERAL STRUCTURAL NOTES
S0.2	STRUCTURAL ABBREVIATIONS AND LEGEND
S2.1	FIRST FLOOR FRAMING / FOUNDATION PLAN
S2.2	SECOND FLOOR FRAMING PLAN
S2.3	THIRD FLOOR FRAMING PLAN
S2.4	MAIN ROOF / PENTHOUSE FLOOR FRAMING PLAN
S2.5	PENTHOUSE ROOF FRAMING PLAN
S3.1	TYPICAL CONCRETE DETAILS
S3.2	CONCRETE SECTIONS AND DETAILS
S3.3	CONCRETE SECTIONS AND DETAILS
S4.1	TYPICAL STEEL DETAILS
S4.2	TYPICAL STRUCTURAL DETAILS
S4.3	STEEL COLUMN SCHEDULE AND DETAILS
S4.4	STAIR PLANS, SECTIONS, AND DETAILS
S4.5	METAL DECK DETAILS
S4.6	SPECIAL MOMENT FRAME ELEVATIONS AND DETAILS
S4.7	MISCELLANEOUS SECTIONS AND DETAILS
S4.8	GRAVITY BRACED FRAME ELEVATIONS AND DETAILS
S5.1	BUILDING ENVELOPE SECTIONS
S5.2	BUILDING ENVELOPE DETAILS
S6.1	ENLARGED EQUIPMENT SUPPORT PLANS AND DETAILS
S6.2	EQUIPMENT SUPPORT DETAILS
S6.3	EQUIPMENT SUPPORT DETAILS

MECHANICAL

M0.1	MECHANICAL LEGEND / SYMBOLS / ABBREVIATIONS
M0.2	MECHANICAL SCHEDULES
M0.3	MECHANICAL SCHEDULES
M0.4	MECHANICAL SCHEDULES
M0.5	MECHANICAL SCHEDULES
M0.6	MECHANICAL CONSTRUCTION PHASING PLAN
M1.0	FIRST FLOOR HVAC DEMOLITION PLAN
M1.1A	THIRD FLOOR & ROOF HVAC DEMOLITION PLAN - AREA A
M1.1B	THIRD FLOOR & ROOF HVAC DEMOLITION PLAN - AREA B
M1.2	FIRST FLOOR MECHANICAL PIPING DEMOLITION PLAN
M1.3A	THIRD FLOOR MECHANICAL PIPING DEMOLITION PLAN - AREA A
M1.3B	THIRD FLOOR MECHANICAL PIPING DEMOLITION PLAN - AREA B
M1.4	THIRD FLOOR MEDICAL GAS PIPING DEMOLITION PLAN
M2.0	FIRST FLOOR HVAC PLAN
M2.1	SECOND FLOOR HVAC PLAN
M2.2A	THIRD FLOOR HVAC PLAN - AREA A
M2.2B	THIRD FLOOR HVAC PLAN - AREA B
M2.3	PENTHOUSE HVAC PLAN
M2.4A	ROOF HVAC PLAN - AREA A
M2.4B	ROOF HVAC PLAN - AREA B
M2.5	FIRST FLOOR MECHANICAL PIPING PLAN
M2.5A	BASEMENT FLOOR MECHANICAL PIPING PLAN

M2.6 SECOND FLOOR MECHANICAL PIPING PLAN
 M2.7A THIRD FLOOR MECHANICAL PIPING PLAN - AREA A
 M2.7B THIRD FLOOR MECHANICAL PIPING PLAN - AREA B
 M2.8 PENTHOUSE MECHANICAL PIPING PLAN
 M2.9 ROOF MECHANICAL PIPING PLAN
 M2.10 FIRST & SECOND FLOOR MEDICAL GAS PIPING PLAN
 M2.11A THIRD FLOOR MEDICAL GAS PIPING PLAN - AREA A
 M2.112B THIRD FLOOR MEDICAL GAS PIPING PLAN - AREA B
 M3.0 MECHANICAL SECTIONS
 M4.0A THIRD FLOOR HVAC AIRFLOW PLAN - AREA A
 M4.0B THIRD FLOOR HVAC AIRFLOW PLAN - AREA B
 M5.0 MECHANICAL CONTROLS
 M5.1 MECHANICAL CONTROLS
 M5.2 MECHANICAL CONTROLS
 M6.0 MECHANICAL DETAILS
 M6.1 MECHANICAL DETAILS
 M6.2 MECHANICAL DETAILS
 M10.0 DEDUCT ALTERNATE #7 THIRD FLOOR HVAC DEMOLITION PLAN
 M10.1A DEDUCT ALTERNATE #5 THIRD FLOOR HVAC DEMOLITION PLAN
 M10.1B DEDUCT ALTERNATE #5 THIRD FLOOR HVAC REMODEL PLAN
 M10.2A DEDUCT ALTERNATE #5 THIRD FLOOR MEDICAL GAS AND
 MECHANICAL PIPING DEMOLITION PLAN
 M10.2B DEDUCT ALTERNATE #5 THIRD FLOOR MEDICAL GAS AND
 MECHANICAL PIPING DEMOLITION PLAN
 M10.3 DEDUCT ALTERNATE #6 PENTHOUSE HVAC PLAN

PLUMBING

P0.1 PLUMBING LEGEND / SYMBOLS / ABBREVIATIONS
 P0.2 PLUMBING SCHEDULES
 P1.0 FIRST FLOOR PLUMBING DEMOLITION PLAN
 P1.1A THIRD FLOOR PLUMBING DEMOLITION PLAN - AREA A
 P1.1B THIRD FLOOR PLUMBING DEMOLITION PLAN - AREA B
 P1.2 FIRST FLOOR SANITARY DEMOLITION PLAN
 P1.3A SECOND FLOOR SANITARY DEMOLITION PLAN - AREA A
 P1.3B SECOND FLOOR SANITARY DEMOLITION PLAN - AREA B
 P1.4A THIRD FLOOR SANITARY DEMOLITION PLAN - AREA A
 P1.4B THIRD FLOOR SANITARY DEMOLITION PLAN - AREA B
 P1.5 ROOF SANITARY DEMOLITION PLAN
 P2.0 FIRST FLOOR PLUMBING PLAN
 P2.2A THIRD FLOOR PLUMBING PLAN - AREA A
 P2.2B THIRD FLOOR PLUMBING PLAN - AREA B
 P2.4 FIRST FLOOR SANITARY PLAN
 P2.5A SECOND FLOOR SANITARY PLAN - AREA A
 P2.5B SECOND FLOOR SANITARY PLAN - AREA B
 P2.6A THIRD FLOOR SANITARY PLAN - AREA A
 P2.6B THIRD FLOOR SANITARY PLAN - AREA B
 P2.7 PENTHOUSE SANITARY PLAN
 P2.8A ROOF SANITARY PLAN - AREA A
 P2.8B ROOF SANITARY PLAN - AREA B
 P6.0 PLUMBING DETAILS
 P10.1A DEDUCT ALTERNATE #5 THIRD FLOOR PLUMBING DEMOLITION
 PLAN
 P10.1B DEDUCT ALTERNATE #5 THIRD FLOOR PLUMBING REMODEL PLAN
 P10.1C DEDUCT ALTERNATE #5 THIRD FLOOR SANITARY DEMOLITION
 PLAN

FIRE PROTECTION

FP2.1 FIRST FLOOR FIRE PROTECTION DEMOLITION & REMODEL PLAN
 FP2.2 SECOND FLOOR FIRE PROTECTION REMODEL PLAN
 FP2.3A THIRD FLOOR FIRE PROTECTION DEMOLITIONPLAN
 FP2.3B THIRD FLOOR FIRE PROTECTION REMODEL PLAN
 FP2.4 PENTHOUSE FIRE PROTECTION PLAN

ELECTRICAL

E0.1 ELECTRICAL LEGEND AND ABBREVIATIONS
 E0.2 ELECTRICAL LEGEND
 E0.3 ELECTRICAL COMMUNICATIONS LEGEND AND ABBREVIATIONS
 E0.4 ELECTRICAL SITE PLAN
 E1.0 BASEMENT ELECTRICAL DEMOLITION PLAN
 EL1.1 FIRST FLOOR LIGHTING DEMOLITION PLAN
 EP1.1 FIRST FLOOR POWER DEMOLITION PLAN
 EC1.1 FIRST FLOOR COMMUNICATIONS AND FIRE ALARM
 DEMOLITION PLAN
 E1.2 SECOND FLOOR ELECTRICAL DEMOLITION PLAN
 EL1.3 THIRD FLOOR LIGHTING DEMOLITION PLAN
 EP1.3 THIRD FLOOR POWER DEMOLITION PLAN
 EC1.3 THIRD FLOOR COMMUNICATIONS AND FIRE ALARM
 DEMOLITION PLAN
 E2.0 BASEMENT ELECTRICAL PLAN
 EL2.1 FIRST FLOOR LIGHTING PLAN
 EP2.1 FIRST FLOOR POWER PLAN
 EC2.1 FIRST FLOOR COMMUNICATIONS PLAN
 FA2.1 FIRST FLOOR FIRE ALARM PLAN
 E2.2 SECOND FLOOR ELECTRICAL PLAN
 EL2.3 THIRD FLOOR LIGHTING PLAN
 EP2.3 THIRD FLOOR POWER PLAN
 EC2.3 THIRD FLOOR COMMUNICATIONS PLAN
 FA2.3 THIRD FLOOR FIRE ALARM PLAN
 E2.4 PENTHOUSE AND ROOF ELECTRICAL PLAN
 E2.5 ENLARGED ELECTRICAL PLANS
 E3.0 ONE LINE DIAGRAM
 E3.1 ELECTRICAL SCHEDULES
 E3.2 ELECTRICAL SCHEDULES
 E3.3 ELECTRICAL SCHEDULES
 E3.4 FIRE ALARM RISER
 E3.5 FIRE ALARM MATRIX
 E4.0 ELECTRICAL DETAILS
 E4.1 ELECTRICAL DETAILS
 E10.3A DEDUCT ALTERNATE #7 SHELLED PACU LIGHTING,
 POWER AND COMM PLANS
 E10.3B DEDUCT ALTERNATE #5 LIGHTING AND POWER PLANS
 E10.3C DEDUCT ALTERNATE #5 COMM AND FIRE ALARM PLANS

- - - END - - -

SECTION 01 00 00
GENERAL REQUIREMENTS

1.1 GENERAL INTENTION

A.

Provide construction period services to include all tools, labor, materials, and supervision including all structural, architectural, interior design, civil, landscape, fire protection, mechanical and electrical work and other services necessary for Project 531-317, Replace and Modernize Surgery/Intensive Care Unit, at VA Medical Center, Boise, Idaho per plans and specifications. Construction shall include any testing required to provide a complete project. Costs for these services shall be included in the fee proposal.

Construct Replace and Modernize Surgery/ICU at the Boise VA Medical Center. Project will include constructing a three story with mechanical penthouse, approximately 20,700 square feet building addition and a 5,000 square feet remodel. It will include admitting, ICU patient rooms, operating rooms, office space, classroom space, and supporting space for each service.

All work shall be designed and phased to limit disruptions to the station. Phasing will consist of relocating admitting and triage, demo admitting, construct new 3 story addition, complete new admitting, complete new ICU, complete new PACU, demo old ICU, and complete new the OR suites. Ideally, all items would be included in construction budget. If not, some program elements may be omitted as bid alternates items.

- B. Bidders may visit the site during the scheduled Pre-Bid Walk Through.
- C. A Pre-Bid conference will be held to give all bidding contractors the opportunity to discuss the project with the design team. Although this conference is not required, it is strongly encouraged.
- D. Offices of ZGA Architects and Planners, as Architect-Engineers, will render certain technical services during construction. Such services shall be considered as advisory to the Government and shall not be construed as expressing or implying a contractual act of the Government without affirmations by Contracting Officer or his duly authorized representative.
- E. All employees of general contractor and subcontractors shall comply with Veterans Affairs (VA) security management program and obtain permission of the VA police, be identified by project and employer, and restricted from unauthorized access.
- F. Prior to commencing work, general contractor shall provide proof that a OSHA certified "competent person" (CP) (29 CFR 1926.20(b)(2)) will maintain a presence at the work site whenever the general or subcontractors are present.
- G. Training:

1. All employees of general contractor or subcontractors shall have the 10-hour OSHA certified Construction Safety course and /or other relevant competency training, as determined by the VA Contracting Officer with input from the Infection Control Risk Assessment (ICRA) team.
2. Submit training records of all such employees for approval before the start of work.

H. Contractor Medical Program:

The Contractor shall have a Medical Program that addresses tuberculosis. The medical program shall include written assurance that each employee has no active tuberculosis. All contract employees assigned to the work site shall have a pre-placement tuberculin screening within 90 days prior to assignment to the worksite as recommended by the Center for Disease Control (CDC). This can be the CDC two-step skin testing or a Food and Drug Administration (FDA) approved blood test. Employees manifesting positive screening reactions to the tuberculin shall be examined per current CDC guidelines prior to working on VHA property. If the employee is found without evidence of active (infectious) pulmonary tuberculosis (TB), a statement documenting examination by a physician must be on file with the employer (construction contractor), noting that the employee with a positive tuberculin screening test is without evidence of active (infectious) pulmonary TB. If the employee is found with evidence of active (infectious) pulmonary TB, the employee would require treatment with a subsequent statement as outlined above before being allowed to return to work on VHA property.

- I. Terms used in this contract such as Veterans Affairs (VA) and Government; Contracting Officer (CO); Architect-Engineer (AE); Contracting Officer's Technical Representative (COTR) or resident engineer (RE), Engineering Officer (EO) may be used interchangeably, and refer to the same entity.

1.2 STATEMENT OF BID ITEM(S)

- A. BASE BID: Contractor shall provide all materials, equipment, labor and supervision of every kind to generally remove site, shell, and interior construction of Building 85 Admitting department and construct site improvements, new addition and phased tenant improvements at first, second, third and penthouse floors. Construction includes temporary construction of various mechanical and electrical systems. The Work shall be complete in all respects to accomplish the intent of the drawings and specifications.
- B. DEDUCT ALTERNATE NO. 1: Base bid minus wall covering at all ICU patient rooms and replace with paint finish. At rooms where W-2 is specified,

provide P-5 at patient foot wall. At rooms where W-3 is specified, provide P-3 at patient foot wall. All other walls to receive P-1. All paint these rooms to be epoxy paint.

- C. DEDUCT ALTERNATE NO. 2: Same as deduct alternate 1 minus new finishes north of seismic joint at 1st Floor Corridor C15. Existing finishes to remain. Patch where new materials and existing materials meet.
- D. DEDUCT ALTERNATE NO. 3: Same as deduct alternate 2 minus pneumatic tube station at the PACU #358 and associated plumbing, electrical and adjacent framing. Omit electrical work associated with pneumatic tube station in PACU 358.
- E. DEDUCT ALTERNATE NO. 4: Same as deduct alternate 3 minus copper fin coils at the surgical air handling unit AHU-16. Provide aluminum fin coils at this unit.
- F. DEDUCT ALTERNATE NO. 5: Same as deduct alternate 4 minus tenant improvements within the 3rd floor Operating Room suite. This alternate will include limited improvements described on the drawings and specifications and as required for remaining adjacent improvements and as required to maintain functionality of existing rooms. Omit boom equipment support structures shown on sheet S6.1. Omit demolition of items indicated on sheet A1.3 and include demolition of items on sheet A10.3A within the Alternate #5 work limits indicated. Omit electrical work shown within Alternate #5 boundary on drawings EL2.3, EP2.3, EC2.3, and FA2.3. Retain and protect existing electrical within Alternate #5 boundary, except as shown on drawings E10.3B and E10.3C.
- G. DEDUCT ALTERNATE NO. 6: Same as deduct alternate 5 minus air handling unit AHU-16 and related mechanical distribution systems except as shown roughed-in for future extension. Omit electrical work associated with air handler AHU-16.
- H. DEDUCT ALTERNATE NO. 7: Same as deduct alternate 6 minus tenant improvements as required for the 3rd floor PACU #358. This space will be shelled with limited improvements described on the drawings and specifications and as required to construct work for adjacent improvements. Omit work at PACU #358 as indicated on drawings A2.3A, A2.3B, A2.3C and A9.3 and include work indicated on sheets A10.3A, A10.3B and A10.3C within the Alternate #7 work limits indicated. Omit electrical work shown in PACU #358 on drawings EL2.3, EP2.3, and EC2.3. Furnish and install electrical in Shelled PACU #358 as shown on drawing E10.3A.

1.3 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR

- A. AFTER AWARD OF CONTRACT, 1 Compact Disk (CD) of specifications and drawings (in a pdf format) will be furnished to the Contractor. Sets of

drawings may be made by the Contractor, at Contractor's expense.

- B. Upon request, drawings for existing and adjacent construction will be made available by the project COTR. These drawings may be reproduced by the Contractor, at Contractor's expense.

1.4 CONSTRUCTION SECURITY REQUIREMENTS

A. Security Plan:

1. The security plan defines both physical and administrative security procedures that will remain effective for the entire duration of the project.
2. The General Contractor is responsible for assuring that all subcontractors working on the project and their employees also comply with these regulations.

B. Security Procedures:

1. All general contractor's employees, subcontractors, and material suppliers entering the Medical Center consent to search by VA police at any time. The areas of search shall be all encompassing including but not limited to: their person; their personal effects; personal vehicles, as well as any and all contractor vehicles, equipment, trailers, offices, storage shed, tool boxes and any and all containers.
2. For working outside the "regular hours" as defined in the contract, The General Contractor shall give 3 days notice to the Contracting Officer so that security can be provided for the employees. This notice is separate from any notices required for utility shutdown described later in this section.
3. No photography of VA premises is allowed without written permission of the Contracting Officer.
4. VA reserves the right to close down or shut down the project site and order General Contractor's employees off the premises in the event of a national emergency. The General Contractor may return to the site only with the written approval of the Contracting Officer.

C. Contractor Identification:

1. The Contractor's Project Manager shall be issued a badge identifying him/her as an authorized visitor on the Medical center. The Project Manager shall wear the badge displayed prominently at all times when on site. The Contractor shall return the badge at the conclusion of the project. The Contractor shall within 24 hours notify the Veterans Affairs Police Services and the Contracting Officer if the badge has been lost.
2. The Contractor shall initiate an identification program for each of its employees, subcontractors, and subcontractor employees when

on the Medical Center property. Each person will be identified with a unique readily visible badge identifying the person and that the person is under the direction of the General Contractor. Every employee or subcontractor shall wear the badge displayed prominently at all times when on site.

D. Key Control:

1. The General Contractor shall provide duplicate keys and lock combinations to the Resident Engineer for the purpose of security inspections of every area of project including tool boxes and parked machines and take any emergency action as necessary.

E. Document Control:

1. The General Contractor is responsible for safekeeping of all drawings, project manual and other project information. This information shall be shared only with those with a specific need to accomplish the project.
2. All paper waste or electronic media such as CD's and diskettes shall be shredded and destroyed in a manner acceptable to the VA.
3. Notify Contracting Officer and Site Security Officer immediately when there is a loss or compromise of "sensitive information".
4. All electronic information shall be stored in specified location following VA standards and procedures using an Engineering Document Management Software (EDMS).
 - a. Security, access and maintenance of all project drawings, both scanned and electronic shall be performed and tracked through the EDMS system.
 - b. "Sensitive information" including drawings and other documents may be attached to e-mail provided all VA encryption procedures are followed.
5. At the completion of the project, the Contractor shall secure all copies of drawings and specifications from its office and all subcontractors and return them to the Government.

F. Motor Vehicle Restrictions:

1. Only properly licensed motor vehicles with valid insurance shall enter the Medical Center. Drivers of such vehicles will possess on their person a valid license for the type of vehicle being driven. Vehicle access to the construction site shall be restricted to active picking up and dropping off materials and supplies.
2. Parking is strictly limited on the Medical Center. Contractor employee/subcontractor employee parking shall be restricted to either Mt. Cove parking lot or Contractor's row at the North end of the facility specifically excluding parking lots 6 and 10. Additional

restrictions may be enforced based on patient and staff needs as determined by the Contracting Officer.

G. Personal Conduct:

1. Every person who enters the Medical Center's grounds is expected to conduct themselves in a professional responsible manner without the need to enumerate every expected or prohibited behavior.
2. Weapons, ammunition, explosives, and alcoholic beverages are prohibited on the Medical Center's grounds.
3. There shall be no solicitations or sales of any kind on the Medical Center's grounds.
4. The Government reserves the right to refuse to permit employment on the Work or require dismissal from the work of any subcontractor who, by reason of previous unsatisfactory work on Department of Veterans Affairs project or for any other reason, is considered by the contracting officer to be incompetent or otherwise objectionable.

(Reference VAAR 852.236-80)

1.5 FIRE SAFETY

A. Applicable Publications: Publications listed below form part of this Article to extent referenced. Publications are referenced in text by basic designations only.

1. American Society for Testing and Materials (ASTM):
 - E84-2007.....Surface Burning Characteristics of Building Materials
2. National Fire Protection Association (NFPA):
 - 10-2010.....Standard for Portable Fire Extinguishers
 - 30-2008.....Flammable and Combustible Liquids Code
 - 51B-2009.....Standard for Fire Prevention During Welding, Cutting and Other Hot Work
 - 70-2008.....National Electrical Code
 - 241-2009.....Standard for Safeguarding Construction, Alteration, and Demolition Operations
3. Occupational Safety and Health Administration (OSHA):
 - 29 CFR 1926.....Safety and Health Regulations for Construction

B. Fire Safety Plan: Establish and maintain a fire protection program in accordance with 29 CFR 1926. Prior to start of work, prepare a plan detailing project-specific fire safety measures, including periodic status reports, and submit to COTR and Safety Officer for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. The plan shall include as a minimum means of egress, egress routes, assembly area, fire extinguishers, fire alarm notification methods, and job specific fire

hazards. Prior to any worker for the contractor or subcontractors beginning work, they shall undergo a safety briefing provided by the general contractor's competent person per OSHA requirements. This briefing shall include information on the construction limits, VAMC safety guidelines, means of egress, break areas, work hours, locations of restrooms, use of VAMC equipment, etc. Documentation shall be provided to the Resident Engineer that individuals have undergone contractor's safety briefing. Contractor is to perform weekly fire hazard and OSHA safety inspections of the entire construction area from the time constructions starts until the area is accepted by the Government. A copy of these reports, listing all hazards identified and corrective actions taken, is to be provided weekly to the COTR.

- C. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.
- D. Separate temporary facilities, such as trailers, storage sheds, and dumpsters, from existing buildings and new construction by distances in accordance with NFPA 241. For small facilities with less than 6 m (20 feet) exposing overall length, separate by 3m (10 feet).
- E. Temporary Construction Partitions:
 - 1. Install and maintain temporary construction partitions to provide smoke-tight separations between construction areas and adjoining areas. Construct partitions of gypsum board or treated plywood (flame spread rating of 25 or less in accordance with ASTM E84) on both sides of fire retardant treated wood or metal steel studs. Extend the partitions through suspended ceilings to floor slab deck or roof. Seal joints and penetrations. As a minimum at door openings, install Class C, ¾ hour fire/smoke rated doors with self-closing devices. In all cases, the temporary partition shall meet the minimum fire/smoke barrier requirements for the area affected.
 - 2. Contractor shall seal any existing or contractor caused penetrations through smoke barriers and fire-related construction (walls, floors, and ceilings) to maintain fire ratings the same day the penetration was made or discovered. Close openings in smoke barriers and fire-rated construction to maintain fire ratings. Seal penetrations with listed through-penetration firestop materials in accordance with Section 07 84 00, FIRESTOPPING.
- F. Temporary Heating and Electrical: Install, use and maintain installations in accordance with 29 CFR 1926, NFPA 241 and NFPA 70. Open flame heating devices are prohibited on the Medical Center Grounds.
- G. Means of Egress: Do not block exiting for occupied buildings, including

- paths from exits to roads. Minimize disruptions and coordinate with COTR.
- H. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly COTR.
 - I. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241 and NFPA 10.
 - J. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.
 - K. Existing Fire Protection: Do not impair automatic sprinklers, smoke and heat detection, and fire alarm systems, except for portions immediately under construction, and temporarily for connections. Provide fire watch for impairments more than 1 hour in a 24-hour period. Request interruptions in accordance with Article, OPERATIONS AND STORAGE AREAS, and coordinate with COTR. All existing or temporary fire protection systems (fire alarms, sprinklers) located in construction areas shall be tested as coordinated with the medical center. Parameters for the testing and results of any tests performed shall be recorded by the medical center and copies provided to the COTR.
 - L. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with COTR.
 - M. Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with COTR or Safety Officer at least 24 hours in advance of hot work. The Contractor shall be responsible for assigning an authorized supervisory representative to issue hot work permits in accordance with Facilities Management Service (FMS) 138-10-01 WELDING AND CUTTING. Before any cutting or welding with open flame is conducted, the contractor or subcontractor shall obtain permission from the contractor's authorized representative by issuance of this permit.
 - O. Fire Hazard Prevention and Safety Inspections: Inspect and provide a written report weekly for fire hazards and safety problems for the entire construction areas. These inspections shall begin from the notice to proceed until the acceptance of the entire project by the Contracting Officer. Coordinate with, and report findings and corrective actions weekly to COTR.
 - P. Smoking: Smoking is prohibited on the Medical Center, including all vehicles, parking lots and trailers except in Medical Center designated smoking rest areas.
 - Q. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily.

- R. Perform other construction, alteration and demolition operations in accordance with 29 CFR 1926.

1.6 OPERATIONS AND STORAGE AREAS

- A. The Medical Center is a Hospital First! Any and all construction activities shall be secondary to the Mission of the Medical Center. Various construction activities may be restricted to certain hours including only after normal working hours or on weekends or holidays as necessary. Even scheduled activities may be postponed or revised based on the needs of the Medical Center.
- B. The Contractor its employees and all subcontractor and subcontractor employees and material suppliers are subject to all Veterans Health Administration (VHA), Medical Center (BVAMC), and Facilities Management Service (FMS) directives and memorandums. These documents are available for review in the FMS office.
- C. The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.
- D. Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.
- E. The Contractor shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.
- F. Working space and space available for storing materials shall be as determined by the COTR.
- G. Execute work so as to interfere as little as possible with normal

functioning of Medical Center as a whole, including operations of utility services, fire protection systems and any existing equipment, and with work being done by others. Keep roads clear of construction materials, debris, standing construction equipment and vehicles at all times. Use of equipment and tools that transmit vibrations and noises through the building structure, are not permitted in buildings that are occupied, during construction, jointly by patients or medical personnel, and Contractor's personnel, except as permitted by COTR where required by limited working space. Additionally, Contractor may be restricted further than OSHA allowable limits in terms of vehicle and construction emissions, odors, noises, core drilling, hammer drilling, jack hammering, etc.

1. Do not store materials and equipment in other than assigned areas.
2. Schedule delivery of materials and equipment to immediate construction working areas within buildings in use by Department of Veterans Affairs in quantities sufficient for not more than two work days. Provide unobstructed access to Medical Center areas required to remain in operation.
3. Where access by Medical Center personnel to vacated portions of buildings is not required, storage of Contractor's materials and equipment will be permitted subject to fire and safety requirements.

H. Phasing: To insure such executions, Contractor shall furnish the COTR with a schedule of approximate phasing dates on which the Contractor intends to accomplish work in each specific area of site, building or portion thereof. In addition, Contractor shall notify the COTR two weeks in advance of the proposed date of starting work in each specific area of site, building or portion thereof. Arrange such phasing dates to insure accomplishment of this work in successive phases mutually agreeable to Medical Center Director, COTR and Contractor. Contractor shall take all measures and provide all material necessary for protecting existing equipment and property in affected areas of construction against dust and debris, so that equipment and affected areas to be used in the Medical Centers operations will not be hindered. Contractor shall permit access to Department of Veterans Affairs personnel and patients through other construction areas which serve as routes of access to such affected areas and equipment. Coordinate alteration work in areas occupied by Department of Veterans Affairs so that Medical Center operations will continue during the construction period.

I. The following list generally outlines the intended successive construction phases:

- Phase 1: First floor temporary construction partitions to be erected. Construct temporary electrical, communications, security, alarm and medical gas systems at Waiting 101. Purple Team staff will move to Waiting 101. Current Admitting staff will move to MAS 100. Temporary Triage to be constructed then occupied at Corridor C15. Install temporary door hardware at Vestibule C13 for temporary gas storage room. Remove and provide infill framing and finishes at first floor windows at Exam Rooms 109 and 111, second floor windows at Rooms 226 and 235 and third floor windows at ICU Lounge 310H, Patient Rooms 310E and 310F and four windows at ICU 310D. Site utilities to be relocated, removed or terminated as indicated.
- Phase 2: Install temporary electrical and mechanical systems as indicated. MEP systems serving spaces illustrated within the boundary of the 1st Floor Demolition Plan to be relocated, removed or terminated as indicated. Temporarily relocate identified rooftop equipment to the existing Building 85 Roof at the third floor for essential systems including Emergency Isolation Room exhaust and Lab refrigerator condensing units. Mechanical contractor shall also provide temporary supply and return air ductwork connections to existing AHU-12 and extend ductwork to the first floor from the roof of existing Building 85 to the temporary supply and return air connection located at the first floor emergency room construction boundary. The temporary systems shall remain functioning until final system connections can be made. See mechanical construction phasing plan on sheet M0.6 for temporary equipment and duct routing coordination for Phase 2 work.
- Phase 3: Demolish single story admitting building elements including but not limited to the structural steel framing systems, roofing, parapets, slabs on grade, foundations, walls, interior partitions and furring, doors, windows, cabinetry, finishes, vacated MEP Systems, fixtures and other items within the area of work identified. Protect existing plumbing, mechanical and electrical systems to remain and identified salvage items. Remove the roof structure and portion of walls to height indicated at the Elec/Generator Room #118. Provide temporary support of electrical systems to remain at the Elec/Generator Room #118 and maintain weather tightness for protection of the room during construction. Site and utility demolition work shall be completed within this

phase. Coordinate the disruption of any and all services with the Resident Engineer. Extend new portion of sanitary sewer and other below slab systems. Complete new site work.

- Phase 4: Construct foundations, steel structure and floor diaphragms at first, second, third and penthouse floors. This will include all structural connections to and above the existing Specialty Care Tower structure. Extend structure above the Elec/Generator Room #118.
- Phase 5: Install and relocate permanent MEP systems, panels, alarms and distribution systems serving the first floor as indicated. Do not disconnect temporary or connect final 24-hour monitored panels and alarm systems until 1st floor tenant improvements are completed.
- Phase 6: Construct first, second, and penthouse level tenant improvements. Make final connections of 24-hour monitored panels and alarm systems. Provide punch-list and final cleaning for owner occupancy of the first floor.
- Phase 7: Construct third floor addition ICU tenant improvements. If approved by the VA COTR, third floor ICU addition tenant improvements may be constructed concurrently with phase 6 tenant improvements if the contractor can successfully demonstrate that occupancy of the first floor will not be delayed. Provide punch-list and final cleaning for owner occupancy of the third floor addition.
- Phase 8: Third Floor temporary construction partitions to be erected. Demolish exterior walls and construct new openings between the addition and the existing building. Selectively demolish and construct third floor corridors and the ICU/Surgery Waiting Room #326 for immediate owner occupancy prior to the demolition and construction of the remaining former ICU and Surgical Department spaces. Demolish the remaining 3rd floor building elements indicated and construct the remaining third floor tenant improvements. Provide punch-list and final cleaning for owner occupancy of the third floor area.

J. Construction Fence: Before construction operations begin, Contractor shall provide a substantial construction fence as specified on the Site Staging Plan and acceptable to the COTR, around the construction area indicated on the drawings. Provide gates as required for access with necessary hardware, including hasps and padlocks. Fasten fence fabric to terminal posts with tension bands and to line posts and top and bottom

rails with tie wires spaced at maximum 15 inches. Bottom of fences shall extend to one inch above grade. Remove the fence when directed by COTR.

- K. Utilities Services: Maintain existing utility services for Medical Center at all times. Provide temporary facilities, labor, materials, equipment, connections, and utilities to assure uninterrupted services. Where necessary to cut existing water, steam, gases, sewer or air pipes, or conduits, wires, cables, etc. of utility services or of fire protection systems and communications systems (including telephone), they shall be cut and capped at suitable places where shown; or, in absence of such indication, where directed by COTR.
1. No utility service such as water, gas, steam, sewers or electricity, or fire protection systems and communications systems may be interrupted without prior approval of COTR. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished, work on any energized circuits or equipment shall not commence without the Medical Center Director's prior knowledge and written approval. Refer to specification Sections 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS, 27 05 11 REQUIREMENTS FOR COMMUNICATIONS INSTALLATIONS and 28 05 11, REQUIREMENTS FOR ELECTRONIC SAFETY AND SECURITY INSTALLATIONS for additional requirements.
 2. Contractor shall submit a request to interrupt any such services to COTR, in writing, a minimum of 48 hours in advance of proposed interruption. Request shall state reason, date, exact time of, and approximate duration of such interruption.
 3. Contractor will be advised (in writing) of approval of request, or of which other date and/or time such interruption will cause least inconvenience to operations of Medical Center. Interruption time approved by Medical Center may occur at other than Contractor's normal working hours.
 4. Major interruptions of any system must be requested, in writing, at least 15 calendar days prior to the desired time and shall be performed as directed by the COTR.
 5. In case of a contract construction emergency, service will be interrupted on approval of COTR. Such approval will be confirmed in writing as soon as practical.
 6. The VA will shut down existing utility system as necessary for the Contractor to perform required work on the utility. The Contractor shall be responsible for draining existing systems, such as water, chilled water, heating water etc. as required to accomplish new work. Contractor shall also be responsible for re-filling systems including

- adding chemicals as required. Contractor shall be further responsible for returning the utility to its proper operating state including but not limited to: removal of air entrainment; re-balancing of throttling valves or dampers; verification of the proper operation of any control system. It is acceptable to salvage existing treated water in clean storage containers approved by the VA, and re-inject it into the system upon completion of the work. Any treated water not re-injected shall be disposed of in accordance with project specifications.
7. Whenever it is required that a connection fee be paid to a public utility provider for new permanent service to the construction project, for such items as water, sewer, electricity, gas or steam, payment of such fee shall be the responsibility of the Government and not the Contractor.
- L. Abandoned Lines: All service lines such as wires, cables, conduits, ducts, pipes and the like, and their hangers or supports, which are to be abandoned are to be removed entirely back to the point of connection to the active utility (i.e. piping and cutwork back to active mains, electrical wires and cables back to active circuitry and all empty raceways. If items are noted to be abandoned in place, they shall be sealed, capped or plugged. The lines shall not be capped in finished areas, but shall be removed and sealed, capped or plugged in ceilings, within furred spaces, in unfinished areas, or within walls or partitions; so that they are completely behind the finished surfaces.
- M. To minimize interference of construction activities with flow of Medical Center traffic, comply with the following:
1. Keep roads, walks and entrances to grounds, to parking and to occupied areas of buildings clear of construction materials, debris and standing construction equipment and vehicles. Wherever excavation for new utility lines cross existing roads, at least one lane must be open to traffic at all times unless an alternate route is identified and Contractor provides adequate temporary barriers signage and direction for detours.
 2. Method and scheduling of required cutting, altering and removal of existing roads, walks, and entrances must be approved by the COTR.
 3. The Contractor shall conform to the Manual on Uniform Traffic Control Devices 2009 Edition Part 6 Temporary Traffic Control.
- N. Coordinate the work for this contract with other construction operations as directed by COTR. This includes the scheduling of traffic and the use of roadways, as specified in Article, USE OF ROADWAYS. (Reference FAR 52.236-10.)

- O. The Contractor shall at all times keep the work area, including storage areas, free from accumulation of waste materials. Before completing the work, the Contractor shall remove from the work and premises any rubbish, tools, scaffolding, equipment, and materials that are not the property of the Government. Upon completing the work, the Contractor shall leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer.

1.7 ALTERATIONS

- A. Survey: Before any work is started, the Contractor shall make a thorough survey with the COTR and Contracting officer of areas of buildings in which alterations occur and areas which are anticipated routes of access, and furnish a report, signed by both, to the Contracting Officer. This report shall list by rooms and spaces:
 1. Existing condition and types of resilient flooring, doors, windows, walls and other surfaces not required to be altered throughout affected areas of buildings.
 2. Existence and conditions of items such as plumbing fixtures and accessories, electrical fixtures, equipment, venetian blinds, shades, etc., required by drawings to be either reused or relocated, or both.
 3. Shall note any discrepancies between drawings and existing conditions at site.
 4. Shall designate areas for working space, materials storage and routes of access to areas within buildings where alterations occur and which have been agreed upon by Contractor and COTR.
- B. Any items required by drawings to be either reused or relocated or both, found during this survey to be nonexistent, or in opinion of COTR and Contracting Officer, to be in such condition that their use is impossible or impractical, shall be furnished and/or replaced by Contractor with new items in accordance with specifications which will be furnished by Government. Provided the contract work is changed by reason of this subparagraph B, the contract will be modified accordingly, under provisions of clause entitled "DIFFERING SITE CONDITIONS" (FAR 52.236-2) and "CHANGES" (FAR 52.243-4 and VAAR 852.236-88).
- C. Re-Survey: Thirty days before expected partial or final inspection date, the Contractor and COTR together shall make a thorough re-survey of the areas of buildings involved. They shall furnish a report on conditions then existing, of resilient flooring, doors, windows, walls and other surfaces as compared with conditions of same as noted in first condition survey report:
 1. Re-survey report shall also list any damage caused by Contractor to

such flooring and other surfaces, despite protection measures; and, will form basis for determining extent of repair work required of Contractor to restore damage caused by Contractor's workmen in executing work of this contract.

- D. Protection: Provide the following protective measures:
1. Wherever existing roof surfaces are disturbed they shall be protected against water infiltration. In case of leaks, they shall be repaired immediately upon discovery.
 2. Temporary protection against damage for portions of existing structures and grounds where work is to be done, materials handled and equipment moved and/or relocated.
 3. Protection of interior of existing structures at all times, from damage, dust and weather inclemency. Wherever work is performed, floor surfaces that are to remain in place shall be adequately protected prior to starting work, and this protection shall be maintained intact until all work in the area is completed.

1.8 INFECTION PREVENTION MEASURES

- A. Implement the requirements of Veterans Affairs Medical Center's (VAMC's) Infection Control Risk Assessment (ICRA) team. ICRA Group may monitor dust in the vicinity of the construction work and require the Contractor to take corrective action immediately if the safe levels are exceeded.
- B. Establish and maintain a dust control program as part of the contractor's infection preventive measures in accordance with the guidelines provided by ICRA Group. Prior to start of work, prepare a plan detailing project-specific dust protection measures, including periodic status reports, and submit to COTR and Facility ICRA team for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.
1. All personnel involved in the construction or renovation activity shall be educated and trained in infection prevention measures established by the Medical Center.
- C. Medical Center Infection Control personnel shall monitor for airborne disease (e.g. aspergillosis) as appropriate during construction. A baseline of conditions may be established by the medical center prior to the start of work and periodically during the construction stage to determine impact of construction activities on indoor air quality. In addition:
1. The COTR and VAMC Infection Control personnel shall review pressure differential monitoring documentation to verify that pressure differentials in the construction zone and in the patient-care rooms are appropriate for their settings. The requirement for negative air

- pressure in the construction zone shall depend on the location and type of activity. Upon notification, the contractor shall implement corrective measures to restore proper pressure differentials as needed.
2. In case of any problem, the Medical Center, along with assistance from the Contractor, shall conduct an environmental assessment to find and eliminate the source.
- D. In general, following preventive measures shall be adopted during construction to keep down dust and prevent mold.
1. Dampen debris to keep down dust and provide temporary construction partitions in existing structures where directed by COTR. Blank off ducts and diffusers to prevent circulation of dust into occupied areas during construction.
 2. Do not perform dust producing tasks within occupied areas without the approval of the COTR. For construction in any areas that will remain jointly occupied by the medical Center and Contractor's workers, the Contractor shall:
 - a. Provide dust proof two-hour fire-rated temporary drywall construction barriers to completely separate construction from the operational areas of the hospital in order to contain dirt debris and dust. Barriers shall be sealed and made presentable on hospital occupied side. Install a self-closing rated door in a metal frame, commensurate with the partition, to allow worker access. Maintain negative air at all times. A fire retardant polystyrene, 6-mil thick or greater plastic barrier meeting local fire codes may be used where dust control is the only hazard, and with the prior approval of the COTR, the Medical Center Safety Officer, and the Medical Center infection control coordinator.
 - b. HEPA filtration is required where the exhaust dust may reenter the breathing zone. Contractor shall verify that construction exhaust to exterior is not reintroduced to the medical center through intake vents, or building openings. Install HEPA (High Efficiency Particulate Accumulator) filter vacuum system rated at 95% capture of 0.3 microns including pollen, mold spores and dust particles. Insure continuous negative air pressures occurring within the work area. HEPA filters should have ASHRAE 85 or other prefilter to extend the useful life of the HEPA. Provide both primary and secondary filtrations units. Exhaust hoses shall be heavy duty, flexible steel reinforced and exhausted so that dust is not reintroduced to the medical center.
 - c. Adhesive Walk-off/Carpet Walk-off Mats, minimum 600mm x 900mm (24"

x 48"), shall be used at all interior transitions from the construction area to occupied medical center area. These mats shall be changed as often as required to maintain clean work areas directly outside construction area at all times.

- d. Vacuum and wet mop all transition areas from construction to the occupied medical center at the end of each workday. Vacuum shall utilize HEPA filtration. Maintain surrounding area frequently. Remove debris as they are created. Transport these outside the construction area in containers with tightly fitting lids.
 - e. The contractor shall not haul debris through patient-care areas without prior approval of the COTR. When, approved, debris shall be hauled in enclosed dust proof containers or wrapped in plastic and sealed with duct tape. No sharp objects should be allowed to cut through the plastic. Wipe down the exterior of the containers with a damp rag to remove dust. All equipment, tools, material, etc. transported through occupied areas shall be made free from dust and moisture by vacuuming and wipe down.
 - f. Using a HEPA vacuum, clean inside the barrier and vacuum ceiling tile prior to replacement. Any ceiling access panels opened for investigation beyond sealed areas shall be sealed immediately when unattended.
 - g. There shall be no standing water during construction. This includes water in equipment drip pans and open containers within the construction areas. All accidental spills must be cleaned up and dried within 12 hours. Remove and dispose of porous materials that remain damp for more than 72 hours.
 - h. Seal off all supply and return grilles and diffusers with plastic to prevent any dust or debris from entering the ductwork. Seal any unused doors leading to areas that will not be impacted by the construction.
 - i. Any ceiling tiles removed outside the construction containment area are to be replaced as soon as possible, and as a minimum at the end of each work day.
 - j. At completion, remove construction barriers and ceiling protection carefully, outside of normal work hours. Vacuum and clean all surfaces free of dust after the removal.
- E. Final Cleanup:
- 1. Upon completion of project, or as work progresses, remove all construction debris from above ceiling, vertical shafts and utility chases that have been part of the construction.
 - 2. Perform HEPA vacuum cleaning of all surfaces in the construction

area. This includes walls, ceilings, cabinets, furniture (built-in or free standing), partitions, flooring, etc.

3. All new air ducts shall be cleaned prior to final inspection.

1.9 DISPOSAL AND RETENTION

A. Materials and equipment accruing from work removed and from demolition of buildings or structures, or parts thereof, shall be disposed of as follows:

1. Reserved items which are to remain property of the Government include fire extinguishers, signs, tables, trash receptacles, cigarette/trash receptacles, bollards and others as well as items noted on drawings or in other specifications. Items that remain property of the Government shall be removed or dislodged from present locations in such a manner as to prevent damage which would be detrimental to re-installation and reuse. Store such items within Contractor's storage area as further directed by the COTR.
2. Items not reserved shall become property of the Contractor and be removed by Contractor from Medical Center.
3. Items of portable equipment and furnishings located in rooms and spaces in which work is to be done under this contract shall remain the property of the Government. When rooms and spaces are vacated by the Department of Veterans Affairs during the alteration period, such items which are NOT required by drawings and specifications to be either relocated or reused will be removed by the Government in advance of work to avoid interfering with Contractor's operation.

B. The Contractor shall be responsible for the removal and disposal of transformer(s) and other miscellaneous equipment. None of the materials contain PCBs.

1.10 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS

A. The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. Contractor shall pay particular attention to the protection of tree roots of trees to remain. If any limbs or branches of trees are required to be removed or broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the COTR.

- B. The Contractor shall protect from damage all existing improvements and utilities at or near the work site and on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. Specific items that will be disturbed such as irrigation systems including valve control wiring and site lighting conduits and conductors shall be returned to their as found condition included as part of the Work.
- C. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

(FAR 52.236-9)

1.11 RESTORATION

- A. Remove, cut, alter, replace, patch and repair existing work as necessary to install new work. Except as otherwise shown or specified, do not cut, alter or remove any structural work, and do not disturb any ducts, plumbing, steam, gas, or electric work without approval of the COTR. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the COTR before it is disturbed. Materials and workmanship used in restoring work, shall conform in type and quality to that of original existing construction, except as otherwise shown or specified.
- B. Contractor shall saw cut at lines shown on the drawings all concrete, asphalt and other materials where demolition or alteration is to occur. Any damage outside of the cut lines shall be cut out by proper saw cutting creating a neat repair at no additional cost to the Government.
- C. Upon completion of contract, deliver work complete and undamaged. Existing work (walls, ceilings, partitions, floors, mechanical and electrical work, lawns, paving, roads, walks, etc.) disturbed or removed as a result of performing required new work, shall be patched, repaired, reinstalled, or replaced with new work, and refinished and left in as good condition as existed before commencing work.
- D. At Contractor's own expense, Contractor shall immediately restore to service and repair any damage caused by Contractor's workmen to existing piping and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems (including telephone) which are indicated on drawings and which are not scheduled for discontinuance or abandonment.
- E. The drawings show the general location of exiting utilities. The

Contractor shall at its own expense verify exact locations and elevations of utilities and make adjustments of the Work to accommodate such utilities. Expense of repairs to such utilities and systems not shown on drawings will be covered by adjustment to contract time and price in accordance with clause entitled "CHANGES" (FAR 52.243-4 and VAAR 852.236-88) and "DIFFERING SITE CONDITIONS" (FAR 52.236-2) of Section 00 72 00, GENERAL CONDITIONS.

1.12 PHYSICAL DATA

- A. Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.
- B. Government does not guarantee that other materials will not be encountered nor that proportions, conditions or character of several materials will not vary from those indicated by Drawings. Specifically the Department of Veterans Affairs makes no indication of depth of water levels below grade. Bidders are expected to examine site of work and decide for themselves character of materials and make their bids accordingly. Upon proper application to Department of Veterans Affairs, bidders will be permitted to make subsurface explorations of their own at site.

1.13 PROFESSIONAL SURVEYING SERVICES

A registered professional land surveyor or registered civil engineer whose services are retained and paid for by the Contractor shall perform services specified herein and in other specification sections. The Contractor shall certify that the land surveyor or civil engineer is not one who is a regular employee of the Contractor, and that the land surveyor or civil engineer has no financial interest in this contract.

1.14 LAYOUT OF WORK

- A. The Contractor shall lay out the work from Government established base lines and bench marks, indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at Contractor's own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Contracting Officer. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Contracting Officer until authorized to remove them. If such marks are destroyed by the Contractor or through Contractor's negligence before their removal is authorized, the Contracting Officer

may replace them and deduct the expense of the replacement from any amounts due or to become due to the Contractor.

(FAR 52.236-17)

- B. Establish and plainly mark such other lines and grades that are reasonably necessary to properly assure that location, orientation, and elevations established for each such structure and/or addition, roads, parking lots, are in accordance with lines and elevations shown on contract drawings.
- C. Following completion of general mass excavation and before any other permanent work is performed, establish and plainly mark (through use of appropriate batter boards or other means) sufficient additional survey control points or system of points as may be necessary to assure proper alignment, orientation, and grade of all major features of work. Survey shall include, but not be limited to, location of lines and grades of footings, exterior walls, center lines of columns in both directions, major utilities and elevations of floor slabs:
 - 1. Such additional survey control points or system of points thus established shall be checked and certified by a registered land surveyor or registered civil engineer. Furnish such certification to the COTR before any work (such as footings, floor slabs, columns, walls, utilities and other major controlling features) is placed.
- D. Whenever changes from contract drawings are made in line or grading requiring certificates, record such changes on a reproducible drawing bearing the registered land surveyor or registered civil engineer seal, and forward these drawings upon completion of work to COTR.
- E. The Contractor shall perform the surveying and layout work of this and other articles and specifications in accordance with the provisions of Article "Professional Surveying Services".
- F. The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer and COTR access thereto. Anything mentioned in the specification and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at the Contractor's own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary unless otherwise

provided.

- G. Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of the like import shall mean "approved by", or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.
- H. Where "as shown", "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place", that is "furnished and installed".
- I. Shop drawings means drawings, submitted to the Government by the Contractor, subcontractor, or any lower tier subcontractor pursuant to a construction contract, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the contractor to explain in detail specific portions of the work required by the contract. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.
- J. If this contract requires submittals or shop drawings, the Contractor shall coordinate all such submittals or drawings, and review them for accuracy, completeness, and compliance with contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Submittals and shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the submittals or shop drawings and if not approved as submitted shall indicate the Government's reasons therefore. Any work done before such approval shall be at the Contractor's risk. Approval by the contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such submittals or drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (K) below.
- K. If submittals or shop drawings show variations from the contract

requirements, the Contractor shall describe such variations in writing, separate from the submittal or drawings, at the time of submission. If the Contracting Officer approves any such variation, the Contracting Officer shall issue an appropriate contract modification, except that, if the variation is minor or does not involve a change in price or in time of performed, a modification need not be issued.

- L. The Contractor shall submit to the Contracting Officer for approval a single PDF copy (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. The PDF copy (unless otherwise indicated) of all shop drawings, will be retained by the Contracting Officer and a single PDF copy will be returned to the Contractor.
- M. Upon completing the work under this contract, the Contractor shall furnish a single combined PDF copy of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the equipment is completed and accepted. The PDF shall be indexed and labeled by shop drawing submittal number.
- N. The Contracting Officer's interpretation of the drawings and specification will be final, subject to the disputes clause.
- O. Large scale drawings supersede small scale drawings.
- P. Dimensions govern in all cases. Scaling of drawings may be done only for general location and general size of items.
- Q. Dimensions shown of existing work and all dimensions required for work that is to connect with existing work, shall be verified by the Contractor by actual measurement of the existing work. Any work at variance with that specified or shown in the drawings shall not be performed by the Contractor until approved in writing by the Contracting Officer.

1.15 AS-BUILT DRAWINGS

- A. The contractor shall maintain two (2) full size sets of as-built drawings which will be kept current during construction of the project, to include all contract changes, modifications and clarifications.
- B. All variations shall be shown in the same general detail as used in the contract drawings. To insure compliance, as-built drawings shall be made available for the COTR's and Architect's review, as often as requested.
- C. Contractor shall deliver two approved completed sets of as-built drawings to the COTR within 15 calendar days after each completed phase and after the acceptance of the project by the COTR.
- D. Paragraphs A, B, & C shall also apply to all shop drawings.
- E. Failure to keep as-built drawings up-to-date shall be cause for withholding payments.

- F. Contractor is to provide an updated sequence of operation in digital format indicating all changes made to the original sequence of operation.

1.16 USE OF ROADWAYS

- A. For hauling, use only established public roads and roads on /Medical Center property and, when authorized by the COTR, such temporary roads which are necessary in the performance of contract work. Temporary roads shall be constructed by the Contractor at Contractor's expense. When necessary to cross curbing, sidewalks, or similar construction, they must be protected by well-constructed bridges.
- B. When new permanent roads are to be a part of this contract, Contractor may construct them immediately for use to facilitate building operations. These roads may be used by all who have business thereon within zone of building operations.

1.17 RESIDENT ENGINEER'S FIELD OFFICE (NOT USED)

1.18 TEMPORARY USE OF MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Use of new installed mechanical and electrical equipment to provide heat, ventilation, plumbing, light and power will be permitted subject to compliance with the following provisions:
1. Permission to use each unit or system must be given by the COTR. If the equipment is not installed and maintained in accordance with the following provisions, the COTR will withdraw permission for use of the equipment.
 2. Electrical installations used by the equipment shall be completed in accordance with the drawings and specifications to prevent damage to the equipment and the electrical systems, i.e. transformers, relays, circuit breakers, fuses, conductors, motor controllers and their overload elements shall be properly sized, coordinated and adjusted. Voltage supplied to each item of equipment shall be verified to be correct and it shall be determined that motors are not overloaded. The electrical equipment shall be thoroughly cleaned before using it and again immediately before final inspection including vacuum cleaning and wiping clean interior and exterior surfaces.
 3. Units shall be properly lubricated, balanced, and aligned. Vibrations must be eliminated.
 4. Automatic temperature control systems for preheat coils shall function properly and all safety controls shall function to prevent coil freeze-up damage.
 5. The air filtering system utilized shall be that which is designed for the system when complete, and all filter elements shall be replaced at completion of construction and prior to testing and balancing of

system.

6. All components of heat production and distribution system, metering equipment, condensate returns, and other auxiliary facilities used in temporary service shall be cleaned prior to use; maintained to prevent corrosion internally and externally during use; and cleaned, maintained and inspected prior to acceptance by the Government.
- B. Prior to final inspection, the equipment or parts used which show wear and tear beyond normal, shall be replaced with identical replacements, at no additional cost to the Government.
- C. This paragraph shall not reduce the requirements of the mechanical and electrical specifications sections.

1.19 TEMPORARY USE OF EXISTING ELEVATORS

- A. Use of existing elevators for handling building materials and Contractor's personnel will be permitted subject to following provisions:
 1. Contractor makes all arrangements with the COTR for use of elevators. The COTR will ascertain that elevators are in proper condition. Contractor may use elevator No. 3 in Building No. 85 for daily use.
 2. Contractor covers and provides maximum protection of following elevator components:
 - a. Entrance jambs, heads soffits and threshold plates.
 - b. Entrance columns, canopy, return panels and inside surfaces of car enclosure walls.
 - c. Finish flooring.
 3. Government will accept hoisting ropes of elevator and rope of each speed governor if they are worn under normal operation. However, if these ropes are damaged by action of foreign matter such as sand, lime, grit, stones, etc., during temporary use, they shall be removed and replaced by new hoisting ropes at Contractor's expense.
 4. If brake lining of elevators are excessively worn or damaged during temporary use, they shall be removed and replaced by new brake lining at Contractor's expense.
 5. All parts of main controller, starter, relay panel, selector, etc., worn or damaged during temporary use shall be removed and replaced with new parts, if recommended by elevator inspector after elevator is released by Contractor.
 6. Place elevator in condition equal, less normal wear, to that existing at time it was placed in service of Contractor as approved by Contracting Officer.

1.20 TEMPORARY USE OF NEW ELEVATORS (NOT USED)

1.21 TEMPORARY TOILETS

- A. Provide where directed, (for use of all Contractor's workmen) ample temporary sanitary toilet accommodations with suitable sewer and water connections; or provide suitable dry closets where directed. Keep such places clean and free from flies, and all connections and appliances connected therewith are to be removed prior to completion of contract, and premises left perfectly clean. Contractor shall further comply with 29 CFR 1926 Subpart D. The Government may direct relocation of temporary facilities as needs of the Medical Center change.

1.22 AVAILABILITY AND USE OF UTILITY SERVICES

- A. The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. The Contractor shall carefully conserve any utilities furnished without charge.
- B. The Contractor, at Contractor's expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of electricity used. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.
- C. Heat: Furnish temporary heat necessary to prevent injury to work and materials through dampness and cold. Use of open salamanders or any temporary heating devices which may be fire hazards or may smoke and damage finished work, will not be permitted. Maintain minimum temperatures as specified for various materials.
- D. Electricity (for Construction and Testing): Furnish all temporary electric services.
1. Obtain electricity by connecting to the Medical Center electrical distribution system using OSHA and NEC approved GFI equipment for all electrical connections to the Medical Center. The Contractor shall meter and pay for electricity required for electric cranes. Electricity for all other uses is available at no cost to the Contractor.
- F. Water (for Construction and Testing): Furnish temporary water service.
1. Obtain water by connecting to the Medical Center water distribution system. Provide reduced pressure backflow preventer at each connection. Water is available at no cost to the Contractor.
 2. Maintain connections, pipe, fittings and fixtures and conserve water-use so none is wasted. Failure to stop leakage or other wastes

will be cause for revocation (at COTR's discretion) of use of water from Medical Center's system.

1.23 NEW TELEPHONE EQUIPMENT

- A. The Contractor shall coordinate with the Work of installation of telephone equipment. This Work shall be completed prior to final inspection and acceptance the by the Government.

1.24 TESTS

- A. Pre-test mechanical and electrical equipment and systems and make corrections required for proper operation of such systems before requesting final tests. Final test will not be conducted unless pre-tested.
- B. Conduct final tests required in various sections of specifications in presence of an authorized representative of the Contracting Officer. Contractor shall furnish all labor, materials, equipment, instruments, and forms, to conduct and record such tests.
- C. Mechanical and electrical systems shall be balanced, controlled and coordinated. A system is defined as the entire complex which must be coordinated to work together during normal operation to produce results for which the system is designed. For example, air conditioning supply air is only one part of entire system which provides comfort conditions for a building. Other related components are return air, exhaust air, steam, chilled water, refrigerant, hot water, controls and electricity, etc. Another example of a complex which involves several components of different disciplines is a boiler installation. Efficient and acceptable boiler operation depends upon the coordination and proper operation of fuel, combustion air, controls, steam, feedwater, condensate and other related components.
- D. All related components as defined above shall be functioning when any system component is tested. Tests shall be completed within a reasonably short period of time during which operating and environmental conditions remain reasonably constant.
- E. Individual test result of any component, where required, will only be accepted when submitted with the test results of related components and of the entire system.

1.25 INSTRUCTIONS

- A. Contractor shall furnish Maintenance and Operating manuals and verbal instructions when required by the systems as further defined in section 1.24 above; various sections of the specifications; and as hereinafter specified no later than 2 weeks prior to final inspection.
- B. Manuals: Maintenance and operating manuals (four copies each) and an electronic PDF copy for each separate piece of equipment shall be

delivered to the COTR coincidental with the delivery of the equipment to the job site. Manuals shall be complete, detailed guides for the maintenance and operation of equipment. They shall include complete information necessary for starting, adjusting, maintaining in continuous operation for long periods of time and dismantling and reassembling of the complete units and sub-assembly components. Manuals shall include an index covering all component parts clearly cross-referenced to diagrams and illustrations. Illustrations shall include "exploded" views showing and identifying each separate item. Emphasis shall be placed on the use of special tools and instruments. The function of each piece of equipment, component, accessory and control shall be clearly and thoroughly explained. All necessary precautions for the operation of the equipment and the reason for each precaution shall be clearly set forth. Manuals must reference the exact model, style and size of the piece of equipment and system being furnished. Manuals referencing equipment similar to but of a different model, style, and size than that furnished will not be accepted.

- C. Instructions: Contractor shall provide qualified, factory-trained manufacturers' representatives to give detailed instructions to assigned Department of Veterans Affairs personnel in the operation and complete maintenance for each piece of equipment. All such training will be at the job site. These requirements are more specifically detailed in the various technical sections. Instructions for different items of equipment that are component parts of a complete system, shall be given in an integrated, progressive manner. All instructors for every piece of component equipment in a system shall be available until instructions for all items included in the system have been completed. This is to assure proper instruction in the operation of inter-related systems. All instruction periods shall be at such times as scheduled by the COTR and shall be considered concluded only when COTR is satisfied in regard to complete and thorough coverage. The Department of Veterans Affairs reserves the right to request the removal of, and substitution for, any instructor who, in the opinion of the COTR, does not demonstrate sufficient qualifications in accordance with requirements for instructors above.

1.26 GOVERNMENT-FURNISHED EQUIPMENT (GFE)

- A. The Government will furnish to the contractor various equipment and accessory items for installation where indicated on the drawings.

1.27 RELOCATED EQUIPMENT, ITEMS

- A. Suitably cap existing service lines, such as steam, condensate return, water, drain, gas, air, vacuum and/or electrical, whenever such lines

are disconnected from equipment to be relocated. Remove abandoned lines in finished areas and cap as specified herein before under paragraph "Abandoned Lines".

- B. Provide all mechanical and electrical service connections, fittings, fastenings and any other materials necessary for assembly and installation of relocated equipment; and leave such equipment in proper operating condition.
- C. All service lines such as noted above for relocated equipment shall be in place at point of relocation ready for use before any existing equipment is disconnected. Make relocated existing equipment ready for operation or use immediately after reinstallation.

1.28 STORAGE SPACE FOR DEPARTMENT OF VETERANS AFFAIRS EQUIPMENT (NOT USED)

1.29 CONSTRUCTION SIGN

- A. Provide a Construction Sign. All wood members shall be of framing lumber. Cover sign frame with 0.7 mm (24 gage) galvanized sheet steel nailed securely around edges and on all bearings. Provide three 100 by 100 mm (4 inch by 4 inch) posts (or equivalent round posts) set 1200 mm (four feet) into ground. Set bottom of sign level at 900 mm (three feet) above ground and secure to posts with through bolts. Make posts full height of sign. Brace posts with 50 x 100 mm (two by four inch) material as directed.
- B. Paint all surfaces of sign and posts two coats of white gloss paint. Border and letters shall be of black gloss paint, except project title which shall be blue gloss paint.
- C. Maintain sign and remove it when directed by the Resident Engineer.
- D. Detail drawing of sign showing required legend and other characteristics of sign is shown on the drawings.

1.30 SAFETY SIGN

- A. Provide a Safety Sign. Face of sign shall be 19 mm (3/4 inch) thick exterior grade plywood. Provide two 100 mm by 100 mm (four by four inch) posts extending full height of sign and 900 mm (three feet) into ground. Set bottom of sign level at 900 mm (three feet) above ground.
- B. Paint all surfaces of Safety Sign and posts with one prime coat and two coats of white gloss paint. Letters and design shall be painted with gloss paint of colors noted.
- C. Maintain sign and remove it when directed by Resident Engineer.
- D. Detail drawing of sign showing required legend and other characteristics of sign is shown on the drawings.
- E. Post the number of accident free days on a daily basis.

1.31 CONSTRUCTION DIGITAL IMAGES (NOT USED)

1.32 FINAL ELEVATION DIGITAL IMAGES (NOT USED)

1.33 HISTORIC PRESERVATION

Where the Contractor or any of the Contractor's employees, prior to, or during the construction work, are advised of or discover any possible archeological, historical and/or cultural resources, the Contractor shall immediately notify the COTR verbally, and then with a written follow up.

1.34 TOUR OF DUTY

A. All work shall be performed during normal Medical Center duty hours, Monday through Friday, 8:00 am to 4:30 pm, excluding federal holidays, except as follows:

1. Work that requires systems to be shut down may be required to be performed during other than normal working hours, including early mornings, evenings, nights, weekends, and/or holidays. All utility shutdowns shall occur only after approval is given by the COTR.

2. Work that interferes with normal VA functions shall be accomplished during other than normal working hours at a time least inconvenient to the hospital operations. This may include early mornings, evenings, nights, weekends, and/or holidays. The 1st floor Emergency Department, 2nd floor Lab and existing 3rd floor ICU are ongoing 24-hour operations. All work in these areas, except as approved otherwise by the COTR, will be required to be accomplished during other than normal working hours.

3. The contractor may request to work other than normal duty hours with the approval of the COTR only. Request to work other than normal duty hours must be submitted to the COTR in writing. Approval or rejection of such requests will depend on the convenience to the Government.

1.35 LOCKOUT/TAGOUT POLICY:

The Contractor shall observe and comply with the Medical Center's lockout/tagout policy. As a minimum every affected person shall apply its own lock(s) on every point of potential energy such that every effected person is protected from all potential sources of energy by its own lock. Each lock shall be permanently identified to each affected person. The key for each affected person's lock shall remain solely with the effected person. No one other than the effected person may remove its lock. All affected persons shall remove their locks prior to leaving the Medical Center. If a person leaves the Medical Center without removing its lock(s), then that person will be required to return to the Medical Center and remove its lock(s) at no cost to the Government. If the affected person is not available, then the lock(s) shall be removed in accordance with the Medical Center's lockout/tagout policy at no cost to the Government. A copy of this policy is available

from the COTR upon request.

1.36 COMPLIANCE WITH CODES AND REGULATIONS

All work shall be conducted and all materials handled in accordance with all codes including, but not limited to, the Occupational Safety and Health Act (29 CFR 1926), 29CFR 1910, NFPA Life Safety Code 101, 2009 ed., the NFPA National Electrical Code 70, 2008 ed., the NFPA Electrical Safety Code 70E, 2009 ed., the International Building Code, 2009 ed., the Uniform Federal Accessibility Standards, latest edition, and the Environmental Protection Act, latest edition.

1.37 MATERIAL SAFETY AND HEALTH CONSIDERATIONS

The following considerations are applicable to ALL Specification Sections:

The intent of this specification is to provide materials, adhesives and solvents, which are safe and environmentally responsible products. All materials, adhesives, solvents, and coatings shall be formulated to conform to the most stringent ecological, air quality, toxicity, flammability, and safety regulations in the event of any conflict herein. Provide low "Volatile Organic Compound: (VOC) compliant materials, adhesives, and solvents of quality and performance as specified. Out gassing materials, known or suspected carcinogens, and allergenics (i.e. formaldehyde, lead, zinc chromate) or otherwise long-term health threatening materials are to be avoided whenever possible. Provide material safety data sheets with submittals for review. Inform the COTR and Architect-Engineer of any suspect materials.

1.38 SUPERINTENDENCE BY THE CONTRACTOR

- A. At all times during the performance of this contract and until the work is completed and accepted in writing, the Contractor shall directly superintend the work or assign and have on the work a competent superintendent employed directly by the prime contractor who is satisfactory to the Contracting Officer and has legal authority to act for the Contractor.
- B. The Contractor shall furnish to the COTR each day a consolidated report for the preceding work day in which is shown the weather, number of laborers, mechanics, foremen/forewomen and pieces of heavy equipment used or employed by the Contractor and all subcontractors. The report shall bear the name of the firm, the branch of work which they perform such as concrete, plastering, masonry, plumbing, sheet metal work, and other such work. The report shall give breakdown of employees by crafts, location where employed, and work performed.
- C. At least weekly, the Contractor's Project manager, (a person designated by the Contractor to legally represent the Contractor to the Government)

shall attend a meeting with the Contracting Officer and/or the Contracting officer's Technical Representative for direct communications among all parties.

- D. Nothing contained in this contract shall be construed as creating any contractual relationship between and subcontractor and the Government. Divisions or section of specifications are not intended to control the Contractor in dividing work among subcontractors, or to limit work performed by any trade.
- E. The contractor shall be responsible to the Government for acts and omissions of his/her own employees and subcontractors and their employees. The Contractor shall also be responsible for coordination of the work of the trades, subcontractors, and material suppliers. The Contractor shall, in advance of the work, prepare coordination drawings showing the location of openings through slabs or walls, the pipe sleeves and hanger inserts, as well as the location and elevation of utility lines, including, but not limited to, conveyor systems, pneumatic tubes, ducts, and conduits and pipes 50 mm (2 inches) and larger in diameter. These drawings including plans, elevations, and sections as appropriate shall clearly show the manner in which the utilities fit into the available space and how they relate to each other and to existing building elements. Drawings shall be of appropriate scale to satisfy the previously stated purposes, but not smaller than 9mm (3/8) scale. Drawings may be composite (with distinctive colors for the various trades) or may be separated but fully coordinated drawings (such as sepias or photographic paper reproducible) of the same scale. Separate drawings shall depict identical building areas or sections and shall be capable of being overlaid in any combination. The submitted drawings for a given area of the project shall show the work of all trades which will be involved in that particular area. Six complete composite drawings or six complete sets of separate reproducible drawings shall be received by the Government not less than 20 days prior to the scheduled start of the work in the area illustrated by the drawings, for the purpose of showing the contractor's planned method of installation. The objective of such drawings are to promote carefully planned work sequence and proper trade coordination, in order to assure the expeditious solutions of problems and the installation of lines and equipment as contemplated by the contract documents while avoiding or minimizing additional costs to the contractor and to the Government. In the event the contractor, in coordinating the various installations and in planning the method of installation, finds a conflict in location or elevation of any of the utilities with themselves, with structural items

or with other construction items, the contractor shall bring this conflict to the attention of the Contracting Officer immediately. In doing so, the Contractor shall explain the proposed method of solving the problem or shall request instruction as to how to proceed if adjustments beyond those of usual trades' coordination are necessary. Utilities installation work will not proceed in any area prior to the submission and completion of the Government review of the coordinated drawings for that area, nor in any area in which conflicts are disclosed by the coordination drawings until the conflicts have been corrected to the satisfaction of the Contracting Officer. It is the responsibility of the contractor to submit the required drawings in a timely manner consistent with the requirements to complete the work covered by this contract within the prescribed contract time.

- F. The Government or its representatives will not undertake to settle any differences between the contractor and subcontractors or between subcontractors.

1.39 MATERIAL AND WORKMANSHIP

- A. All equipment, material, and articles incorporated into the work covered by this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, materials, article, or process that, in the judgment of the Contracting Officer, is equivalent to that named in the specifications, unless otherwise specifically provided in this contract.
- B. The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. When directed to do so the Contractor shall submit samples for approval at the contractor's expense, with all shipping charges prepaid. Machinery, equipment, material, and articles that do not have the required approval shall be

installed or used at the risk of subsequent rejection.

- C. All work under this contact shall be performed in a skillful and workman like manner. The Contracting Officer may require, in writing, that the Contractor remove from the work any employee the Contracting Officer deems incompetent, careless, or otherwise objectionable.

1.40 UNKNOWN ASBESTOS

The Contractor shall notify all workers that unknown asbestos could be encountered that has not been previously identified in the Contract Documents. In the event a suspect asbestos containing material is encountered during the construction, the Contractor shall immediately vacate the area and contact the COTR before proceeding further for appropriate testing and abatement procedures.

1.41 INSPECTIONS

The Government shall perform periodic inspections during the construction. These inspections are for the sole benefit of the Government and in no way relieve the Contractor of the responsibility of maintaining an adequate inspection and quality control system. The Government will conduct a final inspection and may conduct other inspections during which a punch list is generated (i. e. above ceiling inspection, roof inspection, exterior inspection, etc.). The Contractor shall notify the Contracting Officer, in writing when it will be ready for a government inspection. The Contractor is required to have all work to be inspected completed prior to a Government inspection. Prior to the final inspection, the Contractor may request a pre-final inspection be conducted by the Government. Provided the Government has adequate time, the project COTR will walk thru the project with the Contractor and point out items that need completion or correction. The Contractor will be responsible for taking notes or marking items during this walk thru. Prior to the final inspection for a given project or phase, the contractor is require to have all work required by the contract for the project or phase completed. During the final inspection, a punch list of correction items will be generated. It typically requires 2-3 days following the final inspection before a punch list is available. Final payment will not be made until all punch list items and all other technical and commercial requirements are met or properly corrected.

1.42 MODIFICATIONS DUE TO EQUIPMENT CHANGES

The project has been designed around specific equipment as listed in the equipment schedules. This is not meant to limit the equipment to be used on the project. It is a necessity of design. Other equipment is permitted to be used, provided it meets the requirement to be equal to

the equipment designed around. However, the contractor is responsible for determining if using a different piece of equipment will require changes in the design. The Contractor is responsible for affecting any necessary changes for any and all costs related to changes necessitated by using different equipment than that designed.

1.43 PROJECT CALENDER DAY SCHEDULE

A. The following is the Government projected schedule:

Notice to Proceed:	Day 1
Schedule of Values and Construction Schedule (CPM)	10 calendar days after notice to proceed
Safety/Environmental/Infection Control Submittals	30 Calendar Days after Notice to Proceed
Material Submittals	60 Calendar Days after Notice to Proceed
Project Completion prior to Final Inspection	510 Calendar Days after Notice to Proceed
Overall Project Period	540 Calendar Days after Notice to Proceed

- B. One of the submittal items that must be received and approved prior to starting on site work is the project schedule. Since it may require significant time to approve the schedule and coordinate any VA moves, this schedule should be submitted for approval as soon as possible by the Contractor.
- C. An updated progress schedule is to be provided prior to the submittal of each request for payment. The updated schedule is to show all activities started and/or completed during the reporting period and a projection of the activities that will take place during the following reporting period.

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SECTION 01 01 50
OSHA REQUIREMENTS
SPECIFIC BOISE VETERANS AFFAIRS MEDICAL CENTER FIRE & SAFETY POLICIES,
PROCEDURES & REGULATIONS, SUBMITTALS & DEVIATIONS

PART 1 - OSHA REQUIREMENTS

1.1 GENERAL

- A. Contractor shall comply with Occupational Safety and Health Act of 1970. This will include the safety and health standards found in 29 CFR 1910 and 29 CFR 1926. Copies of these standards can be acquired from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20420.
- B. Prior to starting any work on VA property, the contractor must submit and receive approval from the VA COTR, a fire safety plan in accordance with OSHA 1926.24 and 1926.150. Submit plan in accordance with specification section 01320, Submittals.
- C. Weekly the contractor is to submit to the COTR an OSHA safety and infection control report. The report can be a checklist of OSHA safety and JCAHO infection control requirements. The report is to indicate any problems noted and corrective action taken and is to be signed by the contractor. A copy of a sample report is available in the Facility Management Office.
- D. In addition, Contractor is required to comply with other applicable Veterans Hospital Administration, Boise Veterans Affairs Medical Center, and Boise Facilities Management Service Regulations, Directives, Memorandums, and Policies. These documents are available in the Facilities Management Services Offices. Each of the Contractor's employees and sub-contractor's employees shall be required to read the statement of policies and regulations and sign an acknowledgement that such policies and regulations are understood. Signed acknowledgement will be returned to the COTR prior to any construction activity.
- E. Contractors involved with the removal, alteration, or disturbance of asbestos type insulation or materials will be required to comply strictly with the regulations found in 29 CFR 1010.1001 and the appropriate EPA regulations regarding disposal of asbestos. Assistance in identifying asbestos can be requested from the Medical Center's Industrial Hygienist and the COTR.
- F. Contractors entering locations of known asbestos contamination (i.e. pipe basements) shall be responsible for providing respiratory protection to their employees and ensuring respirators are worn in accordance with 29 CFR 1910.1001 (g). Asbestos contaminated areas shall be defined on the project drawings. The minimum equipment requirements

shall be not less than minimum requirements by law or a half-mask air-purifying respirator equipped with high efficiency filters and disposable coveralls whichever is more protective.

- G. Contractor, along with other submittals, and at least two weeks prior to bringing any materials on-site, must submit a complete list of chemicals the Contractor will use and MSDS for all hazardous materials as defined in 29 CFR 1910.1200 (d) Hazard Determination. Contracting Officer shall have final approval of all materials brought on site.
- H. The Contractor shall be held solely responsible for the safety and health of its employees, sub-contractor employees and any and all persons entering the Medical Center in relation to the Contractor's Work. The Contractor shall also be held responsible to protect the health and safety of the Veterans Affairs Community (including patients, visitors, staff, and other persons allowed on the Medical Center facility) from the unwanted efforts of construction. Veterans Affairs staff will monitor the Contractor's performance in complying with all safety and health aspects of the project. Severe, significant, repeat or constant violations may result in than immediate work stoppage or a request for an inspection of a Compliance officer from the Occupational Safety and Health Administration.
- I. During all phases of the project the Contractor is required to comply with and strictly follow NFPA 241 "Standard for Safeguarding Construction, Alteration and Demolition Operations". The Medical Center's Safety Officer, Occupational Health Specialist, Industrial Hygienist, Infection Prevention and Control Nurse, Contracting Officer and COTR will closely monitor the work area for compliance. Appropriate action will be taken for non-compliance up to and including contract termination for cause.

PART 2 - SPECIFIC BOISE VETERANS AFFAIRS MEDICAL CENTER FIRE & SAFETY POLICIES, PROCEDURES & REGULATIONS (SEE ALSO 01 00 00 GENERAL REQUIREMENTS)

2.1 INTRODUCTION

- A. The safety and fire protection of patients, employees, members of the public and government is of primary and continuous concern to this Medical Center.
- B. Contractors, their supervisors, subcontractors and their employees are required to comply with Medical Center Directives, Memorandums, and policies ensuring the occupational safety and health of all. Failure to comply with any provisions of any terms, limitations, restrictions or other portions of such policies may result in sanctions up to and including contract termination for cause.

- C. While working at the Boise Veterans Affairs Medical Center, Contractor and its subcontractors are responsible for the occupational safety and health of their employees. Contractor is required to comply with all applicable portions of 29 CFR 1910 and 29 CFR 1926 as appropriate. Failure to comply with any portion of these laws may result in work stoppage and a request to the Area Director of OSHA for a Compliance Officer to inspect the work site.
- D. Contractors are to comply with requirements found in the National Fire Protection Association (NFPA) #241 "Building Construction and Demolition Operation" and NFPA #51B "Fire Prevention in Use of Cutting and Welding Processes".
- E. Questions regarding occupational safety and health issues can be addressed to the Contracting Officer. The Medical Center's Safety Officer, Occupational Health Specialist, Industrial Hygienist, or Infection Prevention and Control Nurse, will advise the Contracting Officer when requested.

2.2 PERSONNEL CONDUCT

- A. The Boise Veterans Affairs Medical Center is Federal Property and any person entering is subject to federal law enforcement.
- B. All personnel shall follow all safety regulations, violation of any of the regulations may result in immediate removal from VA property.
- C. There shall be NO SMOKING by contractor personnel on VA property; this prohibition includes all vehicles, contractor trailers, and anywhere else while on VA property.
- D. Personnel on site shall not engage in: gambling, horseplay of any sort, sales or offer to sell any goods or services, or any other action deemed not conducive to the proper operation of the Medical Center as determined by the Contracting Officer.
- E. Contractor personnel shall not bring onto the VA property: weapons, alcohol, animals, other personnel, family members unless employed by the Contractor, or other deleterious materials as determined by the Contracting Officer.
- F. The use of radios, I-Pods and other personal items on site is a privilege, which may be revoked at any time or for any reason by the COTR.
- G. Any form of sexual harassment may result in immediate expulsion from the Medical Center property and denial of re-admittance as determined by the Contracting Officer.
- H. Contractor shall not allow any food to be brought into the construction area.

2.3 HAZARD COMMUNICATION

- A. Contractor shall comply with OSHA Standard 29CFR 1926.59 "Hazard Communication".
- B. Contractor shall submit to the Veterans Administration Industrial Hygienist, copies of the Material Safety Data Sheets covering all hazardous materials to which the Contractor and Medical Center employees, patients and visitors may be exposed.
- C. Copies of Material Safety Data Sheets covering all hazardous materials to be use by the Contractor shall be submitted to the COTR prior to bringing the material(s) on to the Medical Center property.
- D. Contractor shall inform the COTR of the hazards to which Medical Center personnel, patients and visitors may be exposed.
- E. Contractor shall have a written Hazard Communication Program available at the construction site at all times, which details how the Contractor shall comply with 29 CFR 1926.59.

2.4 BLOODBORNE PATHOGENS

- A. Since work will take place in a hospital, there is the possibility of the Contractor coming in contact with blood and body fluids whenever working on the sanitary sewer system, dental vacuum system and other utility systems as identified by the VA. The Contractor shall comply with 29 CFR 1910 Subpart Z Toxic and Hazardous Substances section 1910.1030 bloodborne pathogens for work on the affected utilities.

2.5 FIRES & FIRE NOTIFICATION

- A. All fires must be reported. In the event of a fire in the work area, use the nearest fire alarm pull station, and notify the Medical Center staff in the immediate area. All fire alarms are responded to by the Boise City Fire Department. Emergency notification can also be accomplished through Medical Center telephones by dialing 9-911.
Be sure to give the exact location from where you are calling and the exact nature of the emergency. If the Contractor experiences a fire that was rapidly extinguished by the Contractor's forces, the Contractor must still notify the COTR within one hour of the event. Independent of any Contractor review, the Government shall conduct a detailed fire investigation.

2.6 INTERIM LIFE SAFETY MEASURES (ISLM)

- A. 14 days prior to any work impairing the life safety components or utilities of the Medical Center the Contractor shall notify in writing to the COTR the proposed portion of work and its duration. The life safety components include but are not limited to any portion of the means of egress as further defined in NFPA 101, the fire alarm

notification system, the automatic fire sprinkler system, building fire stand pipes, fire hydrants, and emergency access to the structure or construction site.

- B. The Contractor shall work with the Medical Center's safety officer and COTR in completing an ILSM checklist, and shall follow all requirements listed in the ILSM for the impairment. Under no circumstance is a Contractor allowed to deactivate any of the fire protection systems in this Medical Center.
- C. If the nature of the work requires the deactivation of the fire alarm, smoke detection or sprinkler system, you must notify the COTR. Notification must be made well in advance such that ample time can be allowed to deactivate the system and provide alternative measures for fire protection.
- D. False alarms will not be tolerated. Contractors are required to be familiar with the location of the smoke detectors in your work area. When performing cutting, burning or welding or any other operations that may cause smoke or dust, you must take steps to temporarily cover smoke detectors in order to prevent false alarms. Failure to take the appropriate action will result in the Contracting Officer assessing actual costs for government response for each false alarm that is preventable. Prior to covering the smoke detectors, the Contractor shall request an ILSM as further described above. The Contractor will notify the COTR when the impairment is initiated, and who will also be notified when the covers are removed.

2.7 HOT WORK PERMIT

- A. Hot work is defined as operations including, but not limited to, cutting, welding, thermal welding, brazing, soldering, grinding, thermal spraying, thawing pipes, or any similar situation. If such work is required, the Contractor must notify the COTR no less than one day in advance of such work. The general contractor will inspect the work area and issue a "Hot Work Permit" authorizing the performance of such work.
- B. All hot work will be performed in compliance with the Medical Center's policy regarding Hot Work Permits and NFPA 241, Safeguarding Construction, Alteration, and Demolition Operations, and NFPA 51B, Fire Prevention in Use of Cutting and Welding Processes, and applicable OSHA standard. A hot work permit will only be issued to individuals familiar with these regulations.
- C. A hot work permit will only be issued when the following conditions are met:

1. Combustible materials are located a minimum of 25 feet from the work site, or protected by flameproof covers or shielded with metal or fire-resistant guards or curtains.
 2. Openings or cracks in walls, floors, or ducts within 25 feet of the site are covered to prevent the passage of sparks to adjacent areas.
 3. Where cutting or welding is done near walls, partitions, ceiling, or roof of combustible construction, fire resistant guards or shields are provided to prevent ignition.
 4. Cutting or welding on pipes or other metal in contact with combustible walls, ceilings or roofs is not undertaken if the work is close enough to cause ignition by conduction.
 5. Fully charged and operable fire extinguishers, appropriate for the type of possible fire, are available at the work area.
 6. When cutting or welding is done in close proximity to a sprinkler head, a wet rag is laid over the head during operation.
 7. Assure that nearby personnel are protected against heat, sparks, cut off, etc.
 8. Assure that a fire watch is at the site. Make a final check-up 30 minutes after completion of operations to detect and extinguish any smoldering fires.
- D. A fire watch shall be provided by the Contractor whenever cutting, welding, or performing other hot work. Fire watcher(s) shall:
1. Have fire-extinguishing equipment readily available and be trained in its use.
 2. Be familiar with facilities and procedures for sounding an alarm in the event of fire.
 3. Watch for fires in all exposed areas, sound the fire alarm immediately, and try to extinguish only within the capability of the portable extinguishing equipment available. In all cases if a fire is detected the alarm shall be activated even if the fire is extinguished.
 4. Maintain the watch for at least a half-hour after completion of operations to detect and extinguish smoldering fires.
- E. A "Hot Work Permit" will be issued only for the period necessary to perform such work. In the event the time necessary will exceed one day, a "Hot Work Permit" may be issued for the period needed; however, the general contractor will inspect the area daily. Hot work permit will apply only to the location identified on the permit. If additional areas involve hot work, then additional permits must be requested.
- F. Contractors will not be allowed to perform hot work processes without the appropriate permit.

- G. Any work involving the Medical Center's fire protection system will require COTR notification. Under no circumstances will the Contractor or employee attempt to alter or tamper with the existing fire protection system.
- H. The general contractor will be notified within 30 minutes of the completion of all hot work to perform an inspection of the area to confirm that sparks or drops of hot metal are not present.

2.8 TEMPORARY ENCLOSURES

Only non-combustible materials will be used to construct temporary enclosures or barriers at this Medical Center. Plastic barriers are normally prohibited unless specifically allowed by the Contracting Officer in writing. Plastic materials and fabrics used to construct dust barriers must conform to NFPA #701, Standard Methods of Fire Tests for Flame-Resistant Textiles and Films.

2.9 FLAMMABLE LIQUIDS

All flammable liquids will be kept in approved safety containers. Only the amount necessary for your immediate work will be allowed in the building. Flammable liquids must be removed from the building at the end of each day.

2.10 COMPRESSED GAS CYLINDERS

Compressed gas shall be secured in an upright position at all times. A suitable cylinder cart will be used to transport compressed gas cylinders. Only those compressed gas cylinders necessary for immediate work will be allowed in occupied buildings. All other compressed gas cylinders will be stored outside of buildings in a designated area. Contractor will comply with applicable standards compressed gas cylinders found in 29 CFR 1910 and 1926 (OSHA).

2.11 INTERNAL COMBUSTION ENGINE-POWERED EQUIPMENT

Equipment powered by an internal combustion engine such as saws, compressors, generators and etc. will not be used in an occupied building. Special consideration may be given for unoccupied buildings only if the OSHA and NFPA requirements have been met.

2.12 POWDER ACTIVATED TOOLS

The operator of powder activated tools must be trained and certified to use them. Powder activated tools will be kept in a secured manner at all times. When not in use, the tools will be locked up. When in use, the operator will have the tool under his immediate control.

2.13 PROJECT, WORK AREA AND TOOL SECURITY

- A. Under no circumstances are equipment, tools and other items of work to be left unattended for any reason. All tools, equipment and items of work must be under the immediate control of employees or subcontractors.
- B. If for some reason a work area must be left unattended, then it will be required that tools and other equipment be placed in an appropriate box or container and locked. All tool boxes, containers or any other device used for the storage of tool and equipment, will be provided with a latch and padlock. All tool boxes, containers or any other device used for the storage of tools and equipment, will be locked at all times except for putting in and removing tools.
- C. All doors, gates, and other accesses to work areas will be closed and locked when rooms or the work sites are left unattended. Failure to comply with this directive will be considered a violation of VA Regulations 1.218 (b), "Failure to comply with signs of a directive and restrictive nature posted for safety purposes," subject to a \$50.00 fine. Subsequent similar violations may result in both imposition of such a fine as well as the Contracting Officer taking action under the Contract's "Accident Prevention Clause" (FAR 52.236-13) to suspend all contract work until violations such may be satisfactorily resolved or under FAR 52.236-5 "Material and Workmanship Clause" to remove from the work site any personnel deemed by the Contracting Officer to be careless to the point of jeopardizing the welfare of Facility patients or staff.
- D. Contractor shall report to the VA Police Department, Ext. 1122, any tools or equipment that is missing.
- E. Tools and equipment found unattended will be confiscated and removed from the work area.

2.14 EQUIPMENT & MOTOR VEHICLE SAFETY

- A. Pedestrians have the Right-of-Way at all times whether in a crosswalk, or not.
- B. All vehicles shall strictly follow the posted speed limits. The VA police have the authority to issue citations for driving violations.
- C. All loads shall be properly secured and covered as appropriate prior to operation on the Medical Center grounds.
- D. Seat belts shall be worn by all drivers and passengers in vehicles any time the vehicle is in motion. When operating any motorized equipment equipped with or designed for a seat belt, its use shall be mandatory.
- E. Riders are prohibited from equipment unless specifically designed for their transportation.
- F. Mounting or dismounting a moving vehicle or equipment is strictly prohibited.

- G. Equipment shall only be used by properly trained employees following all manufacturers' instructions including all safety precautions. All equipment shall be maintained in good condition and without modification. Any damaged or altered equipment shall be immediately removed from the VA property.
- H. Fuel for equipment shall be stored on accordance with OSHA and NFPA requirements. Fueling of any piece of equipment shall take place a minimum of 50 feet away from any building or combustible material.
- I. The Contractor shall ensure all motorized equipment or vehicles shall be in proper working order with all required insurance, registrations, maintenance checks, and inspections up to date. All motorized vehicles and equipment shall only be operated by properly trained employees holding current and unrevoked credentials for the equipment or vehicle in question. The operator and any passengers allowed shall follow all manufacturers' instructions including all safety precautions.
- J. The Government may require the cessation of use of motorized equipment due to noise, vibration, or odor and may require the Work to be performed at other than normal duty hours.

2.15 LADDERS

It is required that ladders not be left unattended in an upright position. Ladders must be attended at all times or taken down and chained securely to a stationary object. All non-self supporting ladders shall be lashed at the top. Fruit picker ladders are prohibited.

2.16 SCAFFOLDS

All scaffolds will be attended at all times. When not in use, an effective barricade (fence) will be erected around the scaffold to prevent use by unauthorized personnel. Reference 29 CFR 1926. Subpart L

2.17 EXCAVATIONS

The contractor shall comply with OSHA 1926 Subpart P. An OSHA "competent person" must be on site during the excavation. The contractor shall coordinate with the COTR and utility companies prior to the excavation to identify underground utilities tanks etc. All excavations left unattended will be provided with a barricade suitable to prevent entry by unauthorized persons. The barricade shall either be installed at least 6 feet from the edge of the excavation, or be capable of stopping a 200 lb lateral point load at the top of the barricade. Use of equipment as a barricade is not considered a sufficient barricade.

2.18 STORAGE

The Contractor shall make prior arrangements with the COTR for the storage of building materials. Storage will not be allowed to accumulate in the Medical Center buildings.

2.19 TRASH AND DEBRIS

The Contractor shall remove all trash and debris from the work area on a daily basis. Trash and debris will not be allowed to accumulate inside or outside of the buildings. Trash is specifically prohibited from being piled up on the ground; it must be placed in a suitable trash container. The Contractor is responsible for making arrangements for removal of trash from the Medical Center facility.

2.20 PROTECTION OF FLOORS

It may be necessary at times to take steps to protect floors from dirt, debris, paint, etc. A tarp or other protective covering may be used. However, you must maintain a certain amount of floor space for the safe passage of pedestrian traffic. Common sense must be used in this matter.

2.21 SIGNS

Signs must be placed at the entrance to work areas warning people of the work. Signs must be suitable for the condition of the work. Small pieces of paper with printing or writing are not acceptable. The VAMC Safety Officer can be consulted in this matter.

2.22 INFECTION CONTROL

All proposed work at the Medical Center shall be reviewed by the infection control coordinator to determine the required level of infection control necessary. The type of construction and patient risk group shall determine the level of infection control measures the Contractor shall be required to implement. The Medical Center's infection control coordinator's determination of the level of infection control shall be final. As a minimum, Contractor must control the generation of dust and the contamination of patient care surfaces, supplies and equipment. During demolition phases of the construction:

- A. The construction area shall be under negative pressure, ensuring there is an appreciable flow of clean air from the VA occupied portion of the facility into the construction area. The air flow shall be sufficiently strong to draw in the plastic door flaps commonly located at the construction entrance or at the specific site within the construction area;
- B. Construction debris being transported through the VA occupied portion of the facility shall be securely covered and wetted as necessary.
- C. Construction employees shall remove dust-laden clothing before entering the VA occupied portion of the facility.

- D. Sticky mats shall be placed at all construction entrances and satisfactorily maintained so as to minimize the tracking of dust into the VA occupied portion of the facility.
- E. Dry sweeping of dust and debris is not to be performed. Additional requirements as determined by the infection control matrix as described in VAMC Directive 138-08-56 may be required of the Contractor. This work is specifically included in the Contractor's scope.

2.23 CONFINED SPACE ENTRY

- A. Contractor will be informed that the workplace contains permit required confined space and that permit space entry is allowed only through compliance with a permit space program meeting the requirements of 29 CFR 1910.146 and 1926.21 (b)(6).
- B. Contractor will be apprised of the elements including the hazards identified and the Medical Center's experience with the space that makes the space in question a permit space.
- C. Contractor will be apprised of any precautions or procedures that the Medical Center has implemented for the protection of employees in or near permit space where Contractor personnel will be working.
- D. Medical Center and Contractor will coordinate entry operations when both Medical Center personnel and Contractor personnel will be working in or near permit spaces as required by 29 CFR 1910.146 (d)(ii) and 1926.21 (b)(6).
- E. Contractor will obtain any available information regarding permit space hazards and entry operation from the Medical Center.
- F. At the conclusion of the entry operations the Medical Center and Contractor will discuss any hazards confronted or created in permit spaces.
- G. The Contractor is responsible for complying with 29 CFR 1910.246 (d) through (g) and 1926.21 (b)(6).

2.24 PERSONAL PROTECTIVE EQUIPMENT

As a minimum, the Contractor shall comply with all OSHA personal protective equipment requirements. Additionally all personnel shall wear hard hats, safety glasses and steel toed shoes when ever they are in the work area. The Contractor shall provide and install signage at all entrances to work areas identifying the minimum required PPE.

2.25 ACCIDENT REPORTING

As a minimum, the Contractor shall report all OSHA recordable or more severe accidents in writing to the Contracting Officer within 72 hours of the incident. The Contractor shall prepare and furnish a copy of its accident investigation report to the Contracting Officer.

PART 3 - SUBMITTALS & DEVIATIONS**3.1 REVIEW**

- A. Contractor shall allow for a minimum of 21 days for submittal review from the time the submittals are received by the A/E until they are returned by the COTR to the Contractor. Submittals on finishes related to textures, patterns, and colors of materials shall be submitted as one complete package so that all finish materials may be coordinated and selected at one time.
- B. VA approval of samples, certificates, manufacturers' literature and data, and shop drawings will be subject to contract requirements and shall not relieve the Contractor from responsibility for errors or any sort in such submittals or from any unauthorized deviations from contract requirements.

3.2 DEVIATION REQUESTS

- A. Any request for deviation from the contract documents shall be submitted separately from other submittals and shall state clearly it is a substitution request so as not to be confused with a submittal review.
- B. The Contractor shall be responsible for the proposed deviation coordination with all utilities and other specification sections. The requested substitution shall not relieve the Contractor of any other contract conditions unless explicitly identified in the deviation request.
- C. Any deviation request will not be accepted until the Contracting Officer issues a Contract Change Order.
- D. Nothing in the contract shall require the Government to accept a deviation from the contract documents.

3.3 ADDITIONAL INFORMATION

The above information shall be used in conjunction with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

- - - END - - -

SECTION 01 32 16.15
PROJECT SCHEDULES
(SMALL PROJECTS - DESIGN/BID/BUILD)

PART 1- GENERAL

1.1 DESCRIPTION:

- A. The Contractor shall develop a Critical Path Method (CPM) plan and schedule demonstrating fulfillment of the contract requirements (Project Schedule), and shall keep the Project Schedule up-to-date in accordance with the requirements of this section and shall utilize the plan for scheduling, coordinating and monitoring work under this contract (including all activities of subcontractors, equipment vendors and suppliers). Conventional Critical Path Method (CPM) technique shall be utilized to satisfy both time and cost applications.

1.2 CONTRACTOR'S REPRESENTATIVE:

- A. The Contractor shall designate an authorized representative responsible for the Project Schedule including preparation, review and progress reporting with and to the Contracting Officer's Representative (COTR).
- B. The Contractor's representative shall have direct project control and complete authority to act on behalf of the Contractor in fulfilling the requirements of this specification section.
- C. The Contractor's representative shall have the option of developing the project schedule within their organization or to engage the services of an outside consultant. If an outside scheduling consultant is utilized, Section 1.3 of this specification will apply.

1.3 CONTRACTOR'S CONSULTANT:

- A. The Contractor shall submit a qualification proposal to the COTR, within 10 days of bid acceptance. The qualification proposal shall include:
1. The name and address of the proposed consultant.
 2. Information to show that the proposed consultant has the qualifications to meet the requirements specified in the preceding paragraph.
 3. A representative sample of prior construction projects, which the proposed consultant has performed complete project scheduling services. These representative samples shall be of similar size and scope.
- B. The Contracting Officer has the right to approve or disapprove the proposed consultant, and will notify the Contractor of the VA decision within seven calendar days from receipt of the qualification proposal. In case of disapproval, the Contractor shall resubmit another consultant within 10 calendar days for renewed consideration. The Contractor shall

have their scheduling consultant approved prior to submitting any schedule for approval.

1.4 COMPUTER PRODUCED SCHEDULES

- A. The contractor shall provide monthly, to the Department of Veterans Affairs (VA), all computer-produced time/cost schedules and reports generated from monthly project updates. This monthly computer service will include: three copies of up to five different reports (inclusive of all pages) available within the user defined reports of the scheduling software approved by the Contracting Officer; a hard copy listing of all project schedule changes, and associated data, made at the update and an electronic file of this data; and the resulting monthly updated schedule in PDM format. These must be submitted with and substantively support the contractor's monthly payment request and the signed look ahead report. The COTR shall identify the five different report formats that the contractor shall provide.
- B. The contractor shall be responsible for the correctness and timeliness of the computer-produced reports. The Contractor shall also responsible for the accurate and timely submittal of the updated project schedule and all CPM data necessary to produce the computer reports and payment request that is specified.
- C. The VA will report errors in computer-produced reports to the Contractor's representative within ten calendar days from receipt of reports. The Contractor shall reprocess the computer-produced reports and associated diskette(s), when requested by the Contracting Officer's representative, to correct errors which affect the payment and schedule for the project.

1.5 THE COMPLETE PROJECT SCHEDULE SUBMITTAL

- A. Within 45 calendar days after receipt of Notice to Proceed, the Contractor shall submit for the Contracting Officer's review; three blue line copies of the interim schedule on sheets of paper 765 x 1070 mm (30 x 42 inches) and an electronic file in the previously approved CPM schedule program. The submittal shall also include three copies of a computer-produced activity/event ID schedule showing project duration; phase completion dates; and other data, including event cost. Each activity/event on the computer-produced schedule shall contain as a minimum, but not limited to, activity/event ID, activity/event description, duration, budget amount, early start date, early finish date, late start date, late finish date and total float. Work activity/event relationships shall be restricted to finish-to-start or start-to-start without lead or lag constraints. Activity/event date constraints, not required by the contract, will not be accepted unless

submitted to and approved by the Contracting Officer. The contractor shall make a separate written detailed request to the Contracting Officer identifying these date constraints and secure the Contracting Officer's written approval before incorporating them into the network diagram. The Contracting Officer's separate approval of the Project Schedule shall not excuse the contractor of this requirement. Logic events (non-work) will be permitted where necessary to reflect proper logic among work events, but must have zero duration. The complete working schedule shall reflect the Contractor's approach to scheduling the complete project. **The final Project Schedule in its original form shall contain no contract changes or delays which may have been incurred during the final network diagram development period and shall reflect the entire contract duration as defined in the bid documents.** These changes/delays shall be entered at the first update after the final Project Schedule has been approved. The Contractor should provide their requests for time and supporting time extension analysis for contract time as a result of contract changes/delays, after this update, and in accordance with Article, ADJUSTMENT OF CONTRACT COMPLETION.

- D. Within 30 calendar days after receipt of the complete project interim Project Schedule and the complete final Project Schedule, the Contracting Officer or his representative, will do one or both of the following:
1. Notify the Contractor concerning his actions, opinions, and objections.
 2. A meeting with the Contractor at or near the job site for joint review, correction or adjustment of the proposed plan will be scheduled if required. Within 14 calendar days after the joint review, the Contractor shall revise and shall submit three blue line copies of the revised Project Schedule, three copies of the revised computer-produced activity/event ID schedule and a revised electronic file as specified by the Contracting Officer. The revised submission will be reviewed by the Contracting Officer and, if found to be as previously agreed upon, will be approved.
- E. The approved baseline schedule and the computer-produced schedule(s) generated there from shall constitute the approved baseline schedule until subsequently revised in accordance with the requirements of this section.
- F. The Complete Project Schedule shall contain approximately _____work activities/events.

1.6 WORK ACTIVITY/EVENT COST DATA

- A. The Contractor shall cost load all work activities/events except procurement activities. The cumulative amount of all cost loaded work activities/events (including alternates) shall equal the total contract price. Prorate overhead, profit and general conditions on all work activities/events for the entire project length. The contractor shall generate from this information cash flow curves indicating graphically the total percentage of work activity/event dollar value scheduled to be in place on early finish, late finish. These cash flow curves will be used by the Contracting Officer to assist him in determining approval or disapproval of the cost loading. Negative work activity/event cost data will not be acceptable, except on VA issued contract changes.
- B. The Contractor shall cost load work activities/events for guarantee period services, test, balance and adjust various systems in accordance with the provisions in Article, FAR 52.232 - 5 (PAYMENT UNDER FIXED-PRICE CONSTRUCTION CONTRACTS) and VAAR 852.236 - 83 (PAYMENT UNDER FIXED-PRICE CONSTRUCTION CONTRACTS).
- C. In accordance with FAR 52.236 - 1 (PERFORMANCE OF WORK BY THE CONTRACTOR) and VAAR 852.236 - 72 (PERFORMANCE OF WORK BY THE CONTRACTOR), the Contractor shall submit, simultaneously with the cost per work activity/event of the construction schedule required by this Section, a responsibility code for all activities/events of the project for which the Contractor's forces will perform the work.
- D. The Contractor shall cost load work activities/events for all BID ITEMS including ASBESTOS ABATEMENT. The sum of each BID ITEM work shall equal the value of the bid item in the Contractors' bid.

1.7 PROJECT SCHEDULE REQUIREMENTS

- A. Show on the project schedule the sequence of work activities/events required for complete performance of all items of work. The Contractor Shall:
 - 1. Show activities/events as:
 - a. Contractor's time required for submittal of shop drawings, templates, fabrication, delivery and similar pre-construction work.
 - b. Contracting Officer's and Architect-Engineer's review and approval of shop drawings, equipment schedules, samples, template, or similar items.
 - c. Interruption of VA Facilities utilities, delivery of Government furnished equipment, and rough-in drawings, project phasing and any other specification requirements.

- d. Test, balance and adjust various systems and pieces of equipment, maintenance and operation manuals, instructions and preventive maintenance tasks.
 - e. VA inspection and acceptance activity/event with a minimum duration of five work days at the end of each phase and immediately preceding any VA move activity/event required by the contract phasing for that phase.
2. Show not only the activities/events for actual construction work for each trade category of the project, but also trade relationships to indicate the movement of trades from one area, floor, or building, to another area, floor, or building, for at least five trades who are performing major work under this contract.
 3. Break up the work into activities/events of a duration no longer than 20 work days each or one reporting period, except as to non-construction activities/events (i.e., procurement of materials, delivery of equipment, concrete and asphalt curing) and any other activities/events for which the COTR may approve the showing of a longer duration. The duration for VA approval of any required submittal, shop drawing, or other submittals will not be less than 20 work days.
 4. Describe work activities/events clearly, so the work is readily identifiable for assessment of completion. Activities/events labeled "start," "continue," or "completion," are not specific and will not be allowed. Lead and lag time activities will not be acceptable.
 5. The schedule shall be generally numbered in such a way to reflect either discipline, phase or location of the work.
- B. The Contractor shall submit the following supporting data in addition to the project schedule:
1. The appropriate project calendar including working days and holidays.
 2. The planned number of shifts per day.
 3. The number of hours per shift.
- Failure of the Contractor to include this data shall delay the review of the submittal until the Contracting Officer is in receipt of the missing data.
- C. To the extent that the Project Schedule or any revised Project Schedule shows anything not jointly agreed upon, it shall not be deemed to have been approved by the COTR. Failure to include any element of work required for the performance of this contract shall not excuse the Contractor from completing all work required within any applicable completion date of each phase regardless of the COTR's approval of the Project Schedule.

- D. Compact Disk Requirements and CPM Activity/Event Record Specifications:
Submit to the VA an electronic file(s) containing one file of the data required to produce a schedule, reflecting all the activities/events of the complete project schedule being submitted.

1.8 PAYMENT TO THE CONTRACTOR:

- A. Monthly, the contractor shall submit the AIA application and certificate for payment documents G702 & G703 reflecting updated schedule activities and cost data in accordance with the provisions of the following Article, PAYMENT AND PROGRESS REPORTING, as the basis upon which progress payments will be made pursuant to Article, FAR 52.232 - 5 (PAYMENT UNDER FIXED-PRICE CONSTRUCTION CONTRACTS) and VAAR 852.236 - 83 (PAYMENT UNDER FIXED-PRICE CONSTRUCTION CONTRACTS). The Contractor shall be entitled to a monthly progress payment upon approval of estimates as determined from the currently approved updated project schedule. Monthly payment requests shall include: a listing of all agreed upon project schedule changes and associated data; and an electronic file (s) of the resulting monthly updated schedule.
- B. Approval of the Contractor's monthly Application for Payment shall be contingent, among other factors, on the submittal of a satisfactory monthly update of the project schedule.

1.9 PAYMENT AND PROGRESS REPORTING

- A. Monthly schedule update meetings will be held on dates mutually agreed to by the COTR and the Contractor. Contractor and their CPM consultant (if applicable) shall attend all monthly schedule update meetings. The Contractor shall accurately update the Project Schedule and all other data required and provide this information to the COTR three work days in advance of the schedule update meeting. Job progress will be reviewed to verify:
1. Actual start and/or finish dates for updated/completed activities/events.
 2. Remaining duration for each activity/event started, or scheduled to start, but not completed.
 3. Logic, time and cost data for change orders, and supplemental agreements that are to be incorporated into the Project Schedule.
 4. Changes in activity/event sequence and/or duration which have been made, pursuant to the provisions of following Article, ADJUSTMENT OF CONTRACT COMPLETION.
 5. Completion percentage for all completed and partially completed activities/events.
 6. Logic and duration revisions required by this section of the specifications.

7. Activity/event duration and percent complete shall be updated independently.
- B. After completion of the joint review, the contractor shall generate an updated computer-produced calendar-dated schedule and supply the Contracting Officer's representative with reports in accordance with the Article, COMPUTER PRODUCED SCHEDULES, specified.
- C. After completing the monthly schedule update, the contractor's representative or scheduling consultant shall rerun all current period contract change(s) against the prior approved monthly project schedule. The analysis shall only include original workday durations and schedule logic agreed upon by the contractor and resident engineer for the contract change(s). When there is a disagreement on logic and/or durations, the Contractor shall use the schedule logic and/or durations provided and approved by the resident engineer. After each rerun update, the resulting electronic project schedule data file shall be appropriately identified and submitted to the VA in accordance to the requirements listed in articles 1.4 and 1.7. This electronic submission is separate from the regular monthly project schedule update requirements and shall be submitted to the resident engineer within fourteen (14) calendar days of completing the regular schedule update. **Before inserting the contract changes durations, care must be taken to ensure that only the original durations will be used for the analysis, not the reported durations after progress. In addition, once the final network diagram is approved, the contractor must recreate all manual progress payment updates on this approved network diagram and associated reruns for contract changes in each of these update periods as outlined above for regular update periods. This will require detailed record keeping for each of the manual progress payment updates.**
- D. Following approval of the CPM schedule, the VA, the General Contractor, its approved CPM Consultant, RE office representatives, and all subcontractors needed, as determined by the SRE, shall meet to discuss the monthly updated schedule. The main emphasis shall be to address work activities to avoid slippage of project schedule and to identify any necessary actions required to maintain project schedule during the reporting period. The Government representatives and the Contractor should conclude the meeting with a clear understanding of those work and administrative actions necessary to maintain project schedule status during the reporting period. This schedule coordination meeting will occur after each monthly project schedule update meeting utilizing the resulting schedule reports from that schedule update. If the project is

behind schedule, discussions should include ways to prevent further slippage as well as ways to improve the project schedule status, when appropriate.

1.10 RESPONSIBILITY FOR COMPLETION

- A. If it becomes apparent from the current revised monthly progress schedule that phasing or contract completion dates will not be met, the Contractor shall execute some or all of the following remedial actions:
 - 1. Increase construction manpower in such quantities and crafts as necessary to eliminate the backlog of work.
 - 2. Increase the number of working hours per shift, shifts per working day, working days per week, the amount of construction equipment, or any combination of the foregoing to eliminate the backlog of work.
 - 3. Reschedule the work in conformance with the specification requirements.
- B. Prior to proceeding with any of the above actions, the Contractor shall notify and obtain approval from the COTR for the proposed schedule changes. If such actions are approved, the representative schedule revisions shall be incorporated by the Contractor into the Project Schedule before the next update, at no additional cost to the Government.

1.11 CHANGES TO THE SCHEDULE

- A. Within 30 calendar days after VA acceptance and approval of any updated project schedule, the Contractor shall submit a revised electronic file (s) and a list of any activity/event changes including predecessors and successors for any of the following reasons:
 - 1. Delay in completion of any activity/event or group of activities/events, which may be involved with contract changes, strikes, unusual weather, and other delays will not relieve the Contractor from the requirements specified unless the conditions are shown on the CPM as the direct cause for delaying the project beyond the acceptable limits.
 - 2. Delays in submittals, or deliveries, or work stoppage are encountered which make rescheduling of the work necessary.
 - 3. The schedule does not represent the actual prosecution and progress of the project.
 - 4. When there is, or has been, a substantial revision to the activity/event costs regardless of the cause for these revisions.
- B. CPM revisions made under this paragraph which affect the previously approved computer-produced schedules for Government furnished equipment, vacating of areas by the VA Facility, contract phase(s) and sub phase(s), utilities furnished by the Government to the Contractor, or

any other previously contracted item, shall be furnished in writing to the Contracting Officer for approval.

- C. Contracting Officer's approval for the revised project schedule and all relevant data is contingent upon compliance with all other paragraphs of this section and any other previous agreements by the Contracting Officer or the VA representative.
- D. The cost of revisions to the project schedule resulting from contract changes will be included in the proposal for changes in work as specified in FAR 52.243 - 4 (Changes) and VAAR 852.236 - 88 (Changes - Supplemental), and will be based on the complexity of the revision or contract change, man hours expended in analyzing the change, and the total cost of the change.
- E. The cost of revisions to the Project Schedule not resulting from contract changes is the responsibility of the Contractor.

1.12 ADJUSTMENT OF CONTRACT COMPLETION

- A. The contract completion time will be adjusted only for causes specified in this contract. Request for an extension of the contract completion date by the Contractor shall be supported with a justification, CPM data and supporting evidence as the COTR may deem necessary for determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract. Submission of proof based on revised activity/event logic, durations (in work days) and costs is obligatory to any approvals. The schedule must clearly display that the Contractor has used, in full, all the float time available for the work involved in this request. The Contracting Officer's determination as to the total number of days of contract extension will be based upon the current computer-produced calendar-dated schedule for the time period in question and all other relevant information.
- B. Actual delays in activities/events which, according to the computer-produced calendar-dated schedule, do not affect the extended and predicted contract completion dates shown by the critical path in the network, will not be the basis for a change to the contract completion date. The Contracting Officer will within a reasonable time after receipt of such justification and supporting evidence, review the facts and advise the Contractor in writing of the Contracting Officer's decision.
- C. The Contractor shall submit each request for a change in the contract completion date to the Contracting Officer in accordance with the provisions specified under FAR 52.243 - 4 (Changes) and VAAR 852.236 - 88 (Changes - Supplemental). The Contractor shall include, as a part of each change order proposal, a sketch showing all CPM logic revisions,

duration (in work days) changes, and cost changes, for work in question and its relationship to other activities on the approved network diagram.

- D. All delays due to non-work activities/events such as RFI's, WEATHER, STRIKES, and similar non-work activities/events shall be analyzed on a month by month basis.

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SECTION 01 33 23
SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES
(INCLUDES SUBSTITUTION PROCEDURES)

PART 1 - GENERAL

- 1.1 Refer to Articles titled SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FAR 52.236-21) and, SPECIAL NOTES (VAAR 852.236-91), in GENERAL CONDITIONS.
- 1.2 For the purposes of this contract, samples (including laboratory samples to be tested), test reports, certificates, and manufacturers' literature and data shall also be subject to the previously referenced requirements. The following text refers to all items collectively as SUBMITTALS.
- 1.3 **SUBSTITUTION REQUESTS**
- A. Submit a PDF of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - B. Documentation: Show compliance with requirements for substitutions and the following, as applicable
 1. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 2. Coordination information, including a list of changes or revisions needed to other parts of the Work that will be necessary to accommodate proposed substitution.
 3. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 4. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 5. Samples, where applicable or requested.
 6. Certificates and qualification data, where applicable or requested.
 7. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 8. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 9. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include

letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

10. Cost information, including a proposal of change, if any, in the Contract Sum.
 11. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 12. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
- C. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
1. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 2. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 SUBMITTALS

- A. Submit for approval, A PDF of all of the items specifically mentioned under the separate sections of the specification, with information sufficient to evidence full compliance with contract requirements. Materials, fabricated articles and the like to be installed in permanent work shall equal those of approved submittals. After an item has been reviewed, no change in brand or make will be considered unless:
1. Satisfactory written evidence is presented to, and approved by Contracting Officer and Architect, that manufacturer cannot make scheduled delivery of approved item or;
 2. Item delivered has been rejected and substitution of a suitable item is an urgent necessity or;
 3. Other conditions become apparent which indicates approval of such substitute item to be in best interest of the Government.
- B. Upload submittals to the project FTP in sufficient time to permit proper consideration and approval action by Government. The project FTP will be determined after successful bid negotiation with the Contractor. Time submission to assure adequate lead time for procurement of contract - required items. Delays attributable to untimely and rejected submittals

(including any laboratory samples to be tested) will not serve as a basis for extending contract time for completion. Allow a minimum of 21 days for submittal review from the time the submittals are received by the Architect until they are returned by the Resident Engineer to the contractor. Submittals on finishes related to textures, patterns, and colors of materials shall be submitted as one complete package so that all finish materials may be coordinated and selected at one time. Exterior and interior finish submittals may be submitted separately.

- C. Submittals will be reviewed for compliance with contract requirements by Architect-Engineer, and action thereon will be taken by Resident Engineer on behalf of the Contracting Officer.
- D. Upon email receipt of submittals uploaded to the FTP, the Architect will assign a file number thereto. Contractor, in any subsequent correspondence, shall refer to this file and identification number to expedite replies relative to previously approved or disapproved submittals.
- E. The Government reserves the right to require additional submittals, whether or not particularly mentioned in this contract. If additional submittals beyond those required by the contract are furnished pursuant to request therefore by Contracting Officer, adjustment in contract price and time will be made in accordance with Articles titled CHANGES (FAR 52.243-4) and CHANGES - SUPPLEMENT (VAAR 852.236-88) of the GENERAL CONDITIONS.
- F. Schedules called for in specifications and shown on shop drawings shall be submitted for use and information of Department of Veterans Affairs and Architect. However, the Contractor shall assume responsibility for coordinating and verifying schedules. The Contracting Officer and Architect assume no responsibility for checking schedules or layout drawings for exact sizes, exact numbers and detailed positioning of items.
- G. Submittals must be submitted by the Contractor only. Each Submittal is to be uploaded to project FTP site as a single combined PDF file. Do not combine separate submittals. Material samples must be submitted as physical samples and shipped prepaid. Corresponding paperwork for physical samples shall be uploaded to project FTP as a single combined PDF file. Contracting Officer or Architect team assumes no responsibility for checking quantities or exact numbers included in such submittals.
 - 1. Submit samples in single units unless otherwise specified.
 - 2. Submittals will receive consideration only when accompanied by a PDF transmittal cover letter signed by Contractor. Letter shall be the

- first page of each submittal and shall contain the list of items, name of Medical Center, name of Contractor, contract number, applicable specification paragraph numbers, applicable drawing numbers (and other information required for exact identification of location for each item), manufacturer and brand, ASTM or Federal Specification Number (if any) and such additional information as may be required by specifications for particular item being furnished. In addition, catalogs shall be marked to indicate specific items submitted for review.
- a. Physical samples or other items received without corresponding identification letter will be considered "unclaimed goods" and held for a limited time only.
 - b. Each sample shall be labeled to indicate the name and location of the Medical Center, name of Contractor, manufacturer, brand, contract number and ASTM or Federal Specification Number as applicable and location(s) on project.
 - c. Required certificates shall be signed by an authorized representative of manufacturer or supplier of material, and by Contractor.
3. In addition to complying with the applicable requirements specified in preceding Article 1.9, samples which are required to have Laboratory Tests (those preceded by symbol "LT" under the separate sections of the specification shall be tested, at the expense of Contractor, in a commercial laboratory approved by Contracting Officer.
- a. Laboratory shall furnish Contracting Officer with a certificate in PDF format stating that it is fully equipped and qualified to perform intended work, is fully acquainted with specification requirements and intended use of materials and is an independent establishment in no way connected with organization of Contractor or with manufacturer or supplier of materials to be tested.
 - b. Certificates shall also set forth a list of comparable projects upon which laboratory has performed similar functions during past five years.
 - c. Samples and laboratory tests shall be sent directly to approved commercial testing laboratory.
 - d. Contractor shall upload a PDF copy of transmittal letter for the Resident Engineer and the Architect to review simultaneously with submission of material to a commercial testing laboratory.
 - e. Laboratory test reports shall be uploaded to the project FTP in PDF format for the Resident Engineer to decide appropriate action.

- f. Laboratory reports shall list contract specification test requirements and a comparative list of the laboratory test results. When tests show that the material meets specification requirements, the laboratory shall so certify on test report.
 - g. Laboratory test reports shall also include a recommendation for approval or disapproval of tested item.
4. If submittal samples have been disapproved, resubmit new samples as soon as possible after notification of disapproval. Such new samples shall be marked "Resubmitted Sample" in addition to containing other previously specified information required on label and in the PDF transmittal letter.
 5. Approved samples will be kept on file by the Resident Engineer at the site until completion of contract. Where noted in technical sections of specifications, approved samples in good condition may be used in their proper locations in contract work. At completion of contract, samples that are not approved will be returned to Contractor only upon request and at Contractor's expense. Such request should be made prior to completion of the contract. Disapproved samples that are not requested for return by Contractor will be discarded after completion of contract.
 6. All submittals shall be checked and reviewed by the Contractor prior to submission. Submittal drawings (shop, erection or setting drawings) and schedules, required for work of various trades, shall be checked before submission by technically qualified employees of Contractor for accuracy, completeness and compliance with contract requirements. These drawings and schedules shall be stamped and signed by Contractor certifying to such check.
 - a. For each drawing required, submit a PDF.
 - b. Drawings should be to scale and sized, 762 mm by 1067 mm (30 inches by 42 inches).
 - c. Each drawing shall have marked thereon, proper descriptive title, including Medical Center location, project number, manufacturer's number, reference to contract drawing number, detail Section Number, and Specification Section Number.
 - d. A space 121 mm by 127 mm (4-3/4 by 5 inches) shall be reserved on each drawing to accommodate approval or disapproval stamp.
 - e. Reviewed shop drawings will be uploaded to the project FTP.
 - f. When work is directly related and involves more than one trade, shop drawings shall be uploaded to the project FTP as a single combined PDF.

7. Any deviations from the contract requirements and justification thereof shall be so stated in the letter of transmittal.
 8. No fabrication of work shall be done or any part of parts thereof shall be shipped to the site prior to approval of required shop drawings for such work.
 9. VA approval of samples, certificates, manufacturer's literature and data, and shop drawings will be subject to contract requirements and shall not relieve the contractor from responsibility for errors of any sort in such submittals or from any unauthorized deviations from contract requirements. An authorized deviation is a deviation that has been identified by the contractor, or Government, and confirmed by an appropriate contract modification.
- H. Samples shall be submitted for approval to:
- ZGA Architects and Planners, Chartered
408 E. Parkcenter Blvd, Suite 205
CO: Sara Moroney
Boise, ID 83706

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Convenience: Architect will consider requests for substitution only if submitted at least 3 business days prior to bid date.
 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - d. Substitution request is fully documented and properly submitted.
 - e. Requested substitution will not adversely affect Contractor's construction schedule.

- f. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - g. Requested substitution is compatible with other portions of the Work.
 - h. Requested substitution has been coordinated with other portions of the Work.
 - i. Requested substitution provides specified warranty.
 - j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Cause: Submit request for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
1. Conditions: Same as those for substitutions for convenience.

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SECTION 01 42 19
REFERENCE STANDARDS

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies the availability and source of references and standards specified in the project manual under paragraphs APPLICABLE PUBLICATIONS and/or shown on the drawings.

1.2 AVAILABILITY OF SPECIFICATIONS LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS FPMR PART 101-29 (FAR 52.211-1) (AUG 1998)

- A. The GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29 and copies of specifications, standards, and commercial item descriptions cited in the solicitation may be obtained for a fee by submitting a request to - GSA Federal Supply Service, Specifications Section, Suite 8100, 470 East L'Enfant Plaza, SW, Washington, DC 20407, Telephone (202) 619-8925, Facsimile (202) 619-8978.
- B. If the General Services Administration, Department of Agriculture, or Department of Veterans Affairs issued this solicitation, a single copy of specifications, standards, and commercial item descriptions cited in this solicitation may be obtained free of charge by submitting a request to the addressee in paragraph (a) of this provision. Additional copies will be issued for a fee.

1.3 AVAILABILITY FOR EXAMINATION OF SPECIFICATIONS NOT LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS (FAR 52.211-4) (JUN 1988)

The specifications and standards cited in this solicitation can be examined at the following location:

DEPARTMENT OF VETERANS AFFAIRS
Office of Construction & Facilities Management
Facilities Quality Service (00CFM1A)
811 Vermont Avenue, NW - Room 462
Washington, DC 20420
Telephone Numbers: (202) 461-8217 or (202) 461-8292
Between 9:00 AM - 3:00 PM

1.4 AVAILABILITY OF SPECIFICATIONS NOT LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS (FAR 52.211-3) (JUN 1988)

The specifications cited in this solicitation may be obtained from the associations or organizations listed below.

AA Aluminum Association Inc.
<http://www.aluminum.org>

AABC Associated Air Balance Council
<http://www.aabchq.com>

AAMA American Architectural Manufacturer's Association
<http://www.aamanet.org>

AAN American Nursery and Landscape Association
<http://www.anla.org>

AASHTO American Association of State Highway and Transportation Officials
<http://www.aashto.org>

AATCC American Association of Textile Chemists and Colorists
<http://www.aatcc.org>

ACGIH American Conference of Governmental Industrial Hygienists
<http://www.acgih.org>

ACI American Concrete Institute
<http://www.aci-int.net>

ACPA American Concrete Pipe Association
<http://www.concrete-pipe.org>

ACPPA American Concrete Pressure Pipe Association
<http://www.acppa.org>

ADC Air Diffusion Council
<http://flexibleduct.org>

AGA American Gas Association
<http://www.aga.org>

AGC Associated General Contractors of America
<http://www.agc.org>

AGMA American Gear Manufacturers Association, Inc.
<http://www.agma.org>

AHAM Association of Home Appliance Manufacturers
<http://www.aham.org>

AISC American Institute of Steel Construction
<http://www.aisc.org>

AISI American Iron and Steel Institute
<http://www.steel.org>

AITC American Institute of Timber Construction
<http://www.aitc-glulam.org>

AMCA Air Movement and Control Association, Inc.
<http://www.amca.org>

ANLA American Nursery & Landscape Association
<http://www.anla.org>

ANSI American National Standards Institute, Inc.
<http://www.ansi.org>

APA The Engineered Wood Association
<http://www.apawood.org>

ARI Air-Conditioning and Refrigeration Institute
<http://www.ari.org>

ASAE American Society of Agricultural Engineers
<http://www.asae.org>

ASCE American Society of Civil Engineers
<http://www.asce.org>

ASHRAE American Society of Heating, Refrigerating, and
Air-Conditioning Engineers
<http://www.ashrae.org>

ASME American Society of Mechanical Engineers
<http://www.asme.org>

ASSE American Society of Sanitary Engineering
<http://www.asse-plumbing.org>

ASTM American Society for Testing and Materials
<http://www.astm.org>

AWI Architectural Woodwork Institute
<http://www.awinet.org>

AWS American Welding Society
<http://www.aws.org>

AWWA American Water Works Association
<http://www.awwa.org>

BHMA Builders Hardware Manufacturers Association
<http://www.buildershardware.com>

BIA Brick Institute of America
<http://www.bia.org>

CAGI Compressed Air and Gas Institute
<http://www.cagi.org>

CGA Compressed Gas Association, Inc.
<http://www.cganet.com>

CI The Chlorine Institute, Inc.
<http://www.chlorineinstitute.org>

CISCA Ceilings and Interior Systems Construction Association
<http://www.cisca.org>

CISPI Cast Iron Soil Pipe Institute
<http://www.cispi.org>

CLFMI Chain Link Fence Manufacturers Institute
<http://www.chainlinkinfo.org>

CPMB Concrete Plant Manufacturers Bureau
<http://www.cpmb.org>

CRA California Redwood Association
<http://www.calredwood.org>

CRSI Concrete Reinforcing Steel Institute
<http://www.crsi.org>

CTI Cooling Technology Institute
<http://www.cti.org>

DHI Door and Hardware Institute
<http://www.dhi.org>

EGSA Electrical Generating Systems Association
<http://www.egsa.org>

EEI Edison Electric Institute
<http://www.eei.org>

EPA Environmental Protection Agency
<http://www.epa.gov>

ETL ETL Testing Laboratories, Inc.
<http://www.etl.com>

FAA Federal Aviation Administration
<http://www.faa.gov>

FCC Federal Communications Commission
<http://www.fcc.gov>

FPS The Forest Products Society
<http://www.forestprod.org>

GANNA Glass Association of North America
<http://www.cssinfo.com/info/ganna.html/>

FM Factory Mutual Insurance
<http://www.fmglobal.com>

GA Gypsum Association
<http://www.gypsum.org>

GSA General Services Administration
<http://www.gsa.gov>

HI Hydraulic Institute
<http://www.pumps.org>

HPVA Hardwood Plywood & Veneer Association
<http://www.hpva.org>

ICBO International Conference of Building Officials
<http://www.icbo.org>

ICEA Insulated Cable Engineers Association Inc.
<http://www.icea.net>

\ICAC Institute of Clean Air Companies
<http://www.icac.com>

IEEE Institute of Electrical and Electronics Engineers
<http://www.ieee.org>

IMSA International Municipal Signal Association
<http://www.imsasafety.org>

IPCEA Insulated Power Cable Engineers Association

NBMA Metal Buildings Manufacturers Association
<http://www.mbma.com>

MSS Manufacturers Standardization Society of the Valve and Fittings
Industry Inc.
<http://www.mss-hq.com>

NAAMM National Association of Architectural Metal Manufacturers
<http://www.naamm.org>

NAPHCC Plumbing-Heating-Cooling Contractors Association
<http://www.phccweb.org.org>

NBS National Bureau of Standards
See - NIST

NBBPVI National Board of Boiler and Pressure Vessel Inspectors
<http://www.nationboard.org>

NEC National Electric Code
See - NFPA National Fire Protection Association

NEMA National Electrical Manufacturers Association
<http://www.nema.org>

NFPA National Fire Protection Association
<http://www.nfpa.org>

NHLA National Hardwood Lumber Association
<http://www.natlhardwood.org>

NIH National Institute of Health
<http://www.nih.gov>

NIST National Institute of Standards and Technology
<http://www.nist.gov>

NLMA Northeastern Lumber Manufacturers Association, Inc.
<http://www.nelma.org>

NPA National Particleboard Association
18928 Premiere Court
Gaithersburg, MD 20879
(301) 670-0604

NSF National Sanitation Foundation
<http://www.nsf.org>

NWWDA Window and Door Manufacturers Association
<http://www.nwwda.org>

OSHA Occupational Safety and Health Administration
Department of Labor
<http://www.osha.gov>

PCA Portland Cement Association
<http://www.portcement.org>

PCI Precast Prestressed Concrete Institute
<http://www.pci.org>

PPI The Plastic Pipe Institute
<http://www.plasticpipe.org>

PEI Porcelain Enamel Institute, Inc.
<http://www.porcelainenamel.com>

PTI Post-Tensioning Institute
<http://www.post-tensioning.org>

RFCI The Resilient Floor Covering Institute
<http://www.rfci.com>

RIS Redwood Inspection Service
See - CRA

RMA Rubber Manufacturers Association, Inc.
<http://www.rma.org>

SCMA Southern Cypress Manufacturers Association
<http://www.cypressinfo.org>

SDI Steel Door Institute
<http://www.steeldoor.org>

IGMA Insulating Glass Manufacturers Alliance
<http://www.igmaonline.org>

SJI Steel Joist Institute
<http://www.steeljoist.org>

SMACNA Sheet Metal and Air-Conditioning Contractors
National Association, Inc.
<http://www.smacna.org>

SSPC The Society for Protective Coatings
<http://www.sspc.org>

STI Steel Tank Institute
<http://www.steeltank.com>

SWI Steel Window Institute
<http://www.steelwindows.com>

TCA Tile Council of America, Inc.
<http://www.tileusa.com>

TEMA Tubular Exchange Manufacturers Association
<http://www.tema.org>

TPI Truss Plate Institute, Inc.
583 D'Onofrio Drive; Suite 200
Madison, WI 53719
(608) 833-5900

UBC The Uniform Building Code
See ICBO

UL Underwriters' Laboratories Incorporated
<http://www.ul.com>

ULC Underwriters' Laboratories of Canada
<http://www.ulc.ca>

WCLIB West Coast Lumber Inspection Bureau
6980 SW Varns Road, P.O. Box 23145
Portland, OR 97223
(503) 639-0651

WRCLA Western Red Cedar Lumber Association
P.O. Box 120786
New Brighton, MN 55112
(612) 633-4334

WWPA Western Wood Products Association
<http://www.wwpa.org>

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SECTION 01 45 29
TESTING LABORATORY SERVICES

PART 1 - GENERAL**1.1 DESCRIPTION:**

This section specifies materials testing activities and inspection services required during project construction to be provided by a Testing Laboratory retained and paid for by Contractor.

1.2 APPLICABLE PUBLICATIONS:

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.
- B. American Association of State Highway and Transportation Officials (AASHTO):
- T27-06.....Sieve Analysis of Fine and Coarse Aggregates
- T96-02 (R2006).....Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
- T99-01 (R2004).....The Moisture-Density Relations of Soils Using a 2.5 Kg (5.5 lb.) Rammer and a 305 mm (12 in.) Drop
- T104-99 (R2003).....Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate
- T180-01 (R2004).....Moisture-Density Relations of Soils using a 4.54 kg (10 lb.) Rammer and a 457 mm (18 in.) Drop
- T191-02(R2006).....Density of Soil In-Place by the Sand-Cone Method
- C. American Concrete Institute (ACI):
- 506.4R-94 (R2004).....Guide for the Evaluation of Shotcrete
- D. American Institute of Steel Construction (AISC)
- AISC 303-05, Code of Standard Practice for Steel Buildings and Bridges (March 2005).
- AISC 341-05, Seismic Provisions for Structural Steel Buildings, Including Supplement No. 1.
- AISC 360-05, Specification for Structural Steel Buildings (March 2005).
- E. American Society for Testing and Materials (ASTM):
- A325-06.....Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
- A370-07.....Definitions for Mechanical Testing of Steel Products

A416/A416M-06.....Steel Strand, Uncoated Seven-Wire for
Prestressed Concrete

A490-06.....Heat Treated Steel Structural Bolts, 150 ksi
Minimum Tensile Strength

C31/C31M-06.....Making and Curing Concrete Test Specimens in the
Field

C33-03.....Concrete Aggregates

C39/C39M-05.....Compressive Strength of Cylindrical Concrete
Specimens

C109/C109M-05.....Compressive Strength of Hydraulic Cement Mortars

C138-07.....Unit Weight, Yield, and Air Content
(Gravimetric) of Concrete

C140-07.....Sampling and Testing Concrete Masonry Units and
Related Units

C143/C143M-05.....Slump of Hydraulic Cement Concrete

C172-07.....Sampling Freshly Mixed Concrete

C173-07.....Air Content of freshly Mixed Concrete by the
Volumetric Method

C330-05.....Lightweight Aggregates for Structural Concrete

C567-05.....Density Structural Lightweight Concrete

C780-07.....Pre-construction and Construction Evaluation of
Mortars for Plain and Reinforced Unit Masonry

C1019-08.....Sampling and Testing Grout

C1064/C1064M-05.....Freshly Mixed Portland Cement Concrete

C1077-06.....Laboratories Testing Concrete and Concrete
Aggregates for Use in Construction and Criteria
for Laboratory Evaluation

C1314-07.....Compressive Strength of Masonry Prisms

D698-07.....Laboratory Compaction Characteristics of Soil
Using Standard Effort

D1143-07.....Piles Under Static Axial Compressive Load

D1188-07.....Bulk Specific Gravity and Density of Compacted
Bituminous Mixtures Using Paraffin-Coated
Specimens

D1556-07.....Density and Unit Weight of Soil in Place by the
Sand-Cone Method

D1557-07.....Laboratory Compaction Characteristics of Soil
Using Modified Effort

D2166-06.....Unconfined Compressive Strength of Cohesive Soil

D2167-94(R2001).....Density and Unit Weight of Soil in Place by the
Rubber Balloon Method

- D2216-05.....Laboratory Determination of Water (Moisture)
Content of Soil and Rock by Mass
- D2922-05.....Density of soil and Soil-Aggregate in Place by
Nuclear Methods (Shallow Depth)
- D2974-07.....Moisture, Ash, and Organic Matter of Peat and
Other Organic Soils
- D3666-(2002).....Minimum Requirements for Agencies Testing and
Inspection Bituminous Paving Materials
- D3689-07.....Standard Test Methods for Deep Foundations Under
Static Axial Tensile Load
- D3740-07.....Minimum Requirements for Agencies Engaged in the
Testing and Inspecting Road and Paving Material
- D3966-07.....Standard Test Methods for Deep Foundations Under
Lateral Load
- E94-04.....Radiographic Testing
- E164-03.....Ultrasonic Contact Examination of Weldments
- E329-07.....Agencies Engaged in Construction Inspection
and/or Testing
- E543-06.....Agencies Performing Non-Destructive Testing
- E605-93(R2006).....Thickness and Density of Sprayed Fire-Resistive
Material (SFRM) Applied to Structural Members
- E709-(2001).....Guide for Magnetic Particle Examination
- E1155-96(R2008).....Determining FF Floor Flatness and FL Floor
Levelness Numbers
- F. American Welding Society (AWS):
- D1.1-07.....Structural Welding Code-Steel
- G. Research Council on Structural Connections (RCSC) of The Engineering
Foundation:
Specification for Structural Joints Using ASTM A325 or A490 Bolts

1.3 REQUIREMENTS:

- A. Accreditation Requirements: Testing Laboratory must be accredited by one or more of the National Voluntary Laboratory Accreditation Program (NVLAP) programs acceptable in the geographic region for the project. Furnish to the Project Engineer a copy of the Certificate of Accreditation and Scope of Accreditation. For testing laboratories that have not yet obtained accreditation by a NVLAP program, submit an acknowledgement letter from one of the laboratory accreditation authorities indicating that the application for accreditation has been received and the accreditation process has started, and submit to the Project Engineer for approval, certified statements, signed by an

official of the testing laboratory attesting that the proposed laboratory, meets or conforms to the ASTM standards listed below as appropriate to the testing field.

1. Laboratories engaged in testing of construction materials shall meet the requirements of ASTM E329.
 2. Laboratories engaged in testing of concrete and concrete aggregates shall meet the requirements of ASTM C1077.
 3. Laboratories engaged in testing of bituminous paving materials shall meet the requirements of ASTM D3666.
 4. Laboratories engaged in testing of soil and rock, as used in engineering design and construction, shall meet the requirements of ASTM D3740.
 5. Laboratories engaged in inspection and testing of steel, stainless steel, and related alloys will be evaluated according to ASTM A880.
 6. Laboratories engaged in non-destructive testing (NDT) shall meet the requirements of ASTM E543.
 7. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA.
- B. Inspection and Testing: Testing laboratory shall inspect materials and workmanship and perform tests described herein and additional tests requested by Resident Engineer. When it appears materials furnished, or work performed by Contractor fail to meet construction contract requirements, Testing Laboratory shall direct attention of Resident Engineer to such failure.

1.4 SUBMITTALS

- A. Written Reports: Testing laboratory shall submit test reports to Resident Engineer, Contractor, unless other arrangements are agreed to in writing by the Resident Engineer. Submit reports of tests that fail to meet construction contract requirements on colored paper.
- B. Verbal Reports: Give verbal notification to Resident Engineer immediately of any irregularity.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EARTHWORK:

- A. General: The Testing Laboratory shall provide qualified personnel, materials, equipment, and transportation as required to perform the services identified/required herein, within the agreed to schedule and/or time frame. The work to be performed shall be as identified herein and shall include but not be limited to the following:

1. Observe fill and subgrades during proof-rolling to evaluate suitability of surface material to receive fill or base course. Provide recommendations to the Resident Engineer regarding suitability or unsuitability of areas where proof-rolling was observed. Where unsuitable results are observed, witness excavation of unsuitable material and recommend to Resident Engineer extent of removal and replacement of unsuitable materials and observe proof-rolling of replaced areas until satisfactory results are obtained.
2. Provide full time observation of fill placement and compaction and field density testing in building areas and provide full time observation of fill placement and compaction and field density testing in pavement areas to verify that earthwork compaction obtained is in accordance with contract documents.
3. Provide supervised geotechnical technician to inspect excavation, subsurface preparation, and backfill for structural fill.

B. Testing Compaction:

1. Determine maximum density and optimum moisture content for each type of fill, backfill and subgrade material used, in compliance with ASTM D698 and/or ASTM D1557.
2. Make field density tests in accordance with the primary testing method following ASTM D2922 wherever possible. Field density tests utilizing ASTM D1556, or ASTM D2167 shall be utilized on a case by case basis only if there are problems with the validity of the results from the primary method due to specific site field conditions. Should the testing laboratory propose these alternative methods, they should provide satisfactory explanation to the Resident Engineer before the tests are conducted.
 - a. Building Slab Subgrade: At least one test of subgrade for every 185 m² (2000 square feet) of building slab, but in no case fewer than three tests. In each compacted fill layer, perform one test for every 185 m² (2000 square feet) of overlaying building slab, but in no case fewer than three tests.
 - b. Foundation Wall Backfill: One test per 30 m (100 feet) of each layer of compacted fill but in no case fewer than two tests.
 - c. Pavement Subgrade: One test for each 335 m² (400 square yards), but in no case fewer than two tests.
 - d. Curb, Gutter, and Sidewalk: One test for each 90 m (300 feet), but in no case fewer than two tests.
 - e. Footing Subgrade: At least one test for each layer of soil on which footings will be placed. Subsequent verification and

approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested subgrade when acceptable to Resident Engineer. In each compacted fill layer below wall footings, perform one field density test for every 30 m (100 feet) of wall. Verify subgrade is level, all loose or disturbed soils have been removed, and correlate actual soil conditions observed with those indicated by test borings.

- C. Testing Materials: Test suitability of on-site and off-site borrow as directed by Resident Engineer.

3.2 FOUNDATION PILES:

- A. Perform load test for conformance with ASTM D1143 or ASTM D3689 and ASTM D3966 and interpret test data to verify geotechnical recommendations for pile capacity. Submit load test report in accordance with applicable ASTM standards referenced in this paragraph.
- B. Review Contractor's equipment, methods, and procedures prior to starting any work on site. Provide continuous inspection of pile installation. Maintain a record of all pertinent phases of operation for submittal to Resident Engineer.
- C. Micropiles: Take and test samples of grout in accordance with ASTM C109 for conformance with specified strength requirements. Not less than six cubes shall be made for each day of casting. Test three cubes at 7 days and three at 28 days.

3.3 SITE WORK CONCRETE:

Test site work concrete including materials for concrete as required in Article CONCRETE of this section.

3.4 CONCRETE:

- A. Batch Plant Inspection and Materials Testing:
1. Perform continuous batch plant inspection until concrete quality is established to satisfaction of Resident Engineer with concurrence of Contracting Officer and perform periodic inspections thereafter as determined by Resident Engineer.
 2. Periodically inspect and test batch proportioning equipment for accuracy and report deficiencies to Resident Engineer.
 3. Sample and test mix ingredients as necessary to insure compliance with specifications.
 4. Sample and test aggregates daily and as necessary for moisture content. Test the dry rodded weight of the coarse aggregate whenever a sieve analysis is made, and when it appears there has been a change in the aggregate.
 5. Certify, in duplicate, ingredients and proportions and amounts of ingredients in concrete conform to approved trial mixes. When

concrete is batched or mixed off immediate building site, certify (by signing, initialing or stamping thereon) on delivery slips (duplicate) that ingredients in truck-load mixes conform to proportions of aggregate weight, cement factor, and water-cement ratio of approved trial mixes.

B. Field Inspection and Materials Testing:

1. Provide a technician at site of placement at all times to perform concrete sampling and testing.
2. Review the delivery tickets of the ready-mix concrete trucks arriving on-site. Notify the Contractor if the concrete cannot be placed within the specified time limits or if the type of concrete delivered is incorrect. Reject any loads that do not comply with the Specification requirements. Rejected loads are to be removed from the site at the Contractor's expense. Any rejected concrete that is placed will be subject to removal.
3. Take concrete samples at point of placement in accordance with ASTM C172. Mold and cure compression test cylinders in accordance with ASTM C31. Make at least three cylinders for each 40 m³ (50 cubic yards) or less of each concrete type, and at least three cylinders for any one day's pour for each concrete type. Label each cylinder with an identification number. Resident Engineer may require additional cylinders to be molded and cured under job conditions.
4. Perform slump tests in accordance with ASTM C143. Test the first truck each day, and every time test cylinders are made. Test pumped concrete at the hopper and at the discharge end of the hose at the beginning of each day's pumping operations to determine change in slump.
5. Determine the air content of concrete per ASTM C173. For concrete required to be air-entrained, test the first truck and every 20 m³ (25 cubic yards) thereafter each day. For concrete not required to be air-entrained, test every 80 m³ (100 cubic yards) at random. For pumped concrete, test concrete at the discharge end of the hose to determine air content.
6. If slump or air content fall outside specified limits, make another test immediately from another portion of same batch.
7. Perform unit weight tests in compliance with ASTM C138 for normal weight concrete and ASTM C567 for lightweight concrete. Test the first truck and each time cylinders are made.
8. Notify laboratory technician at batch plant of mix irregularities and request materials and proportioning check.
9. Verify that specified mixing has been accomplished.

10. Environmental Conditions: Determine the temperature per ASTM C1064 for each truckload of concrete during hot weather and cold weather concreting operations:
 - a. When ambient air temperature falls below 4.4 degrees C (40 degrees F), record maximum and minimum air temperatures in each 24 hour period; record air temperature inside protective enclosure; record minimum temperature of surface of hardened concrete.
 - b. When ambient air temperature rises above 29.4 degrees C (85 degrees F), record maximum and minimum air temperature in each 24 hour period; record minimum relative humidity; record maximum wind velocity; record maximum temperature of surface of hardened concrete.
11. Inspect the reinforcing steel placement, including bar size, bar spacing, top and bottom concrete cover, proper tie into the chairs, and grade of steel prior to concrete placement. Submit detailed report of observations.
12. Observe conveying, placement, and consolidation of concrete for conformance to specifications.
13. Observe condition of formed surfaces upon removal of formwork prior to repair of surface defects and observe repair of surface defects.
14. Observe curing procedures for conformance with specifications, record dates of concrete placement, start of preliminary curing, start of final curing, end of curing period.
15. Observe preparations for placement of concrete:
 - a. Inspect handling, conveying, and placing equipment, inspect vibrating and compaction equipment.
 - b. Inspect preparation of construction, expansion, and isolation joints.
16. Observe preparations for protection from hot weather, cold weather, sun, and rain, and preparations for curing.
17. Observe concrete mixing:
 - a. Monitor and record amount of water added at project site.
 - b. Observe minimum and maximum mixing times.
18. Measure concrete flatwork for levelness and flatness as follows:
 - a. Perform Floor Tolerance Measurements F_F and F_L in accordance with ASTM E1155. Calculate the actual overall F- numbers using the inferior/superior area method.
 - b. Perform all floor tolerance measurements within 48 hours after slab installation and prior to removal of shoring and formwork.
 - c. Provide the Contractor and the Resident Engineer with the results of all profile tests, including a running tabulation of the

overall F_F and F_L values for all slabs installed to date, within 72 hours after each slab installation.

19. Other inspections:

- a. Grouting under base plates.
- b. Grouting anchor bolts and reinforcing steel in hardened concrete.
- c. Continuous inspection of post-installed concrete anchors.

C. Laboratory Tests of Field Samples:

1. Test compression test cylinders for strength in accordance with ASTM C39. For each test series, test one cylinder at 7 days and one cylinder at 28 days. Use remaining cylinder as a spare tested as directed by Resident Engineer. Compile laboratory test reports as follows: Compressive strength test shall be result of one cylinder, except when one cylinder shows evidence of improper sampling, molding or testing, in which case it shall be discarded and strength of spare cylinder shall be used.
2. Make weight tests of hardened lightweight structural concrete in accordance with ASTM C567.
3. Furnish certified compression test reports (duplicate) to Resident Engineer. In test report, indicate the following information:
 - a. Cylinder identification number and date cast.
 - b. Specific location at which test samples were taken.
 - c. Type of concrete, slump, and percent air.
 - d. Compressive strength of concrete in MPa (psi).
 - e. Weight of lightweight structural concrete in kg/m^3 (pounds per cubic feet).
 - f. Weather conditions during placing.
 - g. Temperature of concrete in each test cylinder when test cylinder was molded.
 - h. Maximum and minimum ambient temperature during placing.
 - i. Ambient temperature when concrete sample in test cylinder was taken.
 - j. Date delivered to laboratory and date tested.

3.5 REINFORCEMENT:

- A. Review mill test reports furnished by Contractor.
- B. Perform tension tests of mechanical and welded splices in accordance with ASTM A370.

3.6 ARCHITECTURAL PRECAST CONCRETE:

- A. Inspection at Plant: Forms, placement of reinforcing steel, concrete cover, and placement and finishing of concrete.
- B. Concrete Testing: Test concrete including materials for concrete as required in Article CONCRETE of this section, except make two test

cylinders for each day's production of each strength of concrete produced.

- C. Inspect members to insure specification requirements for curing and finishes have been met.

3.7 MASONRY:

A. Mortar Tests:

1. Laboratory compressive strength test:
 - a. Comply with ASTM C780.
 - b. Obtain samples during or immediately after discharge from batch mixer.
 - c. Furnish molds with 50 mm (2 inch), 3 compartment gang cube.
 - d. Test one sample at 7 days and 2 samples at 28 days.
2. Two tests during first week of operation; one test per week after initial test until masonry completion.

3.8 STRUCTURAL STEEL:

A. General: Provide shop and field inspection and testing services to certify structural steel work is done in accordance with contract documents. Welding shall conform to AWS D1.1 Structural Welding Code.

B. Prefabrication Inspection:

1. Review design and shop detail drawings for size, length, type and location of all welds to be made.
2. Approve welding procedure qualifications either by pre-qualification or by witnessing qualifications tests.
3. Approve welder qualifications by certification or retesting.
4. Approve procedure for control of distortion and shrinkage stresses.
5. Approve procedures for welding in accordance with applicable sections of AWS D1.1.

C. Fabrication and Erection:

1. Weld Inspection (General):
 - a. Inspect welding equipment for capacity, maintenance and working condition.
 - b. Verify specified electrodes and handling and storage of electrodes in accordance with AWS D1.1.
 - c. Inspect preparation and assembly of materials to be welded for conformance with AWS D1.1.
 - d. Inspect preheating and interpass temperatures for conformance with AWS D1.1.
 - e. Visually inspect 100 percent of fillet welds.

- f. Welding Magnetic Particle Testing: Test in accordance with ASTM E709 for a minimum of:
 - 1) 20 percent of all shear plate fillet welds at random, final pass only.
 - 2) 20 percent of all continuity plate and bracing gusset plate fillet welds, at random, final pass only.
 - 3) 100 percent of tension member fillet welds (i.e., hanger connection plates and other similar connections) for root and final passes.
 - 4) 20 percent of length of built-up column member partial penetration and fillet welds at random for root and final passes.
 - 5) 100 percent of length of built-up girder member partial penetration and fillet welds for root and final passes.
 - g. Welding Ultrasonic Testing: Test in accordance with ASTM E164 and AWS D1.1 for 100 percent of all full penetration welds, and a minimum of 20 percent of all other partial penetration column splices, at random.
 - h. Welding Radiographic Testing: Test in accordance with ASTM E94, and AWS D1.1 for 5 percent of all full penetration welds at random.
 - i. Verify that correction of rejected welds are made in accordance with AWS D1.1.
 - j. Testing and inspection do not relieve the Contractor of the responsibility for providing materials and fabrication procedures in compliance with the specified requirements.
2. Weld Inspection at Special Moment Connections:
- a. In accordance with Appendix Q and Appendix W of AISC 341-05.
3. Bolt Inspection:
- a. Inspect high-strength bolted connections in accordance AISC Specifications for Structural Joints Using ASTM A325 or A490 Bolts.
 - b. Slip-Critical Connections: Inspect 10 percent of bolts, but not less than 2 bolts, selected at random in each connection in accordance with AISC Specifications for Structural Joints Using ASTM A325 or A490 Bolts. Inspect all bolts in connection when one or more are rejected.
 - c. Fully Pre-tensioned Connections: Inspect 10 percent of bolts, but not less than 2 bolts, selected at random in 25 percent of connections in accordance with AISC Specification for Structural

Joints Using ASTM A325 or A490 Bolts. Inspect all bolts in connection when one or more are rejected.

- d. Bolts installed by turn-of-nut tightening may be inspected with calibrated wrench when visual inspection was not performed during tightening.
 - e. Snug Tight Connections: Inspect 10 percent of connections verifying that plies of connected elements have been brought into snug contact.
 - f. Inspect field erected assemblies; verify locations of structural steel for plumbness, level, and alignment.
- D. Submit inspection reports, record of welders and their certification, and identification, and instances of noncompliance to Resident Engineer.

3.9 STEEL DECKING:

- A. Provide field inspection of welds of metal deck to the supporting steel, and testing services to insure steel decking has been installed in accordance with contract documents and manufacturer's requirements.
- B. Qualification of Field Welding: Qualify welding processes and welding operators in accordance with "Welder Qualification" procedures of AWS D1.1. Refer to the "Plug Weld Qualification Procedure" in Part 3 "Field Quality Control."
- C. Submit inspection reports, certification, and instances of noncompliance to Resident Engineer.

3.10 SHEAR CONNECTOR STUDS:

- A. Provide field inspection and testing services required by AWS D.1 to insure shear connector studs have been installed in accordance with contract documents.
- B. Tests: Test 20 percent of headed studs for fastening strength in accordance with AWS D1.1.
- C. Submit inspection reports, certification, and instances of noncompliance to Resident Engineer.

3.11 SPRAYED-ON FIREPROOFING:

- A. Provide field inspection and testing services to certify sprayed-on fireproofing has been applied in accordance with contract documents.
- B. Obtain a copy of approved submittals from Resident Engineer.
- C. Use approved installation in test areas as criteria for inspection of work.
- D. Test sprayed-on fireproofing for thickness and density in accordance with ASTM E605.

1. Thickness gauge specified in ASTM E605 may be modified for pole extension so that overhead sprayed material can be reached from floor.
- E. Location of test areas for field tests as follows:
1. Thickness: Select one bay per floor, or one bay for each 930 m² (10,000 square feet) of floor area, whichever provides for greater number of tests. Take thickness determinations from each of following locations: Metal deck, beam, and column.
 2. Density: Take density determinations from each floor, or one test from each 930 m² (10,000 square feet) of floor area, whichever provides for greater number of tests, from each of the following areas: Underside of metal deck, beam flanges, and beam web.
- F. Submit inspection reports, certification, and instances of noncompliance to Resident Engineer.

3.12 SPECIAL INSPECTIONS:

- A. See Structural and Civil Drawings for all required Special Inspections.

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SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies the requirements for the management of non-hazardous building construction and demolition waste.
- B. Waste disposal in landfills shall be minimized to the greatest extent possible. Of the inevitable waste that is generated, as much of the waste material as economically feasible shall be salvaged, recycled or reused.
- C. Contractor shall use all reasonable means to divert construction and demolition waste from landfills and incinerators, and facilitate their salvage and recycle not limited to the following:
 - 1. Waste Management Plan development and implementation.
 - 2. Techniques to minimize waste generation.
 - 3. Sorting and separating of waste materials.
 - 4. Salvage of existing materials and items for reuse or resale.
 - 5. Recycling of materials that cannot be reused or sold.
- D. At a minimum the following waste categories shall be diverted from landfills:
 - 1. Soil.
 - 2. Inerts (eg, concrete, masonry and asphalt).
 - 3. Clean dimensional wood and palette wood.
 - 4. Green waste (biodegradable landscaping materials).
 - 5. Engineered wood products (plywood, particle board and I-joists, etc).
 - 6. Metal products (eg, steel, wire, beverage containers, copper, etc).
 - 7. Cardboard, paper and packaging.
 - 8. Bitumen roofing materials.
 - 9. Plastics (eg, ABS, PVC).
 - 10. Carpet and/or pad.
 - 11. Gypsum board.
 - 12. Insulation.
 - 13. Paint.
 - 14. Fluorescent lamps.

1.2 RELATED WORK

- A. Section 02 41 00, DEMOLITION.
- B. Section 01 00 00, GENERAL REQUIREMENTS.

1.3 QUALITY ASSURANCE

- A. Contractor shall practice efficient waste management when sizing, cutting and installing building products. Processes shall be employed to ensure the generation of as little waste as possible. Construction /Demolition waste includes products of the following:
1. Excess or unusable construction materials.
 2. Packaging used for construction products.
 3. Poor planning and/or layout.
 4. Construction error.
 5. Over ordering.
 6. Weather damage.
 7. Contamination.
 8. Mishandling.
 9. Breakage.
- B. Establish and maintain the management of non-hazardous building construction and demolition waste set forth herein. Conduct a site assessment to estimate the types of materials that will be generated by demolition and construction.
- C. Contractor shall develop and implement procedures to reuse and recycle new materials to a minimum of 50 percent.
- D. Contractor shall be responsible for implementation of any special programs involving rebates or similar incentives related to recycling. Any revenues or savings obtained from salvage or recycling shall accrue to the contractor.
- E. Contractor shall provide all demolition, removal and legal disposal of materials. Contractor shall ensure that facilities used for recycling, reuse and disposal shall be permitted for the intended use to the extent required by local, state, federal regulations. The Whole Building Design Guide website <http://www.wbdg.org> provides a Construction Waste Management Database that contains information on companies that haul, collect, and process recyclable debris from construction projects.
- F. Contractor shall assign a specific area to facilitate separation of materials for reuse, salvage, recycling, and return. Such areas are to be kept neat and clean and clearly marked in order to avoid contamination or mixing of materials.

- G. Contractor shall provide on-site instructions and supervision of separation, handling, salvaging, recycling, reuse and return methods to be used by all parties during waste generating stages.
- H. Record on daily reports any problems in complying with laws, regulations and ordinances with corrective action taken.

1.4 TERMINOLOGY

- A. Class III Landfill: A landfill that accepts non-hazardous resources such as household, commercial and industrial waste resulting from construction, remodeling, repair and demolition operations.
- B. Clean: Untreated and unpainted; uncontaminated with adhesives, oils, solvents, mastics and like products.
- C. Construction and Demolition Waste: Includes all non-hazardous resources resulting from construction, remodeling, alterations, repair and demolition operations.
- D. Dismantle: The process of parting out a building in such a way as to preserve the usefulness of its materials and components.
- E. Disposal: Acceptance of solid wastes at a legally operating facility for the purpose of land filling (includes Class III landfills and inert fills).
- F. Inert Backfill Site: A location, other than inert fill or other disposal facility, to which inert materials are taken for the purpose of filling an excavation, shoring or other soil engineering operation.
- G. Inert Fill: A facility that can legally accept inert waste, such as asphalt and concrete exclusively for the purpose of disposal.
- H. Inert Solids/Inert Waste: Non-liquid solid resources including, but not limited to, soil and concrete that does not contain hazardous waste or soluble pollutants at concentrations in excess of water-quality objectives established by a regional water board, and does not contain significant quantities of decomposable solid resources.
- I. Mixed Debris: Loads that include commingled recyclable and non-recyclable materials generated at the construction site.
- J. Mixed Debris Recycling Facility: A solid resource processing facility that accepts loads of mixed construction and demolition debris for the purpose of recovering re-usable and recyclable materials and disposing non-recyclable materials.
- K. Permitted Waste Hauler: A company that holds a valid permit to collect and transport solid wastes from individuals or businesses for the purpose of recycling or disposal.

- L. Recycling: The process of sorting, cleansing, treating, and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.
 - 1. On-site Recycling - Materials that are sorted and processed on site for use in an altered state in the work, i.e. concrete crushed for use as a sub-base in paving.
 - 2. Off-site Recycling - Materials hauled to a location and used in an altered form in the manufacture of new products.
- M. Recycling Facility: An operation that can legally accept materials for the purpose of processing the materials into an altered form for the manufacture of new products. Depending on the types of materials accepted and operating procedures, a recycling facility may or may not be required to have a solid waste facilities permit or be regulated by the local enforcement agency.
- N. Reuse: Materials that are recovered for use in the same form, on-site or off-site.
- O. Return: To give back reusable items or unused products to vendors for credit.
- P. Salvage: To remove waste materials from the site for resale or re-use by a third party.
- Q. Source-Separated Materials: Materials that are sorted by type at the site for the purpose of reuse and recycling.
- R. Solid Waste: Materials that have been designated as non-recyclable and are discarded for the purposes of disposal.
- S. Transfer Station: A facility that can legally accept solid waste for the purpose of temporarily storing the materials for re-loading onto other trucks and transporting them to a landfill for disposal, or recovering some materials for re-use or recycling.

1.5 SUBMITTALS

- A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, and SAMPLES, furnish the following:
- B. Prepare and submit a written demolition debris management plan. The plan shall include, but not be limited to, the following information:
 - 1. Procedures to be used for debris management.
 - 2. Techniques to be used to minimize waste generation.
 - 3. Analysis of the estimated job site waste to be generated:

- a. List of each material and quantity to be salvaged, reused, recycled.
 - b. List of each material and quantity proposed to be taken to a landfill.
4. Detailed description of the Means/Methods to be used for material handling.
- a. On site: Material separation, storage, protection where applicable.
 - b. Off site: Transportation means and destination. Include list of materials.
 - 1) Description of materials to be site-separated and self-hauled to designated facilities.
 - 2) Description of mixed materials to be collected by designated waste haulers and removed from the site.
 - c. The names and locations of mixed debris reuse and recycling facilities or sites.
 - d. The names and locations of trash disposal landfill facilities or sites.
 - e. Documentation that the facilities or sites are approved to receive the materials.
- C. Designated Manager responsible for instructing personnel, supervising, documenting and administer over meetings relevant to the Waste Management Plan.
- D. Monthly summary of construction and demolition debris diversion and disposal, quantifying all materials generated at the work site and disposed of or diverted from disposal through recycling.

1.6 APPLICABLE PUBLICATIONS

- A Publications listed below form a part of this specification to the extent referenced. Publications are referenced by the basic designation only. In the event that criteria requirements conflict, the most stringent requirements shall be met.
- B. U.S. Green Building Council (USGBC):
LEED Green Building Rating System for New Construction

1.7 RECORDS

Maintain records 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. Records shall be kept in accordance with the LEED Reference Guide and LEED Template.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. List of each material and quantity to be salvaged, recycled, reused.
- B. List of each material and quantity proposed to be taken to a landfill.
- C. Material tracking data: Receiving parties, dates removed, transportation costs, weight tickets, tipping fees, manifests, invoices, net total costs or savings.

PART 3 - EXECUTION

3.1 COLLECTION

- A. Provide all necessary containers, bins and storage areas to facilitate effective waste management.
- B. Clearly identify containers, bins and storage areas so that recyclable materials are separated from trash and can be transported to respective recycling facility for processing.
- C. Hazardous wastes shall be separated, stored, disposed of according to local, state, federal regulations.

3.2 DISPOSAL

- A. Contractor shall be responsible for transporting and disposing of materials that cannot be delivered to a source-separated or mixed materials recycling facility to a transfer station or disposal facility that can accept the materials in accordance with state and federal regulations.
- B. Construction or demolition materials with no practical reuse or that cannot be salvaged or recycled shall be disposed of at a landfill or incinerator.

3.3 REPORT

- A. With each application for progress payment, submit a summary of construction and demolition debris diversion and disposal including beginning and ending dates of period covered.
- B. Quantify all materials diverted from landfill disposal through salvage or recycling during the period with the receiving parties, dates removed, transportation costs, weight tickets, manifests, invoices. Include the net total costs or savings for each salvaged or recycled material.
- C. Quantify all materials disposed of during the period with the receiving parties, dates removed, transportation costs, weight tickets, tipping fees, manifests, and invoices. Include the net total costs for each disposal. - - - E N D - - -