

Division 10 – Specialties

General

Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

Conduct pre-installation meetings for each component of this Division at the Project site.

Visual Display Surfaces

Tackboard: Framed or unframed, tackable, visual display board assembly.

Visual Display Board Assembly: Visual display surface that is factory fabricated into composite panel form, either with or without a perimeter frame; includes chalkboards, markerboards, and tackboards.

Visual Display Surface: Surfaces that are used to convey information visually, including surfaces of chalkboards, markerboards, tackboards, and surfacing materials that are not fabricated into composite panel form but are applied directly to walls.

For each type of product indicated, submit construction details, material descriptions, dimensions of individual components and profiles, finishes for visual display surfaces, and maintenance instructions.

Obtain each type of visual display surfaces from single source from single manufacturer.

As determined by testing identical products according to ASTM E 84 by a qualified testing agency.

Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: 25 or less.
2. Smoke-Developed Index: 50 or less.

Build mockups to verify selections made under sample submittals and to demonstrate appearance and aesthetic effects and set quality standards for installation.

1. Build mockup of typical wall area in classroom as designated by architect. Include accessories.
2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

Store visual display surfaces vertically with packing materials between each unit.

Do not deliver or install visual display surfaces until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above ceilings is complete, and temporary HVAC system is operating

and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

Submit special warranty for porcelain-enamel face sheets in which manufacturer agrees to repair or replace porcelain-enamel face sheets that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
 - a. Surfaces lose original writing and erasing qualities.
 - b. Surfaces exhibit crazing, cracking, or flaking.
2. Warranty Period shall be 50 years from date of Substantial Completion.

Porcelain-Enamel Face Sheet shall meet ASTM A 424 requirements, with enameling-grade steel, uncoated thickness indicated; with exposed face and edges coated with primer, 1.7-to-2.5-mil thick ground coat, and color cover coat; and with concealed face coated with primer and 1.7-to-2.5-mil thick ground coat.

1. Gloss-Finish Cover Coat: Gloss as indicated; dry-erase markers wipe clean with dry cloth or standard eraser. Minimum 3.0-to-4.0-mil thick cover coat. Cover and ground coats shall be fused to steel at manufacturer's standard firing temperatures but not less than 1475 deg F.
 - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) PolyVision Corporation, a Steelcase company; P3 ceramic steel Markerboard.
 - 2) Marsh Industries; Pro-Rite White Board.
 - B. Natural Cork Sheet: Seamless, single-layer, compressed fine-grain cork sheet; bulletin board quality; face sanded for natural finish with surface-burning characteristics indicated.

Particleboard shall meet ANSI A208.1, Grade M-1, made with binder containing no urea formaldehyde.

Extruded Aluminum shall meet ASTM B 221, Alloy 6063.

Porcelain-enamel markerboard assembly shall be balanced, high-pressure, factory-laminated markerboard assembly of three-ply construction consisting of backing sheet, core material, and porcelain-enamel face sheet with high gloss finish. Particleboard core shall be 1/2 inch thick; with 0.015-inch thick, aluminum sheet backing. Laminating adhesive to be manufacturer's standard, moisture-resistant thermoplastic type.

Glass markerboards shall be fixed, magnetic, glass dry-erase marker boards. Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the work include, but are not limited to the following:

1. Glass Whiteboard.com
2. Krystal Glass Writing Boards

Size to be indicated on drawings. Other components include but not limited to:

1. Steel laminated to glass.
2. Components (back to front).
 - a. Steel: 0.024-inch thick steel plate.
 - b. Adhesive: Acrylic adhesive sheet.
 - c. Coating: White enamel baked-on coating.
 - d. Glass: 6-mm thick, tempered, low-iron glass with 1 inch bevel edges and radius corners.
3. Surface: Does not absorb inks or stains, eliminates ghosting.
4. Shop fabricated.
5. Mounting Hardware:
 - a. Edge grips: Round brushed stainless steel.
 - b. 3/16 inch toggle bolts

Natural-Cork Tackboard to be 1/4-inch thick, natural cork sheet factory laminated to 1/4-inch thick particleboard backing.

Aluminum Frames and Trim shall be fabricated from not less than 0.062-inch thick, extruded aluminum; slim size and standard shape.

1. Factory-Applied Trim: Manufacturer's standard.

Chalk tray shall be manufacturer's standard, continuous, solid type, extruded aluminum with ribbed section and smoothly curved exposed ends.

Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

Aluminum finishes to be clear anodic finish per AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.

Comply with manufacturer's written instructions for surface preparation.

Clean visual display surfaces according to manufacturer's written instructions. Attach one cleaning label to visual display surface in each room. Touch up factory-applied finishes to restore damaged or soiled areas. Cover and protect visual display surfaces after installation and cleaning.

Toilet Compartments

Toilet compartments and urinal screen materials will be determined by the Project Design Team.

Submit for each type of product indicated: construction details, material descriptions, dimensions of individual components and profiles, and finishes.

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Submit shop drawings for toilet compartments including plans, elevations, sections, details, and attachments to other work.

1. Show locations of cutouts for compartment-mounted toilet accessories.
2. Show locations of reinforcements for compartment-mounted grab bars.
3. Show locations of centerlines of toilet fixtures.
4. Show overhead support or bracing locations.

Submit samples for verification for the following products, in manufacturer's standard sizes unless otherwise indicated:

1. Each type of material, color, and finish required for units, prepared on 6-inch- square Samples of same thickness and material indicated for Work.
2. Each type of hardware and accessory.

Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities" and TAS (Texas Accessibility Standards) for toilet compartments designated as accessible.

Comply with requirements in GSA's CID-A-A-60003, "Partitions, Toilets, Complete."

Verify actual locations of toilet fixtures, walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication.

For overhead-braced units, provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.

For urinal-screen posts, provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment at bottoms of posts. Provide shoes and sleeves (caps) at posts to conceal anchorage.

Door sizes and swings, unless otherwise indicated, to be 24-inch-wide, in-swinging doors for standard toilet compartments and 36-inch-wide, out-swinging doors with a minimum 32-inch-wide, clear opening for compartments designated as accessible.

Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

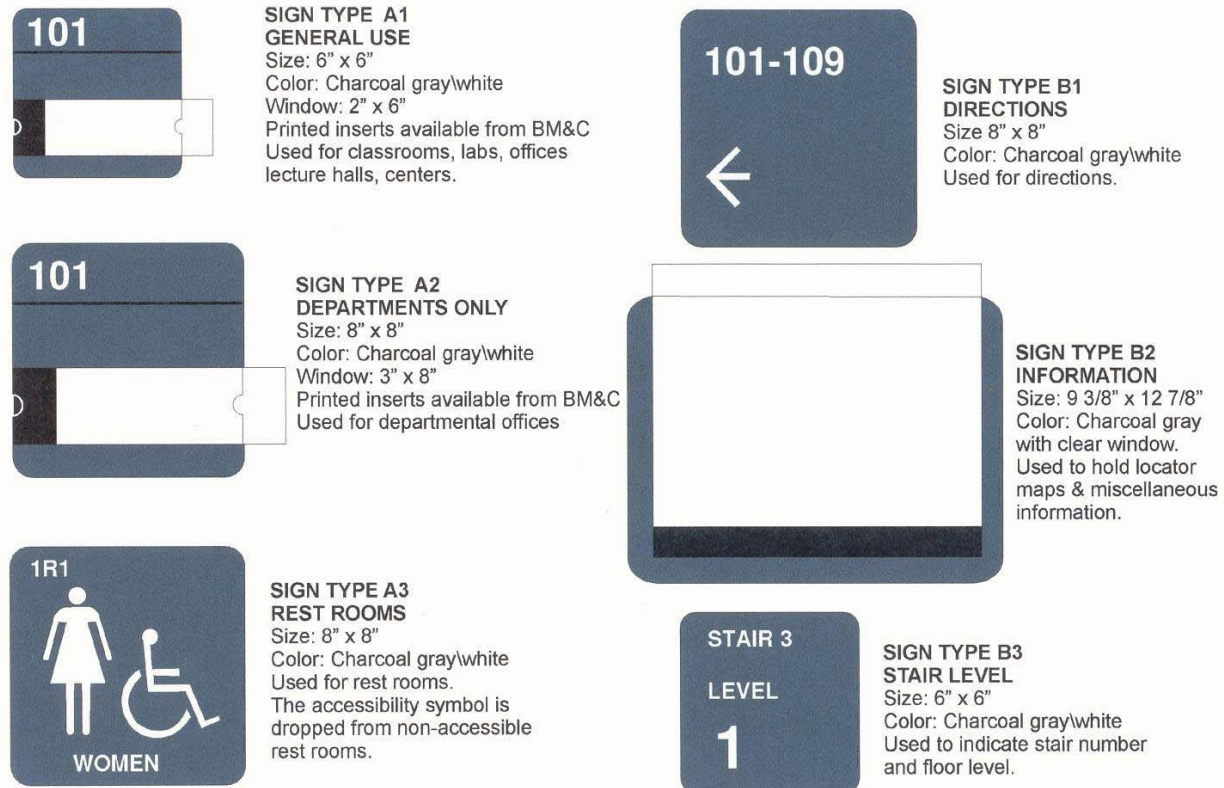
Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.

Signage

Please reference the Texas Tech University Operating Policy and Procedure OP 61.20 “*Interior Signs on Buildings and Facilities*”. The purpose of this Operating Policy/Procedure (OP) is to establish a standard for interior signs. This OP is necessary to ensure compliance with the Texas Architectural Barriers Act and to maintain university construction standards as required by the state Legislature and the Board of Regents.

The following is a list of university approved interior sign types. Samples are shown on the attachment to this OP:

Type	Function	Features
A1	General Use	Card Slot
A2	Departments Only	Card Slot
A3	Rest Room	Accessibility Symbols
A4	Custodial, Mechanical	
B1	Directions	
B2	Information	Letter Size Window
B3	Stair Level	
B4	Emergency/Warning	
B5	Elevator	
B6	No Smoking	
B7	Blank Plate	
C1	Aluminum Wall Directory	



Building Maintenance and Construction will review the sign request with Physical Plant Engineering Services for code compliance and with Planning and Administration for correct room numbers.

Please reference the Texas Tech University Operating Policy and Procedure OP 61.21 "Room Numbering Standard". This Operating Policy/Procedure (OP) establishes a standard university procedure for room numbering. This OP is necessary to ensure compliance with codes and to maintain university construction standards as required by the state Legislature and the Board of Regents. The policy and procedures outlined in this document are designed for consistency in room numbering, with some flexibility for special cases. This comprehensive plan meets the university's needs and supports room numbering standards.

The Design Professional shall submit floor plans for construction to the FP&C Project Manager who will forward them to be numbered, checked for accuracy and adherence to policy by the Operations Division Planning & Administration (ODPA).

A building's rooms will be renumbered if the building has a major renovation that impacts the agreed flow of numbering as determined by ODPA, has numerous cumulative changes, or is in violation of codes and/or policy.

For a major renovation, the FP&C and/or PPES project manager will include the renumbering and re-keying costs within the renovation budget and submit a copy of the plans to ODPa prior to the start of the new construction or renovation project.

All room signage must be in compliance with the Americans with Disabilities Act (ADA) guidelines.

Room Number Assignment Process

1. The design professional assigns tentative room numbers in accordance with the *Procedures for Room Numbering Standards*. See OP 61.21 attachment
2. The project manager reviews the initial numbering and electronically submits to ODPa a floor plan with room numbers included
3. ODPa reviews the floor plan and makes corrections, if needed
4. The project manager corrects the numbering and resubmits to ODPa
5. ODPa approves the corrections and final room numbering and returns the floor plan to the project manager
6. The project manager forwards the numbered floor plan with ODPa approval to BM&C and the Lock Shop to begin the actual keying and signage process

The new signs will be the university standard for signs and directories. Refer to OP 61.20 for the types.

Please reference the Texas Tech University Operating Policy and Procedure OP 61.22 "*Exterior Signs on Buildings and Facilities*". The purpose of this Operating Policy/Procedure (OP) is to establish a standard procedure for locating exterior signs on buildings or facilities. This OP is necessary to ensure compliance with the Board of Regents' policy for building names and to maintain university design and construction standards as required by the state legislature and the Board of Regents.

All exterior signs on buildings shall comply with Section 08.05, TTU system buildings and facilities naming, *Regents' Rules*.

Exterior Sign Types

The exterior signs for building names will conform to the following specifications:

1. Cast aluminum letters with a brushed satin finish
2. Futura font
3. Eight-inch or ten-inch letter size as appropriate for the building application
4. Located on the building in such a manner that it is easily readable and not obstructed by the building architectural features or surrounding landscaping items
5. Anchored to the building so that the anchor points are drilled into the existing mortar joints whenever possible

The exterior ADA/TABA-accessible entry signs will be made with a dark brown background and white letters from exterior grade plastic or aluminum.

Please reference the Texas Tech University Operating Policy and Procedure OP 61.19 “*Freestanding Exterior Signs*”. The purpose of this Operating Policy/Procedure (OP) is to establish standards for freestanding exterior signs to ensure consistency with the architectural and landscape character of the university with maximum resistance to weathering and vandalism and with minimum continuing maintenance costs.

Requests for other types of exterior signs on buildings and facilities that do not conform to the specifications above shall be submitted to the FP&C design team for approval. A rendering of the new signage will be necessary for approval.

Obtain each sign type indicated from one source from a single manufacturer.

Comply with applicable provisions in ADA-ABA Accessibility Guidelines and TAS (Texas Accessibility Standards).

Submit manufacturer's standard warranty form in which manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within a five year warranty period. Failures include, but are not limited to the following:

1. Deterioration of metal and polymer finishes beyond normal weathering.
2. Deterioration of embedded graphic image colors and sign lamination.

Aluminum Castings to be in compliance with ASTM B 26/B 26M, of alloy and temper recommended by sign manufacturer for casting process used and for use and finish indicated.

Aluminum Sheet and Plate to be in compliance with ASTM B 209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of Alloy 5005-H32.

Aluminum Extrusions to be in compliance with ASTM B 221, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of Alloy 6063-T5.

High Pressure Laminate to be in compliance with ASTM E 162 Flammability.

Acrylic Sheet to be in compliance with ASTM D 4802, Category A-1 (cell-cast sheet), and be Type UVA (UV absorbing).

Applied Vinyl to be in compliance with die-cut characters from vinyl film of nominal thickness of 3 mils with pressure-sensitive adhesive backing, and is suitable for exterior applications.

Produce cast characters with smooth flat faces, sharp corners, and precisely formed lines and profiles, free of pits, scale, sand holes, and other defects. Cast lugs into back of characters and tap to receive threaded mounting studs. Alloy and temper recommended by sign manufacturer for casting process used and for use and finish indicated.

Provide cutout characters with square-cut, smooth, beveled edges.

Building plaques to be owner provided and Contractor installed.

Interior Panel Signs to be smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally from corner to corner, complying with the following requirements:

1. Acrylic Sheet: 0.080 inch thick.
2. Laminated Sheet: High-pressure engraved stock with contrasting color face laminated to acrylic core in finishes and color combinations as selected by Architect from manufacturer's full range.
3. Edge Condition: Squared.
4. Corner Condition: Rounded.
5. Mounting: Unframed.
 - a. Wall mounted with two-face tape.
6. Color: As selected by Architect from manufacturer's full range.
7. Tactile Characters: Characters and Grade 2 Braille raised 1/32 inch above surface with contrasting colors.

Specify changeable message inserts to allow insertion of changeable messages in the form of slide-in inserts per Texas Tech University Standards.

For tactile and braille signs, specify manufacturer's standard process for producing text and symbols complying with ADA-ABA Accessibility Guidelines and with ICC/ANSI A117.1. Text shall be accompanied by Grade 2 Braille. Produce precisely formed characters with square-cut edges free from burrs and cut marks; Braille dots with domed or rounded shape. Panel material to be photopolymer per Texas Tech University Standards with raised-copy thickness of not less than 1/32 inch.

Provide manufacturer's standard signs of configurations indicated.

1. Welded Connections: Comply with AWS standards for recommended practices in shop welding. Provide welds behind finished surfaces without distortion or discoloration of exposed side. Clean exposed welded surfaces of welding flux and dress exposed and contact surfaces.
2. Mill joints to tight, hairline fit. Form joints exposed to weather to exclude water penetration.
3. Preassemble signs in the shop to greatest extent possible. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in

location not exposed to view after final assembly.

4. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.
5. For signs mounted on brick, fabricate signs and letters so that fasteners are located in mortar joints.

Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

Clear anodic finish to be manufacturer's standard Class 1 clear anodic coating, 0.018 mm or thicker, over a satin (directionally textured) mechanical finish, complying with AAMA 611.

After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.

Fire Extinguisher Cabinets

Submit for each type of product including construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher cabinets. Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style, panel style, and maintenance manuals.

Coordinate the size of fire protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.

Coordinate size of fire protection cabinets to ensure that type and capacity of fire hoses, hose valves, and hose racks indicated are accommodated.

Coordinate sizes and locations of fire protection cabinets with wall depths.

Fire-rated, Fire Protection Cabinets are to be listed and labeled to comply with requirements in ASTM E 814 for fire-resistance rating of walls where they are installed.

Materials from Cold-Rolled Steel Sheet shall meet the requirements of ASTM A 1008/A 1008M, Commercial Steel (CS), Type B. Materials from Stainless-Steel Sheet shall meet the requirements of ASTM A 666, Type 304.

Recessed Cabinet to be recessed in walls of sufficient depth to suit style of trim indicated.

1. Trimless with Concealed Flange: Surface of surrounding wall finishes flush with exterior finished surface of cabinet frame and door, without overlapping trim attached to cabinet. Provide recessed flange, of same material as box, attached to box to act as drywall bead.
 - a. Trimless with Hidden Flange: Where depth of wall is insufficient to utilize trimless with concealed flange, use Trimless with Hidden Flange. Flange of same metal and finish as box overlaps surrounding wall finish and is concealed from view by an overlapping door.

Semirecessed Cabinet to be partially recessed in walls of sufficient depth to suit style of trim indicated; with one-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend). Provide where walls are of insufficient depth for recessed cabinets but are of sufficient depth to accommodate semirecessed cabinet installation.

1. Square-Edge Trim: 1-1/4- to 1-1/2-inch backbend depth.
 - a. Rolled-Edge Trim: Where walls are of insufficient depth for square-edged trim, provide rolled edge trim of smallest dimensioned backbend depth not exceeding 4-inches that will accommodate fire extinguisher indicated.

Cabinet construction for nonrated and 1-hour fire rated:

1. Fire-Rated Cabinets: Construct fire-rated cabinets with double walls fabricated from 0.0428-inch thick, cold-rolled steel sheet lined with minimum 5/8-inch thick, fire-barrier material. Provide factory-drilled mounting holes.

Cabinet trim material to be the same material and finish as door.

Door Style to be flush opaque panel, frameless, with no exposed hinges where an available option for mounting. For other conditions, solid opaque panel with frame.

Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.

1. Provide recessed door pull and friction latch.
2. Provide continuous hinge at flush panel doors and continuous hinge, of same material and finish as trim at other door types; all permitting door to open 180 degrees.
3. No lock shall be provided on the door.

Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes

Lettering of the cabinet shall comply with authorities having jurisdiction for letter style, size, spacing, and location. Locate as directed by Architect.

Identify fire extinguisher in fire protection cabinet with the words "FIRE EXTINGUISHER."

- 1) Location: Applied to cabinet door.
- 2) Application Process: Pressure-sensitive vinyl letters.
- 3) Lettering Color: White or another color selected by architect with the approval of the authority having jurisdiction, if white does not provide sufficient contrast with selected wall color.
- 4) Orientation: Vertical with letters rotated counter-clockwise 90 degrees so as to be read from the right hand edge.

Cabinet finishes as per Project Team's recommendations.

Install fire protection cabinets in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction.

Fire Extinguishers

Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

Fire Extinguishers shall be listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

1. Provide fire extinguishers approved, listed, and labeled by FMG.
2. Provide fire extinguishers that are non DOT rated.

Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

Specify to submit a manufacturer's standard warranty form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
 - a. Failure of hydrostatic test according to NFPA 10.
 - b. Faulty operation of valves or release levers.
2. The warranty period shall be six years from date of Substantial Completion.

For normal hazards, fire extinguishers shall be multipurpose dry-chemical type in steel container : UL-rated 4-A:60-B:C, 10-lb nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container.

Install fire extinguishers in locations indicated and in compliance with requirements of authorities having jurisdiction.

Automated External Defibrillator (AED)

The Owner will furnish the automated external defibrillator(s) (AED) and the contractor will be responsible for the installation. Install the AED/s at location(s) identified by the Owner. The TTU standard AED is the ZOLL AED Plus.

Toilet Accessories

Toilet tissue dispenser shall be Bradley Model 5402 stainless steel surface mounted dual roll.

Hand soap dispenser shall be GOJO TFX Touch Free Dispenser – Black.

Hand towel dispenser shall be Kimberly Clark Model 09996.

Do not specify recessed trash units. TTU will supply freestanding 30 gallon unit(s).

Janitorial Accessories

TTU Project Manager will furnish the architect a TTU standard custodial room layout. Janitor's utility shelves shall be stainless steel Bradley Model 9933 or model 9934.

Bird Deterrent System

The design team shall specify an Avian Flyaway bird deterrent system. The system is based on behavior modification techniques to train birds to avoid buildings.

System is to be installed with little or no aesthetic impact. Installation shall be coordinated with the project team.

Warning decals shall be in English and Spanish.

Electrical enclosures shall be weatherproof.

System parts and labor shall be warranted for a minimum of one year from substantial completion.

Installers shall have a minimum of 5 years of experience.

Flagpoles

Flagpoles will be specified as one piece, conical tapered, seamless 6063-T6 aluminum with deep luster satin aluminum finish and rated for high wind areas. A vandal resistant cable based internal halyard winching assembly will also be specified. The Basis of Design will be the Independence Series flagpole by Concord Industries, Inc. <http://www.flagsystems.org/>.

All flag poles to be 50 feet maximum in height and accessible so the TTU Grounds Department can reach with a bucket truck.

Revolving trucks and finial balls will be specified on top of poles. Flagpoles will be designed with in-set ground up lighting to conform with federal flag etiquette requirements for night time representation of the national and stage flags.