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DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION SPECIFICATION

ARSR BUILDING ADDITION CONSTRUCTION

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SECTION 1-1

SUMMARY OF THE WORK

1-1.1 Scope

This specification covers the requirements for the construction of an office addition to an existing Air Route Surveillance Radar Building.

1-1.2 Applicable Documents

1-1.2.1 FAA Documents - The following FAA Standards, Specifications and Drawings, of the issues specified in the invitation for bids, form a part of this specification and are applicable to the extent specified herein.

1-1.2.2 FAA Standard -

FAA-STD-003	Painting Systems for Structures
OA P 1600.6	Protection of Agency Property

1-1.2.3 FAA Specification -

FAA-C-1217	Electrical Work, Interior
FAA-C-2256	Temperature and Humidity Control Equipment

1-1.2.4 FAA Drawing -

D-5905-1 Thru 4	Air Route Surveillance Radar Transmitter-Receiver Building Addition

1-1.2.5 Federal Specifications -

QQ-S-775	Steel Sheets, Carbon, Zinc Coated
L-T-00345	Floor Covering, Vinyl, Surfaces (Tile or Roll)
LLL-1-535	Insulation Board Thermal & Insulation Block, Thermal
FF-H-116	Hinges, Hardware Builders
FF-H-106	Hardware, Builders, Locks and Door Trim
SS-S-0018	Sound Controlling Blocks & Boards (Acoustical Tile)
TT-S-00230	Sealing Compound, Silicone Rubber Base
L-F-00450	Vinyl Plastic Base

1-1.2.6 Federal Standard -

FED.STD.595	Color

1-1.2.7 Standard References - Federal, Society, Institutes, and Assocation, Standards, Specifications and Codes, of the issues in effect on the date of the invitation for bids form a part

of this specification and are applicable to the extent specified herein.

1-1.3 Requirement

1-1.3.1 Work to be accomplished by the contractor - The contractor shall furnish all plant, labor, and material as required to construct the facility at the location as specified in the invitations for bids and in accordance with the requirements of this specification. All material not specifically indicated as furnished by the Government in the invitation for bids shall be furnished by the contractor.

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SECTION 1-2

TEMPORARY FACILITIES, PROTECTION, AND CLEAN UP

1-2.1 Temporary Toilets

The contractor shall provide adequate temporary toilet accommodations, including water supply, for all persons employed on the work located where approved by the Contracting Officer's Authorized Representative.

1-2.2 Temporary Water Supply

The contractor shall make his own arrangements for the use of water during construction. Cost for use of water shall be borne by the contractor.

1-2.3 Temporary Heat

The contractor shall provide, sufficient temporary heat as follows:

(a) As necessary to protect all work, materials, and equipment against injury from dampness and cold.

(b) At all times during the placing, setting, and curing of concrete, to insure the heating of the spaces involved to not less than 55 degrees Fahrenheit.

1-2.5 Protection of Work

1-2.5.1 General - The contractor shall have the overall responsibility for the performance and enforcement of all forms of protection against weather and he shall be responsible for repairs and replacements of new or existing material or equipment damaged as a result of inadequate protection.

1-2.5.2 Care of Materials - The constractor shall be responsible for the proper care and protection of all materials delivered and work performed unit completion and final acceptance.

1-2.5.3 Repairs and Replacements - Materials and surfaces shown to remain exposed in the final construction which are damaged in the course of contract work shall be repaired or replaced to the satisfaction of the Contracting Officer's Authorized Representative and at not expense to the Government.

1-2.6 Cleaning and Protection

1-2.6.1 General - The contractor shall require each subcontractor engaged upon the work to bear his full responsibility for cleaning up during and immediately upon completion of his work, and shall remove all rubbish, waste, tools, equipment and other apparatus caused by or used in the execution of his work.

1-2.6.2 Cleaning - When directed and before the final inspection, the entire exterior and interior of the building and the surrounding areas shall be thoroughly cleaned by the contractor, including the following:

(a) All construction facilities, debris and rubbish shall be removed from the building and the site.

(b) All finished surfaces within the building shall be swept, dusted, washed and polished as required.

(c) All resilient flooring shall be thoroughly cleaned, waxed and polished.

1-3.1 Construction limits and access - The contractor, in cooperation with the Contracting Officer's Representative, shall define the construction limit lines and approach route to the site. Limit lines shall indicate boundaries for storage areas, drives, temporary structures, parking, etc. The contractor shall coordinate his work methods and schedules with the Contracting Officer's Representative to cause a minimum of interference with, disruption, or interruption of operations of existing government facilities.

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SECTION 2-1

EXCAVATION, FILLING, BACKFILLING AND GRADING

2-1.1 General

2-1.1.1 Location - Excavation, filling, backfilling and grading shall be carried to the elevations and dimensions shown or indicated on the applicable drawings.

2-1.1.2 Protection - All banks, slopes, and adjacent areas, not specifically excavated or graded, shall be fully protected against damage.

2-1.2 Excavation

2-1.2.1 General - All material now in place, natural or artificial, including rock, boulders, existing structures and foundations, rubbish and debris, shall be removed as necessary for performance of all work under the contract. Excavation shall be unclassified and the contractor shall include in his job price the cost of removing all of the materials encountered. The bidder is required to examine the location of the work and determine for himself the nature of the conditions including sub soil conditions effecting the cost of the work. On request to the Contracting Officer, he may obtain permission to make his own soil borings. All excavations shall be kept free of water, regardless of the elevation at which ground or flood water may be encountered. Excavated material, or grading, shall be removed from the site. Disposal of this material shall be the responsibility of the contractor.

2-1.2.2 Trenches - Footing and trenches may be excavated to permit forming of concrete, or may be excavated to exact size of the concrete. If footing trenches are excavated to the exact size of the concrete, the sides shall be maintained to withstand sloughing during the placing of concrete. Excavation below required elevation shall be filled with concrete.

2-1.2.3 Inspection of Excavated Footing Surfaces - When excavations for footings have reached the required elevations, the excavated surfaces shall be inspected and approved by the Contracting Officer's Authorized Representative before proceeding with further construction.

2-1.2.4 Freezing - When freezing weather is expected, excavations shall not be made to the full depth, unless footing can be placed immediately. If excavation is already at full depth the excavation shall be protected from frost.

2-1.3 Fill and Backfilling

2-1.3.1 General - Prior to commencing fill and backfilling operations, excavated and fill areas shall be cleared entirely of concrete form work and debris. Fill and backfill shall be clean earth, free from perishable material, placed in evenly distributed layers of thickness specified herein over the entire areas; properly moistened and thoroughly consolidated by power operated mechanical equipment to prevent subsequent settlement. Material from other sources shall be supplied for fill and backfill when sufficient or suitable material is not available on the site. All fill and backfill shall be well graded coarse granular material free of all organic, frozen, expanding or shrinking material. Fill for seeded or sodded areas, shall be brought to within 6 inches of the finished grades. In the event excavated material is not suitable or in sufficient amounts for use as fill and backfill, the contractor shall provide from off site sources, fill and backfill conforming the above requirements and subject to the approval of the Government Representative.

2-1.3.2 Compaction of Fill and Backfill - Compact each layer of fill and backfill to the specified percent of maximum density obtained at optimum moisture content as specified in the current ASSHO-T99 "Standard Specifications for Highway Materials and Methods for Testing," as follows:

Fill under concrete floor slabs and on both sides of the foundation wall: 6 inch layers compacted to 95%. Prior to installing fill under floor slabs, the original soil shall be removed to provide a minimum of 12 inches of fill under the slabs. The surface of the remaining original soil shall be compacted to 95% maximum density at optimum moisture content before the fill material is placed and compacted. The last layer of fill shall be built up to an elevation slightly above the finish grades before compaction. The compacted fill surfaces shall be carefully checked for the correct elevations and profiles.

2-1.4 Grading

2-1.4.1 General - All grading shall be done to bring the ground to the finished grade. Grade not otherwise shown, shall be uniformly level or sloped between points where elevations are given, or between such points and existing grades, shaped to drain away from building walls.

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SECTION 3-1

CONCRETE

3-1.1 General

3-1.1.1 Requirements - The work covered by this Section consists of furnishing all plant, labor, materials, tools, equipment, appliances, and services required to manufacture, deliver, furnish and install concrete and cement work, and related work, complete, in strict accordance with this Section and the applicable drawings.

3-1.1.2 Application - Requirements herein for mixing, placing, curing and finishing concrete govern all concrete work in all Sections.

3-1.1.3 General - For location and extent of work, see drawings.

3-1.2 Regulations, References and Standards

3-1.2.1 General - The latest issue of the following regulations, specifications, codes and standards are made a part of this standard unless noted:

(a) "Building Code Requirements for Reinforced Concrete" (American Concrete Institute 318).

(b) "Manual of Standard Practice for Detailing Reinforced Concrete Structures" (American Concrete Institute 315).

(c) "Recommended Practice for Measuring, Mixing and Placing Concrete" (American Concrete Institute 614).

(d) "Standard Specifications for Ready Mixed Concrete" (ASTM C-94).

(e) Applicable Standards cited in the ACI Code

3-1.3 Material

3-1.3.1 Concrete - The concrete mixture shall have a minimum 28 day compressive strength of 3000 lbs. per sq. inch with a maximum slump of three inches when tested in accordance with ASTM C-39 (Test for Compressive Strength of Molded Concrete Cylinders). Maximum aggregate sizes shall be 1½ inches for footings and walls; 3/4 inch for floors and slab.

3-1.3.2 Reinforcing Bars - All reinforcing shall be new billet steel, ASTM A615, Grade 40. Deformations shall conform of ASTM A305. All reinforcement steel shall be cut and bent to the shown on the drawing. All bars shall be bent cold, by approved machine methods, and shall be in accordance with standard approved practice. Fabrication of the reinforcement steel shall be in accordance with ACT-315 (Manual of Standard Practice for Detailing Reinforced Concrete Structures).

3-1.3.3 Welded Wire Fabric - Welded steel wire fabric shall be cold drawn round steel wire having a minimum tensile strength of 70,000 psi and be equal to ASTM A82. The welded wire fabric shall be prefabricated in accordance with ASTM A185.

3-1.3.4 Vapor Barrier - A polethylene film water vapor barrier shall be laid under entire slab. Joints shall be lapped at least 6". Polyethylene film shall be minimum .006" (6 mil) thick.

3-1.4 Formwork

3-1.4.1 Workmenship Requirements - Forms must conform accurately to shape, line and dimensions of concrete members shown on drawings. Brace or tie forms together to maintain position and shape. Keep wood forms wet until removed. Formwork shall conform to the recommendation of ACI 347 unless noted.

3-1.5 Placing Concrete

Place concrete on clean, damp surfaces free from ponded water, ice, frost, mud, debris or objectionable coatings. Prevent segregation of concrete and avoid splashing forms or reinforcing with concrete.

3-1.6 Protection and Curing

3-1.6.1 General - The contractor shall protect the concrete from freezing or from premature drying during the curing period. The concrete shall be cured by maintaining the concrete above a temperature of 50° F. and by keeping moist for at least the first seven days after placing. Concrete floor slabs and other thin sections of concrete shall be maintained above a temperature of 60° F. and shall remain covered and free of traffic and load for at least ten days after their completion.

3-1.6.2 Cold Weather Protection - When the temperature is below 40° F. or when freezing weather is possible within 24 hours, heat concrete aggregates and mixing water so that temperature of concrete when deposited is above 55° F. but less than 80° F.

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3-1.6.3 Hot Weather Protection - Hot weather protection for all concrete shall be in accordance with ACI-605, Recommended Practice for Hot Weather Concreting.

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SECTION 4-1

MASONRY

4-1.1 General - Locations and extent of masonry work are shown on drawings.

4-1.2 Materials

4-1.2.1 Concrete Block - Concrete block shall consist of hollow masonry units conforming to the requirements of ASTM Designation C90 - Grade A. Hollow units are (for the purpose of this specification) defined as blocks which have more than 25% voids in every horizontal cross section. The units shall have a maximum linear shrinkage of not more than 0.06 percent when tested in accordance with ASTM C426 and a maximum linear shrinkage of 0.08 percent from saturated to oven dry conditions when tested as in accordance with this specification. Blocks shall be standard, 7 5/8 inches height x 15 5/8 inches long, thickness as shown on drawings, and such special sizes, shapes and units as may be required.

4-1.2.2 Mortar - Mortar shall conform to the requirements for Mortar Type M of Specifications for Mortar for Unit Masonry ASTM C270. The minimum compressive strength of mortar shall not be less than 2500 psi at 28 days. Mortar shall not be used as grout.

4-1.2.3 Grout - Fine grout and coarse grout for embedding reinforcing bars in concrete masonry or for filling cells therein for structural purposes shall conform to fine and coarse grout type of ASTM C476. The grout shall have a 28 day compressive strength of 2500 #/sq. inch. Aggregates for grout shall meet the requirements of Specifications for Aggregates for Masonry Grout ASTM Designation C404.

4-1.2.4 Bars - Reinforcing steel bars shall be new conforming to ASTM Designation A-615, Grade 40 and shall be deformed in accordance with ASTM Designation A-305.

4-1.2.5 Horizontal Wall Reinforcement - Horizontal wall reinforcement shall be fabricated from zinc-coated cold-drawn 3/16" Dia. (#9) steel wire conforming to ASTM A-82. Special corner type wall reinforcement assemblies shall conform to the above requirements.

4-1.3 Masonry Installation

4-1.3.1 Horizontal Joint Reinforcement - The horizontal joint reinforcement shall be placed in the first and second bed joints above and below openings and in every second bed joint (16 inch c to c) throughout the remainder of the structure. The horizontal joint reinforcing in the first and second bed joints immediately above and below openings shall extend two feet beyond each side of the opening. The joint reinforcement shall be lapped 6 inches minimum at splices and shall bend at corners in such a manner as to insure continuity. There shall be one metal tie for not more than each 4½ square foot of wall area. Ties in alternate courses shall be staggered. The maximum vertical distance between ties shall not exceed 16 inches, and the maximum horizontal distance shall not exceed 36 inches.

4-1.3.2 Tooling - Exposed joints shall be tooled with a tool jointer, while the mortar is thumb print fresh, compacting the mortar into the joint and against the masonry units with firm pressure. All tooling shall be done with a clean, preferably stainless steel, joint tool, with the same size and type used for the whole job. Joints not exposed to the weather may be either tooled or struck with a trowel, unless otherwise noted on the drawings. Joints to be similar to joints in existing building.

4-1.4 Protection

4-1.4.1 Freezing - Adequate equipment shall be provided for heating the masonry materials and protecting the masonry during freezing or near freezing weather. No frozen materials nor materials containing ice shall be used.

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SECTION 5-1

STRUCTURAL STEEL

5-1.1 General - The locations and extent of work is as shown on the structural drawings and hereinafter specified.

5-1.2 Applicable Documents

5-1.2.1 Design Specifications - Structural design is based on current AISC and AWS codes and specifications.

5-1.3 Welder and Welding Operator Qualifications - Welds shall be made only by welders and welding operators who have been previously qualified by tests as prescribed in the Standard Code for Arc and Gas Welding in Building Construction of the American Welding Society, to perform the type of work required.

5-1.4 Materials

5-1.4.1 Structural Shapes, Plates and Bars - Shall conform to ASTM A36 (Specification for Structural Steel).

5-1.4.2 Structural Bolts and Anchor Bolts - Shall conform to ASTM A307, Grade A (Specification for Low-Carbon Steel Externally and Internally Threaded Standard Fasteners), unless noted.

5-1.4.3 Steel Joists - Open web steel joists shall be in accordance with the standard specification for the LA Series in the specification of the Steel Joist Institute.

Material - Shall be A-36 steel with allowable stresses as shown in the standard specification.

All design, manufacure, application and erection shall also be in accordance with the standard specification.

Top and bottom chord extensions as shown on drawings shall be supplied by the Joist Manufacturer.

SECTION 5-2

METAL DECKING

5-2.1 General - For location and extent of work, see drawings and details.

5-2.2 Materials

All steel roof decking and accessories shall be formed from U. S. standard guage sheet steel conforming to ASTM Specification A-245 or ASTM A-366. The material shall have a protective zinc coating applied to the steel before forming which conforms to Federal Specification QQ-S-775, Type 1, Class E. Sheets shall be continuously rolled and uniformly shaped in every respect. Welding shall conform to the American Welding Society Standard Code for Arc and Gas Welding in Building Construction. Decking shall be provided with prepunched hangar tabs for installation of suspended acoustical ceiling.

5-2.3 Erection of Steel Roof Decking - The deck shall be laid in accordance with the manufacturer's instructions and as shown on the applicable drawings. The deck units shall be adjusted in place before being permanently welded. Welding to be submerged arc with low hydrogen mild steel electrode of ASTM A-233,Type E7916 with mineral or inorganic coating. Welding of the deck shall be done in a manner as to prevent burn-through or excessive distortion. All welds shall be sound and shall be fusion type with sizes and spacings as indicated on the drawings. As each weld is completed the weld spatter and surface oxides shall be immediately brushed away and the weld and welded area shall be reheated to approximately 600 degrees F. and the surfaces shall be re-galvanized with zinc.

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SECTION 6-1

CARPENTRY

6-1.1 General - For locations and extent of work, see drawings and details.

6-1.2 Materials

6-1.2.1 Lumber - All lumber shall be graded in accordance with latest rules of the Association applicable; solid hardwood stock in accordance with National Hardwood Association rules; fir plywood in accordance with Douglas Fir Plywood Association Standards and Commercial Standard CS-45; softwood lumber in accordance with commercial grades based upon American Lumber Standards specified in Simplified Practice Recommendation R-16.

6-1.2.2 Wood Trim and Blocking - Seasoned, kiln dried No. 1 Dimension Short Leaf Southern Pine, Spruce, Douglas Fir or equivalent species.

6-1.2.3 Preservative Treatment - All lumber, except for temporary protection, shall be pressure preservative treated in accordance with minimum standards of American Wood Preservers' Association.

6-1.2.4 Rough Hardware - Furnish and install all rough hardware, metal fastenings, angle supports, and the like, as indicated on the drawings or required for the proper installation of the work. Furnish and install all nails, screws, bolts and similar items to rigidly secure members in place.

6-1.4 Quality Assurance

6-1.4.1 Label - Each piece of lumber shall bear the official grade and trademark of the association under whose rules it is graded, or the lumber shall be accompanied by a certificate of inspection issued by the association.

SECTION 7-1

CAULKING AND SEALING

7-1.1 General

7-1.1.2 Installation Area - For location and extent of work, see drawings.

7-1.1.3 Use - Use sealants for sealing control joints and for sealing of joints between metal frames and concrete or masonry, exterior or interior, in all locations where "caulking" or "sealant" is indicated on the drawings or where sealing of joints against weather or water is required.

7-1.2 Materials

Sealants: Non-staining, 1-part 100% acrylic terpolmer sealant as covered by U. S. Federal Stock Catalog Number 8030-985-7119 as manufactured by Tremco Manufacturing Co., or 1-part silicone rubber sealant conforming to TT-S-00230 as manufactured by Dow-Corning Corp., or General Electric Co. or equal.

7-1.3 Application - Mixing and application of sealants shall be in accordance with manufacturer's instructions. All caulking shall be complete before final coats of paint are applied. Finish all caulking joints with the proper tool and remove caulking compound from adjacent surfaces.

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SECTION 7-2

BUILDING INSULATION

7-2.1 General - Building insulation shall be applied to roof decking as shown on drawings.

7-2.2 Materials

7-2.2.1 Fiberboard (Wood Fiber) - LLL-1-535, Class C, containing by weight not less than 0.50% pentachlorophenol (sodium pentachlorophenate reacted with aluminum sulfate), or 0.25% copper pentachlorophenate (sodium pentachlorophenate reacted with copper sulfate), or 0.30% arsenic oxide. Equivalent certified chemical preservative treatment may be used, subject to approval of the Contracting Officer.

7-2.2.2 Adhesive - Asphalt SS-A-666.

7-2.3 Installation

7-2.3.1 Decks - Shall be smooth, free of irregularities and projections, clean and dry.

7-2.3.2 Protection - Shall be kept dry. When work is suspended, exposed insulation shall be protected by waterproof covering.

7-2.3.3 Application on metal deck - Apply the sub-surface by laying the insulation in a "strip" mopping of high temperature asphalt. Lay boards with long dimensions parallel to short side of roof. Tightly butt joints. Lay insulation in parallel courses with aligned joints. Cut insulation close around penetrations and to vertical surfaces. Provide water cutoffs to protect exposed insulation when mineral and organic fiber type insulation is used.

7-2.4 Samples - Samples of insulation and adhesive shall be submitted to the Contracting Officer's Authorized Representative for approval prior to commencing any work required under this section.

SECTION 7-3

ROOFING

7-3.1 General

7-3.1.1 Location - For location and extent of work, see drawings.

7-3.2 Materials

Built-up roof Kopper Specification 17 wi or equal consisting of a four ply, 20 year bondable roof with gravel or slab embedded in a pouring of coal tar pitch.

7-3.3 Installation - The roofing shall be installed in accordance with the manufacturer's recommendations.

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SECTION 8-1

DOORS AND WINDOWS

8-1.1 General - Doors and windows shall be installed at locations and in manner shown on drawings.

8-1.2 Materials

8-1.2.1 Doors - Doors shall be of flush type hollow metal 1 3/4" thick, 16 gage with a 16 gage frame. Doors shall be similar to "Medallion" doors with mineral wool insulation as manufactured by the Ceco Corporation. Exterior doors shall have brass weather stripping and/or equal provided with a brass or bronze threshold. Interior door shall have a clear glass panel approximately 24" x 36".

8-1.2.2 Exterior Door Hinges - 4½" ball tip non-rising pin, bronze or brass full mortise butts, Federal Specification FF-H-116, Type 2--5. Three hinges shall be provided for each exterior door.

8-1.2.3 Exterior Lock Set - Shall consist of wrought bronze entrance door handles with thumbpiece, designed to take a cylinder entrance door lock set with protected front in accordance with FED. Spec. FF-H-106, Type 415. Lock to take standard FAA cylinder manufactured by Best Co. or equal.

8-1.2.4 Interior Door Hinges - 3½" brass, button tip, non-rising pin, Federal Specification FF-H-116. Two hinges shall be provided for each interior door.

8-1.2.5 Interior Door Lock Set - Cylinder lock set and trim, Federal Specification FF-H-106, Type 85-D-4.

8-1.2.6 Exterior Door Threshold - Saddle type, solid brass or architectural bronze, minimum 4" wide by ½" rise, non-skid type, recessed for weather-stripping. Similar to Hohmann and Barland Weatherstrip Material Company, Style #301.

8-1.2.7 Steel Window - Steel windows shall be commerical projected type of size indicated on drawings. Windows shall be manufactured in accordance with specification for projected window by the Steel Window Institute and shall be similar or equal to type B-23141 windows manufactured by Lupton Steel Windows or Bliss Steel Products Corporation with adequate locking devices.

8-2.7.1 Glass - Windows shall be glazed with 1/8" double strength window glass with metal window putty or glazing compound and installed in accordance with manufacturer's recommendations.

8-2.8 Venitian Blinds - Venitian blinds shall be provided as indicated on drawings blinds shall be of horizontal type with 2 inch slats. Blinds shall be of a high quality steel with a white enamel finish, with metal head box, cordlocks, strong nylon cords and plastic tapes. Slats shall overlap 1/4 inch.

8-2.9 Security Requirements - Exterior lock set and windows shall comply with requirements of FAA Handbook OA P 1600.6 " Protection of Agency Property."

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SECTION 9-1

RESILIENT FLOORING

9-1.1 General - Resilient flooring and base shall be installed in the locations as shown on drawings.

9-1.2 Materials

9-1.2.1 Material Requirements - Materials shall meet requirements of referenced Federal Specifications and Standards, and requirements specified herein.

(a) Vinyl Asbestos Tile - L-T-00345, 9 inches by 9 inches by 1/8 inches unless otherwise indicated.

(b) Vinyl Plastic Base - L-F-00450.

(c) Adhesive, Primer and Underlayment - Water dispersed reclaimed rubber base, heavy bodied type for application of floor coverings. Material shall be suitable for the purpose and the specific structural conditions, delivered in sealed containers bearing manufacturer's label and shall be used without adulteration or reducing. Types for each use shall be approved by the manufacturer of the material.

9-1.3 Application and Material Handling

9-1.3.1 Surface Preparation - Surfaces to receive flooring shall be cleaned free of dust, foreign matter, and materials not compatible with adhesive. Concrete shall be dry and in suitable condition to receive the flooring.

9-1.3.2 Underlayment - Cracks, joints, holes and depressions in floors or walls shall be filled with underlayment, mixed and applied in accordance with flooring and adhesive manufacturer's directions, to required thickness, well compacted and allowed to become hard and dry. Concrete and underlayment surfaces shall be uniform, level with smooth finish, and acceptable to the Contracting Officer's Authorized Representative before starting application of flooring.

9-1.3.3 Waterproofing - All concrete floors shall be given a coat of waterproofing primer and sealer of type recommended by the manufacturer of the flooring material.

9-1.3.4 Temperature - A temperature of not less than 70 degrees F. shall be maintained at least 48 hours before, during and 48 hours after laying of flooring. Materials shall be brought into the locations during the initial 48-hour period and allowed to condition at least 24 hours before installation. A minimum temperature of 55 degrees F. shall be maintained thereafter.

9-1.3.5 Laying Method - Lay flooring in accordance with manufacturer's printed directions, to true, straight lines and levels. Flooring tiles shall be laid out from center lines and finished with pieces of uniform shape and size against walls, edge strips and thresholds. Tiles shall be placed squarely against each other with joints symmetrical, and in a manner to insure complete contact and adhesion. Cement extruding onto the face of flooring shall be cleaned off immediately. Surfaces stained or damaged by adhesives shall be replaced with fresh material. Flooring tile shall be thoroughly pressed into place before the cement has set (not later than one hour) after cement is installed. Vinyl asbestos tiles shall not be rolled.

9-1.3.6 Laying Schedule - Laying shall be deferred until all other work in the space that might cause damage to the flooring is complete.

9-1.3.7 Edge Strips - Provide vinyl edge strips at exposed edge where flooring is terminated at door openings without thresholds and similar conditions. Strips shall be butt type, beveled on exposed edge, with top surface finishing flush with flooring.

9-1.3.8 Cleaning and Protection - Flooring shall be thoroughly cleaned, buffed and left in condition satisfactory to the Contracting Officer's Authorized Representative. Spots shall be removed by means that will not damage the surface. Solvents, wetmopping and washing are prohibited. As soon as flooring is completed in each area, it shall be protected with heavy building paper. Defects which develop, such as damaged, loose, broken or curled tiles, shall be corrected prior to final inspection.

9-1.3.9 Maintenance Stock - Furnish 50 vinyl asbestos floor tile for maintenance purposes.

9-1.4 Quality Assurance

9-1.4.1 Samples - Submit samples for approval showing sizes, colors, and patterns to be used.

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SECTION 9-2

PAINTING

9-2.1 General

9-2.1.1 Location - For location and extent of work, see drawings.

9-2.1.2 Touch-up - At completion of work of other trades, painted and finishes surfaces shall be touched-up and restored where damaged or defaced.

9-2.2 Applicable Documents

FAA-STD-003	Paint Systems for Structures
FAA-STD-595	Colors

9-2.3 Requirements

Except as otherwise specified herein all paint and painting shall be in accordance with FAA-STD-003 and FAA-STD-595.

9-2.4 Quality Assurance Provisions

9-2.4.1 Finish Schedule - Submit for approval by the Contracting Officer's Authorized Representative a complete list of finishing material, brand names and applicable Federal Specification of materials to be furnished.

SECTION 9-3

SUSPENDED ACOUSTICAL CEILING

9-3.1 General - For location and extent of work, see drawings.

9-3.2 Materials

9-3.2.1 Tile - Acoustic tile shall conform to Federal Specification SS-S-00118, Type III, flame resistance class 25, light reflection value not less than 64%. Noise reduction coefficient shall be 0.70 (grade 3) or better. Minimum density shall be 0.75 lbs./sq. ft. Tile for lay-in systems shall be 24 inches by 24 inches minimum. With a minimum thickness of 5/8" color shall be as called for in finish schedule and as approved by the Contracting Officer's Authorized Representative. Pattern shall be approved from submitted samples.

9-3.2.2 Suspension System - The suspension system shall be an exposed grid for 24 inches by 24 inches tile and shall be fabricated from the following:

(a) Tee, angle, and moulding members shall have section properties which shall be designed to carry the ceiling loading, including lighting fixtures and air diffusers, and shall be fabricated from steel treated to resist corrosion.

(b) Hanger wires shall be 10 gauge galvanized steel wire. Hanger shall not support more than 16 sq. ft. of ceiling.

(c) All exposed to view surfaces of the suspension system members shall have a baked enamel finish to match the tiles.

9-3.3 Installation

9-3.3.1 Manufacturer's Requirements - Acoustical lay-in units shall be installed with metal suspension system by an approved erector in accordance with the directions of the manufacturer of the acoustical tile units and suspension system to be used. Suspension members shall be adequately leveled.

9-3.3.2 Temperature - No units shall be installed until concrete and masonry are completely dry, windows and doors are in place and glazed. Room temperature shall be approximately 70 degrees F. and relative humidity approximately 55%, for at least 24 hours before, during and 48 hours after installation.

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9-3.3.3 Edges - Ceiling shall be provided positive support along all four edges of each lay-in acoustical unit. Hold down clips are required for each edge of each lay-in tile. Metal edge mouldings, minimum 25 gauge (0.020) sheet steel of approved cross section, shall be installed continuous along perimeter of ceiling units in each room unless otherwise shown.

9-3.3.4 Main Runners - Main runners shall be spaced 24 inches o.c. Cross runners shall be spaced 24 inches o.c. and perpendicular to main runners.

9-3.3.5 Supports - The tops of hanger wires shall be securely attached to prepunched hanger tabs contained in the steel roof decking. The channels shall be connected to the adjacent concrete masonry surfaces by bolts and cinch anchors or concrete inserts.

9-3.4 Quality Assurance

9-3.4.1 Samples and Drawings - Samples of acoustical tile and suspension system members shall be submitted for approval. Shop drawings showing section properties of the members, connection details and general layout of the suspension system shall be submitted for approval.

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SECTION 15-1

MECHANICAL

15-1.1 General - Air conditioner and unit heaters shall be furnished and installed as shown on drawings.

15-1.2 Material

15-1.2.1 Air Conditioner - Shall be a through-wall or window type rated at 24,000 BTU. Air conditioner shall meet requirements for window air conditioners set forth in paragraph 3.3 of Specification FAA-C-2256.

15-1.2.2 Unit Heaters - Shall be sized in accordance with temperature zones as shown on the drawings. Heaters shall be UL listed and suitable for wall mounting.

15-1.3 Installation - Installation shall be in strict accordance with manufacturer's recommendation and requirements of the Electrical Section.

SECTION 16-1

ELECTRICAL

16-1.1 General - All required electrical installations shall be made to provide complete electrical power and lighting service within the building addition as shown on drawings.

16-1.2 Installation - All materials, equipment, workmanship and methods, including grounding, shall conform to requirements of FAA-C-1217. Circuits shall be provided as shown on drawings. The contractor shall obtain and pay for any permits, inspections or certifications required.

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