

SUPPLEMENT B TO SF 252
Project # 561-CSI-181
Relocate & Upgrade the ANGIO Suite

Supplement B defines the minimum requirements of completion for each phase of the project design. This document applies to Patient area renovation and upgrade and involves several disciplines.

Primary Design requirements include proficiency in the Architectural, Mechanical, Electrical, HVAC and Structural with secondary design expertise of the related systems necessary to accomplish the individual project items.

A/E Service necessary to furnish preliminary drawings, working drawings, technical specifications, site visits, cost estimates, and related information for Project 561-CSI-181 to Relocate & Upgrade the ANGIO Suite at the VA New Jersey Health Care System, East Orange, NJ 07018.

Project shall be for a survey/evaluate and prepare construction drawings evaluation and design for project 561-CSI-181 Relocate & Upgrade the ANGIO Suite, The A/E contract shall be for complete construction package including initial Survey, preliminary drawings, contract drawings, contract specifications, and a detailed cost estimate to an approximate area of 3000SF located at the First floor of the main Hospital building, East Orange, NJ VA Healthcare Campus.

All designs shall comply with applicable sections of VA publications, "Planning Criteria for Medical Facilities", H-08-09; and "Equipment Guide List", H-08-5; also NFPA, OSHA, ANSI, JCAHO, VA standards and other applicable Federal, State and local code requirements, including UBC. A/E shall be responsible for complete functional design and provide bid documents meeting all the requirements.

Applicable chapters of VA Master Construction Specifications shall be prepared by the A/E, including any necessary adaptations. VA Construction Standards, H-08-3, shall apply to specific design requirements. Particular attention is called to CD4, "Symbol Identification of Contract Drawings", and CD5, "Contract Drawings Details". Equipment symbols shall be utilized to the greatest extent practicable.

The A/E shall carefully review all requirements of the latest edition of the Accreditation Manual for Hospitals of the Joint Commission of Accreditation of Hospitals, with respect to design and operating requirements and report all conflicting conditions in writing.

Designs for the accommodations of the physically handicapped shall conform to VA H-08-13, Barrier Free Design Handbook and VA Construction Standard CD-28, Accommodation for the Physically Handicapped.

NOTE: All drawing submissions shall be sent to the following:

Esteban, Rivera
Project COTR
385 Tremont Avenue
East Orange, New Jersey 07018

&

Peter Leszczak
VISN #3 Safety & fire Protection Engineer
950 Campbell Avenue
West Haven, CT 06516

REVIEW REQUIREMENTS

The following are minimum requirements for review purposes only. This does not relieve the Architect/ Engineering Firm of responsibility to produce a complete set of construction documents and estimates in accordance with industry standard practice and VA criteria.

- A. The Architectural/Engineering Firm shall prepare and coordinate Architectural/Engineering drawings, specifications and cost estimates. The degree of completion and the stages of submission shall be as specified.
- B. For each submission, the Architectural/Engineering Firm shall incorporate the corrections, adjustments, and changes made by the VA at the previous review. The Architectural/Engineering Firm shall date all reports, studies, and other submission material.
- C. The Architectural/Engineering Firm shall submit a construction cost estimate with the drawings at each project submission. This estimate shall show the cost of construction which would be expected to be reflected by the construction contractors' bids, if the bids were submitted on the same day as the estimate. The level of detail for this estimate shall be consistent with the degree of completeness of the drawings being submitted. For detailed elements, "lump sum" or "allowance" figures will not be accepted.

PRELIMINARIES (SCHEMATIC DESIGN)

- A. Preliminary drawings for construction projects are a means of identifying alternative approaches to correcting physical and functional deficiencies. The development of

these drawings is an interactive process between VA staff and the Architectural/Engineering Firm in order to produce a narrative and graphical description of possible program alternatives. As appropriate, the VA will make available prior to contract negotiations a tentative priority list of functional areas which may be included in the project, and a statement task.

- B. Preliminary Meeting: Prior to beginning any design work, a preliminary meeting will be conducted between the Architectural/Engineering Firm and VA staff. At this stage, the scope of work will be finalized based on a feasibility assessment and agreed to by VA COR and key staff involved in this project. At this point the Architectural/Engineering Firm will have surveyed the existing facility to verify the appropriate existing conditions and become familiar with deficiencies that need to be corrected. The Architectural/Engineering Firm will write a summary of the meeting and submit it to the Contracting Officer for distribution and approval by the appropriate staff.
- C. The Architectural/Engineering Firm in collaboration with VA staff, will illustrate in sketch form various possible program alternatives and refine them based on continuing interaction with the VA project team. The Architectural/Engineering Firm will then complete and present alternative architectural solutions which are functionally and architecturally viable for consideration. The VA will select the final concept and subsequently identify the approved scope to be developed in the second preliminary (100%) review stage.
- D. The VA considers originality and imaginative design an essential part of the Architectural/Engineering Firm's responsibility. The total environmental approach is a necessity to planning.
- E. Complete conceptual alternatives must be displayed on the preliminary drawings. The work may include the division of an alternative into distinct parts, each of which has an identified priority. The preliminary drawings must, therefore, be developed so that irrespective of which parts (in priority order) are selected for further development in the Working Drawing phase, the solution shall provide a well-designed facility with respect to functional operation, construction phasing, minimized disruption of existing hospital operation, and compatibility with structure and utilities between (1) existing facilities; (2) those for imminent construction; and, (3) those with low priority for future construction.
- F. A narrative to accompany the drawings shall identify construction phasing which will be necessary to permit continuous operation of critical hospital operations. In addition, areas of new construction and renovation shall be shown. A detailed listing of submission requirements for phasing is included in a later paragraph.
- G. Subsequent to each VA review of the Architectural/Engineering Firm's work, the Architectural/Engineering Firm shall incorporate VA recommendations into the Preliminary Drawings.
- H. Review Meetings: Review meetings will be conducted at the end of each design phase. The cost estimates will reflect the level of completeness at each review stage. In

addition, the Architectural/Engineering Firm shall take minutes of the review meeting and submit two copies via e-mail to the Contracting Officer for distribution to VA staff.

100% PRELIMINARIES

A. LANDSCAPE ARCHITECTURAL

1. No requirement at this submission.

B. ARCHITECTURAL

1. The drawings required by this submittal delineate the one approved scheme from the previous submittal. Submit a layout for all floors and roof areas. These drawings shall incorporate all revisions from comments on the previous submittal and should show all rooms, doors, corridors, basic column grid, column sizes, electrical closets, phone closets, equipment rooms, mechanical shafts, space and all vertical circulation.
2. Show preliminary building sections to define building configuration, area and volume. Typical wall sections showing proposed building systems and materials shall be drawn.
 - i. Using the floor plans, clearly define smoke compartments and exits from each compartment. Also indicate sprinklered areas (if any), location of fire extinguisher cabinets, exit paths and distance to the stair and employee occupancy.

C. INTERIOR DESIGN

Preliminary selections to include:

- a. Floor Material
- b. Wall Material
- c. Ceiling Material
- d. Toilets
- e. Sinks
- f. Counter Tops
- g. Faucets, Flush Valves, etc
- h. Dispensers
- i. Light Fixtures & Controls – Basis for these materials will be based on VA standards and similar VA projects.

D. ARCHITECTURAL SPECIFICATIONS

1. Submit the technical architectural specification sections of VA Master Construction Specifications edited to reflect the scope of work of the project. Coordinate drawings with all changes to the specifications.

E. EQUIPMENT SPECIFICATIONS

1. Submit equipment master specification sections of VA Master Construction Specifications edited to reflect the scope of work of the project. Coordinate drawings with all changes to the specifications.

F. STRUCTURAL

1. No requirement at this submission.

G. SANITARY

1. Submit design narrative prepared in the first review that has been adjusted for the site scheme selected. Include corrections and changes.

H. PLUMBING

1. Submit design narrative prepared in the first review that has been adjusted for the scheme selected. Include corrections and changes that also indicate sprinkler, fire alarm and smoke zones and areas that are presently sprinklered.

I. HEATING, VENTILATION AND AIR CONDITIONING (HVAC)

1. Provide the first version of the room-by-room heating and cooling load calculations. These calculations shall be accompanied with the architectural drawings showing correlation between each HVAC zone boundary and the floor area, and a room schedule showing correlation between the architectural room numbers and abbreviated/coded room numbers used with computer input data sheets. The accuracy and the level of detail of the calculations shall be consistent with the development of the architectural drawings. The Engineering Firm shall update these calculations during subsequent design phases to reflect all changes and availability of additional information. The calculations shall include the following:
 - (a) Peak zone-by-zone heating and cooling loads.
 - (b) Building block heating and cooling loads.
 - (c) Estimated steam consumption from all sources.
 - (d) Psychometric chart for each air handling unit showing cooling and heating coil conditions and computation of humidification loads. Show coil entering and leaving conditions and fan motor heat gains for supply and return air fans.
 - (e) Room-by-room air balance charts for each air handling unit showing supply, return, exhaust, make-up and transfer air quantities with an intended pressure relationship, that is positive, negative or zero with respect to adjoining spaces.
2. Submit complete engineering calculations and selection of major HVAC equipment, that is, chillers, cooling tower, air handling units, heating and

ventilating units, return and exhaust fans, circulating pumps, etc. Provide catalogue cuts for all selected equipment.

3. Ensure coordination with other disciplines, that is, electrical, plumbing and steam generation by compiling the pertinent information required by them. Information, such as normal and emergency power requirements, steam consumption for all HVAC and kitchen/sterilizer equipment, make-up water requirements, etc., shall be distributed to the respective trades.
4. Submit 1/8 inch scale HVAC floor plans for typical area showing at least main supply, return and exhaust air ductwork with sizes based on the updated calculations. Show ceiling clearances, locations where ducts cross each other, by providing 1/4 inch scale local sections. The ductwork, regardless of sizes and/or complexity of layout and all piping 6 inch size and large, shall be shown in double line. The duct and piping layouts shall also show individual room air distribution and temperature control arrangement for a representative sample of typical spaces, such as patient bedrooms, operating suite,, laboratory areas, conference rooms, etc. Provide separate floor plan drawings for layouts of air distribution and piping systems. This requirement shall be waived only under specific conditions where the layouts of either the air distribution system or piping system are not extensive. Each specific situation shall be reviewed with VA HVAC project engineer for resolution.
5. Provide updated 1/4 inch scale, typical mechanical equipment room plans with resolution of review comments made during previous submission.
6. Update the typical schematic and riser diagrams for air handling systems and hydronic systems by providing quantities and sizes to reflect the latest engineering calculations. Show locations of all exhaust fans. The locations of all major components, with respect to the building floor and each other, should be shown.
7. Provide the scope of work of demolition work by showing the outline of demolition drawings.
8. Show the impact of phasing (if any) on the proposed HVAC system design. Provide a written description of the sequence in which the design and construction work are scheduled to be completed. If the phasing plan requires more than one time testing and balancing of the HVAC system, this fact should be clearly described in the contract documents.

9. Show the extent of the outside chilled water distribution and show clearly as to how the piping shall be laid, that is, in tunnel or trench or direct burial.
10. Update the schematic control diagrams for each type of typical air and hydronic system used for development in previous submission by providing written description of the sequence of operation on the floor plans. Explain clearly the function and role of each control device and describe the safety/alarms and normal operating controls of each system. Provide a schedule showing electrical interlock of various equipment.
11. Provide a list of the VA Master Specifications to be included in the next submission. Indicate the VA date of issue for each section.
12. Provide the details of the scope of work involved with regard to the central Engineering Control Center (ECC) and indicate the planned capabilities including features of energy management and conservation.

J. ASBESTOS ABATEMENT

1. Prior to this submission of the final exposure assessment report, the CIH shall have completed the following work:
 - a. Tasks 1 through 4 according to the "Special Instructions - Asbestos Abatement" document (attached).
2. Submit an exposure assessment report on the impacted areas of the project. Include the following information:
 - a. Describe the impacted areas by sketches, room names or other means. Show or describe the location of each sample taken, its composition and identification number.
 - b. Classify each impacted space as "Major Abatement", "Minor Abatement" or "No Abatement" areas. a "Major Abatement" area requires full protection measures (sealing off, change room, shower room, etc.), and removal of all asbestos within the limits of the area. A "Minor Abatement" area can be decontaminated with one or more applications of the "glove and bag" approach. A "No Abatement" area requires no abatement work.
 - c. For each "Major Abatement" area, identify area location within building, provide quantity and cost estimates of all asbestos within the limits of

the area. Quantities are to be in linear feet of pipe and square feet of ceilings and walls. The cost is to be derived from the quantities multiplied by a unit price.

- d. For each "Minor Abatement" area, provide the description, size and location of each pipe element to be decontaminated, include a cost estimate.
- e. Provide a summary of the square feet of floor space for all major and minor abatement areas, the total linear and square feet of asbestos to be abated, the total cost of abatement and a preliminary schedule of completion. Include in the cost estimate, any cost for decontamination of equipment and fixtures. Provide a copy of the above summary to the construction cost estimator for inclusion as a separate bid item in the project estimate.
- f. Provide an assessment on the impact of abatement on building sub-systems such as ceilings, lights, walls, carpets, pipes and equipment. Provide room by room description and estimated quantities of impact items to be replaced (number of lighting fixtures, square feet of ceiling, etc.) and a summary of these quantities. Provide a cost estimate for all impacted items.
- g. Provide a signed cover statement.

K. ELECTRICAL

- 1. Provide a statement of the impact of the new construction to the existing distribution system. Include the projected load of the new construction. The narrative must include the advantages/disadvantages to support the systems as recommended by the Engineering Firm.
- 2. Provide a sheet for symbols, lighting fixture schedules, notes and abbreviations used at this submission.
- 3. Submit a clear, concise elementary one-line diagram of the proposed electrical system including all new equipment.
- 4. Provide a plot plan of the existing electrical distribution system.

L. BARRIER FREE DESIGN

- 1. No requirement at this submission.

M. FIRE PROTECTION

1. Complete all drawings and specifications. Ensure compliance with NFPA. Provide hydraulic calculations used to derive the pipe and equipment dimensions and ratings.

WORKING DRAWINGS

1. The final approved preliminary plan shall be the basis for the development of the Working Drawings. Any changes from this plan that the Architectural/Engineering Firm proposes must be approved by the VA Project Manager prior to proceeding with the Working Drawings.
2. Plans will be reviewed for functional and aesthetic relationships. The result of this phase will be a set of design documents defined to the point that no further functional decisions are required.
3. Some of the project elements may not be covered by a VA Master Specification Section. It is the responsibility of the Architectural/Engineering Firm to develop the final specification requirements for each unit of work introduced into the project. New sections developed by the Architectural/Engineering Firm shall be in the same format as that used in the VA Master Specifications.
4. Review meetings will be conducted at the end of each working drawing design phase. The cost estimate will reflect the level of completeness of each stage. After final approval of contract drawings has been received and the packages is ready for bid, submit one set of specification documents, one set of drawings and one set of drawings on CD. CD files that cannot be edited using AUTO CAD 2016 will be deemed unacceptable.

65% WORKING DRAWINGS

A. LANDSCAPE ARCHITECTURAL

1. No requirement at this submission.

B. ARCHITECTURAL

1. Submit plans with all of the revisions required from reviews in the Preliminary Phase incorporated into the plans.
2. Submit floor plans for each floor, new as well as renovated, showing all plumbing fixtures, door locations and swing, smoke and fire rated partitions and fire extinguisher cabinets. Show wall thickness and chase walls. All plans shall

show column grid with columns indicated and expansion joints. Indicate and identify fixed equipment. Identify wheelchair accessible facilities.

3. Submit reflected ceiling plans for the entire scope indicating ceiling mounted equipment, lighting fixtures, air diffuser registers, etc.
4. Submit equipment floor plans incorporating comments from previous review meetings. All existing and new equipment to be installed should be identified.
5. Building sections, as needed, to define building configuration. All finish floor elevations should be indicated, as well as interstitial space, if applicable.
6. Submit typical wall sections showing construction, building materials and systems, and proposed sill and head heights of openings.
7. Show drafting symbols and abbreviations per VA standards, general notes and begin drawings for partition, door, window and louver schedules.
8. Submit demolition plans, existing finish schedule and notes, on demolition plan.

C. INTERIOR DESIGN

1. When the project involves an existing building, a proposal that deals with the refinishing of existing spaces must be submitted.
 - a. Submit complete finish schedule. All materials and colors should be filled out.
 - b. Where existing spaces occur that requires refinishing, be prepared to present and discuss the existing conditions, colors, materials and window treatments.

D. ARCHITECTURAL SPECIFICATIONS

1. Assure the original specification drafts have been edited and tailored in their application to represent accurate coordination between the drawings and specifications.
2. Submit one full set of drawings of all disciplines, fully coordinated.

E. EQUIPMENT SPECIFICATIONS

1. Submit printed master specifications reflecting corrections of previous submittal stage.

F. STRUCTURAL

1. Show necessary typical details correlating architectural and mechanical features.
2. Show sections and details so that construction features can be defined, including the interfacing with new to existing construction.
3. Submit necessary structural sections of the VA Master Specifications edited to reflect the scope of work of the project.

G. SANITARY

1. Add building service piping to preliminary utility plans. Include approximate size of all existing pipe and invert elevations of trunk sewers.
2. Submit calculations.
3. Submit sections of the VA Master Specifications and Details edited to reflect the scope of work of the project. Coordinate drawings with all changes to the specifications.

H. PLUMBING

1. Submit floor plans identifying new plumbing fixtures and existing plumbing fixtures that will be affected by new construction. Provide schedules for equipment on these drawings.
2. Provide equipment calculations.
3. Submit sections of the VA Master Specifications and Details edited to reflect the scope of work of the project. Coordinate drawings with all changes to the specifications.

I. HEATING, VENTILATION AND AIR CONDITIONING (HVAC)

1. The Architectural/Engineering Firm shall establish coordination requirements with electrical and plumbing by providing revised information (if any) developed since the last submission. In addition, complete coordination with the architectural drawings (Examples: Louvers, ceiling access panels reflected ceiling plans, etc.).
2. Provide preliminary HVAC demolition drawing showing the extent of demolition work, if required.

J. ASBESTOS ABATEMENT

1. Prepare drawings and specifications for the asbestos abatement work reflecting the exposure assessment report. The drawings shall be separately identified from the rest of the drawings, and shall provide as a minimum the following information:
 - a. For each "Major Abatement" area show the limits of sealing of, the location and quantities of asbestos material, the arrangements for auxiliary rooms, such as change room, shower room, etc., the engineering of the negative air system, the path of asbestos transportation to the loading platform and location and connection to required utilities.
 - b. For each "Minor Abatement" area show on plans the exact location type and length of pipe element to be abated by the "Glove and Bag" approach and any other abatement features.
 - c. Provide a major and minor summary of the square feet of floor space for all abatement areas, the total linear and square feet of asbestos to be abated and the total cost of abatement. Include in the cost estimate any cost for decontamination of equipment and fixtures. Provide a copy of the above summary to the construction cost estimator for inclusion as a separate bid item in the project estimate.

K. ELECTRICAL

1. Submit a full set of electrical lighting, power and signal floor plans. Submit proposed one-line and riser diagrams of the electrical power distribution system. Final equipment ratings may vary, but all equipment should be located, identified and sized dimensionally for adequate capacity.
2. Provide load calculations.
3. Indicate the electrical equipment to be installed in the electrical closets based on the preliminary riser.
4. Provide demolition plans to indicate the complete electrical work in all areas to be renovated.
5. Provide plans which shall show typical power, signal and lighting layouts for newly constructed and renovated areas.
6. Show on the signal floor plans, using the standard VA Architectural Symbol, the fire alarm/smoke zone indicating smoke compartments and fire alarm zoning.

7. Provide a drawing for all symbols, lighting fixtures, general notes and abbreviations.
8. Submit sections of the VA Master Specifications and Details edited to reflect the scope of work of the project. Coordinate drawings with all changes to the specifications.

L. BARRIER FREE DESIGN

1. Submit plans incorporating comments from the previous review.

M. FIRE PROTECTION

1. Submit plans showing layout of new/relocated equipment incorporating comments from the previous review.

95% WORKING DRAWINGS

1. The 95% Working Drawing phase involves the production of complete drawings, specifications, and other documents necessary for the bidding and construction of the project. Also included at this phase are the final detailed cost estimate, the final phasing plan and the construction schedule.
2. It is the Architectural/Engineering Firm's responsibility to provide a quality set of documents. Related documents shall be complete, fully coordinated and ready for reproduction for contract.
3. Prior to reproduction for issue for construction bids, the Architectural/Engineering Firm shall make any changes to the documents identified as necessary.
4. Submit a complete set of applicable VA Master Specifications edited to reflect the scope of work of the project. Also, submit copies of any architectural specifications prepared by the Architectural/Engineering Firm from any source other than VA Master Specifications. Ensure the specifications have been edited and tailored in their application to represent accurate coordination between the drawings and specifications.

A. LANDSCAPE ARCHITECTURAL

1. No requirement at this submission.

B. ARCHITECTURAL

1. Submit a 95% complete and coordinated set of construction drawings and specifications.
2. Submit fully dimensioned floor plans showing all revisions required by comments from the previous review meetings.
3. Submit interior details.
4. Submit drafting symbols, and abbreviations, general notes and schedules that are complete and coordinated with all contract documents.
5. Submit a complete and coordinated interior material finish schedule for intended proposed area(s).
6. Submit demolition plans, existing finish schedule and notes, on demolition plans.
7. Submit completed plans that show finish floor plan and interior elevations and materials.
8. Submit completed building sections, wall sections and exterior elevations that show finish floor elevations, and indicate all building systems and materials.
9. Submit completed reflected ceiling plans for entire buildings, indicating all ceiling mounted equipment, lighting fixtures, air diffusers, registers, etc.
10. Submit equipment plans and details with all revisions from comments on previous submittal.

C. INTERIOR DESIGN

1. Provided 95% completed finish schedule and specifications for rooms and areas. These shall be fully coordinated between the drawings and specifications.

D. ARCHITECTURAL SPECIFICATIONS

1. Assure the original specification drafts have been edited and tailored in their application to represent accurate coordination between the drawings and specifications.
2. Submit one full set of drawings of all disciplines, fully coordinate.
3. Submit a brief description of work for inclusion in the Pre-Solicitation Notice.

4. Final Bid Document Submittal:
 - a. Revise draft specifications to incorporate:
 1. All changes, resolution of conflicts and modifications noted in previous reviews.
 2. Results of any drawing changes not shown on the drawings that affect the specifications.
 - b. Type the specifications in final format and content including any desk copy changes made by the VA staff at the previous reviews. Submit a complete set of the typed architectural specifications including one full set of final drawings of all disciplines, fully coordinate.

E. EQUIPMENT SPECIFICATIONS

1. Submit typed master specifications in final format and content.
2. Include a set of equipment drawings fully coordinate.

F. STRUCTURAL

1. Include all completed structural drawings. All drawings shall be checked and coordinated with other disciplines prior to submission for review.

G. SANITARY

1. Submit 100% complete drawings to include the following:
 - a. Previously submitted drawings that have incorporated comments of the last review.
 - b. Legend, notes, and details.

H. PLUMBING

1. Submit 95% complete drawings to include the following:
 - a. Previously submitted drawings that have incorporated comments of the last review.
 - b. All piping sized.
 - c. Plumbing riser diagram plans.
 - d. Demolition plumbing floor plans.
 - e. Legend, notes and details.

I. HEATING, VENTILATION AND AIR CONDITIONING (HVAC)

1. Provide complete and final engineering calculations of all systems. In addition to the updated room by room heating and cooling calculations, the following additional calculations shall be performed and submitted:

- a. Final selection of all pumps with head calculations based on the actual piping layout and takeoffs, and pressure drop through the equipment selected for the systems.
 - b. Final selection of all fans with the fan static pressure calculations based on the actual duct layouts and takeoffs, and static pressure drop through the equipment for all systems.
 - c. Sizing and selection of all expansion tanks based on the actual piping layout and volume computation.
 - d. Sizing and selection of all steam to hot water converters and heat exchangers based on the flow requirement of each terminal unit, that is, duct mounted reheat coil, box (air terminal unit) mounted reheat coil, unit heaters, convectors, finned tube radiation, radiant ceiling panels, etc.
 - e. Sound analysis of various systems and steps taken to ensure compliance with the specified noise levels.
2. Provide complete selection data, including catalog cuts and calculations, for all HVAC equipment and drawings showing all equipment schedules.
3. Complete the coordination requirements with electrical, plumbing, and steam generation by providing revised information (if any) developed since the last submission. In addition, complete coordination with the architectural drawings (Examples: Louvers, ceiling access panels reflected ceiling plans, etc.) and structural drawings (Examples: Operating weights of ceiling and floor mounted equipment, concrete and steel supports, roof and floor openings, etc.).
4. Submit 1/8 inch scale HVAC floor plans for all areas showing all ductwork and piping on separate floor plans. Show all duct/pipe sizes and quantities, that is, air quantities for each room and each air inlet/outlet, expressed in cubic feet per minute (CFM) and fluid quantity, where required, in gallons per minute (GPM). Show all volume dampers, fire dampers, smoke dampers, automatic control dampers, risers and drops in ductwork, air inlet/outlets, etc., on the air distribution floor plans. Show all piping specialties, such as expansion loops, anchors, valves, drip assemblies, balancing fittings, etc. on the piping floor plans. All architectural room names and numbers must be shown on the floor plans along with designated smoke and smoke/fire barriers.
5. Submit 1/4 inch scale HVAC floor plans for all mechanical equipment rooms with at least two cross-sections taken at right angles to each other. Show all equipment located on roof and/or grade.

6. Provide updated design and drawings of the outside chilled water distribution work showing pipe sizes and insulation with plans, profile, sections, details and all accessories such as anchors, expansion loops/joints, valves, manholes, capped and flanged connections, interface between the new and existing work (if any). The outside piping layout drawings shall clearly indicate interferences (if any) with the existing utilities and/or landscape elements. The scope of work shall show rerouting any utilities, cuttings of roads, pavements, trees, etc., and the extent of new and demolition work, thus, involved. The outside utility drawings shall be based on the study of the latest site drawings, discussions with engineering personnel and actual site inspection of the existing utility. To determine the actual location of the existing utility, should it become necessary to perform limited excavation, the Engineering Firm shall make necessary arrangements to do so in consultation with the site engineering personnel and project manager.
7. Update all automatic temperature control drawings showing revisions (if any) since the last submission. All duct detectors, control valves/dampers static pressure sensors, differential pressure control assemblies, etc., whose actual physical location is critical for the intended sequence of the operation shall be clearly shown on the floor plans and identified as such. For projects involving a central Engineering Control Center (ECC), provide a point schedule with intended analog/digital input/outputs, graphics capabilities and requirements of the other trades to be included in the ECC. Provide a riser diagram showing locations of all field data gathering panels and their interface with the ECC. The actual location of the ECC and peripherals should be shown on the floor plans.
8. Submit VA standard detail drawings. The details shall be edited to suit the project. Include any special details deemed useful and necessary for the project.
9. Provide complete HVAC demolition drawing showing clearly the extent of demolition work. Indicate major sizes of ductwork and piping to be dismantled. Show capacities and sizes of the existing equipment to be removed. Show clearly, points of connection and disconnection, blankoffs, dead end flanges with isolating valves. Coordinate demolition and restoration work with other disciplines. The revised capacities of the systems affected by the demolition work shall be clearly stated together with additional efforts, if any, involved in testing, balancing and adjusting them.
10. Provide edited sections of the VA Master Specifications. Include all information which is applicable to the project.

J. ASBESTOS ABATEMENT

1. Provide details, sections, notes and other information that is necessary for complete bid documents.
2. Prepare project specifications by editing and modifying VA Master Specifications on asbestos abatement.
3. Provide the drawings and specifications for the restoration of the impacted building sub-systems as an integral part of the overall project design. Provide for replacing of removed asbestos insulation with acceptable non-asbestos insulation, replacing contaminated carpets, replacing old contaminated light fixtures and replacing partially torn down plaster ceilings. Coordinate work with the Engineering Firm.
4. Provide an integrated phasing plan showing how the abatement and the general modification work will be executed. Provide some reasonable cushion between each abatement phase and the following general construction phase to allow for unforeseen delays in abatement completion.
5. Provide a major and minor summary of the square feet of floor space for all abatement areas, the total linear and square feet of asbestos to be abated and the total cost of abatement. Include in the cost estimate any cost for decontamination of equipment and fixtures. Provide a copy of the above summary to the construction cost estimator for inclusion as a separate bid item in the project estimate.
6. Perform Task 5 according to the "Special Instructions - Asbestos Abatement" document (attached).

K. ELECTRICAL

1. Submit 95% complete drawings including legend symbol list, details and schedules.
2. On the electrical one-line diagrams and risers show the final sizes, ratings, feeders and identification of the electrical equipment.
3. Plans shall include any major equipment to be removed and/or relocated. Any equipment, devices or fixtures to remain and be reused shall be shown where necessary for rewiring.

4. Submit the complete final lighting, load and sizing calculations. (ie, transformers, conductors, panelboards, etc.).
5. Indicate the short-circuit current values available at each level of distribution on the one-line and riser diagrams.
6. Submit a full set of floor plans. Show locations of primary distribution switchgear, engine generator sets, unit substations, feeder routing plan and other major pieces of equipment.
7. All floor plans shall have room titles and area functions shown on the drawings. Location of all equipment, lighting fixtures, outlets for power, fire alarm devices, and signal outlets and devices shall be shown. Layouts of specialty areas (radiology, office/exam, bed areas, O.R.'s, I.C.U.'s, etc) are to be laid out.
8. All electrical drawings shall show smoke partitions and fire alarm zones. Submit fire alarm and signal (nurse call, telephone, MATV, CCTV, radio, PA, etc) riser diagrams.
9. Phasing and shutdown requirements.

L. BARRIER FREE DESIGN

1. Complete all drawings and specifications. Ensure that every effort to make this facility accessible to handicapped employees and patients has been taken into account in this design.

M. FIRE PROTECTION

1. Complete all plans and specifications. Ensure compliance with NFPA.

N. PHASING REQUIREMENTS

1. Phasing requirements shall describe the general sequence of the project work, estimated project duration (including allowances for delivery items), and what government constraints will exist that will influence the Contractor's approach to the construction project. In addition, special attention shall be given to asbestos abatement requirements to ensure that the project phasing plan and associated cost are reasonable. Adequate time shall be allocated for the evaluation for asbestos abatement areas in addition to the time to perform the asbestos abatement work that must precede the general construction. The Engineering Firm shall submit the following phasing information:

- a. Phasing Narrative in written form which outlines phasing requirements and sequence with all areas of the project identified as a part of some phase. Each phase description shall include constraints particular to that phase, what other phases that must precede it, and any VA moves which must precede the start of the phase or phases. If equipment and other removable items require storage and relocation by the government, because of asbestos abatement, these requirements shall be listed in the phasing narrative. Special phasing constraints which may be common to the project should be listed at the end of the narrative and not within each individual phase description.
- b. Individual phases shall be outlined and labeled on all drawings including site, architectural, structural, plumbing and electrical drawings. Phases shall be outlined on the submitted full sized drawings.
- c. All systems shall be designed so that, upon completion of a particular phase, the entire area covered by that phase can be occupied by the Medical Center personnel with all systems functioning properly.

100% WORKING DRAWINGS

1. The 100% Working Drawing phase involves the production of complete drawings, specifications, and cost estimate for the bidding and construction of the project. Also included at this phase are the final detailed cost estimate, the final phasing plan and the construction schedule.
2. It is the Architectural/Engineering Firm's responsibility to provide a quality set of documents. Necessary related documents shall be complete, fully coordinated and ready for reproduction for contract.
3. Prior to reproduction for issue for construction bids, the Architectural/Engineering Firm shall make any changes to the documents identified as necessary.
4. The Architectural/Engineering Firm shall deliver the original contract drawings to the COR for signature, after the previous review comments are incorporated and the contract drawings have been approved by the COR. The contract drawings shall bear the seal of the Registered Architect and Professional Engineer responsible for the design.
5. Submit a complete set of applicable VA Master Specifications edited to reflect the scope of work of the project. Also, the Architectural/Engineering Firm shall

ensure the specifications have been edited and tailored in their application to represent accurate coordination between the drawings and specifications

A. LANDSCAPE ARCHITECTURAL

1. The coordination of the Construction Documents is part of the quality control expected from the Engineering Firm. Related documents shall be complete, Fully coordinated and ready for reproduction for contract bidding and construction.

B. ARCHITECTURAL

1. Submit a 100% complete and coordinated set of construction drawings and specifications.
2. Submit fully dimensioned floor plans showing all revisions required by comments from the previous review meetings.
3. Submit interior details.
4. Submit drafting symbols, and abbreviations, general notes and schedules that are complete and coordinated with all contract documents.
5. Submit a complete and coordinated finish schedule.
6. Submit demolition plans, existing finish schedule and notes, on demolition plans.
7. Submit completed building sections, wall sections and exterior elevations that show finish floor elevations, and indicate all building systems and materials.
8. Submit completed reflected ceiling plans for entire buildings, indicating all ceiling mounted equipment, lighting fixtures, air diffusers, registers, etc.
9. Submit equipment plans and details with all revisions from comments on previous submittal.

C. INTERIOR DESIGN

1. Provided 100% completed finish schedule and specifications for all rooms and areas. These shall be fully coordinated between the drawings and specifications.

D. ARCHITECTURAL SPECIFICATIONS

1. Assure the original specification drafts have been edited and tailored in their application to represent accurate coordination between the drawings and specifications.
2. Submit one full set of drawings of all disciplines, fully coordinate.
3. Submit a brief description of work for inclusion in the Pre-Solicitation Notice.
4. Final Bid Document Submittal:
 - a. Revise draft specifications to incorporate:
 1. All changes, resolution of conflicts and modifications noted in previous reviews.
 2. Results of any drawing changes not shown on the drawings that affect the specifications.
 - b. Type the specifications in final format and content including any desk copy changes made by the VA staff at the previous reviews. Submit a complete set of the typed architectural specifications including one full set of final drawings of all disciplines, fully coordinate.

E. EQUIPMENT SPECIFICATIONS

1. Submit typed master specifications in final format and content.
2. Include a set of equipment drawings fully coordinate.

F. STRUCTURAL

1. Include all completed structural drawings. All drawings shall be checked and coordinated with other disciplines prior to submission for review.

G. SANITARY

1. Submit 100% complete drawings to include the following:
 - a. Previously submitted drawings that have incorporated comments of the last review.
 - b. Legend, notes, and details.

H. PLUMBING

1. Submit 100% complete drawings to include the following:
 - a. Previously submitted drawings that have incorporated comments of the last review.
 - b. All piping sized.
 - c. Plumbing riser diagram plans.
 - d. Demolition plumbing floor plans.

e. Legend, notes and details.

I. HEATING, VENTILATION AND AIR CONDITIONING (HVAC)

1. Provide complete selection data, including catalog cuts and calculations, for all HVAC equipment and drawings showing all equipment schedules.
2. Complete the coordination requirements with electrical, plumbing, and steam generation by providing revised information (if any) developed since the last submission. In addition, complete coordination with the architectural drawings (Examples: Louvers, ceiling access panels reflected ceiling plans, etc.) and structural drawings (Examples: Operating weights of ceiling and floor mounted equipment, concrete and steel supports, roof and floor openings, etc.).
3. Provide updated design and drawings of the outside chilled water distribution work showing pipe sizes and insulation with plans, profile, sections, details and all accessories such as anchors, expansion loops/joints, valves, manholes, capped and flanged connections, interface between the new and existing work (if any). The outside piping layout drawings shall clearly indicate interferences (if any) with the existing utilities and/or landscape elements. The scope of work shall show rerouting any utilities, cuttings of roads, pavements, trees, etc., and the extent of new and demolition work, thus, involved. The outside utility drawings shall be based on the study of the latest site drawings, discussions with engineering personnel and actual site inspection of the existing utility. To determine the actual location of the existing utility, should it become necessary to perform limited excavation, the Engineering Firm shall make necessary arrangements to do so in consultation with the site engineering personnel and project manager.
4. Update all automatic temperature control drawings showing revisions (if any) since the last submission. All duct detectors, control valves/dampers static pressure sensors, differential pressure control assemblies, etc., whose actual physical location is critical for the intended sequence of the operation shall be clearly shown on the floor plans and identified as such. For projects involving a central Engineering Control Center (ECC), provide a point schedule with intended analog/digital input/outputs, graphics capabilities and requirements of the other trades to be included in the ECC. Provide a riser diagram showing locations of all field data gathering panels and their interface with the ECC. The actual location of the ECC and peripherals should be shown on the floor plans.
5. Submit VA standard detail drawings. The details shall be edited to suit the project. Include any special details deemed useful and necessary for the project.

6. Provide complete HVAC demolition drawing showing clearly the extent of demolition work. Indicate major sizes of ductwork and piping to be dismantled. Show capacities and sizes of the existing equipment to be removed. Show clearly, points of connection and disconnection, blankoffs, dead end flanges with isolating valves. Coordinate demolition and restoration work with other disciplines. The revised capacities of the systems affected by the demolition work shall be clearly stated together with additional efforts, if any, involved in testing, balancing and adjusting them.
7. Provide edited sections of the VA Master Specifications. Include all information which is applicable to the project.

J. ASBESTOS ABATEMENT

1. Provide details, sections, notes and other information that is necessary for complete bid documents.
2. Prepare project specifications by editing and modifying VA Master Specifications on asbestos abatement.
3. Provide the drawings and specifications for the restoration of the impacted building sub-systems as an integral part of the overall project design. Provide for replacing of removed asbestos insulation with acceptable non-asbestos insulation, replacing contaminated carpets, replacing old contaminated light fixtures and replacing partially torn down plaster ceilings. Coordinate work with the Engineering Firm.
4. Provide an integrated phasing plan showing how the abatement and the general modification work will be executed. Provide some reasonable cushion between each abatement phase and the following general construction phase to allow for unforeseen delays in abatement completion.
5. Provide a major and minor summary of the square feet of floor space for all abatement areas, the total linear and square feet of asbestos to be abated and the total cost of abatement. Include in the cost estimate any cost for decontamination of equipment and fixtures. Provide a copy of the above summary to the construction cost estimator for inclusion as a separate bid item in the project estimate.
6. Perform Task 5 according to the "Special Instructions - Asbestos Abatement" document (attached).

K. ELECTRICAL

1. Submit 100% complete drawings including legend symbol list, details and schedules.
2. On the electrical one-line diagrams and risers show the final sizes, ratings, feeders and identification of the electrical equipment.
3. Plans shall include any major equipment to be removed and/or relocated. Any equipment, devices or fixtures to remain and be reused shall be shown where necessary for rewiring.
4. Submit the complete final lighting, load and sizing calculations. (ie, transformers, conductors, panelboards, etc.).
5. Indicate the short-circuit current values available at each level of distribution on the one-line and riser diagrams.
6. Submit a full set of floor plans. Show locations of primary distribution switchgear, engine generator sets, unit substations, feeder routing plan and other major pieces of equipment.
7. All floor plans shall have room titles and area functions shown on the drawings. Location of all equipment, lighting fixtures, outlets for power, fire alarm devices, and signal outlets and devices shall be shown. Layouts of specialty areas (radiology, office/exam, bed areas, O.R.'s, I.C.U.'s, etc) are to be laid out.
8. All electrical drawings shall show smoke partitions and fire alarm zones. Submit fire alarm and signal (nurse call, telephone, MATV, CCTV, radio, PA, etc.) riser diagrams.
9. Phasing and shutdown requirements.

L. BARRIER FREE DESIGN

1. Complete all drawings and specifications. Ensure that every effort to make this facility accessible to handicapped employees and patients has been taken in this design.

M. FIRE PROTECTION

1. Complete all drawings and specifications. Ensure compliance with NFPA. Provide hydraulic calculations used to derive the pipe and equipment dimensions and ratings.

N. PHASING REQUIREMENTS

1. Phasing requirements shall describe the general sequence of the project work, estimated project duration (including allowances for delivery items), and what government constraints will exist that will influence the Contractor's approach to the construction project. In addition, special attention shall be given to asbestos abatement requirements to ensure that the project phasing plan and associated cost are reasonable. Adequate time shall be allocated for the evaluation for asbestos abatement areas in addition to the time to perform the asbestos abatement work that must precede the general construction. The Engineering Firm shall submit the following phasing information:
 - a. Phasing Narrative in written form which outlines phasing requirements and sequence with all areas of the project identified as a part of some phase. Each phase description shall include constraints particular to that phase, what other phases that must precede it, and any VA moves which must precede the start of the phase or phases. If equipment and other removable items require storage and relocation by the government, because of asbestos abatement, these requirements shall be listed in the phasing narrative. Special phasing constraints which may be common to the project should be listed at the end of the narrative and not within each individual phase description.
 - b. Individual phases shall be outlined and labeled on all drawings including site, architectural, structural, plumbing and electrical drawings. Phases shall be outlined on the submitted full sized drawings.
 - c. All systems shall be designed so that, upon completion of a particular phase, the entire area covered by that phase can be occupied by the Medical Center personnel with all systems functioning properly.

CONSTRUCTION PERIOD SERVICE

1. Assist in the development of shop drawings, and review submittals for acceptance.
2. Answer questions from prospective bidders about the project design.
3. Draft record (as Built) drawings where necessary.
4. Conduct periodic inspection services. These "site visits" also include a pre-construction conference and a final inspection visit. The Engineering Firm will

submit a survey report summarizing the conditions found at the construction site as a result of the site visit.

5. Provide estimates and aid in the development of supplemental agreements amendments to the contract (if necessary).
6. Perform Tasks 6 through 9 according to the "Special Instructions - Asbestos Abatement" document (attached).

ASBESTOS TASKS 1-9

TASK 1:

Inspect project areas suspected of containing asbestos. CIH shall submit a preliminary description of asbestos assessment and abatement problems and solutions. This preliminary report shall include the following:

- a. Summary results of review of building records.
- b. Summary results of interview of station personnel.
- c. Determination of whether any materials used in the building construction are known to contain asbestos. Some trade name materials are known to contain asbestos and should be identified.
- d. Results of visual inspection of the building to determine location and condition of asbestos materials.
- e. Presentation of sampling strategy that will yield statistically viable conclusion on the extent of asbestos present.

TASK 2:

Sample suspect materials if necessary and select a qualified laboratory to perform analysis. Provide the name and location of a qualified laboratory for sample analysis which the CIH intends to utilize.

TASK 3:

Review sample analysis and determine the most appropriate approach to take during construction. At this time the CIH should have collected appropriate samples, selected a qualified laboratory for sample analysis, evaluated sample analysis results to determine adequacy for an assessment report, and ensured that the sample analysis results and number of samples taken are adequate to provide the CIH with confidence that the maximum detection of asbestos has been achieved.

TASK 4:

Submit laboratory analysis and recommended actions. Submit an exposure assessment report on the impacted areas of the project. Include the following information:

- a. Describe the impacted areas by sketches, room names or other means. Show or describe the location of each sample taken, its composition, and identification number.
- b. Classify each impacted space as "Major Abatement", "Minor Abatement", or "No Abatement" areas. A "Major Abatement" area requires full protective measures - sealing off, change room, shower room, etc; and removal of all asbestos within the limits of the area. A "Minor Abatement" area can be decontaminated with one or more applications of the "Glove and Bag" approach. A "No Abatement" area requires no abatement work.
- c. For each "Major Abatement" area, identify area location within building and provide quantity and cost estimates of all asbestos within the limits of the area. Quantities are to be in linear feet of pipe and square feet of ceilings and walls. The cost is to be derived from the quantities multiplied by a unit price.
- d. For each "Minor Abatement" area, provide the description, size, location of each pipe element to be decontaminated, and a cost estimate.
- e. Provide a summary of the square feet of floor space for all major and minor abatement areas, the total linear and square feet of asbestos to be abated, the total cost of abatement and a preliminary schedule of completion. Include in the cost estimate any cost for decontamination of equipment and fixtures. Provide a copy of the above summary to the construction cost estimator for inclusion as a bid item in the project estimate. Work will be done in phases. Consult with the VA on this so that phasing is reflected in cost.
- f. Provide an assessment on the impact of abatement on building sub-systems such as ceilings, lights, walls, carpets, pipes and equipment. Provide room by room description and estimated quantities of impact items to be replaced (number of lighting fixtures, square feet of ceiling, etc.), and a summary of these quantities. Provide a cost estimate for all impacted items.
- g. Provide a signed cover statement. This statement shall be in accordance with the "Sample Cover Statement" provided by the VA as a part of the A/E package.
- h. Evaluate the removal cost versus the deferral of some asbestos removal. The VA will furnish a CIH with a list of areas asbestos would be abandoned in place. This CIH will then review and make recommendations, and incorporate a final decision into the design.

TASK 5:

Design and specify the appropriate techniques and approaches for the execution of the recommended actions in TASK 4, and submit specifications and drawings. Verify if the State Specification will have to be adhered to.

Prepare drawings and specifications for the asbestos abatement work reflecting the assessment report and paragraph 4(h). The drawings shall be separately identified from the rest of the drawings, could be 1/16" scale plans (if convenient), and shall provide as a minimum the following information:

- a. For each "Major Decontamination" area show the limits of sealing off, the location and quantities of asbestos material, the arrangements for auxiliary rooms (such as change room, shower room, etc.), the engineering of the negative air systems, the path of asbestos transportation to the loading platform, the location and connection to required utilities.
- b. For each "Minor Decontamination" area, show on plans the exact location type and length of pipe element to be abated by the "Glove and Bag" approach, and any other abatement features.
- c. Provide a major and minor summary of the square feet of floor space for all abatement areas, the total linear and square feet of asbestos to be abated and the total cost of abatement. Include in the cost estimate any cost for decontamination of equipment and fixtures. Provide a copy of the above summary to the construction cost estimator for inclusion as a separate bid item in the project estimate.
- d. Provide details, sections, notes, and other information that is necessary for complete bid documents.
- e. Prepare project specifications by editing and modifying VA master specifications on asbestos abatements.
- f. Provide information and data for the restoration of the impacted building sub-systems as an integral part of the overall project design. Provide information and data for replacing the removed asbestos insulation with acceptable non-asbestos insulation. Replacing old contaminated light fixtures and replace partially torn down plaster ceilings.
- g. Incorporate comment from the Department of Veterans Affairs, Region 1, Industrial Hygienist. This review is to ensure that VA regulations and policies are adhered to.
- h. Provide VA Engineering with an itemized estimate for Tasks 6-9 received as part of Task 2.

TASK 6:

Assist VA in evaluating qualifications of contractor and personnel by establishing minimum qualification requirements for specialization experience, key personnel, standard operating procedures, etc.

TASK 7:

Continuously monitor performance of contractor during abatement work to ensure adherence to abatement design. Monitor air quality in and around work space, worker exposure, operating procedures, respiratory protection systems, the abatement process, and the packing,

transportation, and disposal of asbestos. Secure the services of a qualified analytical laboratory, to turn over sample results within 24 hours.

TASK 8:

At the end of abatement and after final cleaning, inspect the work space and perform the required testing to establish the decontamination level specified.

TASK 9:

Provide a certificate to the Resident Engineer certifying that the abatement process was performed in accordance with the best practice, the maximum feasible protection of people and the environment has been achieved during the abatement process, and the impacted space has achieved the VA required decontamination levels.