SECTION 09300

HARD TILE

PART 1 GENERAL

1.01 WORK INCLUDED: This Section covers the Work necessary to furnish and install, complete, the following:

A. Ceramic tile and related items.

B. Marble Thresholds.

1.02 RELATED WORK SPECIFIED AND PERFORMED UNDER OTHER SECTIONS

A. SECTION 03300 - CAST-IN-PLACE CONCRETE: Concrete subfloor.

B. SECTION 03346 - CONCRETE FLOOR FINISHING: Finishing of floor slab for ceramic tile application.

C. DIVISION 15000 - PLUMBING EQUIPMENT, FIXTURES, TRIM AND SCHEDULE: Floor drains.

1.03 REFERENCES

A. American National Standard Specifications for the Installation of Ceramic Tile.

B. Tile Council of America, Inc.: "Handbook for Ceramic Tile Installation."

C. Tile Council of America, Inc.: "Recommended Standard Specifications for Ceramic Tile, TCA 137.1."

D. Manufacturer's recommendations and standards.

E. Federal Specifications as referenced herein.

F. ASTM Standards and Test Procedures as referenced herein.

1.04 QUALITY ASSURANCE

A. Installer: Shall be regularly engaged in the installation of ceramic tile and shall have previous experience within the last two (2) years on projects similar in scope. Upon request, submit evidence of qualification compliance with complete references.

1.05 SUBMITTALS: Submittals during construction shall be made in accordance with SECTION 01300, SUBMITTALS. In addition, following specified information shall be provided:

A. Samples: Submit physical samples of full color ranges available from manufacturer for Grades of ceramic tile specified herein, for color selection by Architect.

B. Certificates: Submit Master Grade Certificate, issued and signed by manufacturer, that tiles conform to Specifications. Provide evidence from manufacturers of mortars, adhesives, and grouts that materials are suitable for intended use and meet or exceed the standards specified.

C. Manufacturers' Instructions: Furnish manufacturers' instructions for use of mortars, grouts, and adhesives to be used.

1.06 MANUFACTURER'S MAINTENANCE GUIDELINES

A. Submit tile manufacturer's printed maintenance guidelines for Owner's use in maintaining all tile work specified herein under provisions of SECTION 01700, CONTRACT COMPLETION AND CLOSEOUT.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of SECTION 01600, MATERIALS AND EQUIPMENT.

B. Deliver materials to job in manufacturers' original unopened containers with manufacturer's brand and name clearly marked thereon. Store all materials in dry place and protect from damage or contamination.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The use of a manufacturer's name and specification number is based on a particular manufacturer, for the purpose of establishing the standard of quality and general configuration desired. Products of other manufacturers will be considered by the Architect upon submittal of full data, a minimum of ten (10) days prior to Bid Date.

B. Like items of material or equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.02 MATERIALS

A. General: All tile shall be Standard Grade, complying with the requirements of the current TCA 137.1 ("seconds" NOT acceptable). Provide manufacturer's entire color range available in groups or grades specified for color selections. Areas to receive tile are scheduled and/or indicated on the Drawings and/or Finish Schedule. Provide complete physical samples proposed for use of all materials specified herein.

B. UNGLAZED CERAMIC MOSAIC FLOOR TILE AND BASE: Dal-Tile DK Series. Unglazed natural clay type ceramic mosaic tile conforming to Section 5.1 of TCA 137.1, cushion edge, nominal 8-inch by 8-inch size for field tile.

Provide all trim pieces required for a complete system, including all coved base and corner trim shapes required for a complete installation.

C. TILE ACCESSORIES AND TRIM SHAPES: Provide complete 6" high sanitary coved base trim and accessories as required, unglazed to match ceramic tiles. Include caps, bullnose, stops, returns, coved inside corner trim, bullnose external corner trim, trimmers and all other special shapes required to finish installation. Match color and finish of tile used for field tile.

D. SETTING MATERIALS: All setting beds throughout this project shall be Portland Cement based mix equal to Bonsal.

E. GROUTING MATERIALS:

1. For Ceramic, wall and base installations, use Commercial Portland Cement Grout: L&M Acid-R; Upco Hydroment, or Jamo AR type with latex "Star Set 1000" grout. Color as selected by Architect. Provide complete physical samples for color selections.

2. For setting marble thresholds use Bonsal Epox-E-Set AR-11HT or equal epoxy mortar.

F. EXPANSION JOINT MATERIALS:

1. Sealant: Silicone rubber type sealant conforming to Federal Specification TT-S-001543, Class A or B, color to match grout, with a Shore A hardness of 25 for joints in horizontal surfaces.

2. Backup Material: Flexible and compressible type, nonstaining and compatible with sealants used.

H. MARBLE THRESHOLDS:

1. Honed Italian marble with long single bevel for thresholds to adjust between tile and other floor finishes. Marble shall be Grade A, uniform in tone and coloring. Color of thresholds to match or complement unglazed ceramic mosaic floor tile.

2. Provide one piece marble thresholds at <u>all</u> locations where ceramic tile abuts other type flooring material, whether or not indicated on Drawings or Schedules.

PART 3 EXECUTION

3.01 JOB CONDITION

A. Environmental: Set and grout tile in portland cement as specified, when ambient temperature is at least 50 degrees F. and rising. Comply with minimum temperature recommendations of manufacturers for bonding and grouting materials in other than portland cement mortar.

B. Protection: Protect adjoining work surfaces before tile work begins.

3.02 INSPECTION OF SURFACES

A. Examine surfaces to receive tile, setting beds, or accessories before tile installation begins for defects or conditions adversely affecting quality and execution of tile installation. Ensure all setting beds are level at walls and slope evenly to drains.

B. Do not proceed with installation work until unsatisfactory conditions are corrected. Surfaces shall be firm, dry, clean, and free of oily or waxy films. Grounds, anchors, plugs, hangers, bucks, electrical and mechanical work in or behind tile shall be installed prior to proceeding with tile work. Coordinate carefully with all other trades.

3.03 INSTALLATION

A. Preparation: Prepare surface, fit, set, or bond, grout, and clean in accordance with applicable requirements of ANSI standards for setting method specified, except as otherwise noted.

B. Setting Unglazed Ceramic Tile and Base tile on concrete subfloor and walls per: ANSI A 108.1; conform to TCA Method for thick set installation. Use Grout specified for application.

1. Prepare surface by removing soap scum, wax, coating, oil, etc. followed by a clear water wash. Thoroughly rinse and allow to dry before setting new tile.

2. Set tile with grout specified above. Pitch to floor drain if floor drain provided. Align joints in base with joints in floor tile.

3. Set all tile with <u>equal</u> joint spaces throughout. Base shall be set with straight, true lines. Joints at vertical surface tile shall align perfectly with joints in flat surface tile.

C. Expansion Joints: Conform to TCA Method EJ711, as applicable. Locate where shown on Drawings or as required for ceramic tile applications. Provide at perimeter for tile applications.

D. Setting Marble Thresholds: TCA Method TH821; set in full epoxy adhesive bed without voids. Use epoxy adhesive as specified above under GROUTING MATERIALS.

3.04 CLEANING CERAMIC TILE

A. Clean tile surfaces as thoroughly as possible on completion of grouting. Remove all grout haze, observing tile manufacturer's recommendations as to use of acid and chemical cleaners. Rinse tile work thoroughly with clean water before and after using chemical cleaners. Polish tile work with soft cloth.

3.05 PROTECTION FROM CONSTRUCTION DIRT

A. Apply to all clean, completed tile floors a protective coat of neutral cleaner solution, 1 part cleaner to 1 part water. In addition, cover all tile floors with heavy-duty, nonstaining construction paper, masked in place. Just before Substantial Completion Inspection of tile work, remove paper and rinse protective coat of neutral cleaner from all tile surfaces.

3.06 PROTECTION FROM TRAFFIC

A. Prohibit all foot and wheel traffic from using newly tiled floors for at least 7 days. Place large, flat boards in walkways and wheelways for 7 days where use of newly tiled floor is unavoidable.

END OF SECTION

SECTION 09510

SUSPENDED ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 WORK INCLUDED: This Section covers the Work necessary to furnish and install, complete, the following:

A. Suspended acoustical ceiling system (referenced as "Suspended A.T. Ceiling" on Drawings).

1. Acoustical ceiling panels.

2. Suspension system.

1.02 RELATED WORK SPECIFIED AND PERFORMED UNDER OTHER SECTIONS

A. SECTION 07210 - BUILDING INSULATION: Batt insulation.

B. SECTION 09215 - VENEER PLASTER SYSTEM.

1.03 REFERENCES

A. ASTM Standards and Test Procedures as referenced herein.

B. Federal Specifications as referenced herein.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Maintain humidity of 65 percent to 75 percent in area where acoustical ceiling materials are to be installed for 24 hours before, during, and 24 hours after installation. Maintain a uniform temperature of 55 degrees F. to 80 degrees F. prior to and during installation of materials.

1.05 QUALITY ASSURANCE

A. Installer: Shall be regularly engaged in the installation of suspended acoustical ceilings and shall have previous experience within the last five (5) years on projects similar in scope. Upon request, submit evidence of qualification compliance with complete references.

1.06 SUBMITTALS: Submittals during construction shall be made in accordance with the Specifications. In addition, the following specific information shall be provided:

A. Samples: Submit one 12-inch square sample of each acoustical ceiling panel type specified herein. Submit one full-size sample of suspension system main runners and edge molding. Samples shall be marked with the name of the manufacturer and specific design and technical data as called for herein.

B. Submit the grid manufacturer's printed installation instructions.

C. Product Data: Submit manufacturers' product data for acoustical ceiling panels, suspension system components, and access panel specified herein.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of the Specifications.

B. Deliver material to Project site in manufacturer's original unopened containers with manufacturer's labels indicating brand name, pattern, size, thickness, legible and intact.

C. Store materials inside, under cover, in original protective packaging to prevent soiling, physical damage, or wetting.

1.08 WARRANTY

A. Provide a written guarantee against defects in materials and workmanship for a period of one year from the date of Substantial Completion of the Project. Any defects occurring during this warranty period shall be repaired at no cost to the Owner.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The use of a manufacturer's name and specification number is for the purpose of establishing the standard of quality and general configuration desired. Products of other manufacturers, meeting the requirements specified herein, will be considered by the Architect, unless specifically noted as "Sole Source", in which case provide exactly as specified.

B. Like items of material or equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.02 ACOUSTICAL CEILING PANEL TYPES

A. Type 1 (AT-1): Ceiling panels not subject to moisture, shall be equal in all respects to Armstrong “Fine Fissured” HumiGuard® Plus #1728, 5/8” thick, white, with a 10 year limited warranty. Tile shall have a 0.55 NRC rating and a Class A fire rating.

2.03 SUSPENSION SYSTEM

A. Ceiling System shall conform to ASTM C 635, intermediate duty, with all components manufactured by Donn Exposed Tee System, NRM Exposed Tee System; or equal.

1. Main and Cross Members: Double web design, **intermediate duty** cold rolled steel; minimum thickness of 0.020 inch, electrozinc-coated and factory-painted low-sheen satin finish; color shall be white; exposed flange width of 15/16 inch. Main tees shall be 1-1/2-inch deep; cross tees shall be minimum 1-inch deep.

2. Edge Molding: Minimum 0.020 inch cold rolled steel, angle-shaped; minimum flange width of 15/16-inch. Finish to match main members.

3. Hanger Wire: Minimum 12-gauge, galvanized, soft-annealed, mild steel wire. Provide gauge wire as required at all Fire Rated Ceilings. Provide hanger wires attached to structure for final connection to A/C registers and diffusers by the Mechanical trades. It shall be the responsibility of the Electrical Division to provide and install the four wire suspension of light fixtures and other electrical items in the ceiling system to the structure above.

4. Wire Ties: Eighteen-gauge, galvanized, annealed steel wire, or as required by Code at all Fire Rated Ceilings.

PART 3 EXECUTION

3.01 GENERAL

A. It is the intent that the suspension system and acoustical ceiling panels be installed to line and level with a maximum deflection of 1/300 of the span, symmetrical to rooms and spaces, and with due regard to appearance and structural stability. Refer to Reflected Ceiling Plan for layout and Types of Ceiling. Adjust layout, soffits and heights as required to accommodate unforeseen conditions at ducts, piping and structural members at no additional cost to the Owner. Coordinate any changes with Architect.

3.02 SEQUENCING

A. Do not install suspended acoustical ceilings until sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Lay out grid as shown on Reflected Ceiling Plan, which takes precedence over the Mechanical and Electrical Plans. Coordinate with mechanical and electrical equipment in framing and cutting material around all ceiling penetrations, whether shown or not. Adjust mechanical and electrical layouts as required to match the Reflected Ceiling Plan with Architect's prior approval, at no cost to the Owner.

3.03 CONDITION OF SURFACES

A. Examine surfaces scheduled to receive suspended acoustical ceilings for unevenness, irregularities, and dampness that would affect quality and execution of work. The Contractor shall notify the Architect of any adverse conditions that will effect the installation.

3.04 INSTALLATION

A. Suspension System: Hang level directly from structure only in accordance with the manufacturer's printed instructions for the type of installation used. Space hanger wires a maximum of 4 feet on center each direction. Install additional hangers at ends of each suspension member. Install additional hangers to structure and mechanical trades to connect at each corner of all light fixtures and mechanical registers/diffusers. Do not splay wires more than 5-inches in a 4-foot vertical drop. **Attachment to light fixtures and mechanical registers/diffusers shall be by those respective trades.**

B. Attach supporting wires only to structural members, i.e. metal building framing, unistrut or metal studs. Provide additional supports as required using unistrut as appropriate. Wrap wire a minimum of three times horizontally within 3", turning ends upward. Space main and cross runners as shown on Shop Drawings. Note soffits where indicated and coordinate with other trades.

C. Connect runners according to manufacturer's directions. Install edge molding at intersection of suspended ceiling and vertical surfaces. Miter corners where moldings intersect or install corner caps. Attach to vertical surface with mechanical fasteners. Provide additional channels and hangers as required for support of mechanical and electrical work.

D. Consult the Mechanical and Electrical Drawings for the type and extent of work and coordinate closely with other trades. Adjust as required at no additional cost, to accommodate duct work, piping and other interferences as required. Coordinate all changes with Architect.

E. Acoustical Ceiling Panels:

1. Upon completion of suspension system and other concealed work and with Architect's approval, install the acoustical ceiling panels as noted on the Reflected Ceiling Plan. Place material to bear all around on suspension members.

2. Provide clips at all vertical installations.

3.05 CLEANING

A. Clean soiled or discolored panel surfaces after installation. Touch up scratches, abrasions, voids, and other defects in finished surfaces. Remove and replace damaged or improperly installed units.

END OF SECTION

SECTION 09650

RESILIENT FLOORING

PART 1 GENERAL

1.01 WORK INCLUDED: This Section covers the Work necessary to furnish and install, complete, the following:

A. Resilient tile flooring. Note Floor pattern required in Corridor, consisting of the base color and two additional colors.

B. Vinyl base. Provide in rolls. Straight 4' sections not acceptable.

C. Trim materials.

1.02 RELATED WORK SPECIFIED AND PERFORMED UNDER OTHER SECTIONS

A. SECTION 03346 - CONCRETE FINISHING: Clear sealer, floor hardener, and finish requirements.

B. SECTION 09300 - HARD TILE.

1.03 REFERENCES

A. Federal Specifications as referenced herein.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Store materials for three days prior to installation in area of installation to achieve temperature stability.

B. Maintain ambient temperature required by adhesive manufacturer three days prior to, during, and 24 hours after installation of materials.

1.05 QUALITY ASSURANCE

A. Flooring Contractor: Shall be regularly engaged in the installation of resilient tile flooring, vinyl wall base and trim materials; and shall have previous experience within the last three (3) years on projects similar in scope. Upon request, submit evidence of qualification compliance with complete references.

1.06 SUBMITTALS: Submittals during construction shall be made in accordance with SECTION 01300, SUBMITTALS. In addition, the following specific information shall be provided:

A. Product Data: Provide product data on specified products, describing physical and performance characteristics, sizes, patterns and full color range available.

B. Samples:

1. Submit full size specified resilient tile samples illustrating full color and pattern ranges for Architect's selection.

2. Submit 2-1/2-inch wide strips of wall base material specified illustrating full color ranges for Architect's selection.

3. Submit 6-inch long strips of trim materials specified illustrating color ranges for Architect's selection.

1.07 EXTRA MATERIALS

A. Furnish additional resilient tiles from same production run as material installed for future maintenance at the rate of one box of tile per selected color (4 colors maximum) under provisions of SECTION 01700, CONTRACT CLOSEOUT.

1.08 MAINTENANCE DATA

A. Furnish flooring manufacturer's recommended maintenance products and recommended maintenance schedule for cleaning, stripping, and re-waxing under provisions of SECTION 01700, CONTRACT CLOSEOUT.

1.09 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of SECTION 01600, MATERIALS AND EQUIPMENT.

B. Deliver materials to Project site in manufacturer's original, unopened containers with labels indicating brand names, colors and patterns, and quality designations legible and intact.

C. Store and protect materials in accordance with manufacturers' directions and recommendations.

1.10 GUARANTEE

A. Provide a written guarantee against defects in materials and workmanship for a period of one year from the date of Substantial Completion of the Project. Any defects occurring during this warranty period shall be repaired at no cost to the Owner.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The use of a manufacturer's name and specification number for base and trim only is for the purpose of establishing the standard of quality and general configuration desired.

2.02 RESILIENT TILE FLOORING MATERIALS

A. Manufacturer: Tarkett and Armstrong are acceptable.

B. General: Provide materials uniform in thickness and size with edges cut accurately and square; colors and patterns shall be as listed below. **Review the Drawings carefully for floor patterns or border designs. A total of two colors will be required; the field floor color and one color for the pattern layout.**

C. Vinyl Composition Tile: Furnish and install composition tile conforming to Federal Specification SS-T-312, Type IV; Face size 12 inch by 12 inch by 1/8 inch thick, smooth texture design, equal in all respects to TARKETT COLORWORKS MULT-MOTTLE SYSTEM.

D. Furnish full range of colors manufactured, as required for field and border patterns. Provide equal grades of other manufacturers.

2.03 BASE MATERIALS

A. Acceptable Manufacturers:

1. Roppe
2. Mercer Plastics Co., Inc.
3. Armstrong

B. General: Provide uniform in thickness and in as long lengths of rolls only as practicable to suit conditions of installation. **Straight pieces of base not acceptable.** Colors shall be as selected by the Architect. **Provide factory premolded end stops and external corners to match base. Internal corners may be field formed and installed.**

C. Vinyl Base: Conforming to Federal Specification SS-W-40, Type II; all areas 4-inch-high; **1/8-inch thick**.

2.04 TRIM MATERIALS

A. Acceptable Manufacturers:

1. Roppe - 1/8" thick.
2. Mercer Plastics Co., Inc. 1/8" thick.

B. General: Provide in as long lengths as practicable to suit conditions of installation. **In no case shall lengths installed be less than 2'-0" long.**

C. Feature Strip: Vinyl, Mercer No. 643, "Feature Strip", 1/8-inch butting thickness, in color to match base material. Locate over expansion joints and control joints in concrete subfloor where resilient tile flooring occurs. Also locate between different colors of tile at doorways and other locations as directed by the Architect.

D. Tile Reducer: Vinyl, No. 633 "Tile Reducer", 1/8-inch butting thickness in color to match base material. Locate where tile stops at exposed concrete floors.

2.05 APPLICATION MATERIALS

A. Primers and Adhesives: Provide type and brands as recommended by applicable materials manufacturer for the conditions of the installation.

B. Subfloor Filler: Type and brand as recommended by resilient tile flooring manufacturer.

C. Sealer and Wax shall be equal to products by Prime Star Sealer and Diamond Shine.

PART 3 EXECUTION

3.01 INSPECTION

A. Examine concrete subfloor for excessive moisture content, in accordance with flooring manufacturer's printed instructions, and unevenness which would prevent proper execution of resilient tile flooring as specified.

B. Variations in concrete slab levels shall not exceed 1/8-inch in 12 feet. High spots shall be ground down and minor low spots and cracks shall be filled with filler material as recommended by flooring manufacturer.

C. Do not install flooring until concrete subfloor has cured for at least 60 calendar days. Subfloor shall be free of bumps, mortar droppings, humps, dust, dirt, grit, paint, grease, oil, or any other foreign substances detrimental to the installation of the resilient tile flooring.

D. **Installation of flooring constitutes acceptance of concrete subfloor.** Should floor be determined to be out of level as defined in "B" above, after finish flooring installed, Contractor will be required to remove finish floor and replace with new flooring after subfloor leveled by General Contractor, at no Cost to Owner.

3.02 WORKING CONDITIONS

A. The building shall be dry and closed in. Flooring installation shall not begin until all work which would cause damage, dirt, dust or interruption of normal installation pace in completed. The installation area shall be closed to all traffic and activity for a period to be set by the Flooring Contractors.

B. Adequate ventilation shall be provided; and safety precautions (i.e., no smoking, open flame or equipment that could cause sparks) shall be observed.

3.03 APPLICATION OF ADHESIVES

A. Mix and apply adhesives in accordance with manufacturer's instructions.

B. Apply uniformly over surfaces:

1. Cover only that amount of area which can be covered by resilient tile within the recommended working time of the adhesive.

2. Remove any adhesive which dries or films over.

3. Do not soil walls, bases, or adjacent areas with adhesives.

4. Promptly remove any spillage.

C. Apply adhesives with notched trowel or other suitable tool.

D. Clean trowel and rework notches as necessary to insure proper application of adhesive.

3.04 INSTALLATION OF RESILIENT TILE FLOORING

A. Install in accordance with flooring manufacturer's instructions and in conformance with floor pattern design indicated on the Drawings. After preliminary layout of patterns, notify Architect for review and approval. Adjust pattern as directed by Architect, if necessary. Apply tile only after Architect's approval.

B. Mix tile from container to ensure shade variations are consistent.

C. Set flooring in place; press with heavy roller to attain full adhesion.

D. Install field tile in checkerboard pattern unless directed otherwise by the Architect, to square grid pattern with all joints aligned. Allow minimum 1/2 full size tile width at room or area perimeter. Install feature strip at doorways where pattern or color varies from space to space. Install stops, joiners and other trim items as applicable.

E. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar. Install trim as specified.

F. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

3.05 INSTALLATION OF BASE

A. General: Remove all defects in wall that would prevent level and true installation of the base material. Ensure wall material provides a sound backing for base all the way to floor. Install base around perimeter of room or space, where scheduled and/or where indicated on Drawings, and at toe spaces of all casework base units and other floor mounted pieces of equipment. Unroll base material and cut into accurate lengths as required for minimum number of joints. Match edges at all seams or double cut adjoining lengths to give continuous appearance. Install with tight butt joints with no joint widths greater than 1/64-inch.

B. Top-Set Base: Apply adhesive and firmly adhere to wall surfaces. Press down so that bottom edge follows floor profile. Top and bottom edges of base shall be in firm contact with walls and floors. **Install external corners by using premolded corners, with minimum 1-foot extension each side of corner.** Scribe base accurately to abutting materials.

3.06 INSTALLATION OF TRIM MATERIALS, BORDERS, FEATURE STRIPS

A. Apply adhesives and bond securely to substrates in straight true lines.

B. Center trim materials under door, where flooring materials terminate at a door opening, and where transition of flooring materials occurs at a door opening. Fit end edges to door frames or other abutting surfaces and other edges to adjoining materials.

C. Install trim materials at unprotected or exposed edges, and where flooring materials terminate, and elsewhere as indicated on Drawings and as specified hereinbefore for specific trim material types.

D. Install feature strips, floor designs and borders if borders are indicated on the Drawings. Drawings of borders and other flooring patterns indicating special layouts are shown on the Drawings.

3.07 PROTECTION

A. Prohibit traffic on floor finish for minimum 48 hours after installation.

3.08 CLEANING AND WAXING

A. Contractor shall provide sealing and waxing materials and perform the work as outlined in the following paragraphs:

B. All vinyl tile installed on this project shall be cleaned and waxed as outlined below:

1. Coating: Apply the coating only after carefully inspecting the floor. Make sure that there is no stripping residue on the floor and make sure that the floor is thoroughly clean and dry.

   a. Make sure that "Wet Floor" signs are placed at all entrance to the location. Install barriers if necessary to prevent anyone from entering the area.

   b. Pour Prime Star Sealer into a mop bucket lined with a clean plastic bag. Pour in only enough to complete the job, usually one gallon for every 2,500 - 3,000 square feet. Apply two coats sealer. **Allow the floor to dry completely between coats.**

   c. Pour Diamond Shine wax into a mop bucket lined with a clean plastic bag. Pour in only enough to complete the job, usually one gallon for every 2,500 - 3,000 square feet.

   d. Apply three (3) coats of Diamond Shine wax finish, allowing each coat to dry thoroughly before the next coat is applied. On the initial coat, apply finish up to baseboard, being careful not to get finish on the baseboard. On the following coats, keep wax at least 2" from the baseboard.

   e. After the final coat has dried completely (about an hour) burnish floor with burnishing pad, using electric buffing machine, to bring a reflective shine to flooring.

   f. Dust mop and remove warning signs.

   Note: Do not pour unused finish back into the original finish container. Turn over any unused sealer and wax to Owner in original containers.

END OF SECTION

SECTION 09900

PAINTING

PART 1 GENERAL

1.01 WORK INCLUDED: This Section covers the Work necessary to furnish and install, complete, the following:

A. All Field Painting. It is the intent that the Painting Contractor be responsible for painting or finishing all new exposed wood, steel, veneer plaster, stucco, metal, concrete, and masonry surfaces which are not factory finished, both interior and exterior, whether specifically mentioned or not, except where scheduled and/or specifically noted otherwise on the Drawings.

B. Painting of mechanical piping and equipment and Mechanical and Electrical Room floors and fire retardant paint on electrical back boards shall be the responsibility of the Painting Contractor.

C. Shop painting of fabricated items shall be as specified in other Sections. However, the painting of exposed steel fabrications and shop primed metal surfaces after erection is included in this Section. **This to include priming and painting all the exposed metal building frames, columns, purlins, cross bracing and all other metal building components. Color shall be gloss white.**

D. Certain items are manufactured prefinished and except for spot touch up of damaged areas, shall not be again painted. The damaged areas which cannot be touched up without noticeable differences between the manufacturer's finish and field finished areas, and items which have been prefinished in colors other than that specified shall be brought to the Architect's attention for determination of treatment to be used, if any, to correct the situation.

1.02 SURFACES NOT REQUIRING PAINTING: Unless otherwise specifically scheduled and/or indicated in the Technical Specifications or on the Drawings, the following areas or items will not require painting:

A. Nonferrous and corrosion-resistant ferrous alloys such as copper, bronze, monel, aluminum, chromium plate, and stainless steel, except where: (a) required for insulation between dissimilar metals, and (b) aluminum is in contact with concrete or masonry.

B. Nonmetallic materials such as PVC, and fiberglass reinforced plastic (FRP).

1.03 RELATED WORK SPECIFIED AND PERFORMED UNDER OTHER SECTIONS

A. SECTION 03346 - CONCRETE FLOOR FINISHING: Clear floor sealers and surface hardeners.

B. Various Sections - Isolation paint for aluminum and dissimilar metals.

1.04 QUALITY ASSURANCE

A. Painting Contractor: Shall be regularly engaged in the application of paints and coatings specified herein and shall have previous experience within the last three (3) years on projects similar in scope. Upon request, submit evidence of qualification compliance with complete references.

1.05 SUBMITTALS

A. Product Data: For each paint system used herein, obtain from each paint manufacturer for submittal to the Architect, paint or coating manufacturers' Technical Product Data Sheets, including application instructions, and paint colors available for each product used in the paint system. The required information shall be submitted on a SYSTEM-BY-SYSTEM basis; indiscriminate submittal of paint or coating manufacturer's literature ONLY will NOT be accepted.

1.06 ENVIRONMENTAL CONDITIONS

A. Paints and coatings shall not be applied in extreme heat, ambient temperatures below 40 degrees F., or relative humidity in excess of 90 percent, unless otherwise recommended by the paint or coating materials manufacturer, nor in dust, smoke-laden atmosphere, or damp weather.

1.07 DELIVERY, STORAGE AND HANDLING

A. All materials shall be delivered to the Project site in unopened containers that plainly show at the time of use the designated name, date of manufacture, color, and name of manufacturer. Paint and coating materials shall be stored in a suitable protected area that is heated or cooled as required to maintain temperatures within the range recommended by the paint or coating manufacturer.

B. Paint and coating material shall be kept sealed when not in use.

C. Store paint materials at minimum ambient temperature of 45 degrees F. and a maximum of 90 degrees F, in well ventilated area, unless required otherwise by manufacturers' instructions.

D. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.08 SAFETY

A. Painting shall be performed in strict accordance with the safety recommendations of the applicable paint or coating materials manufacturer; with the safety recommendations of the National Association of Corrosion Engineers contained in the publication "Manual for Painter Safety"; and with applicable Federal, State and local agencies having jurisdiction.

1.09 GUARANTEE

A. This Contractor shall provide a written guarantee against defects in materials and workmanship for a period of two (2) years from the date of Substantial Completion of the Project. Any defects occurring during this warranty period shall be repaired at no cost to the Owner. This guarantee shall include, but shall not be limited to, blistering, peeling, cracking, sagging, flaking, chalking, or alligatoring.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The use of a manufacturer's name and specification number is for the purpose of establishing the standard of quality and general configuration desired. Products of Pittsburgh Paint, Sherwin-Williams and ICI-Devoe, meeting the requirements specified herein, will be considered in accordance with SECTION 01600, MATERIALS AND EQUIPMENT.

2.02 FILM THICKNESS

A. Coverage is listed as either total minimum dry film thickness in mils (MDFT); or the spreading rate in square feet per gallon (SFPG). Per coat determinations are listed as MDFTPC or SFPGPC. **The number of coats is the minimum required irrespective of the coating thickness.**

Additional coats may be required to obtain the minimum required paint thickness, depending on method of application, differences in manufacturers' products, and atmospheric conditions. Maximum film build per coat shall not exceed the coating manufacturer's recommendations.

2.03 PAINT AND COATING MATERIALS

A. Accessory Materials: Shellac, turpentine, linseed oil, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, shall be commercial quality and as recommended by the manufacturer of the applicable paint or coating materials.

B. SEMI-GLOSS (SGL):

1. <u>SGL System - Veneer Plaster:</u>

a. One coat ICI-Devoe #50801 WONDER-TONES Vinyl Latex Primer-Sealer. 1.0 mil MDFT.

b. One finish coat ICI-Devoe #38XX WONDER-TONES Acrylic Latex Semi-Gloss Enamel. 2.0 mils MDFT.

2. SGL System - Unit Masonry and Cast-in-Place Concrete and Pre-Cast Concrete:

   a. One coat ICI-Devoe #52901 BLOXFIL Acrylic Latex Blockfiller. 5.5 mils MDFT.

   b. Two finish coats ICI-Devoe #38XX WONDER-TONES Acrylic Latex Semi-Gloss Enamel. 2.0 mils MDFTPC.

3. SGL System - Metal Not Requiring Gloss:

   a. One coat ICI-Devoe #13101 MIRROLAC Rust Penetrating Metal Primer applied over factory prime coat. 1.7 MDFT.

   b. INTERIOR - Two finish coats ICI-Devoe #26XX VELOUR Alkyd Semi-Gloss Enamel. 3.0 mils MDFTPC.

      EXTERIOR - Two coats finish #502XX TRIPLE-COVER Alkyd Semi-Gloss House & Trim Paint. 3.0 mils MDFTPC.

   c. **Tops and bottoms of doors to receive special attention.**

4. SGL System - Exposed Structural Steel and Miscellaneous Ferrous Metals:

   a. One coat ICI-Devoe #13101 MIRROLAC Rust Penetrating Metal Primer. (Touch up only where shop coat has been provided.) 1.7 MDFT.

   b. Two finish coats ICI-Devoe #23XX VELOUR Alkyd Eggshell Enamel. 2.2 mils MDFTPC.

C. GLOSS (GL):

1. GL System - Veneer Plaster:

   a. One coat ICI-Devoe #50801 WONDER-TONE Latex Primer Sealer. 1.0 mil MDFT.

   b. One finish coat ICI-Devoe Mirrolac WB Acrylic Gloss Enamel. 2.0 MDFT.

2. GL System - Unit Masonry and Cast-In-Place Concrete and Pre-Cast Concrete:

   a. One coat ICI-Devoe #52901 BLOXFIL Acrylic Latex Block Filler. 5.5 mils MDFT.

   b. Two finish coats ICI-Devoe Mirrolac WB Acrylic Gloss Enamel. 2.0 mils MDFTPC.

3. GL System - Galvanized Metals:

   a. One coat ICI-Devoe #13201 MIRROLAC Galvanized Metal Primer. 2.0 mils MDFT.

   b. Two finish coats ICI-Devoe #70XX MIRROLAC COVER UP Alkyd Urethane Gloss Enamel. 2.0 mils MDFTPC.

4. GL System Metal Doors, Frames, (Interior and Exterior) and Metal Building Frame:

   a. One coat ICI-Devoe #13101 MIRROLAC COVER UP Rust Penetrating Metal Primer. 1.7 mils MDFT.

   b. Two finish coats ICI-Devoe #70XX MIRROLAC COVER UP Alkyd Urethane Gloss Enamel. 2.0 mils MDFTPC.

5. GL System - Painted Wood:

   a. One coat ICI-Devoe #8801 VELOUR Alkyd Enamel Undercoat. 1.5 mils MDFT.

   b. Two finish coats ICI-Devoe #70XX MIRROLAC COVER UP Alkyd Urethane Gloss Enamel. 2.0 mils MDFTPC.

6. GL System - Roof Mounted Mechanical Equipment:

   a. One coat "Multiprime" Barrier Coat, 1.5 mils MDFT.

   b. Two finish coats ICI-Devoe #70XX MIRROLAC COVER UP Alkyd Urethane Gloss Enamel. 2.0 mils MDFTPC.

D. EPOXY PAINT (EP):

1. EP System - Veneer Plaster and Cement Plaster:

   a. One coat ICI-Devoe #50801 WONDER-TONE Vinyl Latex Primer-Sealer. 1.3 mils MDFT.

   b. Two finish coats ICI-Devoe #124XX TRU-GLAZE-4 Epoxy Semi-Gloss Coating. 3.0 MDFTPC.

2. EP System - Masonry and Cast-in-Place Concrete and Pre-Cast Concrete:

   a. One coat ICI-Devoe #52901 BLOXFIL Acrylic Latex Block Filler. 12.5 mils MDFT.

      On Pre-Cast Concrete, use ICI-Devoe #124XX TRU-GLAZE-4 Epoxy Gloss Coating as a primer, thinned 25% with ICI-Devoe #42300 T-66 Thinner, 12.5 mils MDFT.

b. Two finish coats ICI-Devoe #124XX TRU-GLAZE-4 Epoxy Gloss Coating. 3.0 MDFTPC.

c. Note total thickness required is 15.5 mils.

E. FLAT (F):

1. F System - Unit Masonry and Cast-in-Place Concrete and Precast Concrete:

a. One coat ICI-Devoe #52901 BLOXFIL Acrylic Latex Black Filler. 5.5 mils MDFT.

b. Two finish coats ICI-Devoe 36XX WONDER TONE Latex Flat Wall Paint. 2.0 mils MDFTPC.

F. TEXTURED COATING (TEX):

1. TEX System - Exterior Unit Masonry, Stucco and Concrete:

a. One coat #52901 BLOXFIL Acrylic Latex Block Filler. 5.5 mils MDFT.

b. Two finish coats ICI-Devoe #H58XX HYDROLASTIC Elastromeric Waterproofing Coating, Textured. Spary applied at spread rate per manufacturer's specifications for optimum coating. V.I.P. acceptable equal in matching 8000 Series.

G. NATURAL FINISH (NATL):

1. NATL System - Interior Wood Doors:

a. One coat ICI-Devoe #4900 WONDER WOODSEALER Quick Dry Wood Sealer, tinted per Architect's selection. Provide minimum of 3 samples, 0.9 mil MDFT.

b. Two finish coats ICI-Devoe #4600 WONDER WOODSTAIN Alkyd Satin Varnish. Lightly sand or steel wool between coats. 1.5 MDFTPC.

c. Finished doors shall be smooth to the touch, with a high satin sheen on all surfaces, including tops and bottoms.

H. STAIN AND VARNISH FINISH (S & V):

1. S & V System - Woodwork and Trim:

a. One coat #96XX WONDER WOODSTAIN Alkyd Interior Stain. 0.9 mils MDFT.

b. One coat ICI-Devoe #4900 WONDER WOODSEALER Quick Dry Wood Sealer. 1.0 mil MDFT.

c. Two finish coats ICI-Devoe #4600 WONDER WOODSTAIN Alkyd Satin Varnish. Lightly sand or steel wool between coats. 1.5 mils MDFTPC.

I. CONCRETE FLOORS (P.C.S. ON FINISH SCHEDULE)

1. Pittsburg Paints 3-510 series:

a. **Do not apply curing or hardening material where concrete floors are to be painted.**

b. Wash with 5% muratic acid. Allow to dry and sweep clean.

c. Prime Coat: First Coat reduced by 1 pint water per gallon.

d. Finish Coat: Minimum of 3.5 mils (wet).

e. Color: Dixie Gray 3-517.

2.04 COLORS

A. Color selections will be made by the Architect under provisions of SECTION 01300, SUBMITTALS.

B. Where more than one coat of a paint or coating material is applied within a given system, color shall be tinted slightly differently, but in the same hue as top coat to provide a visual reference that the required number of coats have been applied.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Beginning of paint and coating application means acceptance of surfaces.

3.02 PREPARATION

A. Remove electrical plates, hardware, light fixture trim, and fittings prior to preparing surfaces or finishing.

B. Correct minor defects and clean surfaces which affect work of this Section.

C. Shellac and seal marks which may bleed through surface finishes.

D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

E. Galvanized, Copper and Other Non-Ferrous Metal Surfaces: Remove surface contamination and oils and wash with solvent. No painting required of copper.

F. Cast-In-Place-Concrete, Stucco and Unit Masonry Surfaces: Concrete construction shall be completed and cured for at least 60 calendar days prior to beginning surface preparation. Unit masonry construction and stucco shall be completed and cured for at least 30 calendar days prior to beginning surface preparation. **Note acid wash required at painted concrete floors.**

Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

G. Veneer Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.

H. Uncoated Steel and Iron Surfaces: Remove grease, scale, dirt, and rust. Where heavy coatings of scale are evident, remove by wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned.

I. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.

J. Interior Wood Surfaces: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with shellac or other knot sealer. Fill nail holes and cracks after primer has dried with wood putty approved by the paint material manufacturer; sand between coats.

K. Wood and Metal Doors: Seal top and bottom edges with primer, prior to applying finish coats. **Tops and bottoms of doors to receive same finish as faces, prior to final hanging of doors.**

3.03 PROTECTION

A. Protect elements surrounding the work of this Section from damage or disfiguration.

B. Repair damage to other surfaces caused by work of this Section.

C. Furnish drop cloths, shields, and protective methods to prevent spray or droppings from disfiguring other surfaces.

D. Remove empty paint containers from site.

3.04 APPLICATION

A. General: Paint and coating manufacturers' printed instructions for applying each type of paint or coating shall be furnished prior to application. Apply all paints and coatings in strict accordance with the paint manufacturers' recommendations. Sufficient time shall be allowed between coats to assure thorough drying and/or curing of previously applied paint or coatings.

B. Damaged Coatings: Damaged coatings, pinholes, and holidays shall have the edges feathered and repaired in accordance with the recommendations of the paint manufacturer.

C. Unsatisfactory Application: If the item has an improper finish color, or insufficient film thickness, the surface shall be cleaned and top coated with the specified paint material to obtain the specified color and coverage. Specific surface preparation information to be secured from the paint or coating manufacturer. Work shall be free of runs, bridges, shiners, laps, or other imperfections. Evidence of these conditions shall be cause for rejection.

3.05 CLEANING

A. All cloths and waste that might constitute a fire hazard shall be placed in closed metal containers or destroyed at the end of each day.

B. Upon completion of the work, all staging, scaffolding, and containers shall be removed from the Project site. Paint spots, oil, or stains upon adjacent surfaces and floors shall be completely removed, and the entire job left clean and acceptable to the Architect.

END OF SECTION

SECTION 10176

TOILET PARTITIONS

PART 1 GENERAL

1.01 WORK INCLUDED: This Section covers the Work necessary to furnish and install, complete, the following:

A. Urinal Screens and related components.

1.02 GENERAL - NOT USED.

1.03 RELATED WORK SPECIFIED AND PERFORMED UNDER OTHER SECTIONS

A. SECTION 06100 - ROUGH CARPENTRY: Wood blocking.

B. SECTION 10800 - TOILET AND BATH ACCESSORIES.

C. DIVISION 15000 - PLUMBING.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of SECTION 01600, MATERIALS AND EQUIPMENT.

B. Deliver and store materials in manufacturer's original, unopened, undamaged containers.

C. Handle materials in such a manner as to prevent damage to products or finishes.

1.05 FIELD MEASUREMENTS

A. The Contractor shall verify all dimensions, shall make any field measurements necessary and shall be fully responsible for accuracy and layout of work. The Contractor shall review the Drawings and any discrepancies shall be reported to the Architect for clarification prior to starting fabrication.

1.06 WARRANTY

A. Provide a written guarantee against defects in materials and workmanship for a period of one year from the date of Substantial Completion of the Project. Any defects occurring during this warranty period shall be repaired at no cost to the Owner.

B. In addition, furnish the toilet partition manufacturer's standard 10-year warranty from the date of Substantial Completion of the Project.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. All components for the urinal screens as herein specified shall, for the purpose of establishing the standard of quality and general configuration desired, be as manufactured or supplied by Santana Products Company, Scranton, PA., Comtec Industries distributed by George P. Coyle & Sons, or Rockville Partitions Inc., Henagar, Alabama.

B. Like items of material or equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

C. Other manufacturers will be considered upon submittal of complete information, brochures and detailed specifications in accordance with SECTION 01600, MATERIALS AND EQUIPMENT, as a Post-Bid Substitution.

2.02 TYPES

A. Urinal Screens: Wall mounted with continuous stainless steel angle brackets each side, anchored at 8" O.C. maximum spacing with stainless steel fasteners.

B. Related parts as detailed. See Drawings.

C. Sizes and Configurations: As indicated on Drawings.

D. Fasteners: Stainless steel or chrome plate. **Plastic not acceptable.**

PART 3 EXECUTION

3.01 INSTALLATION

A. Erect in rigid and substantial manner, straight and plumb, and with all horizontal lines level, in accordance with approved Shop Drawings and manufacturer's printed instructions.

B. Clearances at the wall shall be maximum 1-inch for panels.

C. All drilling, cutting, and fitting to room finish shall be concealed in the finish work. **Coordinate wood blocking in stud walls with Rough Carpentry Section.**

3.02 CLEANING

A. Remove all protective masking and clean surfaces, leaving them free from scratches, soil and imperfections.

END OF SECTION

SECTION 10350

FLAGPOLE AND FLAG

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Ground-Set Flagpole.

B. Accessories.

C. U.S. Outdoor Flag.

1.02 GENERAL

A. See GENERAL and SUPPLEMENTARY GENERAL CONDITIONS and Division 1, GENERAL REQUIREMENTS, which contain information and requirements that apply to the Work specified herein and are mandatory for this Project.

1.03 REFERENCES

A. ASTM B 241/B 241M - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.

1.04 SYSTEM DESCRIPTION

A. Design Requirements:

1. Flagpole height: 25 feet.

2. Flag size:

a. National: 4' feet by 6' feet.

B. Performance Requirements:

1. Flagpole with flag flying: Resistant to 110 miles per hour wind velocity without permanent deformation.

1.05 SUBMITTALS

A. Submit under provisions of SECTION 01300.

B. Product Data: Manufacturer's descriptive literature for flagpole and flag including all components.

C. Shop Drawings: Indicate mounting details, flag material and size.

D. Selection Samples: Color chip representing manufacturer's finish as specified for flag pole.

E. Quality Assurance Submittals:

1. Design Data: Documentation of compliance to specified performance requirements, for the flagpole, bearing seal and signature of registered Professional Structural Engineer licensed to practice in the State of Florida.

2. Manufacturer's printed installation instructions for indicated project conditions.

F. Closeout Submittals:

1. Project record documents.

2. Operation and maintenance data for specified flagpole.

3. Warranty documents: Issued and executed by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Spiral wrap flagpole with protective covering and pack in protective shipping tubes or containers.

B. Protect flagpole and accessories from damage or moisture. Store on wood blocking off the ground and cover with Visqueen until set in place.

1.07 SCHEDULING

A. Ensure that anchoring devices are supplied to installers requiring them in time for building-in to substrates.

1.08 WARRANTY

A. Manufacturer's Warranty: Furnish flagpole manufacturer's standard warranty against defects in product workmanship and materials. Minimum of one year warranty from date of Substantial Completion required.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Approved Flag Pole Manufacturer: Concord Industries, Inc., located at: 4150 Kellway Cir. P. O. Box 2449 ; Addison, TX 75001-2449; Toll Free Tel: 800-527-3902; Tel: 972-380-8186; Fax: 800-426-5770; Email: jerry@flagpoles.com; Web: www.concordindustries.com

B. Approved Flag Manufacturer: U.S. Flag & Flagpole Supply;, 4355 W. Cardinal Drive, Beaumont, Texas 77705, Telephone No. 1-800-710-9892, Fax No. (409) 835-1181.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600 for Pre-Bid Substitutions. Submit request a minimum of 10 days prior to date of Bid Opening for proper evaluation.

2.02 GROUND SET FLAGPOLES

A. Approved Product: Concord Independence Concealed Halyard System.

B. Shaft:

1. Material: Seamless cone-tapered aluminum tubing conforming to ASTM B 241, Alloy 6063, Temper T6.

2. Finish: Polished to deep luster sheen; clear anodized finish conforming to AA M32-C22-A41.

C. Truck: Cast aluminum housing and spindle, internal halyard type, with 2-1/2 inches diameter plated sheave; revolving mounting, non-fouling.

D. Halyard:

1. Material: 1/8 inch diameter braided steel aircraft wire.

2. Hardware: Two chrome swivel-type flag snaps each set, spaced for specified flag sizes; stainless steel quick links attached to halyard ends, with connecting swivel; neoprene-coated counterweight, beaded nylon retainer ring.

E. Winch and Handle: Internal direct-drive, gearless type mounted on rotating plate; winch constructed of stainless steel, locking in any position upon removal of winch handle; single reinforced access opening and door with keylock, with access hole in door for winch handle.

F. Cleat: Internal-mounted at factory, cam-action with internal sheave; cast aluminum access door and frame with keylock.

2.03 FLAG

A. Flag shall be a United States outdoor flag, made of nylon, with sewn stripes and embroidered stars. The dimensions of the flag shall be 4' feet by 6' feet.

2.04 FLAG POLE ACCESSORIES

A. Ground Sleeve: Galvanized steel components as follows:

1. Foundation tube: Corrugated, 16 gage, diameter and length specified in manufacturer's descriptive literature for indicated flagpole height; centered on, and welded to face of base plate.

2. Base plate: Square, side dimensions 4 inches greater than inside dimension of foundation tube.

3. Ground spike: 3/4 inch diameter, 18 inches long; centered on, and welded to face of base plate opposite foundation tube attachment.

4. Setting plate: 6 inches square, with drilled hole at center for attachment to ground spike; welded perpendicular to length of ground spike 6 inches from base plate.

B. Shoebase Mounting Hardware:

1. Anchor base: Cast aluminum, heat-treated, drilled for anchor bolt diameter and pattern specified in manufacturer's descriptive literature for indicated flagpole height; sleeved over shaft butt and joined to shaft butt by continuous circumferential welds at outside top and inside bottom of base; entire assembly, including flagpole, heat-treated after attachment of shoebase casting.

2. Fasteners: Quantity, diameter, and length specified in Manufacturer's descriptive literature for indicated flagpole height; include anchor bolts, nuts and washers.

C. Flash collar: Manufacturer's standard spun aluminum flash collar, finish matching shaft; size specified in manufacturer's descriptive literature for indicated flagpole height.

D. Flash collar: Cast aluminum flash collar, finish to match flag pole; size specified in manufacturer's descriptive literature for indicated flagpole height.

2.05 MIXES

A. Concrete: Pea Gravel 3000 pounds per square inch compressive strength at 28 days.

B. Grout: Non-shrink; 5000 pounds per square inch compressive strength at 28 days.

2.06 FLAG POLE FABRICATION

A. Provide self-aligning internal sleeves for shafts fabricated in sections for field assembly. **Field-welded connections, including plug-welding, are not permitted.**

B. Fabricate end-to-end joints of shaft sections for hairline joint after connection; match mark and number shaft sections for field assembly.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Conditions: Anchoring devices are correct type, and in correct location, in accordance with approved Shop Drawings and manufacturer's instructions.

B. Installer's Examination:

1. Have installer of this section examine conditions under which construction activities of this section are to be performed and confirm conditions are acceptable.

2. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.02 INSTALLATION

A. Install flagpole components and accessories in accordance with approved Shop Drawings and manufacturer's installation instructions.

B. Ground Sleeve:

1. Excavate in undisturbed soil to indicated depth, width, and length, providing shoring for unstable soil conditions; remove non-soil materials from excavation.

2. Coat surface of ground sleeve assembly, and surfaces of shaft that will be installed below grade, with bituminous paint, minimum 5 mil dry film thickness (DFT).

3. Place ground sleeve assembly in excavation, locating as indicated; drive ground spike into undisturbed soil to extent that base plate is flush with bottom of excavation.

4. Place concrete in excavation immediately after mixing, using chute to deliver concrete to placement; surround ground sleeve with concrete, placing concrete to finish grade, and compacting with vibrators.

5. Slope concrete surface from top of ground sleeve to grade for water run-off to grade; screed concrete surface to smooth trowel finish.

6. Moist-cure concrete surface. **Allow concrete to attain full 28-day compressive strength before installing flagpole.**

C. Shoe Base:

1. Set base in grout bed of sufficient height that excess grout is displaced as anchoring and adjusting of flagpole progresses; align base hole pattern with anchor bolts and lower base to grout bed.

2. Anchor and align flagpole plumb; provide temporary bracing until grout attains full compressive strength.

3. Screed sight-exposed grout surfaces to 45-degree fillet, removing excess grout from substrate.

D. Flag:

1. Attach flag to completed flag pole and test for satisfactory halyard operation.

2. Turn flag over to Contractor for further transmittal to Owner at project Close Out.

END OF SECTION

SECTION 10425

ROOM SIGNS AND ROOM NUMBERS

PART 1 GENERAL

1.01 WORK INCLUDED: This Section covers the work necessary to furnish and install, complete the following:

A. Room signs and numbers.

1.02 GENERAL

A. See GENERAL and SUPPLEMENTARY GENERAL CONDITIONS and Division 1, GENERAL REQUIREMENTS, which contain information and requirements that apply to the Work specified herein and are mandatory for this Project.

1.03 RELATED WORK SPECIFIED AND PERFORMED UNDER OTHER SECTIONS:

A. SECTION 10900 - MISCELLANEOUS SPECIALTIES.

1.04 SUBMITTALS: Submittals during construction shall be made in accordance with SECTION 01300 - SUBMITTALS. In addition, the following specific information shall be provided:

A. Shop Drawings, Product Data and Samples: Prior to ordering, submit to the Architect / Owner of review, manufacturer's descriptions, installation data, applicable Shop Drawings, and other data pertinent to fabrication as required for all items specified herein.

1.05 DELIVERY, STORAGE AND HANDLING:

A. Deliver, store and handle materials or equipment under provisions of SECTION 01600 - MATERIAL AND EQUIPMENT.

B. Deliver and store materials in manufacturer's original, unopened, undamaged containers.

C. Handle materials in such a manner as to prevent damage to products or finishes.

1.06 WARRANTY:

A. Provide a written guarantee against defects in materials and workmanship for a period of one year from the date of Substantial Completion of the project Completion. Any defects occurring during this warranty period shall be repaired at no cost to the Owner.

B. In addition, furnish the applicable specialties manufacturers' standard warranty from the date of Substantial Completion of the project by the Owner.

PART 2 PRODUCTS

2.01 MANUFACTURERS:

A. The use of a manufacturer's name and specification number is for the purpose of establishing the standard of quality and general configuration desired. Products of other manufacturers, meeting the requirements specified herein, will be considered in accordance with the PRE-BID requirements of SECTION 01600 - MATERIAL AND EQUIPMENT.

1. Signs shall be equal in all respects to signs as manufactured by Commercial Signs & Graphics.

B. Like items of material or equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.02 DESCRIPTION:

A. Furnish and install plastic room designation signs for attachment adjacent to the latch side of doors. In general, all doors opening into all spaces which have been given names and numbers on the Drawings shall have one sign affixed next to them. The sign shall contain space number as indicated on Drawings.

B. Some spaces shall have an additional room name sign. Names and numbers shall be subject to modification at Shop Drawings stage. Signs shall be affixed to wall on the latch side, at 5' above Finish Floor.

C. Room number signs and room name signs shall be 1/8" thick plastic with 1" high letters, Sans Serif Upper Case. Braille characters using standard dot sizing and registered "Rastering" spacing shall be placed below the standard characters on the same plastic. All signage shall meet the requirements of the Americans with Disabilities Act (ADA).

D. Each restroom shall have a 6" x 6" pictorial handicapped symbol sign, in addition to a "Unisex" sign.

E. Specific number and designation of signs will be based on the floor plan. Shop Drawings indicating quantity and locations of signs shall be submitted to the Architect / Owner for review prior to ordering signs.

F. Materials:

1.	Base material:	ABS acrylic plastic, 1/8" thick.
2.	UV resistance:	Material to have UV fade resistance and deterioration factor from manufacturer.
3.	Graphic material:	ABS acrylic plastic
4.	Welding graphics:	to be cut out of .063 ABS plastic to within .020" tolerance of the rounded graphics.

G. Fabrication:

1.	Raised letters:	Graphics are to be computer cut with straight edges. Chamfer edge cut letters will not be acceptable. Graphics will be milled into the surface of the base material .041" to leave the required finished raised height of .032". Graphics are to be inset chemically welded to the base plate. All graphics are to be computer aligned, no visual alignment will be acceptable. **No surface welded letters will be acceptable.** Stroke tolerances between the positive and the negative images will be no more than .002".
2.	Edges:	Square, straight, smooth with no saw marks.
3.	Corners:	Square with edges straight and free from saw marks.
4.	Mounting:	Theft resistant screws (minimum of two) and silastic adhesive.
5.	Colors:	Base color shall be selected from full range of manufacturer's standard colors. Graphics: White

END OF SECTION

SECTION 10521

FIRE AND SAFETY EQUIPMENT

PART 1 GENERAL

1.01 WORK INCLUDED: This Section covers the Work necessary to furnish and install, complete, the following:

A. All fire extinguishers and mounting brackets shall be furnished and installed by the Contractor.

1.02 RELATED WORK SPECIFIED AND PERFORMED UNDER OTHER SECTIONS

A. SECTION 06100 - ROUGH CARPENTRY: Concealed blocking and anchorage framing.

B. SECTION 10900 - MISCELLANEOUS SPECIALTIES.

1.03 REFERENCES

A. Manufacturer's recommendations, specifications and installation instructions.

B. Florida Fire Prevention Code, 2004 edition, NFPA standard.

C. Underwriters' Laboratories (UL): "Fire Protection Equipment List".

1.04 SUBMITTALS: Submittals during construction shall be made in accordance with SECTION 01300, SUBMITTALS. In addition, the following specific information shall be provided:

A. Manufacturer's Literature: Catalog data for each item.

B. Shop Drawings: Shop Drawings as required for backing and preparation for built-in items.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of SECTION 01600, MATERIALS AND EQUIPMENT.

1.06 WARRANTY

A. Provide a written guarantee against defects in materials and workmanship for a period of one year from the date of Substantial Completion of the Project. Any defects occurring during this warranty period shall be repaired at no cost to the Owner.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The use of a manufacturer's name and specification number is for the purpose of establishing the standard of quality and general configuration desired. Products of other manufacturers, meeting the requirements specified herein, will be considered in accordance with SECTION 01600, MATERIALS AND EQUIPMENT.

B. Like items of material or equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.02 GENERAL

A. Provide and install Portable Fire Extinguishers where specifically scheduled and/or indicated on the Drawings. Refer to Life Safety Plan. **All fire extinguishers shall be tagged in the month of Substantial Completion.**

2.03 PORTABLE FIRE EXTINGUISHERS

A. All fire extinguisher units and brackets for extinguishers shall be provided and installed by the Contractor.

B. Type FE-1 shall be 2A10BC (10 lbs.), bracket mounted.

C. Type FE-2 shall be 2A20BC (20 lbs.), bracket mounted. Refer to Sheet LS-1, LIFE SAFETY PLAN for the location, type and quantity of Fire Extinguishers required.

2.04 ACCEPTABLE MANUFACTURERS: The following manufacturers are acceptable subject to providing products equal to that specified:

A. J.L. Industries, Bloomington, MN

B. Potter-Roemer, Inc., Cerritos, CA

C. Larsen's Fire Protection and Safety Equipment, Ft. Lauderdale, FL

D. Modern Metal Products, Owatonna, MN

2.05 BLOCKING AND FASTENERS

A. Provide 2 x 8 wood blocking in stud walls for anchorage.

B. Provide necessary stainless steel screws, bolts, and other fasteners of suitable type and size to secure items of fire and safety equipment in position. Provide metal expansion shields for machine screws at concrete and masonry.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturers' printed instructions applicable references at locations shown on Drawings. Equipment shall be plumb and level.

END OF SECTION

SECTION 10800

TOILET AND BATH ACCESSORIES

PART 1 GENERAL

1.01 WORK INCLUDED: This Section covers the Work furnished and installed by the Contractor as follows:

A. Toilet and Bath accessories as scheduled herein, and/or as shown on the Drawings. Should there be a conflict between Schedules and Drawings, provide all accessories shown in either, to carry out the intent of the Documents at no additional cost to the Owner.

B. Attachment hardware.

1.02 RELATED WORK SPECIFIED AND PERFORMED UNDER OTHER SECTIONS

A. SECTION 05401 - COLD FORMED METAL STUD FRAMING.

B. SECTION 06100 – ROUGH CARPENTRY: Concealed blocking and anchorage framing.

C. SECTION 09215 - VENEER PLASTER SYSTEM.

D. SECTION 09300 - HARD TILE: Ceramic accessories.

1.03 REFERENCES

A. ACCESSIBILITY REQUIREMENTS MANUAL Latest Edition, promulgated by Dept. of Community Affairs, Florida Board of Building Codes and Standards.

B. Americans with Disabilities Act (A.D.A.) - Specifications for Making Buildings and Facilities Accessible To and Usable by Physically Handicapped People.

C. Florida Building Code 2004 Edition and 2005 and 2006 Supplements.

1.04 SUBMITTALS: Submittals during construction shall be made by the Contractor in accordance with the Specifications. In addition, the following specific information shall be provided by the Contractor to the Architect:

A. Provide product data on accessories specified herein describing size, finish, details of function, attachment methods.

B. Submit manufacturer's installation instructions for accessories specified herein.

1.05 KEYING

A. Supply two (2) keys for each lockable accessory to Owner. Obtain signed receipt.

1.06 SEQUENCING AND SCHEDULING

A. Contractor shall coordinate the Work of this Section with the placement of wood blocking in stud walls and other items and finish materials.

1.07 DELIVERY, STORAGE AND HANDLING

A. Contractor to store and handle materials or equipment under provisions of the Specifications.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. All accessories as herein specified shall, for the purpose of establishing the standard of quality and general configuration desired, be as manufactured or supplied by Bobrick Washroom Equipment. Products of other manufacturers, meeting the requirements specified herein, will be considered for approval by the Architect per SECTION 01600, MATERIAL & EQUIPMENT, as a Post-Bid Substitution.

B. Like items of material or equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.02 MATERIALS

A. Stainless Steel Sheet: ASTM A167, Type 304; No. 4 satin luster.

B. Fasteners, Screws, and Bolts: Stainless steel, ASTM A 193, Type 304.

C. Anchors: As specified in SECTION 05500, METAL FABRICATIONS, except as otherwise specified herein for "mounting kits". Plastic anchors in C.M.U. walls will not be acceptable.

PART 3 PREPARATION

3.01 EXAMINATION

A. Contractor shall verify that site conditions are ready to receive work and dimensions are as instructed by the manufacturer.

B. Beginning of installation means acceptance of substrate.

3.02 PREPARATION

A. Deliver inserts and rough-in frames, where applicable, to site at appropriate time for building-in.

B. Provide templates and rough-in measurements as required to accomplish the installation of the items in this Section.

C. Verify exact location of accessories for installation with the Architect prior to installing. Field adjust locations as necessary.

3.03 INSTALLATION

A. Provide wood blocking securely attached to studs for anchorage of accessories.

B. Contractor shall provide and install fixtures, accessories and items in accordance with manufacturers' instructions.

C. Install plumb and level, securely and rigidly anchored to blocking or substrate.

3.04 SCHEDULE OF ACCESSORY ITEMS - Note: provide items to be furnished and installed by Contractor listed in each location, whether or not shown on the Drawings.

A. TOILET PAPER HOLDER (T.P.H.): Bobrick No. B-B-274 (Double roll) with controlled delivery. Owner furnished and Contractor installed one per water closet.

B. SURFACE-MOUNTED PAPER TOWEL DISPENSER (P.T.D.): Bobrick No. B-262. Owner furnished and Contractor installed one per each lavatory and each sink. (Single fold)

C. SOAP DISPENSER (S.D.): Bobrick No. B-112. Owner furnished and Contractor installed one per lavatory or sink.

D. GRAB BAR (G.B. 42"): Bobrick No. B-6206 x 42 with No. 2521-3 mounting kit. Furnished and installed by Contractor.

E. GRAB BAR (G.B. 36"): Bobrick No. B-6206 x 36 with No. 2521-3 mounting kit. Furnished and installed by Contractor.

F. GRAB BAR (G.B.): Provide 1-1/2" o.d. length and configuration as required with concealed mounting, size and shape as indicated on the Drawings. Provide with mounting kits, as applicable. Submit Shop Drawings.

G. MIRRORS: Bobrick No. 290 18" x 30". Furnish and install over all lavatories in conformance with hazardous location requirements of paragraph 5-5.14(2) 1.6 FAC 6.2.

H. SANITARY NAPKIN RECEPTOR: (S.N.R.): Bobrick No. B-270. Furnish and install at water closets in all Unisex and female restrooms.

I. SHELF AND MOP HOLDER: Furnished and installed by Contractor. Bobrick No. B-239 or equal. 34" long, stainless steel shelf, 3 mop holders and four rag holders. Provide one in each Custodial Room.

END OF SECTION

SECTION 10900

MISCELLANEOUS SPECIALTIES

PART 1 GENERAL

1.01 WORK INCLUDED: This Section covers the Work necessary to furnish and install, complete, the following:

A. Painted Signage.

B. Building Plaque.

C. Washer and Dryer.

D. Refrigerator.

E. Electric Range.

F. Shower.

1.02 RELATED WORK SPECIFIED AND PERFORMED UNDER OTHER SECTIONS

A. SECTION 06100 - ROUGH CARPENTRY- Wood blocking.

B. SECTION 06200 - FINISH CARPENTRY.

C. SECTION 10425 - ROOM SIGNS AND ROOM NUMBERS.

D. DIVISION 15000 - MECHANICAL.

E. DIVISION 16000 - ELECTRICAL.

1.03 SUBMITTALS: Submittals during construction shall be made in accordance with SECTION 01300, SUBMITTALS. In addition, the following specific information shall be provided:

A. Shop Drawings, Product Data and Samples: Prior to ordering, submit to the Architect for review, manufacturers' descriptions, installation data, color charts, applicable Shop Drawings, and other data pertinent to manufacture or fabrication as required for all items specified herein.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of SECTION 01600, MATERIAL AND EQUIPMENT.

B. Deliver and store materials in manufacturers' original, unopened, undamaged containers. Handle materials in such a manner as to prevent damage to products or finishes.

1.05 WARRANTY

A. The Contractor shall provide a written guarantee against defects in materials and workmanship for a period of one year from the date of Substantial Completion of the Project. Any defects occurring during this warranty period shall be repaired or replaced at no cost to the Owner.

B. In addition, provide the specific manufacturer's warranty on each item of equipment specified in this Section.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The use of a manufacturer's name and specification number is for the purpose of establishing the standard of quality and general configuration desired. Products of other manufacturers, meeting the requirements of each item specified herein, will be considered in accordance with the PRE-BID requirements in SECTION 01600, MATERIAL AND EQUIPMENT.

B. Like items of material or equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.02 SPECIALTIES

A. PAINTED SIGNAGE:

1. Provide stencils and red paint for stenciling "FIRE AND SMOKE BARRIER PROTECT ALL OPENINGS" in 4" high letters on **both sides** of walls above ceilings of walls designated as a Fire Rated wall. Stencil signs shall be spaced at a maximum of 4'-0" O.C.

B. BUILDING PLAQUE:

1. Provide and install where directed by Architect, one (1) bronze tablet approximately 24-inches by 30-inches in size. Plaque shall be furnished and mounted with manufacturer's standard concealed fasteners. The tablet shall be not less than 1/4-inch in thickness, and shall have lettering and trim raised not less than 1/8 inch. Equal to A.R.K. Ramos, or the Southwell Co.

2. The face and edge of the border and the faces of lettering shall be standard. Background shall have a standard bronze pebble finish.

3. The outlines of all lettering and borders shall be hand-tooled, clean, and sharp. The style of lettering shall be Times Roman Style. **The form of the inscription on tablet is furnished at the end of this Section.** Furnish full-size "rubbing" of plaque for review by Architect prior to casting.

C. WASHER AND CLOTHES DRYER:

1. WASHER: Furnish and install a washer equal in all respects to Whirlpool® Super Capacity Plus Washer, Model #WTW5500ST, with the following features:

   a. Total Capacity - 3.20 (cubic feet).

   b. Four wash/spin speed combinations.

   c. 10 automatic wash cycles.

   d. Four wash/rinse temperatures.

   e. Four Water Levels.

   f. Color: White.

   g. Depth - 25 1/2 in.
   Height - 42 1/2 in.
   Width - 26 7/8 in.

   h. Amps/Volts/Hertz - 20 A, 120V, 60Hz. Grounded circuit is required. Coordinate with Electrical.

2. CLOTHES DRYER: Furnish and install a clothes dryer equal in all respects to Whirlpool® Super Capacity Electric Dryer, Model #WED5500ST, with the following features:

   a. 6.5 cu. ft. extra-large capacity.

   b. Four heat selections.

   c. Seven automatic dry cycles.

   d. Interior Dryer Light.

   e. Color: White.

   f. Depth with Door Open - 50-9/16 in.
   Depth - 27 13/16 in.
   Maximum Height – 43 in.
   Height - 36 in.
   Width - 29 in.

   g. Amps/Volts/Hertz - 30A, 120/208V: compatible, 60Hz. Use copper wire only. Coordinate with Electrical. Provide pigtail plug coordinated with receptacle.

3. Coordinate water supply (hot and cold) and drain for washer with Plumbing Drawings and Specifications. Coordinate Electrical connections for washer and dryer with Electrical Drawings and Specifications.

D. REFRIGERATOR:

1. Furnish and install one refrigerator equal in all respects to Whirlpool® 18.2 cu. ft. Top Mount Refrigerator, Model No. ET8CHEXST, two door refrigerator with separate top freezer and ice maker.

2. 20 Amps/115 Volts/60Hz

Capacity	18.2 c.f.
Dimensions	66-1/4 in H x 29-1/2 in W x 31-3/8 in D
Defrost Type	Frost-Free
Body Color	White
Door Color	White
Door Swing	Reversible Hinges

3. Provide with the following features:
   Clear crispers
   Gallon door storage
   Removable freezer shelf
   Automatic Icemaker

4. Coordinate electrical and plumbing for water supply to ice maker.

E. ELECTRIC RANGE:

1. Furnish and install a range/oven equal in all respects to Whirlpool® 30 in., Self-Cleaning Freestanding Electric Ceramic Glass Range, Model #RF262LXST, with the following features:

   a. Total Capacity - 4.8 (cubic feet)

   b. Self-Cleaning Oven
      Balanced Bake™ System
      (2) 6-Inch (1,200 Watt) Radiant Elements
      (2) 9-Inch (2,500 Watt) Radiant Elements
      Ceramic Glass CleanTop® Surface System
      1-Piece Steel Console
      EZ-Touch™ 95 Electronic Controls
      Control Lockout Function
      Hot Surface Indicator Light
      Cooktop On Indicator Light
      Custom Broil
      Full-Width Removable Glass Door
      Extra-Large EasyView™ Window
      2 Adjustable Oven Racks
      5 Rack Guide Positions
      Automatic Oven Light
      Full-Width Storage Drawer
      Glass Door Style
      Flush with Cabinet Design
      Freestanding Installation Design
      Extra Large Window Size

c. Color: White.

d. Depth - 27 1/8 in.
Height - 46 7/8 in.
Width – 29 7/8 in.

e. Amps/Volts/Hertz – 40A, 120/208V: compatible, 60 Hz. Use copper wire only. Coordinate with Electrical Documents. Provide pigtail plug to match receptacle.

F. FIBERGLASS SHOWER STALL:

1. Furnish and install complete a fiberglass shower stall, equal in all respects to Lasco® Bathware, Inc., Model No. 1363-CNT, www.lascobathware.com.

2. The shower stall shall be 36"W x 36"D x 78"H, with a white Lascoat Gelcoat finish, Fiberglass Reinforced Polyester coating.

3. Provide wood blocking in stud walls as required to provide solid backing for shower stall.

4. Coordinate with plumbing rough-in as to height and location of shower head and faucet(s), etc.

PART 3 EXECUTION

3.01 INSTALLATION

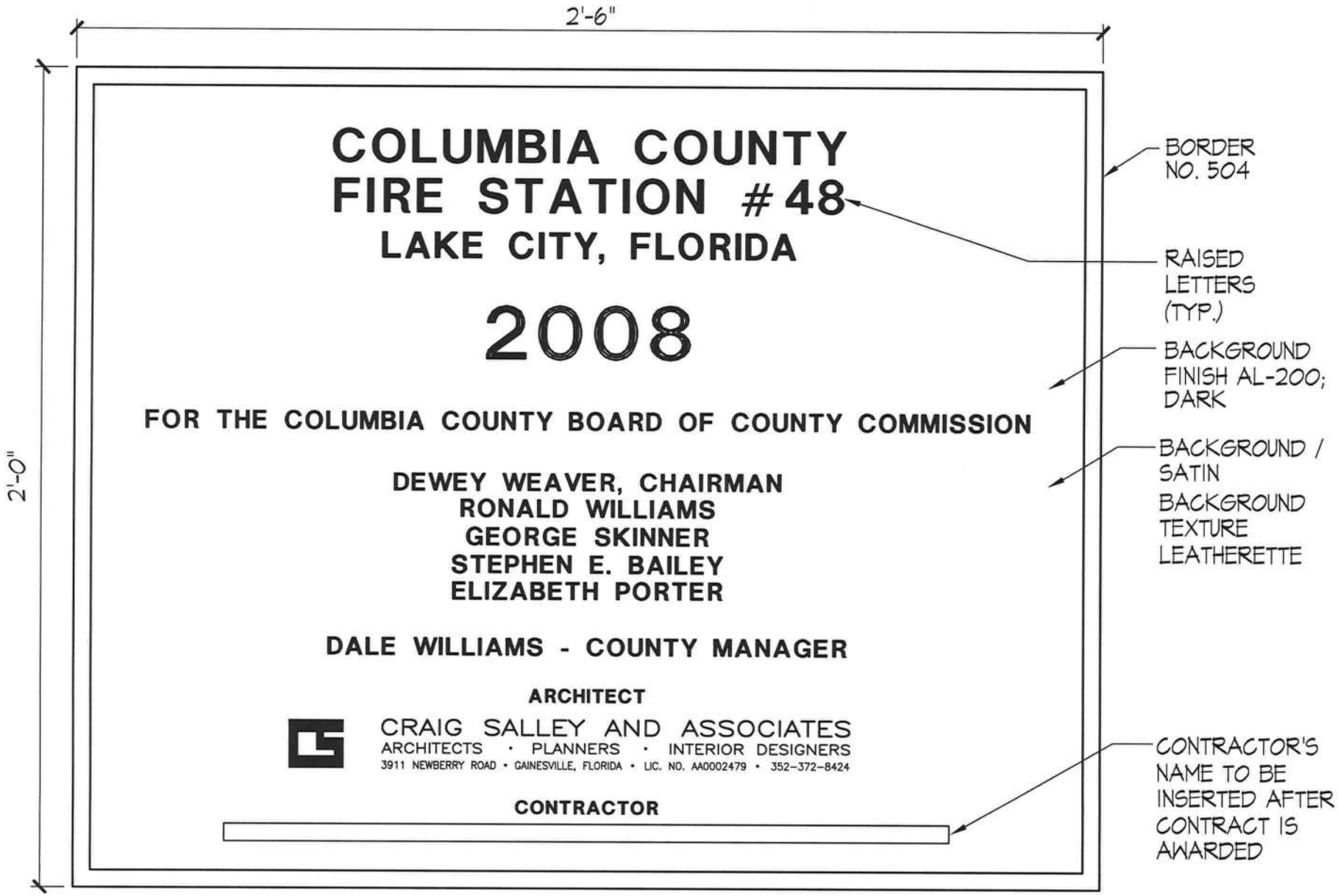
A. Coordinate with Electrical and Mechanical Divisions of the work at all locations where items in this Section are to be installed. Coordinate the plug and receptacle on all equipment furnished in this Section. **The use of plastic "plug" type anchors is strictly prohibited for anchorage of items.**

B. Install miscellaneous specialties as shown and in accordance with the manufacturers' recommendations and printed instructions. Prior to the installation of the specialties, consult with the Architect so that minor adjustments in the locations can be decided, as required.

C. Install materials plumb or level as applicable and attach securely to the adjacent materials with suitable fasteners. Prevent scratching or damaging adjacent materials during the installation.

END OF SECTION

SEE FOLLOWING PAGE FOR BUILDING PLAQUE LAYOUT


2'-6"
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COLUMBIA COUNTY
FIRE STATION #48
LAKE CITY, FLORIDA
2008
FOR THE COLUMBIA COUNTY BOARD OF COUNTY COMMISSION
DEWEY WEAVER, CHAIRMAN
RONALD WILLIAMS
GEORGE SKINNER
STEPHEN E. BAILEY
ELIZABETH PORTER
DALE WILLIAMS - COUNTY MANAGER
ARCHITECT
CRAIG SALLEY AND ASSOCIATES
ARCHITECTS · PLANNERS · INTERIOR DESIGNERS
3911 NEWBERRY ROAD · GAINESVILLE, FLORIDA · LIC. NO. AA0002479 · 352-372-8424
CONTRACTOR
BORDER NO. 504
RAISED LETTERS (TYP.)
BACKGROUND FINISH AL-200; DARK
BACKGROUND / SATIN BACKGROUND TEXTURE LEATHERETTE
CONTRACTOR'S NAME TO BE INSERTED AFTER CONTRACT IS AWARDED

PLAQUE

N.T.S.

SECTION 12500

WINDOW TREATMENT

PART 1 GENERAL

1.01 WORK INCLUDED: This Section covers the Work necessary to furnish and install, complete, the following:

A. Window blinds at all exterior windows.

B. Spanning a window blind unit to cover more than one window unit will NOT be accepted.

1.02 GENERAL

A. See GENERAL and SUPPLEMENTARY GENERAL CONDITIONS and Division 1, GENERAL REQUIREMENTS, which contain information and requirements that apply to the Work specified herein and are mandatory for this Project.

1.03 RELATED WORK SPECIFIED AND PERFORMED UNDER OTHER SECTIONS

A. SECTION 08411 - ALUMINUM STOREFRONTS.

1.04 QUALITY ASSURANCE

A. Window Blinds Installer: Shall be regularly engaged in the installation of window blinds and shall have previous experience within the last two (2) years on projects similar in scope. Upon request, submit evidence of qualification compliance with complete references.

1.05 SUBMITTALS: Submittals during construction shall be made in accordance with procedures specified in Section 01300, SUBMITTALS. In addition, the following specific information shall be provided:

A. Shop Drawings: Submit shop drawings showing details of installation including attachments and clearances of operating hardware with other construction, size and other pertinent information as may be required.

B. Manufacturer's Literature: The Contractor shall submit manufacturer's written instructions for the care, repair, and cleaning of all components provided in the work. Include a detailed list of hardware parts identified by manufacturer's catalog numbers and diagrams of installation methods. Submit color range chart for selection by the Architect.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of Section 01600, MATERIAL AND EQUIPMENT.

1.07 FIELD MEASUREMENTS

A. The Contractor shall verify all dimensions, shall make any field measurements necessary and shall be fully responsible for accuracy and layout of work. The Contractor shall review the Drawings and any discrepancies shall be reported to the Architect for clarification prior to starting fabrication, application or installation.

1.08 GUARANTEE

A. Provide a written guarantee against defects in materials and workmanship for a period of one year from the date of Substantial Completion of the Project. Any defects occurring during this warranty period shall be repaired at no cost to the Owner.

B. In addition, furnish the window blinds manufacturer's standard warranty from the date of Substantial Completion of the Project.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Window Blinds Manufacturers:

1. Riviera Blinds as manufactured by Levolor Lorentzen, Inc., Parsippany, NJ 07054.

2. Finelines Blinds as manufactured by Graber, Middleton, WI 53562;

3. 1-inch Blinds as furnished by Hunter Douglas, Inc., Upper Saddle River, NJ 07458.

4. Perfection in Blinds, Miami, Florida.

B. Products of other manufacturers, meeting the requirements specified herein, will be considered in accordance with Section 01600, MATERIAL AND EQUIPMENT for Post-Bid Substitutions.

C. Like items of material or equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

D. The tabulation of items herein is not intended to be all inclusive, and it shall be the Contractor's responsibility to provide all components of the window blinds or which can be reasonably inferred as necessary to complete this Project.

2.02 DESCRIPTION

A. Window blinds shall have 1-inch wide aluminum horizontal slats supported by braided ladders. All hardware shall be enclosed in a metal head.

B. All operating hardware shall be machine clinched to head to assure perfect alignment. It shall be possible to tilt the slats to any horizontal angle by turning the wand. **Provide wands at high windows long enough to extend to within 6'-0" of the Finish Floor.**

C. Slat supports shall be braided of polyester yarn, the vertical component of which shall be not less than 0.045-inch diameter nor greater than 0.068-inch diameter for maximum strength and flexibility with minimum stretch. Braided ladders shall support slats parallel and straight to assure proper tilt control and adequate overlap of slats. There shall be about 15 rungs per foot of ladder equally spaced at 0.788-inch intervals. Distance between ladders shall not exceed 21 inches. The horizontal component of rungs shall consist of not less than four cables interbraided with the vertical components.

D. Slats shall be virgin aluminum alloyed for maximum strength, flexibility and resistance to internal and external corrosion. The slats shall be 1" 8 gauge minimum. Color shall be as selected by the Architect.

E. The head shall be 0.025-inch thick steel U-shaped. The bottom rail shall be 0.031-inch thick steel. Both head and bottom rail shall have a baked on coating cured at high temperature and shall be formed after coating.

F. Lift cord shall be braided of high strength synthetic fibers to provide minimum stretch and maximum strength and flexibility.

PART 3 EXECUTION

3.01 DEFINITIONS

A. Window Unit: Head frame to sill frame and jamb frame to jamb frame or jamb frame to vertical mullion frame or vertical mullion frame to vertical mullion frame.

3.02 WINDOW BLINDS MOUNTING

A. Window Unit: Surface-mount window blinds head to underside of building substrate at window unit head. If not feasible, subject to Architect's review, surface mount window blinds head to window unit head frame.

3.03 COORDINATION

A. Verify field measurements of openings to receive blinds and provide systems in coordination with work of other trades. Delay installation work until all other finish work in spaces is complete.

3.04 INSTALLATION

A. Install the hardware in accordance with the mounting requirements specified hereinbefore and with the window blinds manufacturer's written instructions. Install in accurate locations, make plumb, true to line, complete with all accessories required for satisfactory operation. Attach using approved type of fasteners so as to be rigid and secure in accordance with best trade practice, taking care to prevent cracking, marring, or other damage to adjacent finished surfaces.

3.05 TESTING AND CLEANING

A. After installation of all window blinds, test and adjust each installation.

B. Leave installation in a clean and dust-free condition.

END OF SECTION

SECTION 13120

PREFABRICATED METAL BUILDING

PART 1 GENERAL

1.01 WORK INCLUDED: This Section covers the Work necessary to furnish and install, complete, the following:

A. Provide all operations, labor, tools, equipment, services and materials necessary to design, furnish, deliver, and erect all of the pre-engineered metal building systems, standing seam metal roofing and siding, fascia, canopies, gutters and downspouts as indicated on the Contract Drawings or required for a complete installation, in accordance with these specifications and the Contract Drawings.

B. The materials furnished shall also include, but not be limited to, all primary and secondary structural framing, purlins, girts, eave struts, canopy braces, column base plates, accessories, and bracing **as required for the 140 M.P.H. Wind Load required.**

C. The building manufacturer shall interface his work with all other trades of the contract indicated on the Contract Drawings and noted herein.

D. The building manufacturer shall be responsible to perform design calculations for all building structural members inclusive of all base plates, and wind beam bracing. **Note that X-bracing is not permitted for this building except in the roof plane.** Delegation of any design responsibilities to an Engineer not directly employed by the building manufacturer is unacceptable.

E. The Contractor shall submit a copy of this specification and the applicable Contract Drawings to the building manufacturer for use in preparation of the manufacturer's Shop Drawings submittal. Failure by the Contractor to comply with this requirement will be sufficient cause for the Architect to reject the submittal.

1.02 GENERAL

A. See GENERAL and SUPPLEMENTARY GENERAL CONDITIONS and Division 1, GENERAL REQUIREMENTS, which contain information and requirements that apply to the Work specified herein and are mandatory for this Project.

1.03 RELATED WORK SPECIFIED AND PERFORMED UNDER OTHER SECTIONS

A. SECTION 03200 – CONCRETE REINFORCEMENT.

B. SECTION 03300 - CONCRETE.

C. SECTION 09900 - PAINTING.

1.04 QUALITY ASSURANCE

A. The building shall be the design of a manufacturer regularly engaged in the design and fabrication of prefabricated metal buildings conforming to the Florida Building Code, 2004 Edition and 2005 and 2006 Supplements.

B. The general design of the building shall be rigid frame with column locations as indicated. The building to be furnished shall be compatible with the architectural, foundation and structural details shown on the Contract Drawings. The bracing system design shall not transmit any moment to the foundations.

C. Cross-bracing may be used in any roof plane only when fully coordinated with all other building functions and mechanical / electrical items to be installed below the roof.

D. Lateral Deflection of Frames in the direction of their span shall be limited to h/60. **Cross-bracing may not be used for lateral bracing of the prefabricated metal building frame. Lateral bracing, if required, shall be through the use of portal frames.** If additional angle bracing for lateral supports is required, Contractor shall increase the gauge of the purlins as required to meet the lateral bracing requirements per ASCE 7-05 Wind Loading of 140 MPH, Building Importance Factor of 1.15.

E. All structural steel sections and welded plate members shall be designed in accordance with the latest edition of the AISC "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings." **Tapered flange columns are acceptable, provided the base of the columns do not exceed 24" in depth at the bearing plate.**

F. All cold-formed structural members and exterior coverings shall be designed in accordance with the latest edition of the AISI, "Specifications for the Design of Cold-Formed Steel Structural Members." Lateral bracing for wind uplift and gravity load condition shall be included in the design and clearly detailed. The standing seam metal deck does not provide lateral bracing of the purlin top flange.

G. All primary framing members shall be shop welded and field bolted assembly.

H. Design primary and secondary members and exterior covering for applicable loads and combination of loads in accordance with MBMA "Recommended Design Practices Manual." **The design wind loads shall be per A.S.C.E. 7-05, for 140 MPH wind velocities, factor of 1.15 exposure category "B".**

1.05 SUBMITTALS: Submittals during construction shall be made in accordance with procedures specified in Section 01300, SUBMITTALS. In addition, the following specific information shall be provided:

A. Calculations: The building manufacturer shall perform complete design calculations for all building structural members inclusive of suspended items as indicated on the Drawings.

1. The calculations shall clearly indicate the design codes used in the design of the pre-engineered building, as well as the applicable dead, live, and wind loads, section properties for all structural members utilized, and ultimate and allowable material stresses. The calculations shall illustrate all controlling loading design cases utilizing free body diagrams showing all applied loads, reactions, moments, shears and any other pertinent data. Design cases which do not control shall be included but, need not be shown in diagram form. **All calculations shall bear the signature and seal of a Professional Structural Engineer registered to practice in the State of Florida.**

B. Shop/Erection Drawings: The building manufacturer shall furnish an anchor bolt setting plan drawing showing anchor bolt settings for all anchor bolts. The anchor bolt setting plan drawing shall clearly indicate the design codes used in the pre-engineered building design and the applicable dead, live, and wind load building reactions, including moments, at all anchor bolts.

1. The building manufacturer shall furnish complete shop/erection drawings showing base plate details, sidewall, endwall and roof framing inclusive of all necessary bracing, transverse cross sections, covering and flashing details and accessory installation details to clearly indicate the proper assembly and interfacing with other systems of all building parts. All drawing shall be of sufficient detail to depict the proper assembly of all furnished building components as specified heretofore. **All drawings shall bear the seal of a Professional Structural Engineer registered to practice in the State of Florida.**

2. Location and type of fasteners. Show provisions for thermal movement.

3. Details of structural conditions, joints, supports, and related items. Distinguish between factory and field assembly work.

4. All other items pertinent to fabrication and installation of the complete system specified herein.

C. Design Calculations: Submit design calculations for wind load requirements specified herein specifically for this project (per ASCE 7-05, Wind Speed 140 MPH; Building Importance Factor 1.15), prepared under the direction of and signed, dated and sealed by a Florida Registered Structural Engineer. The indiscriminate submittal of general structural calculations that have not been specifically prepared for this project will be rejected.

D. Calculations showing compliance with negative pressures must be submitted for approval, signed, dated and sealed by a Structural Engineer registered in the State of Florida. The calculations showing compliance with wind pressure must be based on the ASCE Code outlined above.

E. Manufacturer's Literature: Submit manufacturer's technical literature for each component of the metal wall panel system. Manufacturer's literature shall be clearly marked for each proposed item; indiscriminate submittal of **unmarked literature will NOT be accepted.** Include performance data on panels, anchor clips and all fasteners proposed for use.

F. Samples of warranties for wall panels conforming to requirements are stipulated in this Section. See Warranty Forms at the end of this Section. Upon completion and acceptance of the Work required by this Section, submit executed copies of the warranties in accordance with requirements of this Section and SECTION 01700, CONTRACT COMPLETION AND CLOSEOUT.

G. Erector's Affidavit: Submit Erector's affidavit of qualification compliance with complete references.

1.06 REFERENCES

A. MBMA - Metal Building Systems Manual.

B. AISI - Specification for the Design of Cold Formed Steel Structural Members.

C. AWS D1.1 - Standard Welding Code.

D. AISC - Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings.

E. ASTM Standards and Test Procedures as referenced herein.

F. Federal Specifications as referenced herein.

1.07 GUARANTEE

A. The preformed standing seam roof and siding manufacturer shall guarantee in writing that for a period of twenty (20) years from the date of the Substantial Completion there will be no perforation or structural failure of the roofing or siding sheets. The panel manufacturer shall also guarantee that for a period of 5 years from Substantial Completion the finish color coating:

1. WILL NOT chalk in excess of ASTM D-659-74 number eight rating. Chalk rating shall be determined by the procedure outlined in ASTM D-659-44 specification test.

2. WILL NOT change color more than five (5) NBS units as determined in accordance with ASTM D-2244-78. When a complaint is received that a change greater than five (5) NBS units has occurred, a technically responsible manufacturer's representative shall inspect the alleged failure, with the original color control and a five (5) NBS color change standard.

    a. After cleaning of the in-place panel according to procedures selected by the manufacturer, these standards shall be used to determine the extent of fading by visual means at the job site.

3. WILL NOT crack, check or peel (lost adhesion).

B. The preformed standing seam roof and siding manufacturer shall further guarantee, in writing, against:

1. Galvanized steel substrate cracks.

2. Inherent structural defects (perforation or structural failure) of roofing sheets.

3. Corrosion perforation caused by normal atmospheric conditions.

C. The manufacturer shall furnish the Owner a written 10 year guarantee that materials and workmanship for watertightness and weathertightness are in conformance with design requirements.

1. Guarantee shall commence from the date Substantial Completion of the structure.

2. Guarantee shall agree to make, or cause to have made, at the expense of guarantor, such repairs as necessary to maintain the watertight integrity of the preformed metal roof system.

3. Should guarantor fail to respond with 48 hours of written notice of preformed roof systems failure, the Owner reserves the right to repair the failed area and charge the guarantor the incurred cost.

1.08 FIELD MEASUREMENTS

A. The Contractor shall verify all dimensions, shall make any field measurements necessary and shall be fully responsible for accuracy and layout of work. The Contractor shall review the Drawings and any discrepancies shall be reported to the Architect for clarification prior to starting fabrication, application or installation.

1.09 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials or equipment under provisions of Section 01600, MATERIAL AND EQUIPMENT.

B. The Contractor shall store, handle, and protect the building components, both before and during installation, so there will be no damage to any material covered in this Section. Material shall be stacked on platforms and covered or stored in any other approved manner which will protect the materials from contact with the soil and exposure to the weather.

C. Surface finishes which are damaged prior to or during erection, or where material and workmanship on any component does not conform to these Specifications, shall be replaced or restored to the original condition at the Contractor's sole expense.

PART 2 PRODUCTS

2.01 GENERAL

A. The tabulation of items herein is not intended to be all inclusive, and it shall be the Contractor's responsibility to provide all prefabricated metal building components shown on the Drawings, specified, or which can be reasonably inferred as necessary to complete this Project.

2.02 MANUFACTURERS

A. All components for the prefabricated metal building as herein specified shall, as the Basis of Design, and for the purpose of establishing the standard of quality and general configuration desired, be as **manufactured and supplied by America Building Company, Eufaula, AL.**

Products as manufactured or supplied by the following prefabricated metal building manufacturers, meeting the requirements specified herein, will be considered in accordance with Section 01600, MATERIAL AND EQUIPMENT for Pre-Bid Substitutions. **Submit requests for substitution a minimum of ten (10) days prior to the Bid opening date. Only one of the following manufacturers will be considered as a substitute from the Basis of Design.**

1. Butler Manufacturing Company, Kansas City, MO.
2. Lifetime Steel Buildings, Jacksonville, FL.
3. Ceco Building Systems, Columbus, MS
4. Varco Pruden Buildings, Memphis, TN

B. Like items of material or equipment specified herein shall be the end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts and manufacturer's service.

2.03 FOUNDATION AND FOOTINGS

A. The Contractor shall provide the foundation and footings for the building, and shall coordinate the details of anchorages of the building to its foundations.

B. The prefabricated metal building manufacturer shall provide uncoated column anchor bolts for embedment in the foundation. Anchor bolts shall conform to the requirements of ASTM A307 or ASTM A36 for material and ACI 318-83 for design loads, connections and anchorage.

C. The prefabricated metal building manufacturer shall provide anchor bolt setting templates along with directions and drawings indicating template orientation, setting dimensions and acceptable tolerances for use in setting anchor bolts. Templates shall be of 3/4-inch plywood or similar material designed to prevent relative movement of anchor bolts during setting and concrete casting.

2.04 STRUCTURAL

A. Hot Rolled Structural Shapes: ASTM C-36 or A-529.

B. Tubing or Pipe: ASTM A-500, Grade B; ASTM A-501; or ASTM A-53.

C. Members Fabricated from Plate or Bar Stock: 42,000 psi minimum yield strength; ASTM A-529, A-570 or A-572.

D. Members Fabricated by Cold Forming: ASTM A-607, Grade 50.

E. Galvanized Steel Sheet: ASTM A-446 with G 90 coating: "Class" to suite building manufacturer's standard.

F. Rigid Frames: Hot rolled structural steel. Factory welded and shop painted built-up "I" shape or open rigid frame consisting of tapered or parallel flange beams and tapered columns. Furnish complete with attached plates, bearing plates, and splice members. Factory drilled for bolted field assembly.

G. Length of span and spacing of frames as indicated, variations not acceptable.

H. Wind Bracing: Adjustable, threaded steel rods, 1/2" diameter minimum; ASTM A-36 or A-572, Grade D at roof plane only.

I. Secondary Framing: Purlins, eave struts, flange and sag bracing; minimum 16 ga. rolled formed sections, shop painted. Purlins shall be connected to the primary framing elements as indicated on the approved shop drawings or the Contract Documents.

J. Purlin Spacers and Bracing: Minimum 14 ga. cold formed steel, galvanized.

K. Bolts: ASTM A-307 or A-325 as necessary for design loads and connection details. Shop painted, except provide zinc or cadmium-plated units when in direct contact with panels.

2.05 ROOFING

A. Preformed metal roofing and siding panels shall be of Standing Seam type with intermediate breaks to avoid oil canning, formed from a minimum of 22 gauge galvanized G-90 steel. Panels shall be designed for wind loads per A.S.C.E. 7-05, wind velocity 140 mph, exposure B, and an importance factor of 1.15 with a maximum deflection of L/240. **Standing seams in the preformed metal panels shall be spaced a maximum of 18 inches on center.**

2.06 FINISH

A. Roofing and siding coating and/or finish shall consist of one mil Kynar based coating applied to the exterior surface and an off-white 0.5 mil wash coat on the interior surface. Finish shall have a 20 year warranty. **Color shall be selected by the Architect to match any one of the sixteen (16) standard Kynar colors.**

2.07 FACTORY TESTS

A. The preformed metal manufacturer shall have conducted tests on previously manufactured sheets of the same type and finish as proposed for this project to assure conformance. He shall further certify that the coating has been applied in accordance with the paint manufacturer's recommendation to obtain the thickness specified.

2.08 PREFORMED METAL ANCHORAGE SYSTEM

A. The anchorage system for securing roof and siding shall be concealed and designed so that panels are free to move for thermal expansion and contraction. Anchorage clips or hold-down brackets shall be minimum 22 gauge galvanized steel and shall be designed and spaced for wind loads per A.S.C.E. 7-05, wind velocity 140 mph, exposure B, and an importance factor of 1.15 and a maximum deflection of L/240.

B. Fasteners for securing anchorage clips to roof purlins or siding to substructure shall be cadmium plated steel to prevent rusting.

C. Accessories: Except as indicated as work of another section, provide components required for a complete roofing and siding system, including trim, copings, fascias, mullions, sills, corner units, ridge vents and closures, clips, seam covers, battens, flashings, gutters, downspouts, preformed neoprene profile closure, sealants, gaskets, fillers, closure strips and similar items. Match materials/finishes of preformed panels.

1. Apply heavy brush coat of approved zinc-chromate primer followed by two coats of accepted galvanized metal-and-masonry paint.

2. Apply a heavy coat of approved alkali-resistant bituminous paint.

3. Separate contact surfaces with approved non-absorptive gasket tape.

2.09 STORAGE OF MATERIALS

A. Do not allow copper or other metals not compatible with galvanized steel to contact or provide drainage to galvanized steel. **Do not store metal sheets in a "nested" fashion. Store metal roofing and siding up off grade on wood blocking and stack separated by Visqueen or other approved separation sheets under cover to prevent "white rust".**

B. Do not use copper or lead-base primers, paints, or other preparations in contact with or providing drainage to galvanized products.

2.10 THERMAL INSULATION

A. Roof and Metal Building Walls: Insulation shall be minimum 3" thick fiberglass reinforced flexible blanket type faced with polypropylene white vinyl flexible vapor barrier with reflective foil as manufactured by LAMTEC Corporation – WMP-F. The assembly of insulation and its vapor barrier shall have a flame spread rating of 25 or less when tested in accordance with ASTM E84. The vapor barrier shall have a perm rating of 0.02 or less in accordance with ASTM E96, Procedure A.

B. The aged "R" factor of roof insulation shall be minimum R-19. Roof insulation shall be a system factory fabricated to fit precisely between roof purlins such that insulation "tabs" overlap tops of purlins. Glass fiber "Tab" insulation or optional polystyrene foam block insulation shall be installed at each roof batten to provide thermal block.

C. Insulation shall be held in place on the underside of the roof by galvanized poultry wire, stretched tight to minimize sag, attached to the purlins and beams with galvanized wire as required. **Poultry wire shall be in 5'-0" wide rolls and shall be lapped 4" consistently throughout the installation.**

PART 3 EXECUTION

3.01 INSPECTION

A. Prior to performing any work of this Section, verify that all work of other trades, as applicable, is complete to the point where the installation may properly commence.

3.02 STRUCTURAL

A. Fabrication: Shop fabricate to the indicated size and section, complete with base plates, bearing plates, and other plates as required for erection, welded in place, and with all required holes for anchoring or connections shop drilled or punched to template dimensions.

1. Shop connections power riveted, bolted or welded.

2. Field connections bolted.

B. Shop Painting: Clean surfaces to be primed of loose mill scale, rust, dirt, oil, grease and other matter precluding paint bond.

1. Prime structural steel primary and secondary framing members with manufacturer's standard rust-inhibitive primer.

2. Prime galvanized members, after phosphoric acid pretreatment, with zinc-dust zinc-oxide primer; anchor bolts need not be painted.

C. Erection: Erect metal building complete in accordance with manufacturer's installation instructions and final approved Shop Drawings.

D. Field Modifications: Adjustments and modifications required during construction shall be detailed and submitted to the Architect. Install downspouts perfectly plumb in the vertical plane. No field cutting or enlarging holes with a torch will be permitted. No modifications shall be made until approval is received from the Architect and the building manufacturer.

E. Field Painting: Apply finish coating to factory-primed items in colors as indicated or, if not indicated, as selected from manufacturer's standard.

1. Apply painting and finishing materials in accordance with manufacturer's directions. Use applicators and techniques best suited for materials and surfaces to which applied.

2. For shop-primed metal surfaces apply the following:

Exterior: Two coats semi-gloss alkyd enamel (FS TT-E-529).
Interior: Two coats lusterless alkyd enamel (FS TT-E-527).

3.03 INSULATION INSTALLATION

A. Thermal insulation shall be installed in strict accordance with the building manufacturer's printed instructions and details, except as specified otherwise herein. Roof insulation shall be installed over purlins before roof deck is applied.

B. **Blanket-type roof insulation shall be supported by wire mesh (chicken wire) as detailed.** Facing tabs of flexible (blanket) type insulation shall be folded and taped to completely seal joints. Joints between semi-rigid type insulation without tabs shall be sealed with 4-inch wide tape of the same material as the insulation facing; tape shall be fire-resistant and moisture proof.

C. Insulation supports shall span from purlin to purlin and shall be installed in accordance with the manufacturer's recommendations. The completed installation shall be neat in appearance without sags and buckles. Any tears in vinyl facing shall be repaired with neat patches of the same vinyl applied with adhesive. **Tears over 12" in length shall require entire section of insulation to be replaced.**

3.04 METAL ROOFING AND SIDING INSTALLATION

A. Anchor panels and other components of the work securely in place, with provisions for thermal/structural movement. Install panels with concealed fasteners with continuous lengths from rigid to eave and girt to girt.

B. Installation Tolerances: Shim and align panel units within installed tolerance of 1/4" in 20'-0" on level/plumb/slope and location/line as indicated, and within 1/8" offset of adjoining faces and of alignment of matching profiles.

C. Seaming: Complete seaming of panel joints by operation of portable power-driven equipment or method recommended by preformed metal panel manufacturer.

D. Joint Sealer: Install gaskets, joint fillers and sealants where indicated and where required for weatherproof performance of panel system.

1. Provide types of gaskets and sealants/fillers indicated or, if not otherwise indicated, types recommended by manufacturer.

2. Refer to Section 07900 - JOINT SEALANTS.

3.05 FLASHING

A. All flashing and related closures and accessories in connection with the preformed metal panels shall be provided as indicated on the drawings and as necessary to provide a watertight installation. Details of installation which are not indicated shall be in accordance with the panel manufacturer's printed shop drawings, instructions and details. Installation shall allow for expansion and contraction of flashing.

3.05 CLEANING AND PROTECTION

A. Damaged Units: Replace panels and other components of the work which have been damaged or have deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures.

B. Cleaning: Remove protective covering and strippable films (if any) at the time in project construction sequence which will afford the greatest protection of work. Clean finished surfaces as recommended by panel manufacturer, and maintain in a clean condition during construction.

C. Protection: Installer shall advise the Contractor of protection and surveillance procedures, as required to ensure that work of this section will be without damage or deterioration at time of Substantial Completion.

END OF SECTION

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Division 15 - MECHANICAL

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Division 16 - ELECTRICAL

SECTION 15010

GENERAL PROVISIONS

PART 1 – GENERAL

DIVISION OF WORK

A. Division 15 Specifications define the Mechanical and Plumbing Systems. Materials and labor to be performed and furnished as part of the General Construction Contract of which they are a part.

B. It is not the intent of Division 15 to define a contractual relationship between the General Contractor and Subcontractor ,

C. It is the responsibility of the General Contractor to provide all materials and labor to perform the work, and subcontract Ural relationships are his responsibility.

RELATED DOCUMENTS

A. The Work of this Division affects and is affected by the Work of other Divisions. Review each portion of the Contract Documents including General and Supplementary Conditions, Addenda, Drawings and Division 1 through Divisions 16 Specification Sections to determine the extent of the Work of this Division and the work of the various Division 15 Sections.

WORK INCLUDED

A. All labor, materials, fixtures, equipment, tools and service necessary for installation, testing and adjusting of all mechanical systems shall be furnished and installed in compliance with the Drawings, Specifications, and any Addenda thereto.

B. Drawings and Specifications shall be understood to cover, according to their intent and meaning, complete mechanical systems. Work shown and not specified, or work specified and not shown shall be performed as though mentioned in both.

C. Minor items and accessories reasonably inferred as necessary for the complete and proper operation of any system shall be provided by contractor or subcontractor for such system whether or not they are specifically called for.

COORDINATION WITH UTILITY COMPANY

A. Before submitting a bid, the Mechanical Contractor is to coordinate with the Utility company to ascertain, in detail, the division of work, and the extent of performance by the Utility Company shall be furnished and performed by the Mechanical Contractor.

MECHANICAL CONTRACTOR QUALIFICATIONS

A. The Owner intends to award this contract to a Bidder whose subcontractors are competent to perform and complete the work in a satisfactory and timely manner. All Bidders and subcontractors must be qualified at the time of bid opening.

B. Mechanical Contractor must have a current Florida Mechanical Contractor's license and been in business for a minimum of 5 years.

C. The Mechanical Contractor shall demonstrate experience on new construction projects, by submitting three projects completed within the last 3 years each having a minimum mechanical construction value of $100,000. Submit forms at the end of this section within 24 hours of the bid opening.

D. The Mechanical Contractor shall have a minimum of two certified welders on staff that meets the welding operator qualification tests as required by Section IX of the ASME Boiler and Pressure Vessel Code.
1. This requirement shall not be applicable if project does not require welding.

E. The Mechanical Contractor's permanent home office shall be located within 150 miles of the project site.

F. The Architect/Engineer shall reserve the right to disqualify any Subcontractor who does not, in their sole opinion, meet the above minimum requirements. The Contractor shall provide qualified Subcontractors as part of his bid.

DESCRIPTION OF WORK

A. The work to be performed under this division includes, but is not necessarily limited to, the following:
1. Split System Heat Pump
2. Ventilating and exhaust fans
3. Sound and vibration control.
4. Insulation.
5. Ductwork - Metal.
6. Grilles, registers and diffusers.
7. Control Systems.
8. Starters, motor controllers, and VFD's.
9. All shop and field prime painting.
10. Furnishing access doors.
11. Plumbing piping fixtures and equipment.
12. Rigging.
13. Performance tests, adjustments and balancing of all systems. (Provided by Div. 15 Contractor.)

Work not included in this Division: The following work is specified in other sections of the specifications:
1. Finish painting except as specifically included herein.
2. Electric work except as specifically included herein.
3. Masonry and concrete foundations for equipment.
4. Flashings, but counter flashings shall be included herein.
5. Cutting and patching except as included herein.
6. Furnishing and setting food service equipment.

7. Test and balance except as specifically included herein.

CODES

A. All work shall be performed or installed in strict accordance with all applicable rules, regulations and codes of local state and Federal Governments having lawful jurisdiction, and each contractor and subcontractor shall be responsible for such compliance.
   1. Code requirements shall be considered as minimum allowable.
   2. Where quantities, sizes, etc., shown on the Drawings or Specifications are in excess of code requirements, the Drawings or Specifications shall take precedence.
   3. Any quantities, size, etc., shown less than code minimum shall be increased to meet code.

B. Applicable Codes:
   1. Plumbing –Florida Building Code – Mechanical 2004 with 2005 & 2006 Rev.
   2 HVAC – Florida Building Code - Mechanical with 2005 &2006 Rev.
   3. Fire Sprinkler - NFPA, all applicable sections.
   4. Other - Life Safety Code.
   5. Florida Building Code – 2004 with 2005 & 2006 Rev.
   6. Natural and LP Gas Systems – Florida Building Code – Fuel Gas 2004 with 2005 & 2006 Revisions.

TECHNICAL DEFINITIONS

A. Specific items of terminology, as used herein, shall have the following meanings:
   1. "Work" includes all materials, labor, equipment and operation required for complete and proper installation.
   2. "Piping" shall mean pipe, fittings, flanges, valves, controls, hangers, traps, drain, insulation, vents, and items customarily required in connection with the transfer of fluids.
   3. "Concealed" shall mean embedded in masonry or other construction, installed behind wall furring, within double partitions or hung ceilings, in crawl spaces, in shafts.
   4. "Exposed"' shall mean not concealed.
   5. "By Other Trades" shall mean by persons or parties responsible for work at the project other than the party or parties who have been duly awarded the contract for the work of this trade. In the event that this document is used to acquire work as part of a general construction contract the words "by other trades" shall mean by persons or parties who are not anticipated to be the subcontractor for this trade working together with the General Contractor. In this context the words "by other trades" shall <u>not</u> be interpreted to mean not included in the overall contract.

6. "Demolition" shall be the removal of any existing equipment, and the capping or plugging of any existing services to that equipment. Removal shall include the proper evacuation of all environmentally hazardous gases, refrigerants or liquids and proper disposal in accordance with all applicable codes and standards.
7. "OPCI" shall mean the Owner will purchase this equipment and have it delivered to the site. The Contractor is responsible for protection and installation.

INTERPRETATION OF THE DRAWINGS AND SPECIFICATIONS

A. As used in the drawings and specifications, certain non-technical words shall be understood to have specific meanings as follows:
   1. "Furnish" shall mean purchase and deliver to the project site complete with every necessary appurtenance and support.
   2. "Install" shall mean unload at the delivery point at the site and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project.
   3. "Provide" shall mean "furnish" and "install".

B. Except where modified by a specific notation to the contrary, it shall be understood that the indication and/or description of any item, in the drawings or specifications or both, carries with it the instruction to furnish and install the item, regardless of whether or not this instruction is explicitly stated as part of the indication or description.

C. It shall be understood that the specifications and drawings are complementary and are to be taken together for a complete interpretation of the work. Exceptions are those notes on the drawings, which refer to an individual element of work, take precedence over the specifications where they conflict with same.

D. No exclusions from, or limitations in, the language used in the drawings or specifications shall be interpreted as meaning that the appurtenances or accessories necessary to complete any required system or items of equipment are to be omitted.

E. The drawings of necessity utilize symbols and schematic diagrams to indicate various items of work. Neither of these items have any dimensional significance nor do they delineate every item required for the intended installations. The work shall be installed, in accordance with the diagrammatic intent expressed on the electrical and mechanical drawings, and in conformity with the dimensions indicated on final architectural and structural working drawings and on equipment shop drawings.

F. No interpretation shall be made from the limitations of symbols and diagrams that any elements necessary for complete work are excluded.

G. Certain details appear on the drawings that are specific with regard to the dimensioning and positioning of the work. These details are intended only for the purpose of establishing general feasibility. They do not obviate field coordination for the indicated work.

H. Information as to the general construction shall be derived from structural and architectural drawings and specifications only.

I. The use of the word in the singular shall not be considered as limiting where other indications denote that more than one item is referred to.

J. In the event that extra work is authorized, and performed by this trade, work shown on drawings depicting such work, and/or described by addendum is subject to the base building specification in all respects.

DRAWINGS AND SPECIFICATIONS

A. It is the intent of drawings and specifications to obtain a complete and satisfactory installation.

B. Separate divisional drawings and specification shall not relieve the contractor from full responsibility of compliance with the work indicated on any of the drawings or in any division of the specification.

C. Each subcontractor shall carefully examine the architectural, structural, electrical and mechanical drawings and specifications prior to submitting bid.

D. The subcontractor will be required to furnish, install and connect with appropriate services all items shown on any of the drawings without additional expense to the Owner.

E. The Architect/Engineer shall be notified of any discrepancies, omissions, conflicts or interferences which occur between drawings or between drawings and specifications. If such notification is received in adequate time additional data or changes will be issued by addendum to all bidders.

F. Architectural and structural drawings take precedence over mechanical drawings with reference to building construction.

G. Mechanical drawings are diagrammatic but shall be followed as closely as actual construction of the building and the work of other trades will permit.

APPROVED MATERIALS

A. Materials or products specified herein and/or indicated on drawings by trade name, manufacturer's name and/or catalog number shall be provided as

specified. Substitutions will not be permitted except as described herein in Supplementary and General Conditions.

B. For approval of products other than those specified, bidders shall submit to the architect a request in writing at least ten (10) days prior to bid date and hour. Requests received after this time will not be reviewed or considered regardless of cause. Requests shall clearly define and describe the product for which approval is requested. Requests shall be accompanied by manufacturer's literature, specifications, drawings, cuts, and performance data list of references or other information necessary to completely describe the item. Approval will be in the form of an addendum to the specifications issued to all prospective prime contract bidders on record. The addendum will indicate the additional products that are approved for this project.

C. A list of all materials and equipment that the Contractor proposes to furnish shall be submitted for approval within ten (10) days after the contract has been let. Data shall be complete in all respects.

D. Where such approved substitution or deviation requires different quantity or arrangement of foundations, supports, ductwork, piping, wiring, conduit, and any other equipment or accessories normal to this equipment, Contractor shall furnish said changes and additions and pay all costs for all changes and additions and pay all costs for the changes to the work and the work of others affected by this substitution or deviation.

E. Deviations mean the use of any listed Approved Manufacturer other than those on which the drawings are based.

REFERENCES

A. American Society for Testing and Materials (ASTM)
B. American Association of State Highway & Transportation (ASSHT)
C. American Water Works Association (AWWA)
D. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)

FEES

A. Fees for permits, inspections, patent use, royalties, etc. shall be paid by the contractor.

IDENTIFICATION

A. All valves, air handling units, compressors, rooftop equipment, etc. shall be labeled with the same designation shown on the Drawings.
   1. Valves shall be tagged with embossed metal tags.
   2. Air Handlers and Compressors/Condensing Units shall be labeled with engraved phenolic name plates with letters ¼" high minimum. Plates shall be red with white lettering.

TESTS AND INSPECTIONS

A. All mechanical system shown on the Drawings.
B. Call for appropriate inspections during construction as required by local agencies having jurisdiction over mechanical construction.
C. Costs of inspections shall be paid by the Contractor.
D. Furnish all equipment and personnel and conduct all tests required to secure approval of the installation.
E. Any repairs or changes required to secure the approval of the installation shall be done at no additional expense to the Owner.

QUALITY ASSURANCE

Safety Tests

A. All systems shall be tested for proper operation, rotation air supply, water supply, pressures, flows, balance, vibration, and appropriate interlocks as required by these specifications or manufacturers' recommendations.

Code Tests

A. All work shall be installed in accordance with the appropriate codes and satisfy the local inspector having jurisdiction.

Operational Testing

A. Upon completion of each part of the mechanical system, the contractor shall demonstrate to the Engineer that each item on that system is installed with proper covers, safeties, controls, etc., and that all are in proper working order.

As Built Information

A. A set of "red-lined" mechanical drawings shall be carefully maintained at the job site. Actual conditions are to be put on the drawings in red on a daily basis so the drawings will continuously show locations and routings of piping, ducts, grilles, equipment, valves, and any equipment specified on the drawings or in these specifications.

Equipment and Materials

A. Meet or exceed specification requirements.
B. New, unused, of best quality and grade.
C. Current model for which replacement parts are available.

Catalog and Model Number

A. Intended for use as guidelines and are supplied to aid in equipment identification.
B. Because Catalog Numbers are subject to manufacturers change, it is the contractor's responsibility to coordinate the equipment and material with specified capacity, duty rating, voltage, etc.
    1. Do not take precedence over specific ratings or duty or written specifications.

C. Are not intended to give priority of one manufacturer over another providing "or equal" requirements are met.

USE OF EQUIPMENT OTHER THAN BASIS OF DESIGN

A. The mechanical drawings indicate equipment in the schedules as basis of design. Other manufacturers are listed in the specification sections. All other manufacturers must be submitted to the Engineer for review prior to bid. Any proposed substitution must follow Div 1 requirements.

B. The drawings (electrical, structural, architectural, etc) are based upon the products listed in the mechanical schedules (basis of design). Any product provided other than the basis of design may impact the requirements of other disciplines. The mechanical contractor is responsible for (and shall include in the base bid price) any and all costs related to the substituted equipment. Coordinate with other sub contractors regarding impact of substituted equipment prior to bid.

C. The construction documents contain design intent that may or may not be immediately apparent. All other intended physical and aesthetic requirements (stated or not) of the construction documents shall apply to the equipment intended for use. This includes appearance, clearance, access, and concealment requirements.

UNACCEPTABLE EQUIPMENT

A. Equipment and material may be judged unacceptable for the following reasons.
   1. Equipment was not submitted for prior approval ten (10) days in advance of bid date.
   2. There is a history of poor performance, poor response to service and/or warranty issues on previous school projects.

"Or Equal"

A. Equipment and material shall be judged "equal" or on the basis of the following:
   1. Meets or exceeds performance specifications for rating duty, etc.
   2. Is of comparable size to specified unit, (dimensions, weight, etc.).
   3. Has similar appearance and is aesthetically acceptable (not applicable to equipment which is concealed in mechanical rooms, etc.).
   4. Has exact voltage and phase characteristics as specified.
   5. Does not exceed power consumption of specified equipment by more than 5%.
   6. Is submitted and approved by Architects /Engineer.

B. Equipment may be judged "unequal" if:
   1. Installation of such equipment will cause excessive changes in associated equipment, wiring, structures, etc.
   2. Such equipment will require basic design changes with regard to system operation or performance.

MAJOR EQUIPMENT SUBSTITUTION COST

A. If equipment furnished or substituted differs in physical character from that

specified and requires increased services and/or facilities of other trades, and such substitution is acceptable to the Architect, the Contractor shall bear the costs of any or all of the following charges caused by such substitution:

1. Cost of modifying product to fit conditions.
2. Cost of modifying building to receive product.
3. Cost of increased services and/or facilities.
4. Cost of additional Architectural and/or Engineering Services required to modify such services, facilities, building, etc.

B. Minor deviations:

1. Dimensions and ratings of equipment herein specified or indicated on Drawings are intended to establish desired outlines and characteristics of such equipment. Minor deviations will be permitted or allow manufacturers specified to bid on their nearest stock equipment.

COORDINATION OF MECHANICAL WORK

A. Refer to Division 1 for general coordination requirements. The contract documents are diagrammatic in showing certain physical relationships of the mechanical work and the interface with other work, including utilities and electrical work. Final coordination is the responsibility of the Contractor.

1. Arrange mechanical work in a neat, well-organized manner. Piping and services shall run parallel to primary lines of the building construction, at a minimum of 7'-0" clearance.
2. Locate operating and control equipment for ease of access. Arrange mechanical work with required clearances for access for operation and maintenance.
3. Advise other trades of openings required in their work.
4. Give right-of-way to piping which requires a slope for drainage.

B. Coordination Drawings: Provide 1/4" drawings indicating mechanical equipment and/or electrical work when positioned within close proximity.

C. NEC Required Clearances: The Contractor is responsible for all mechanical equipment with serviceable electrical components at 120v and greater (including but not limited to starters, disconnects, fuses, relays, etc.) to be installed with allowable NEC clearances. Refer to NEC for the required clearances (which are often greater than 36"). For cramped mechanical spaces with electrical panels, submit coordination drawings showing mechanical and electrical equipment and their respective service and NEC clearances.

D. Do not locate anything within the NEC required service areas required by existing electrical components.

QUALITY ASSURANCE, STANDARDS AND SYMBOLS, QUALIFICATIONS

Administration

Refer to Division 1 for administrative/procedural requirements to comply with codes and standards. For the mechanical work, standards are specified in individual sections.

Installation

For fabrication, installation and testing of work of Division 15, use trained, skilled mechanics and experienced workmen familiar with items required and manufacturer's recommended methods of installation. Perform work in the best workmanlike manner. In acceptance of installed work, the Architect/Engineer will make no allowance for lack of skill on the part of the workmen. A competent supervisor shall direct the proper and prompt execution of the work.

Testing

An independent testing company shall be contracted to witness and sign off on all mechanical pressure tests.

Code Compliance

Materials or equipment data sheets shall indicate compliance with industry standards, such as the American National Standards Institute (ANSI), Americans with Disabilities Act of 1990 (Public Law 101-336) (ADA), American Society for Testing and Materials (ASTM), Florida Department of Community Affairs Accessibility Requirements Manual (DCAARM), National Electrical Manufacturers Association (NEMA), National Fire Protection Association (NFPA), Underwriters Laboratories (UL), Air Conditioning & Refrigeration Institute (ARI), American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), OSHA "Trench Safety Act" Chapter 90-96, and the Florida Building Code, latest edition, Florida Administrative Code (FAC). Symbols: Except as otherwise indicated, refer to the "ASHRAE Handbook of Fundamentals" for definitions of symbols used on the drawings to show mechanical work.

Minimum Qualifications and License

The Subcontracting Firm for the mechanical installation shall be licensed by the State of Florida and the local authorities, regularly engaged in the installation of mechanical systems and other related equipment. The Subcontracting Firm shall be familiar with all local conditions including interpretations, codes and Standards. Both the Firm and Foreman shall have at least 5 years of successful installation experience on at least 3 successful similar projects of the same or greater magnitude, scope, and monetary value. The Subcontracting Firm shall hold a Florida State Certified Air Conditioning Contractor or State Certified Mechanical Contractor license for this project.

SHOP AND ERECTION DRAWINGS AND SAMPLES

A. Submit required and/or requested shop drawings and erection drawings, and obtain written approval of same before ordering or installing any equipment or material. Equipment or material ordered or installed without written approval may not be accepted.

B. Shop drawings shall consist of manufacturer's scale drawings, cuts or catalogs, including descriptive literature, which shall clearly indicate the construction, material, physical dimensions, and complete operating data clearly marked for each item. Data of general nature will not be accepted.

C. Erection drawings shall consist of scale drawings of the work including foundations in plan and elevation. These drawings shall show clearances between units and relation of equipment to space assigned. Make erection drawings when requested by the Architect to supplement his diagrammatic drawings.

D. Normally, with the exception of drawings for ductwork, erection drawings are required only in mechanical equipment rooms and the congested areas. The drawings shall also show the work of all other trades in the immediate vicinity of such areas. Ductwork drawings are required throughout and shall be a minimum of 1/4" scale. Drawing sheets shall be of the same size as the contract set sheets. They shall show wall partitions, lights, room numbers, and match lines with drawing references.

E. The ductwork layout shall show all apparatus such as diffusers, registers, grilles, turning vanes, splitter dampers, volume dampers, fire and smoke dampers, duct and ceiling access panels (where required), acoustical insulation, duct sizes and bottom elevations of each duct.

F. These drawings shall become part of the final as-built records. Coordinate with structural and architectural drawings for available ceiling clearance.

G. Submit samples requested for approval. The sample shall be properly tagged and will remain in the Architect's possession until final acceptance of the work.

H. Indication of "No Exceptions Taken" on the shop drawing review does not relieve the contractor of the responsibility to comply with all requirements of this specification.

SUBMITTAL REQUIREMENTS

A. Submittal data is required for each Division 15 section.

B. Submittals for this section:
   1. Firm qualifications for this project at time of bid.
   2. Foreman's resume and experience for this project.

3. List of subcontractors.
4. Schedule of values broken out by Section, labor and material.
5. Mechanical system identification.
6. Access doors.

C. All data shall be submitted to the Engineer at one time; partial submittals will not be accepted. Submit in individual vinyl-covered 3-ring binders. The front cover of the binder shall contain the project name and the Coburn & Associates, Inc. job number from the drawings. Index each section using the format from the Project Specifications. Each section of the submittal shall begin with a "Submittal Identification Sheet" (last page of this specification section) with a complete list of all items in that section. Failure to follow this procedure shall result in rejection of the submittal by the Engineer. This list shall also contain the following information:

1. Model numbers and summary descriptions.
2. The number of pages submitted for each item.
3. Space for Engineer's review stamp for each item.
4. Names of Project, Contractor, Sub-Contractors and Suppliers of Equipment.

The submittal shall be formatted in this manner in order to facilitate timely review by the Engineer. Engineer shall review submittal data no more than two times. Additional submittal review time shall be paid by Contractor.

D. Refer to Division 1 for administration of submittals. For mechanical work, the following quantities are required for each category of submittal, unless otherwise indicated in Division 1 or individual work sections.

1. Shop Drawings: 6 sets, including 2 for maintenance manuals.
2. Product Data: 6 sets, including 2 for maintenance manuals.
3. Welding Certifications: 6 copies for each welder.
4. Test and Balance Reports: 6 copies, including 2 for maintenance manuals.
5. Warranties (Guarantees): 6 copies, including 2 for maintenance manuals.
6. Manuals: 2 final copies, including flow diagrams, maintenance instructions, operating instructions, parts listings, and copies of other submittals indicated for inclusion.
7. Start-up/Commissioning Data Sheets: 6 sets.

Maintenance Manuals

Thirty days prior to Substantial completion, furnish two operation and maintenance manuals with index and thumb-tab marker for each section of information; bind in 3-ring, vinyl-covered binder. Label binder with "OPERATION AND MAINTENANCE MANUAL," the name and location of the project, the name of the Contractor, and the contract number. Include the names, addresses, and telephone numbers of each subcontractor installing the equipment. Include a list of all equipment and the supplier with address and telephone number. Include a

table of contents and assemble to conform to the Project Manual (specifications) with the tab sheets before instructions covering the subject. Instructions shall be legible and easily read, fold large sheets of drawings. The manual shall include: wiring and control diagrams, detailed explanation of operation and control of each item of equipment; description of the function of each principal item of equipment; installation instructions; maintenance instructions; lubrication schedule including type, grade, temperature range and frequency; safety precautions, diagrams and illustrations; test procedures; performance data; and parts lists. The manual shall be complete, including all equipment, controls, accessories and associated appurtenances.

RECORD DRAWINGS

A. Subcontractor is instructed to refer to section covering General Conditions of this specification.

B. During the course of construction the subcontractor shall keep an accurate record of all deviations and changes of the work as indicated on the drawings and its actual installation.

C. Prepare one set of "as-built" reproducible drawings indicating a record of construction revisions and changes from the contract drawings.

D. Upon completion of the work and within 30 days after acceptance by the Architect, the subcontractor shall furnish to the Owner a revised and final set of reproducibles and a set of CADD diskette and prints showing all work as installed.

REGULATORY REQUIREMENTS

A. All work shall be performed in compliance with OSHA regulations.

B. All work shall be performed in accordance with applicable School Board Policies as outlined in Architectural Specifications.

SHOP DRAWINGS AND PRODUCTS DATA

A. Shop drawings and product data shall be submitted on all equipment, fixtures, etc., as required in the individual Section.
   1. Submittals shall include all equipment to be installed by the subcontractor and all submittals must be made at same time.
   2. One "Package" will be accepted from each subcontractor as follows:
      a. HVAC
      b. Plumbing
      c. Fire Protection
   3. Each package must have the General Contractors review stamp prior to submittal.
   4. The Engineer will review one submittal and one re-submittal; subsequent Re-submittals may require a review charge to be paid by subcontractor.

B. Shop drawings shall be labeled in the same designation as individual piece of

equipment for which they are being submitted; the proper designation shall be the designation used on the various equipment schedules and/or in other Sections of these Specifications, i.e. AHU-1, AC-1, EF-1.

1. All items and accessories shall be clearly marked on Submittals. Marking shall be by underlining use of arrows or circles. i.e. if contractor is submitting "White" finish, then "White" must be clearly designated.
2. If a submittal is approved and "an accessory list is not clearly marked not included, then all listed accessories will be required to be supplied."

CERTIFICATES

A. Upon completion of the work and before making the final request for payment, submit a "Final Certificate of Approval" or its equivalent stating that:
   1. All work has been inspected and approved.
   2. All work has been completed.
   3. No further inspections will be required.
   4. As built drawings are complete and on site.

PART 2 - PRODUCTS AND MATERIALS

GENERAL

When a specified or indicated item has been superseded or is no longer available, the manufacturer's latest equivalent type or model of material or equipment as approved by the Engineers shall be furnished and installed at no additional cost to the Owner.

ELECTRICAL PROVISIONS OF MECHANICAL WORK

A. The electrical provisions of mechanical work, where indicated to be furnished integrally with mechanical work, can be summarized (but not by way of limitation) to include the following: 1) Motors, 2) Motor starters, 3) Control interlock wiring of mechanical equipment, 4) Control switch, pilot lights, inter locks and similar devices, 5) Electrical heating coils and similar elements in mechanical equipment, 6) Electrical work specified as mechanical work in the HVAC control system, and 7) Drip pans to protect electrical work.

B. Starters, Switches: Furnish with all motorized mechanical equipment, either integrally or separately for all motorized equipment. Starters shall be NEMA 1 (for Indoor starter locations), NEMA 3R (for outdoor starter locations), and NEMA 4X (for outdoor starter locations east of Highway US 1), and shall include HOA with 2 NO and 2 NC contacts for use by control system, and run indicating light. Starters shall have phase loss and under-voltage protection.

C. Motors: Motors shall be high efficiency type rated for the intended use and installed environment. If VFD is providing power to motor, motor shall be rated for use with that VFD equipment.

D. Drip Pans: Where possible, do not run mechanical piping directly above electrical (or electronic) equipment which is sensitive to moisture; otherwise provide drip pans under mechanical piping. Locate pan below piping, and extend 6" on each side of piping and lengthwise 18" beyond equipment. Fabricate pans 2" deep, of reinforced sheet metal with rolled edges and soldered or welded seams; 20 gage copper, or 16 gage steel with 2 oz. zinc finish hot dipped after fabrication. Provide 3/4" copper drainage piping, properly discharged. Mechanical piping or duct shall not pass above any electrical panels without providing required structure to adequately separate and provide protection to panels, ductwork, and/or pipes.

MECHANICAL SYSTEM IDENTIFICATION

A. Provide a system of identification of all equipment, including dampers, and other appurtenances, to permit recognition of all components.

B. Piping System: Mark piping which is exposed, including concealed piping in accessible spaces i.e. lay-in ceilings, etc. Provide either pre-printed, color-coded plastic, self-sticking pipe markers; or color-coded stencil painted markers. Indicate each pipe system by its generic name (abbreviated) as shown/scheduled/specified.

1. Comply with ANSI A13.1 for colors as follows:

SERVICE	COLOR	LABEL
City Water	Safety Blue	City Water
Domestic Hot	Safety Yellow	Domestic Hot Water Supply,

2. Include arrows for direction of flow and content labels at twenty-foot maximum intervals. Locate markers at terminations of lines and near major branches; near control valves and at equipment connections; at wall, floor and ceiling penetrations; and at access doors where piping is in concealed spaces. Coat each pipe marker with at least one coating of water-resistant plastic spray such as "Splac."
3. For buried piping, provide manufacturer's standard permanent, bright colored, continuous-printed plastic tape, intended for direct-burial service; not less than 6" wide and 4 mils thick. Provide multi-ply tape consisting of solid aluminum foil core between 2-layers of plastic tape if location by metal detector is desired. Install 6" to 8" below finished grade, directly above buried pipe.

Valves

All main and branch shut-off valves shall be tagged with a 2" diameter brass or laminated "Bakelite" plastic numbered disc, color code for each piping service. Exclude check valves, hose bibs, faucets and shut-off valves for plumbing fixtures. Discs shall be stamped or engraved with letters at least 1/4" high.

Securely attach discs with brass chains, nylon ties, or center hole mount on valve stem or handle. Provide typewritten chart with valve numbers, location and use. Mount in aluminum metal frame with plastic window for 8-1/2" by 11" chart format and mount on Mechanical Room wall where indicated. Provide duplicate copies of valve charts and include them in Maintenance and Operation Manuals.

Duct System

Provide stencil-painted identification on ductwork, with lettering size sufficient for reading but not less than 3/4-inch and including arrows to show direction of flow. Indicate flow direction at fan housings, remote coils, fire and smoke dampers, control dampers, dehumidifiers, and VAV boxes. On access doors, indicate service and equipment being accessed. Where ducts are concealed behind access doors or removable ceilings, identification may be by plasticized tags in lieu of stencil-painted markers.

Manual Volume Dampers

Spray paint a continuous minimum 6" wide fluorescent orange band around entire perimeter of the outside surface of the duct or when externally insulated, on the surface of the duct insulation, at all locations where manual volume air dampers are installed.

1. Equipment: Provide tag identification with the equipment unit tag as indicated on the drawings for every piece of equipment. Tag identification shall be laminated phenolic plastic, chamfer edges, black front with white core, with lettering etched through the outer covering. White engraved ¼" letters on black background.

2. Operational Tags: Where needed for proper and adequate information on operation and maintenance of mechanical equipment, provide tags of plasticized cardstock, pre-printed to convey messages such as: "DO NOT CLOSE THIS VALVE EXCEPT WHEN BURNER IS OFF".

3. Nameplates: Each unit of equipment shall be identified by a permanently factory attached nameplate bearing information pertaining specifically to the unit installed.

4. Dampers: At each access door, provide a label with letters at least 1/2" high stating the damper number and purpose. Identify fire dampers with red letters on a white background. Identify all other dampers with black letters on a white background.

5. Miscellaneous: All switches, starters, pilot lights, remote gauges, and control panels shall have attached or mounted adjacent thereto a black surface, white core Bakelite nameplate indicating which equipment it

controls. Nomenclature shall be in accordance with a schedule submitted to and approved by the Owner.

6. Ceiling Tags: Provide a ½" x 3" laminated phenolic coated plastic nameplate, black letters on white background for each VAV box, power ventilator, motorized damper, AHU or other equipment located in the ceiling space. If the equipment is located above a hard ceiling, locate nameplate on access door. If located above a ceiling, tile ceiling, locate on the T-bar next to the access tile.

EMERGENCY AND SERVICE ACCESS

A. General: Where floors, walls, ceilings or ductwork must be penetrated for emergency or service access to mechanical work, provide types of access doors indicated, including floor doors if any. Furnish sizes indicated or, where not otherwise indicated, furnish adequate size for intended and necessary access. Furnish manufacturer's complete units, of type recommended for application in indicated substrate construction, in each case, complete with anchorages and hardware. Access doors required in walls, ceilings, or other areas of the structure are furnished as a part of Division 15. Installation shall be by other divisions of the Contract Specifications.

B. Duct Access Doors: Access doors shall be complete with steel butt hinges window type sash lock and sheet metal reinforcing plate. Access door shall be insulated and have sheet metal on both sides.

C. Wall/Ceiling Access Door Construction: Fabricate wall/ceiling door unit of stainless steel Type 304 construction with welds ground smooth; 16-gauge frames and 14-gauge flush panel doors; 175° swing with concealed spring hinges; flush screwdriver-operated cam locks; factory applied rust-inhibitive prime-coat paint finish.

D. Removable Access Plates: Where valves, control devices, cleanouts and similar elements of mechanical work are located within or behind wall, ceiling or floor construction or finishes, or below grade, and are not (cannot be) provided with integral removable access plates as specified in other Division 15 sections, provide manufacturer's standard frameless round formed stainless steel plate cover, with single exposed flush screen anchor, with bright finish.

INSPECTION

A. Job conditions shall be determined prior to bidding in the following manner:
   1. Site visit to determine:
      a. Existing conditions.
      b. How and where materials will be delivered and stored.
      c. Special problems encountered during construction.
   2. Examine all Contract Drawings and Specifications to determine:
      a. Type of construction to be used.

b. How construction or work will affect the work of this Section.
c. Nature and extent of work of other trades.

B. Failure to determine existing conditions or nature of construction will not be considered as a basis for granting additional compensation.

INSTALLATION

A. General:
1. Contract Drawings show the arrangements and sizes of principal apparatus and devices to be provided under this Contract and connection thereto. These shall be followed as closely as actual building construction will permit.
2. Dimensions of work as indicated on Plans are not guaranteed to be as-built dimensions.
3. No measurements shall be scaled from Drawings and used as definite dimensions for layout or fitting work in place.
4. Layout of equipment, as shown on the plans, shall be checked and exact location determined by dimension if equipment approved by the Architect.
5. Consult the Drawings for all dimensions, locations of partitions, sizes of structural member, foundations, etc.
6. Do not make final layouts until shop or equipment drawings are approved and job conditions verified.
7. Mechanical reference symbols are given on the mechanical legend on the drawings.

B. Excavation and Backfill:
1. Contractor shall be responsible for trenching, excavation and backfill required to perform the Work specified herein.
2. Excavation for conduits shall be of sufficient width to allow for proper jointing and alignment of the type conduit used; minimum cover over piping shall be 24 inches; conduit shall be bedded on original ground; where conduit is in solid rock a 6-inch earth cushion must be provided.
3. The cost of solid rock excavation shall be included in the Lump Sum Bid with No Extra Pay Allowed.
4. Backfill shall be hand placed, loose granular earth for a height of 6 inches over the top of the largest pipe. This material shall be free of rocks over 1 1/2 inch in size.
5. Determine the route of the trenching to avoid interference with other underground utilities.

C. Rough-in:
1. Work included:
   a. Contractor shall rough-in for all equipment, fixtures, etc., in building whether or not such equipment is furnished by this Contractor or by Owner.
2. Method:
   a. Determine in advance the location and size of all openings and chases necessary for proper installation of all work and have

openings and chases provided during construction.

b. Install all inserts for hangers and supports of mechanical work and equipment work as general construction progresses.

c. Rough-in openings in masonry or stud walls shall be cut, not broken or chiseled.

d. Sleeves shall be required at all points where piping passes through concrete walls, slabs or masonry walls.

e. Sleeves installed below grade or where subject to high water conditions shall be installed watertight.

PART 3 - EXECUTION

CUTTING AND PATCHING

Comply with required Divisions of the Contract Specifications for the cutting and patching of other work to accommodate the installation of mechanical work. Except as individually authorized by the Architect/Engineer, cutting and patching of mechanical work to accommodate the installation of other work is not permitted, other than necessary penetrations of mechanical sheet metal work for electrical conduit and similar purposes.

COORDINATION WITH OTHER TRADES

A. This subcontractor shall coordinate his/her work with other trades to avoid interferences and delays. He/she shall assist in working out space requirements to make a satisfactory installation.

B. If the subcontractor installs his/her work before coordinating with other trades, or so as to cause any interference with work of other trades, he/she shall make the necessary changes in his/her work to correct the condition without extra charge.

C. This subcontractor shall furnish to other trades, as required, all necessary templates, patterns, settings plans, and shop details for the proper installation of work and for the purpose of coordinating adjacent work.

D. See Section 15991 for responsibilities of mechanical contractor prior to test and balance.

PAINTING

A. Refer to individual sections for painting of mechanical work.

CLEANING

A. Ductwork and Equipment: Every possible precaution shall be taken to keep the interior of the duct system and equipment throughout free from dirt and rubbish and other foreign matter. All fan motors, switches, etc., shall also be protected from dirt, rubbish and other foreign matter during building construction. Thoroughly clean all components of the duct work and remove all dirt, scale, oil and other foreign substances which may have accumulated during the

installation process. All ductwork openings shall be temporarily capped or sealed with Visqueen immediately after installation and shall be covered with Visqueen while it is stored on the jobsite.

B. Water Piping Systems: After the piping systems have been pressure tested and proved tight, thoroughly flush out and clean the various piping systems, using boiler cleaning compound so as to remove all dirt, scale, oil, grease and other foreign substances which may have accumulated during the installation process.

C. Equipment: All air handling units, power ventilators, pumps, boilers, plumbing equipment, and any and all other mechanical equipment provided shall be thoroughly cleaned of all dirt, oil concrete, etc. Any dents, scratches or other visible blemishes shall be corrected and the appearance of the equipment made "like new" and to the satisfaction of the Architect/Engineer.

D. Upon completion, and before final acceptance of the work, all debris, rubbish, leftover materials, tools and equipment shall be removed from the site.

DISCREPANCIES

A. In the event of discrepancy, work shall cease and the Architect/Engineer shall be notified immediately.

CLOSING-IN OF UNINSPECTED WORK

A. Do not allow or cause any of the work in this Section to be covered up or enclosed until it has been inspected, tested, and approved by the Architect/Engineer and by all authorities having jurisdiction.

MECHANICAL WORK CLOSEOUT

A. Refer to the Division 1 sections for general closeout requirements. Maintain a daily log of operational data on mechanical equipment and systems through the closeout period; record hours of operation, assigned personnel, fuel consumption and similar information; submit copy to Owner.

B. Closeout Equipment/Systems Operations: Sequence operations properly so that work of project will not be damaged or endangered. Coordinate with seasonal requirements. Operate each item of equipment and each system in a test run of appropriate duration (with the Architect/ Engineer and the Owner's operating personnel present) to demonstrate sustained, satisfactory performance. Adjust and correct operations as required for proper performance. Clean and lubricate each system, and replace dirty filters excessively worn parts and similar expendable items of the work.

C. Operating Instructions: Conduct a walk-through instruction seminar for the Owner's personnel to be involved in the continued operation and maintenance of mechanical equipment and systems. Explain the identification system, operational diagrams, emergency and alarm provisions, sequencing require-

ments, seasonal provisions, security, safety, efficiency and similar features of the systems. Provide a copy of the written sequence of control of all mechanical equipment and review with Owner's personnel at time of walk-through.

D. Turn-Over of Operation: At the time of final completion, turn over the prime responsibility for operation of the mechanical equipment and systems to the Owner's operating personnel.

GUARANTEES AND CERTIFICATIONS

A. All work shall be guaranteed to be free from leaks or defects. Any defective materials or workmanship as well as damage to the work of all trades resulting from same shall be replaced or repaired as directed for the duration of stipulated guarantee periods.

B. The duration of guarantee periods following the date of beneficial use of the system shall be one year, and five years warranty shall be on all compressors. Beneficial use is defined as operation of the system to obtain its intended use.

C. The date of acceptance shall be the date of final payment for the work or the date of a formal notice of acceptance, whichever is earlier.

D. Certification shall be submitted attesting to the fact that specified performance criteria are met by all items of heating and air conditioning equipment.

ENGINEER'S UNDERGROUND OBSERVATION

A. Contractor preparation: The Contractor shall have all underground utilities, conduit and piping installed on the site in trenches. All pipe and conduit shall be left uncovered.

B. The Contractor shall contact the Engineer in writing to schedule a site observation 72 hours prior to the day of observation.

C. The Contractor shall walk the site with the Architect/Engineer and assist in providing access to underground work.

D. At the successful conclusion of the observation, the Contractor and Engineer shall sign the Observation Form on the As-Built drawings.

ENGINEER'S PRE-CONCEALMENT OBSERVATION

A. Contractor Preparation:

1. All equipment, ductwork, piping, controllers, conduit, wire, and accessories shall be installed in plain visible view without any walls, ceiling tiles, or ceilings installed. Stud walls with one exposed wall may be installed. Ceiling grids and ceiling light fixtures may not be installed. All ductwork and piping shall be non-insulated.

2. The Contractor shall contact the Architect/Engineer to schedule a pre-concealment site observation. The Engineer shall perform the observation within 72 hours of the notice of observation. It is the Contractor's sole responsibility to plan for and schedule this observation.

B. The Contractor shall walk the site with the Architect/Engineer and assist in providing ladders, flashlights, and access to equipment.

C. The Contractor shall have a red lined set of AS-BUILT information that has been edited as equipment is installed.

D. At the successful conclusion of the walk-through, the Contractor and Architect/Engineer shall sign the observation form on the AS-BUILT drawings.

ENGINEER'S SUBSTANTIAL COMPLETION OBSERVATION

A. Contractor Preparation:
1. All equipment and controls shall be operational. Systems commissioning and start up forms shall be completed and submitted to Architect/Engineer. Contractor's initial handwritten test and balance report shall be submitted. All smoke detectors and fire alarm hook-ups shall be operated and tested.
2. The Contractor shall contact the Architect/Engineer to schedule a substantial completion site observation. The Engineer shall perform the observation within 72 hours of the notice of observation. It is the Contractor's sole responsibility to plan for and schedule this observation.

B. The Contractor shall walk the site with the Architect/Engineer and assist in providing ladders, flashlights, and access to equipment.

C. Documents: The Contractor shall have a red lined set of AS-BUILT information that has been edited as equipment is installed.

D. Record start-up/commissioning information per Section 15995.

E. At the successful conclusion of the walk-through, the Contractor and Architect/Engineer shall sign the observation form on the AS-BUILT drawings. It is the Contractor's sole responsibility to plan for and schedule this observation.

F. As a minimum, the following shall be completed prior to issuance of substantial completion:
1. All systems and controls operational.
2. Initial test and balance complete and hand written report issued.
3. All life safety systems tested and operational.
4. Control system controls, all space temperatures, outside air dampers, and equipment start / stop times programmed.