

**SECTION 01 00 00
GENERAL REQUIREMENTS**

1.1 GENERAL INTENTION

- A. Contractor shall completely prepare site for building operations, including demolition and removal of existing structures, and furnish labor and materials and perform work for new construction for the VANCHCS Veterans Affairs Northern California Health Care System, Mather Campus, high efficiency chiller install as required by drawings and specifications.
- B. Visits to the site by Bidders may be made only by appointment with the Medical Center Engineering Officer.
- C. Offices of Hilliard Architects, Inc. 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.
- D. Before placement and installation of work subject to tests by testing laboratory retained by ~~Department of Veterans Affairs~~ the Contractor, the Contractor shall notify the Resident Engineer in sufficient time to enable testing laboratory personnel to be present at the site in time for proper taking and testing of specimens and field inspection. Such prior notice shall be not less than three work days unless otherwise designated by the Resident Engineer.
- E. All employees of general contractor and subcontractors shall comply with 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 designated "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 or 30-hour OSHA Construction Safety course and other relevant

competency training, as determined by RE/COR acting as the Construction Safety Officer with input from the facility Construction Safety Committee.

2. Submit training records of all such employees for approval before the start of work.

H. VHA Directive 2011-36, Safety and Health during Construction, dated 9/22/2011 in its entirety is made a part of this section

1.2 STATEMENT OF BID ITEM(S)

- A. BASE BID, GENERAL CONSTRUCTION: Balance multiple building chilled water hydronic loops by replacing cooling coil control and balance valves with pressure independent type control valves selected for design flow specific to each cooling coil. After building chilled water hydronic loops are balanced, replace 430 ton chillers No. 1 and 2 with new 700 ton high efficiency chillers. Increase size of primary chilled water and condenser water loop pumps and piping to accommodate larger 700 ton chiller No. 1 and 2 flow rates. Increase size of secondary chilled water pumps and piping to accommodate future increase in chilled water demand. Accomplish scope of work without major outage of chilled water services.

Work includes general construction, mechanical and electrical work, utility systems, necessary removal of existing structures and construction and certain other items. Some work will need to be performed outside regular business hours if deemed disruptive by the COR. Costs associated with this requirement shall be included in the base bid and will not be billable separately to the VA.

1.3 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR

- A. AFTER AWARD OF CONTRACT, one set of printed specifications and drawings and one CD with specifications and drawings in PDF format will be furnished to the Contractor.
- B. Additional sets of drawings may be made by the Contractor, at Contractor's expense, from provided CD.
- C. Contractor shall maintain on site one printed set of specifications, one printed set of drawings, one printed set of all RFI's, FRP;s, and other documents that modify the original specifications and drawings.

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 sub-contractors working on the project and their employees also comply with these regulations.

B. Security Procedures:

1. General Contractor's employees shall not enter the project site without appropriate badge. They may also be subject to inspection of their personal effects when entering or leaving the project site.
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 arrangements 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. 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.
2. The General Contractor shall turn over all permanent lock cylinders to the VA locksmith for permanent installation.

D. Document Control:

1. Before starting any work, the General Contractor/Sub Contractors shall submit an electronic security memorandum describing the approach to following goals and maintaining confidentiality of "sensitive information".
2. 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.
3. Certain documents, sketches, videos or photographs and drawings may be marked "Law Enforcement Sensitive" or "Sensitive Unclassified". Secure such information in separate containers and limit the access to only those who will need it for the project. Return the information to the Contracting Officer upon request.
4. These security documents shall not be removed or transmitted from the project site without the written approval of Contracting Officer.
5. All paper waste or electronic media such as CD's and diskettes shall be shredded and destroyed in a manner acceptable to the VA.
6. Notify Contracting Officer and Site Security Officer immediately when there is a loss or compromise of "sensitive information".
7. ~~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.~~

E. Motor Vehicle Restrictions

1. Vehicle authorization request shall be required for any vehicle entering the site and such request shall be submitted 24 hours before

the date and time of access. Access shall be restricted to picking up and dropping off materials and supplies.

2. Separate permits shall be issued for General Contractor and its employees for parking in designated areas only.

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):

E84-2009.....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-

2011.....National Electrical Code

101-2012.....Life Safety 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

4. VHA Directive 2005-007

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 Resident Engineer and Facility Safety Manager for review for compliance with VHA Directive 2005-007, NFPA 101 and NFPA 241. Prior to beginning work, all employees of the contractor and/or any subcontractors 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. Provide documentation to the Resident Engineer that all construction workers have undergone contractor's safety briefing.

- 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
- F. Temporary Heating and Electrical: Install, use and maintain installations in accordance with 29 CFR 1926, NFPA 241 and NFPA 70.
- G. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with Project Engineer and facility Safety Officer
- H. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to Project Engineer and facility Safety Officer
- 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. Standpipes: Install and extend standpipes up with each floor in accordance with 29 CFR 1926 and NFPA 241. Do not charge wet standpipes subject to freezing until weather protected.
- L. Sprinklers: Install, test and activate new automatic sprinklers prior to removing existing sprinklers.
- N. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with Project Engineer and facility Safety Officer.

- O. Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with Project Engineer. Obtain permits from facility Safety Officer at least 48 hours in advance. Designate contractor's responsible project-site fire prevention program manager to permit hot work.
- P. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Coordinate with, and report findings and corrective actions weekly to Project Engineer and facility Safety Officer.
- Q. Smoking: Smoking is prohibited in and adjacent to construction areas inside existing buildings and additions under construction. In separate and detached buildings under construction, smoking is prohibited except in designated smoking rest areas.
- R. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily.
- S. Perform other construction, alteration and demolition operations in accordance with 29 CFR 1926.
- T. If required, submit documentation to the Resident Engineer that personnel have been trained in the fire safety aspects of working in areas with impaired structural or compartmentalization features.

1.6 OPERATIONS AND STORAGE AREAS

- A. 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.
- B. 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.

- C. 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.
- D. Working space and space available for storing materials shall be as shown on the drawings.
- E. Workmen are subject to rules of Medical Center applicable to their conduct.
- F. 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. When it is necessary to temporarily disconnect any utilities, the Contractor shall coordinate with and receive written approval from the COR.
 - 1. Do not store materials and equipment in other than assigned areas.
- G. Construction Fence: Before construction operations begin, Contractor shall provide a chain link construction fence, 2.1m (seven feet) minimum height, 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 375mm (15 inches). Bottom of fences shall extend to 25mm (one
- H. 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.

2. Method and scheduling of required cutting, altering and removal of existing roads, walks and entrances must be approved by the Resident Engineer.

I. Coordinate the work for this contract with other construction operations as directed by Project Engineer. This includes the scheduling of traffic and the use of roadways, as specified in Article, USE OF ROADWAYS.

1.7 INFECTION PREVENTION MEASURES

A. Implement the requirements of 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 Project Engineer 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 RE 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 adopt preventive measures during construction to keep down dust and prevent mold.
- 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 air ducts shall be cleaned prior to final inspection.

1.8 DISPOSAL AND RETENTION

- A. Materials and equipment accruing from work removed and from demolition of buildings or structures shall be disposed of as follows:
1. Reserved items which are to remain property of the Government are noted on drawings or in specifications as items to be stored. 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 where directed by Resident Engineer.
 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.
 4. PCB Transformers and Capacitors: The Contractor shall be responsible for disposal of the Polychlorinated Biphenyl (PCB) transformers and capacitors. The transformers and capacitors shall be taken out of

service and handled in accordance with the procedures of the Environmental Protection Agency (EPA) and the Department of Transportation (DOT) as outlined in Code of Federal Regulation (CFR), Titled 40 and 49 respectively. The EPA's Toxic Substance Control Act (TSCA) Compliance Program Policy Nos. 6-PCB-6 and 6-PCB-7 also apply. Upon removal of PCB transformers and capacitors for disposal, the "originator" copy of the Uniform Hazardous Waste Manifest (EPA Form 8700-22), along with the Uniform Hazardous Waste Manifest Continuation Sheet (EPA Form 8700-22A) shall be returned to the Contracting Officer who will annotate the contract file and transmit the Manifest to the Medical Center's Chief.

- a. Copies of the following listed CFR titles may be obtained from the Government Printing Office:

40 CFR 261.....Identification and Listing of Hazardous Waste

40 CFR 262.....Standards Applicable to Generators of Hazardous Waste

40 CFR 263.....Standards Applicable to Transporters of Hazardous Waste

40 CFR 761.....PCB Manufacturing, Processing, Distribution in Commerce, and use Prohibitions

49 CFR 172.....Hazardous Material tables and Hazardous Material Communications Regulations

49 CFR 173.....Shippers - General Requirements for Shipments and Packaging

49 CFR 173.....Subpart A General

49 CFR 173.....Subpart B Preparation of Hazardous Material for Transportation

49 CFR 173.....Subpart J Other Regulated Material; Definitions and Preparation

TSCA.....Compliance Program Policy Nos. 6-PCB-6 and 6-PCB-7

1.9 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. If any limbs or branches of trees are 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 Contracting Officer.
- 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. 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.
- C. Refer to Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS, for additional requirements on protecting vegetation, soils and the environment. Refer to Articles, "Alterations", "Restoration", and "Operations and Storage Areas" for additional instructions concerning repair of damage to structures and site improvements.
- D. Refer to FAR clause 52.236-7, "Permits and Responsibilities," which is included in General Conditions. A National Pollutant Discharge Elimination System (NPDES) permit is required for this project. The Contractor is considered an "operator" under the permit and has extensive responsibility for compliance with permit requirements. VA will make the permit application available at the (appropriate medical center) office. The apparent low bidder, contractor and affected subcontractors shall furnish all information and certifications that are required to comply with the permit process and permit requirements. Many of the permit requirements will be satisfied by completing construction as shown and specified. Some requirements involve the Contractor's

method of operations and operations planning and the Contractor is responsible for employing best management practices. The affected activities often include, but are not limited to the following:

- Designating areas for equipment maintenance and repair;
- Providing waste receptacles at convenient locations and provide regular collection of wastes;
- Locating equipment wash down areas on site, and provide appropriate control of wash-waters;
- Providing protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials; and
- Providing adequately maintained sanitary facilities.

1.10 RESTORATION

- A. Remove, cut, alter, replace, patch and repair existing work as necessary to install new work. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the Resident Engineer 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. Upon completion of contract, deliver work complete and undamaged. Existing 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.
- C. 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.
- D. Expense of repairs to such utilities and systems not shown on drawings or locations of which are unknown 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).

1.11 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. Subsurface conditions have been developed by core borings and test pits. Logs of subsurface exploration are shown diagrammatically on drawings.
- C. A copy of the soil report will be made available for inspection by bidders upon request to the Engineering Officer at the VA Medical Center, and shall be considered part of the contract documents.
- D. 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 explorations. Bidders are expected to examine site of work and logs of borings; and, after investigation, 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.

1.12 PROFESSIONAL SURVEYING SERVICES - NOT USED

~~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.~~

1.13 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.

- B. Establish and plainly mark center lines for building, and such other lines and grades that are reasonably necessary to properly assure that location, orientation, and elevations established for each such structure and/or roads and 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 Resident Engineer before any work (such as footings, floor slabs, columns, walls, utilities and other major controlling features) is placed.
- D. During progress of work, and particularly as work progresses from floor to floor, Contractor shall have line grades and plumbness of all major form work checked and certified by a registered land surveyor or registered civil engineer as meeting requirements of contract drawings. Furnish such certification to the Resident Engineer before any major items of concrete work are placed. In addition, Contractor shall also furnish to the Project Engineer certificates from a registered land surveyor or registered civil engineer that the following work is complete in every respect as required by contract drawings.
 - 1. Lines of building.
 - 2. Elevations of bottoms of footings and tops of floors.
 - 3. Lines and elevations of sewers and of all outside distribution systems.

4. Lines of elevations of all swales and interment areas.
 5. Lines and elevations of roads, streets and parking lots.
- E. 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 Project Engineer.
- E'. Upon completion of the work, the Contractor shall furnish the Project Engineer, reproducible drawings at the scale of the contract drawings, showing the finished grade on the grid developed for constructing the work, including burial monuments and fifty foot stationing along new road centerlines. These drawings shall bear the seal of the registered land surveyor or registered civil engineer.
- F. 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".

1.14 AS-BUILT DRAWINGS

- A. The contractor shall maintain two 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 Resident Engineer's review, as often as requested.
- C. Contractor shall deliver two approved completed sets of as-built drawings to the Resident Engineer within 15 calendar days after each completed phase and after the acceptance of the project by the Resident Engineer.
- D. Paragraphs A, B, & C shall also apply to all shop drawings.

1.15 USE OF ROADWAYS

- A. For hauling, use only established public roads and roads on Medical Center property and, when authorized by the Project Engineer, 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.

1.16 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 Resident Engineer. If the equipment is not installed and maintained in accordance with the following provisions, the Resident Engineer 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.

Boilers, pumps, feedwater heaters and auxiliary equipment must be operated as a complete system and be fully maintained by operating personnel. Boiler water must be given complete and continuous chemical treatment.

- 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.

1.17 TEMPORARY USE OF NEW ELEVATOR

- A. The Contractor and his personnel shall be permitted use of new elevator subject to the following provisions:
 - 1. Contractor shall make arrangements with the Resident Engineer for use of elevator. Contractor may obtain elevator for exclusive use.
 - 2. Prior to the use of elevator, the Contractor shall have the elevator inspected and accepted by an ASME accredited, certified elevator safety inspector. The acceptance report shall be submitted to the Resident Engineer.
 - 3. Submit to the Project Engineer the schedule and procedures for maintaining equipment. Indicate the day or days of the week and total hours required for maintenance. A report shall be submitted to the Project Engineer monthly indicating the type of maintenance conducted, hours used, and any repairs made to the elevator(s).
 - 4. The Contractor shall be responsible for enforcing the maintenance procedures.
 - 5. During temporary use of elevator all repairs, equipment replacement and cost of maintenance shall be the responsibility of the Contractor.
 - 6. Personnel for operating elevator shall not be provided by the Department of Veterans Affairs.
 - 7. Contractor shall cover and provide maximum protection of the entire elevator installation.

8. The Contractor shall arrange for the elevator company to perform operation of the elevator so that an ASME accredited, certified elevator safety inspector can evaluate the equipment. The Contractor shall be responsible for any costs of the elevator company.
9. All elevator parts worn or damaged during temporary use shall be removed and replaced with new parts. This shall be determined by an ASME accredited certified elevator safety inspector after temporary use and before acceptance by the Government. Submit report to the Project Engineer for approval.
10. Elevator shall be tested as required by the testing section of the elevator specifications before acceptance by the Department of Veterans Affairs.

1.18 TEMPORARY TOILETS

- A. Provide for use of all Contractor's workmen ample temporary sanitary toilet accommodations with suitable sewer and water connections; or, when approved by Project Engineer, 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.

1.19 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 amount to be paid by the Contractor for chargeable electrical services shall be the prevailing rates charged to the Government. 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 for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.
- C. Contractor shall install meters at Contractor's expense and furnish the Medical Center a monthly record of the Contractor's usage of electricity as hereinafter specified.

- D. 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:
- E. Electricity (for Construction and Testing): Furnish all temporary electric services.
1. Obtain electricity by connecting to the Medical Center electrical distribution system. The Contractor shall meter and pay for electricity required for electric cranes and hoisting devices, electrical welding devices and any electrical heating devices providing temporary heat. 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 Project Engineer's discretion) of use of water from Medical Center's system.
- G. Steam: Furnish steam system for testing required in various sections of specifications.
1. Obtain steam for testing by connecting to the Medical Center steam distribution system. Steam is available at no cost to the Contractor.
 2. Maintain connections, pipe, fittings and fixtures and conserve steam-use so none is wasted. Failure to stop leakage or other waste will be cause for revocation (at Project Engineer's discretion), of use of steam from the Medical Center's system.
- H. Fuel: Natural and LP gas and burner fuel oil required for boiler cleaning, normal initial boiler-burner setup and adjusting, and for performing the specified boiler tests will be furnished by the Government. Fuel required for prolonged boiler-burner setup, adjustments, or modifications due to improper design or operation of

boiler, burner, or control devices shall be furnished by the Contractor at Contractor's expense.

1.20 NEW TELEPHONE EQUIPMENT

The contractor shall coordinate with the work of installation of telephone equipment by others. This work shall be completed before the building is turned over to VA.

1.21 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.

1.22 INSTRUCTIONS

- A. Contractor shall furnish Maintenance and Operating manuals (hard copies and electronic) and verbal instructions when required by the various sections of the specifications and as hereinafter specified.
- B. Manuals: Maintenance and operating manuals and one compact disc (four hard copies and one electronic copy each) for each separate piece of equipment shall be delivered to the Resident Engineer 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 Resident Engineer and shall be considered concluded only when the Resident Engineer 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 Resident Engineer, does not demonstrate sufficient qualifications in accordance with requirements for instructors above.

1.23 GOVERNMENT-FURNISHED PROPERTY

- A. The Government shall deliver to the Contractor, the Government-furnished property shown on the drawings.
- B. Equipment furnished by Government to be installed by Contractor will be furnished to Contractor at the Medical Center.
- C. Contractor shall be prepared to receive this equipment from Government and store or place such equipment not less than 90 days before Completion Date of project.
- D. Notify Project Engineer in writing, 60 days in advance, of date on which Contractor will be prepared to receive equipment furnished by Government. Arrangements will then be made by the Government for delivery of equipment.
 - 1. Immediately upon delivery of equipment, Contractor shall arrange for a joint inspection thereof with a representative of the Government. At such time the Contractor shall acknowledge receipt of equipment described, make notations, and immediately furnish the Government representative with a written statement as to its condition or shortages.
 - 2. Contractor thereafter is responsible for such equipment until such time as acceptance of contract work is made by the Government.
- E. Equipment furnished by the Government will be delivered in a partially assembled (knock down) condition in accordance with existing standard commercial practices, complete with all fittings, fastenings, and appliances necessary for connections to respective services installed under contract. All fittings and appliances (i.e., couplings, ells, tees, nipples, piping, conduits, cables, and the like) necessary to make the connection between the Government furnished equipment item and the utility stub-up shall be furnished and installed by the contractor at no additional cost to the Government.

- F. Completely assemble and install the Government furnished equipment in place ready for proper operation in accordance with specifications and drawings.
- G. Furnish supervision of installation of equipment at construction site by qualified factory trained technicians regularly employed by the equipment manufacturer.

1.24 CONSTRUCTION SIGN

- A. Provide a Construction Sign where directed by the Resident Engineer. 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 construction sign showing required legend and other characteristics of sign is shown on the drawings.

1.25 SAFETY SIGN

- A. Provide a Safety Sign where directed by Project Engineer. 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 1200 mm (four 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. Standard Detail Drawing Number SD10000-02 (Found on VA TIL) of safety 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.

1.26 PHOTOGRAPHIC DOCUMENTATION

A. During the construction period through completion, provide photographic documentation of construction progress and at selected milestones including electronic indexing, navigation, storage and remote access to the documentation, as per these specifications. The commercial photographer or the subcontractor used for this work shall meet the following qualifications:

1. Demonstrable minimum experience of three (3) years in operation providing documentation and advanced indexing/navigation systems including a representative portfolio of construction projects of similar type, size, duration and complexity as the Project.
2. Demonstrable ability to service projects throughout North America, which shall be demonstrated by a representative portfolio of active projects of similar type, size, duration and complexity as the Project.

B. Photographic documentation elements:

1. Each digital image shall be taken with a professional grade camera with minimum size of 6 megapixels (MP) capable of producing 200x250mm (8 x 10 inch) prints with a minimum of 2272 x 1704 pixels and 400x500mm (16 x 20 inch) prints with a minimum 2592 x 1944 pixels.

~~2. Indexing and navigation system shall utilize actual AUTOCAD construction drawings, making such drawings interactive on an on-line interface. For all documentation referenced herein, indexing and navigation must be organized by both time (date-stamped) and location throughout the project.~~

~~3. Documentation shall combine indexing and navigation system with inspection-grade digital photography designed to capture actual conditions throughout construction and at critical milestones. Documentation shall be accessible on-line through use of an internet connection. Documentation shall allow for secure multiple user access, simultaneously, on-line.~~

~~4.2.~~ Before construction, the building pad, adjacent streets, roadways, parkways, driveways, curbs, sidewalks, landscaping, adjacent utilities and adjacent structures surrounding the building pad and

site shall be documented. ~~Overlapping photographic techniques shall be used to insure maximum coverage. Indexing and navigation accomplished through interactive architectural drawings. If site work or pad preparation is extensive, this documentation may be required immediately before construction and at several pre-determined intervals before building work commences.~~

5.3. Construction progress for all trades shall be tracked at pre-determined intervals, but not less than once every thirty (30) calendar days ("Progressions"). Progression documentation shall track both the exterior and interior construction of the building. Exterior Progressions shall track 360 degrees around the site and each building. Interior Progressions shall track interior improvements beginning when ~~stud~~ work commences and continuing until Project completion.

~~6. As-built condition of pre-slab utilities and site utilities shall be documented prior to pouring slabs, placing concrete and/or backfilling. This process shall include all underground and in-slab utilities within the building(s) envelope(s) and utility runs in the immediate vicinity of the building(s) envelope(s). This may also include utilities enclosed in slab-on-deck in multi-story buildings. Overlapping photographic techniques shall be used to insure maximum coverage. Indexing and navigation accomplished through interactive site utility plans.~~

7.4. As-built conditions of mechanical, electrical, plumbing and all other systems shall be documented post-inspection and pre-insulation, sheet rock or dry wall installation. This process shall include all finished systems located in the walls and ceilings of all buildings at the Project. ~~Overlapping photographic techniques shall be used to insure maximum coverage. Indexing and navigation accomplished through interactive architectural drawings.~~

8.5. As-built conditions of exterior skin and elevations shall be documented with an increased concentration of digital photographs as directed by the Resident Engineer in order to capture pre-determined focal points, such as waterproofing, window flashing, radiused steel work, architectural or Exterior Insulation and Finish Systems (EIFS) detailing. ~~Overlapping photographic techniques shall be used to insure maximum coverage. Indexing and navigation accomplished through interactive elevations or elevation details.~~

~~9. As-built finished conditions of the interior of each building including floors, ceilings and walls shall be documented at certificate of occupancy or equivalent, or just prior to occupancy, or both, as directed by the Resident Engineer. Overlapping photographic techniques shall be used to insure maximum coverage. Indexing and navigation accomplished through interactive architectural drawings.~~

~~10.6.~~ Miscellaneous events that occur during any Contractor site visit, or events captured by the Department of Veterans Affairs independently, shall be dated, labeled and inserted into a Section in the navigation structure entitled "Slideshows," allowing this information to be stored in the same "place" as the formal scope.

~~11.7.~~ Customizable project-specific digital photographic documentation of other details or milestones. ~~Indexing and navigation accomplished through interactive architectural plans.~~

~~12.8.~~ _____ Monthly (29 max) exterior progressions (360 degrees around the project) and slideshows (all elevations and building envelope). The slideshows allow for the inclusion of Department of Veterans Affairs pictures, aerial photographs, and timely images which do not fit into any regular monthly photopath.

~~13.9.~~ Weekly (21 Max) Site Progressions - Photographic documentation capturing the project at different stages of construction. These progressions shall ~~continue capture underground utilities, excavation, grading, backfill, landscaping and road construction~~ throughout the duration of the project.

~~14.10.~~ _____ Regular (8 max) interior progressions of all walls of the entire project to begin at time of substantial framed or as directed by the Resident Engineer through to completion.

~~15. Detailed Exact-Built of all Slabs for all project slab pours just prior to placing concrete or as directed by the Resident Engineer.~~

~~16.11.~~ _____ Detailed Interior exact built overlapping photos of the entire building to include documentation of all mechanical, electrical and plumbing systems in every wall and ceiling, to be conducted after rough-ins are complete, just prior to insulation and or drywall, or as directed by Resident Engineer.

~~17-12.~~ Finished detailed Interior exact built overlapping photos of all walls, ceilings, and floors to be scheduled by Resident Engineer prior to occupancy.

~~18-13.~~ In event a greater or lesser number of images than specified above are required by the Resident Engineer, adjustment in contract price will be made in accordance with clause entitled "CHANGES" (FAR 52.243-4 and VAAR 852.236-88).

- C. Images shall be taken by a commercial photographer and must show distinctly, at as large a scale as possible, all parts of work embraced in the picture.
- D. Coordination of photo shoots is accomplished through Resident Engineer. Contractor shall also attend construction team meetings as necessary. Contractor's operations team shall provide regular updates regarding the status of the documentation, including photo shoots concluded, the availability of new Progressions or Exact-Built viewable on-line and anticipated future shoot dates.
- E. Contractor shall provide all on-line domain/web hosting, security measures, and redundant server back-up of the documentation.
- F. Contractor shall provide technical support related to using the system or service.
- G. Upon completion of the project, final copies of the documentation (the "Permanent Record") ~~with the indexing and navigation system embedded (and active)~~ shall be provided in an electronic media format, typically a DVD or external hard-drive. Permanent Record shall have Building Information Modeling (BIM) interface capabilities. On-line access terminates upon delivery of the Permanent Record.

1.27 FINAL ELEVATION DIGITAL IMAGES

- A. A minimum of four (4) images of each elevation shall be taken with a minimum 6 MP camera, by a professional photographer with different settings to allow the Resident Engineer to select the image to be printed. All images are provided to the RE on a CD.
- B. Photographs shall be taken upon completion, including landscaping. They shall be taken on a clear sunny day to obtain sufficient detail to show depth and to provide clear, sharp pictures. Pictures shall be 400 mm x 500 mm (16 by 20 inches), printed on regular weight paper, matte finish

archival grade photographic paper and produced by a RA4 process from the digital image with a minimum 300 PPI. Identifying data shall be carried on label affixed to back of photograph without damage to photograph and shall be similar to that provided for final construction photographs.

~~C. Furnish six (6) 400 mm x 500 mm (16 by 20 inch) color prints of the following buildings constructed under this project (elevations as selected by the RE from the images taken above). Photographs shall be artistically composed showing full front elevations. All images shall become property of the Government. Each of the selected six prints shall be place in a frame with a minimum of 2 inches of appropriate matting as a border. Provide a selection of a minimum of 3 different frames from which the SRE will select one style to frame all six prints. Photographs with frames shall be delivered to the Project Engineer in boxes suitable for shipping.~~

1.28 VA TRIRIGA CPMS - NOT USED

~~VA contractors, selected by award to perform work, are required to get access to the VA TRIRIGA CPMS. The TRIRIGA CPMS is the management and collaborative environment that the VA uses for all Major, Minor and Non-Recurring Maintenance (NRM) projects within the Office of Construction & Facilities Management (CFM), Veterans Health Administration (VHA), National Cemetery Administration (NCA), and the Veterans Benefits Administration (VBA).~~

~~The contractor is solely responsible for acquiring access to the VA TRIRIGA CPMS.~~

~~To gain access to the VA TRIRIGA CPMS the contractor is encouraged to follow the licensing process outline as specified below:~~

~~A. Requirement: TRIRIGA is the management and collaborative environment that VA uses for all construction projects. VA requires its contractors to procure TRIRIGA access as part of the cost of performance for a VA construction related contract.~~

~~B. Access Request and Payment can be made through the following URL~~

~~<https://valicensing.onefi.com/>~~

~~Inquiries or to request additional services, contact the following:~~

~~Craig Alsheimer, Federal Account Manager~~

~~Computerized Facility Integrations, LLC~~

~~18000 West Nine Mile Road~~

~~Suite 700~~

~~Southfield, MI 48075~~

~~Email: calsheimer@gocfi.com~~

~~Phone: 248-557-4234 Extension 6010; 410-292-7006~~

~~C. Process:~~

- ~~1. Once the contractor has been notified by VA of the award and a unique contract number, the contractor can enter a request for access to TRIRIGA at URL <https://valicensing.onefi.com/>~~
- ~~2. CFI will process the request for access and payment. CFI will create the USER ID and a password. Security provisions required to align the contractor to the Contract Number will be entered and an email will be generated and submitted to the requestor.~~
- ~~3. CFI will also provide standard terms and conditions related to the transaction and use agreement.~~

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