



NORTHWESTERN UNIVERSITY

MASTER SPECIFICATIONS

Division 10 – SPECIALTIES

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NORTHWESTERN UNIVERSITY

PROJECT NAME _____

JOB # _____

FOR: _____

ISSUED: 03/29/2017

MASTER SPECIFICATIONS: DIVISION 10 – SPECIALTIES

<u>SECTION #</u>	<u>TITLE</u>
10 1100	VISUAL DISPLAY UNITS
10 2113.15	STAINLESS-STEEL TOILET COMPARTMENTS
10 2113.19	PLASTIC TOILET COMPARTMENTS
10 2239	FOLDING PANEL PARTITIONS
10 2800	TOILET, BATH, AND LAUNDRY ACCESSORIES

*** End of List ***

SECTION 10 1100 - VISUAL DISPLAY UNITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Visual display board assemblies.
 - 2. Floor-to-ceiling visual display assemblies.
 - 3. Rail support systems for visual display board assemblies.
 - 4. Sliding visual display units.
 - 5. Glass markerboards.
 - 6. Display rails.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, finishes, and accessories for visual display units.
 - 2. Include electrical characteristics for motorized units.
- B. LEED Submittals:
 - 1. Product Data for Credit IEQ 4.1: For adhesives, documentation including printed statement of VOC content.
 - 2. Product Data for Credit IEQ 4.4: For composite wood products, documentation indicating that the product contains no urea formaldehyde.
- C. Shop Drawings: For visual display units.
 - 1. Include plans, elevations, sections, details, and attachment to other work, including location of required backing and blocking that is required.
 - 2. Show locations of panel joints. Show locations of field-assembled joints for factory-fabricated units too large to ship in one piece.
 - 3. Show locations and layout of special-purpose graphics.
 - 4. Include sections of typical trim members.
 - 5. Include wiring diagrams for power and control wiring.
- D. Samples for Initial Selection: For each type of visual display unit indicated, for units with factory-applied color finishes, and as follows:

1. Samples of facings for each visual display panel type, indicating color and texture.
2. Provide 6-inch square sample panel to demonstrate magnetic properties of panels.
3. Actual factory-finish color samples, applied to aluminum substrate.
4. Include accessory Samples to verify color selected.

E. Samples for Verification: For each type of visual display unit indicated.

1. Visual Display Panel: Not less than 8-1/2 by 11 inches (215 by 280 mm), with facing, core, joint and joint material, and backing indicated for final Work. Include one panel for each type, color, and texture required.
2. Trim: 6-inch- (150-mm-) long sections of each trim profile.
3. Rail Support System: 6-inch- (152-mm-) long sections.
4. Accessories: Full-size Sample of each type of accessory.
5. Provide sample joint and seaming to demonstrate that joint system are not stained or permanently marked by pens.

F. Product Schedule: For visual display units. Schedule shall include the following information:

1. Location
2. Type of visual display unit.
3. Overall size of the display unit.
4. Mounting height.
5. Mounting system.
6. Accessories.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for surface-burning characteristics.
- C. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For visual display units and motorized units to include in cleaning instructions and maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Comply with the most current edition of the Northwestern University Design Standards.
- B. Installer Qualifications: An entity that employs installers and supervisors with a minimum of 5-years of experience who are trained and approved by manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver factory-fabricated visual display units completely assembled in one piece. If dimensions exceed maximum manufactured unit size, or if unit size is impracticable to ship in one piece, provide two or more pieces with joints in locations indicated on approved Shop Drawings.

1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install visual display units 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.
- B. Field Measurements: Verify actual dimensions of construction contiguous with visual display units by field measurements before fabrication.
 - 1. Allow for trimming and fitting where taking field measurements before fabrication might delay the Work.

1.9 WARRANTY

- A. Warranty: Manufacturer agrees to repair or replace components of visual display units that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Ten years from date of Substantial Completion.
- B. Special Warranty for Porcelain-Enamel Face Sheets: 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: Life of the building.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain each type of visual display unit from single source from single manufacturer and shall be produced in the same run to ensure that no color deviation occurs.

2.2 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E 84; testing 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.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.3 VISUAL DISPLAY BOARD ASSEMBLY

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. A-1 Visual Systems.
 2. AARCO Products, Inc.
 3. AJW Architectural Products.
 4. Architectural School Products Ltd.
 5. Claridge Products and Equipment, Inc.
 6. Deko.
 7. Egan Visual Inc.
 8. Forbo
 9. Marsh Industries, Inc.
- B. Visual Display Board Assembly: factory fabricated.
1. Assembly: [Chalkboard] [markerboard] [and] [tackboard].
 2. Corners: [**Square**] [**Rounded**].
 3. Width: [As indicated on Drawings].
 4. Height: [As indicated on Drawings].
 5. Mounting Method: [Direct to wall] [Rail support system] [Modular support system].
- C. Chalkboard Panel: [Porcelain-enamel-faced] [High-pressure laminate-faced] [Melamine-faced] [Painted-finish-faced] chalkboard panel on core indicated.
1. Color: [As selected by Architect from full range of industry colors] <Insert color>.
- D. Markerboard Panel: Porcelain-enamel-faced markerboard panel on core indicated.
1. Color: <Insert color>.
- E. Tackboard Panel: [Natural-cork] [Plastic-impregnated-cork] [Vinyl-fabric-faced] [Polyester-fabric-faced] tackboard panel on core indicated.
1. Fabric Wrapped Edge: Wrap edge of tackboard panel with fabric facing.
 2. Color and Pattern: [As selected by Architect from full range of industry colors].
- F. Aluminum Frames and Trim: Fabricated from not less than 0.062-inch- (1.57-mm-) thick, extruded aluminum; [**standard size and shape**] [**slim size and standard shape**].
1. Field-Applied Trim: Manufacturer's standard, [snap-on trim with no visible screws or exposed joints] [slip-on trim] [screw-on trim with Phillips flat-head screws].
 2. Aluminum Finish: [Clear anodic] [Color anodic] [Manufacturer's standard baked-enamel or powder-coat] finish.
 - a. Color: [Light bronze] [Medium bronze] [Dark bronze] [Black] [As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from full range of industry colors and color densities] <Insert color>.
- G. Factory-Applied Wood Trim: <Insert species>, not less than 1/2 inch (13 mm) thick; [**standard size and shape**] [**of size and shape indicated on Drawings**] with [**opaque**] [**transparent**] finish.

- H. Field-Applied Wood Trim: Comply with requirements specified in [Section 062023 "Interior Finish Carpentry."] [Section 064600 "Wood Trim."]
- I. Joints: Make joints only where total length exceeds maximum manufactured length. Fabricate with minimum number of joints, balanced around center of board, as acceptable to Architect.
- J. Combination Assemblies: Provide [**manufacturer's standard exposed trim**] [**H-trim**] [**hidden spline**] between abutting sections of visual display panels.
- K. Chalktray: Manufacturer's standard; continuous.
1. Box Type: Extruded aluminum with slanted front, grooved tray, and cast-aluminum end closures.
 2. Solid Type: Extruded aluminum with ribbed section and smoothly curved exposed ends.
- L. Display Rail: Manufacturer's standard, extruded-aluminum display rail with [**plastic-impregnated-cork**] <Insert material> insert, end stops, [**and continuous paper holder**], designed to hold accessories.
1. Size: [**1 inch (25 mm)**] [**2 inches (50 mm)**] [**3 inches (75 mm)**] high by [full length of visual display unit] [length indicated on Drawings].
 2. Map Hooks: [**Two**] <Insert number> map hooks for every [**48 inches (1200 mm)**] <Insert dimension> of display rail or fraction thereof.
 3. Map Hooks and Clips: [**Two**] <Insert number> map hooks with flexible metal clips for every [**48 inches (1200 mm)**] <Insert dimension> of display rail or fraction thereof.
 4. Flag Holder: [**One**] <Insert number> for each room.
 5. Tackboard Insert Color: [As selected by Architect from full range of industry colors] <Insert color>.
 6. Aluminum Color: Match finish of visual display assembly trim.
- M. Paper Holder Display Rail: Extruded aluminum; designed to hold paper by clamping action.
- N. Special-Purpose Graphics: Fuse or paint <Insert description of special-purpose graphics> graphic onto surface of porcelain-enamel visual display unit[, in locations indicated].

2.4 FLOOR-TO-CEILING VISUAL DISPLAY ASSEMBLIES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. AJW Architectural Products.
 2. Claridge Products and Equipment, Inc.
 3. Egan Visual Inc.
- B. Floor-to-Ceiling Markerboard Panel Assemblies: Consisting of markerboard panels with porcelain-enamel facing on core indicated, fabricated for floor-to-ceiling assemblies.
1. Color: [**As selected by Architect from full range of industry colors**] <Insert color>.
- C. Floor-to-Ceiling Tackboard Panel Assemblies: Consisting of tackboard panels with [**natural-cork**] [**plastic-impregnated-cork**] [**vinyl-fabric**] [**polyester-fabric**] facing on core indicated, fabricated for floor-to-ceiling assemblies.

1. Edge Treatments:
 - a. Panel-Joint Edges: **[Wrapped with fabric] [Concealed by fabric-covered trim]**.
 - b. Top-of-Wall Edges: **[Wrapped with fabric] [Concealed by fabric-covered trim]**.
 - c. Bottom-of-Wall Edges: **[Wrapped with fabric] [Concealed by fabric-covered trim]**.
 - d. Corners: **[Wrapped with fabric] [Concealed by fabric-covered trim]**.
2. Color: **[As selected by Architect from full range of industry colors] <Insert color>**.

D. Width: **[As indicated on Drawings] <Insert dimension>**.

E. Height: **[As indicated on Drawings] <Insert dimension>**.

F. Joint Accessories: Manufacturer's standard, **[exposed color-matched trim] [fabric-covered trim] [concealed aluminum or steel spline]** at butt joints.

2.5 RAIL SUPPORT SYSTEM FOR VISUAL DISPLAY BOARD ASSEMBLIES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Claridge Products and Equipment, Inc.
2. Egan Visual Inc.
3. KOH Design, Inc.

B. Support Rails: Horizontal, wall-mounted, extruded-aluminum rails designed to receive hanger clip and to support visual display boards; **and capable of gripping and suspending paper directly from rail**.

1. Finish: **[Clear anodic] [Color anodic] [Manufacturer's standard baked enamel or powder coat]**.
2. Color and Gloss: **[Light bronze] [Medium bronze] [Dark bronze] [Black] [As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from manufacturer's full range] <Insert color and gloss>**.

C. Hanger Clips: Extruded aluminum with finish to match rails; designed to support independent visual display board assemblies by engaging support rail and top trim of board.

D. Visual Display Board Assemblies: Fabricated from not less than 3/8-inch- (9.5-mm-) thick, kraft-paper honeycomb core; designed to be rigid and to resist warpage, and with aluminum trim designed to engage hanger clips.

2.6 SLIDING VISUAL DISPLAY UNITS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. AJW Architectural Products.
2. Architectural School Products Ltd.
3. Aywon.
4. Claridge Products and Equipment, Inc.

- B. Horizontal-Sliding Visual Display Units: Factory-fabricated units consisting of extruded-aluminum tubular frame, fixed rear visual display panel, aluminum-framed horizontal-sliding visual display panels, and extruded-aluminum fascia that conceals overhead sliding track; designed for recessed mounting. Provide panels that operate smoothly without vibration or chatter.
1. Two-Track Units: Fabricate unit with fixed rear panel covering entire rear surface. Provide two sliding panels, each equal to not less than one-half of overall length of unit.
 2. Three-Track Units: Fabricate unit with fixed rear panel covering entire rear surface. Provide three sliding panels, each equal to not less than **[one-third]** **[one-half]** of overall length of unit.
 3. Four-Track Units: Fabricate unit with fixed rear panel centered in and covering not less than one-half of rear surface, and fixed front panel on each side of unit equal to not less than one-quarter of overall length of unit. Provide four sliding panels, each equal to not less than one-quarter of overall length of unit.
 4. Hardware: Manufacturer's standard, extruded-aluminum overhead track and channel-shaped bottom guides; with two nylon ball-bearing carriers and two nylon rollers for each sliding panel.
 5. Overall Width: As indicated on Drawings.
 6. Overall Height: As indicated on Drawings.
- C. Vertical-Sliding Visual Display Units: Factory-fabricated units consisting of extruded-aluminum tubular frame, fixed rear visual display panel, and aluminum-framed vertical-sliding panels; **[motor operated];** designed for recessed mounting. Provide panels that operate smoothly without vibration or chatter.
1. Type: Tubular frame on **[four sides]** **[top and two sides, with sides extending to floor; with kick panel to conceal sliding panels]**. Design unit to support panels independently of wall.
 2. Two-Track Units: Fabricate unit with fixed rear panel covering entire rear surface. Provide two sliding panels, each equal to not less than one-half of overall height of unit.
 3. Three-Track Units: Fabricate unit with fixed rear panel covering entire rear surface. Provide three sliding panels, each equal to not less than one-half of overall height of unit.
 4. Four-Track Units: Fabricate unit with fixed rear panel centered in and covering not less than one-half of rear surface. Provide four sliding panels, each equal to not less than one-half of overall height of unit.
 5. Hardware: Manufacturer's standard, neoprene ball-bearing end rollers, four on each side of each sliding panel. Counterbalance each sliding panel with counterweights supported by steel aircraft cable over ball-bearing sheaves; with removable cover plate for access to counterweights. Provide rubber bumpers at top and bottom for each sliding panel.
 6. Motorized Operation: Provide not less than one motor with gearhead reducers for each sliding panel, mounted above visual display unit and connected to sliding panels with steel aircraft cable. Provide removable cover plate for access to motor. Equip motors with limit switches to automatically stop motor at each end of travel.
 - a. Electric Motors: UL approved or recognized, totally enclosed, complying with NEMA MG 1, with thermal-overload protection; 1/15 hp, single phase, **[110]** **[220]** V, 60 Hz.
 - b. Control Station: Three-position, **[maintained]** **[momentary]** contact, switch-operated control station with open, close, and off functions; with NEMA ICS 6, Type 1 enclosure. Provide **<Insert number>** control station(s) for each sliding panel unit.
 7. Overall Width: As indicated on Drawings.
 8. Overall Height: As indicated on Drawings.

D. Panels and Accessories:

1. Sliding Chalkboard Panel: [**Porcelain-enamel-faced**] [**High-pressure laminate-faced**] chalkboard panel on kraft-paper honeycomb core designed to be rigid and to resist warpage, not less than 7/8 inch thick.
 - a. Color: [As selected by Architect from full range of industry colors] <Insert color>.
2. Sliding Markerboard Panel: [**Porcelain-enamel-faced**] markerboard panel on kraft-paper honeycomb core designed to be rigid and to resist warpage, not less than 7/8 inch thick.
 - a. Color: [As selected by Architect from full range of industry colors] <Insert color>.
3. Sliding Tackboard Panel: [**Natural-cork**] [**Plastic-impregnated-cork**] [**Vinyl-fabric-faced**] [**Polyester-fabric-faced**] tackboard panel on kraft-paper honeycomb core designed to be rigid and to resist warpage, not less than 3/8 inch (9.5 mm) thick.
 - a. Color and Pattern: [As selected by Architect from full range of industry colors].
4. Fixed Rear Chalkboard Panel: [**Porcelain-enamel-faced**] [**High-pressure laminate-faced**] chalkboard panel on core indicated.
 - a. Color: [As selected by Architect from full range of industry colors] <Insert color>.
5. Fixed Rear Markerboard Panel: Porcelain-enamel-faced markerboard panel on core indicated.
 - a. Color: [As selected by Architect from full range of industry colors] <Insert color>.
6. Fixed Rear Tackboard Panel: [Natural-cork] [Plastic-impregnated-cork] [Vinyl-fabric-faced] [Polyester-fabric-faced] tackboard panel on core indicated.
 - a. Color and Pattern: [As selected by Architect from full range of industry colors].
7. Kick Panel: Manufacturer's standard low-pressure laminate.
 - a. Color and Pattern: [As selected by Architect from full range of industry colors].
8. Accessories: [Chalktray] [locks] [and] [easel pad clamps].
9. Display Rail: Manufacturer's standard, extruded-aluminum display rail with [**plastic-impregnated-cork**] <Insert material> insert, end stops, [**and continuous paper holder**], designed to hold accessories.
 - a. Size: [**1 inch (25 mm)**] [**2 inches (50 mm)**] [**3 inches (75 mm)**] high by full length of visual display unit.
 - b. Map Hooks: [**Two**] <Insert number> map hooks for every [**48 inches (1200 mm)**] <Insert dimension> of display rail or fraction thereof.
 - c. Flag Holder: [**One**] <Insert number> for each sliding visual display unit.
 - d. Tackboard Insert Color: [As selected by Architect from full range of industry colors] <Insert color>.
10. Aluminum Trim: [Factory applied] [Field applied]; in [manufacturer's standard] <Insert description> size and profile; with [clear anodic] <Insert description> finish.

2.7 GLASS MARKERBOARDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. A-1 Visual Systems.
 2. Architectural School Products Ltd.
 3. Claridge Products and Equipment, Inc.
 4. Clarus Glassboards, LLC.
 5. Egan Visual Inc.
- B. Glass Markerboards: 6-mm tempered glass markerboard, with smooth polished edge and eased corners; **color coated on back surface**.
- C. Mounting: Round, stainless-steel standoffs, holding glass approximately 1 inch (25 mm) from wall surface; mounted through holes in markerboard.
- D. Color and Surface: [Glossy] [Matte] [white] [gray] [translucent] [clear] [black] [red] [blue].
- E. Marker Tray: Glass, supported by stainless-steel clips.
- F. Size: <Insert dimensions>.

2.8 DISPLAY RAILS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. AARCO Products, Inc.
 2. AJW Architectural Products.
 3. Aristocrat Industries, Inc.
 4. Claridge Products and Equipment, Inc.
 5. EverWhite.
- B. Aluminum Display Rail: Manufacturer's standard, extruded-aluminum display rail with **[plastic-impregnated-cork]** <Insert material> tackable insert, **[and continuous paper holder]**, designed to hold accessories.
- C. Paper Holder Display Rail: Extruded aluminum; designed to hold paper by clamping action.
1. Aluminum Finish: **[Clear anodic]** <Insert description> finish.
- D. Wood Display Rail: Manufacturer's standard wood display rail with **[plastic-impregnated-cork]** <Insert material> insert.
1. Finish: [Natural oak] <Insert finish>.
- E. Tackable Insert Color: [As selected by Architect from full range of industry colors] <Insert color>.
- F. Size: **[1 inch (25 mm)] [2 inches (50 mm)] [3 inches (75 mm)]** high by length indicated on Drawings.

G. End Stops: Aluminum.

H. Accessories:

1. Metal Map Hooks: Include **<Insert number>** map hooks per [room].
2. Roller Brackets: Include **<Insert number>** roller brackets per **[20 feet (6 m)]**.
3. Flag Holders: Include **<Insert number>** flag holder per [room].

2.9 CHALKBOARD PANELS

A. Porcelain-Enamel Chalkboard Panels: High-pressure, factory-laminated chalkboard panels of balanced three-ply construction, consisting of moisture-barrier backing, core material, and porcelain-enamel face sheet with matte finish. Laminate panels under heat and pressure with manufacturer's standard, flexible waterproof adhesive.

1. Face Sheet Thickness: 0.021 inch (0.53 mm) uncoated base metal thickness.
2. Medium-Density Fiberboard Core: 7/16 inch (11 mm) thick; with manufacturer's standard moisture-barrier backing.
3. Laminating Adhesive: Manufacturer's standard moisture-resistant thermoplastic type.

2.10 MARKERBOARD PANELS

A. Porcelain-Enamel Markerboard Panels: Balanced, high-pressure, factory-laminated markerboard assembly of three-ply construction, consisting of moisture-barrier backing, core material, and porcelain-enamel face sheet with **[high-gloss] [low-gloss]** finish. Laminate panels under heat and pressure with manufacturer's standard, flexible waterproof adhesive.

1. Face Sheet Thickness: 0.021 inch (0.53 mm) uncoated base metal thickness.
2. Medium-Density Fiberboard Core: 7/16 inch (11 mm) thick; with manufacturer's standard moisture-barrier backing.
3. Laminating Adhesive: Manufacturer's standard moisture-resistant thermoplastic type.

2.11 TACKBOARD PANELS

A. Tackboard Panels:

1. Facing: **[1/8-inch- (3-mm-) thick] [1/4-inch- (6-mm-) thick] [natural cork] [plastic-impregnated cork]**.
2. Facing: **[Vinyl] [Polyester]** fabric.
3. Facing: **[Vinyl] [Polyester]** fabric factory laminated to **[1/16-inch- (1.6-mm-) thick] [1/8-inch- (3-mm-) thick] [1/4-inch- (6-mm-) thick]** cork sheet.
4. Core: Manufacturer's standard.
5. Core: **[3/8-inch- (9.5-mm-) thick] [7/16-inch- (11-mm-) thick]** fiberboard.

2.12 MATERIALS

A. Porcelain-Enamel Face Sheet: PEI-1002, with face sheet manufacturer's standard two- or three-coat process.

B. High-Pressure Plastic Laminate: NEMA LD 3.

- C. Natural-Cork Sheet: Seamless, single-layer, compressed fine-grain cork sheet; bulletin board quality; face sanded for natural finish with surface-burning characteristics indicated.
- D. Plastic-Impregnated-Cork Sheet: Seamless, homogeneous, self-sealing sheet consisting of granulated cork, linseed oil, resin binders, and dry pigments that are mixed and calendared onto fabric backing; with washable vinyl finish and integral color throughout with surface-burning characteristics indicated.
- E. Vinyl Fabric: Mildew resistant, washable, complying with FS CCC-W-408D, Type II, [**burlap weave**] <Insert texture or pattern>; weighing not less than 13 oz./sq. yd. (440 g/sq. m); with surface-burning characteristics indicated.
- F. Polyester Fabric: Nondirectional weave, 100 percent polyester; weighing not less than 15 oz./sq. yd. (508 g/sq. m); with surface-burning characteristics indicated.
- G. Composite Wood Products: Products shall be made without urea formaldehyde.
- H. Hardboard: ANSI A135.4, tempered.
- I. Particleboard: ANSI A208.1, Grade M-1.
- J. Medium-Density Fiberboard: ANSI A208.2, Grade 130.
- K. Fiberboard: ASTM C 208 cellulosic fiber insulating board.
- L. Clear Tempered Glass: ASTM C 1048, Kind FT, Condition A, Type I, Class 1, Quality Q3, with exposed edges seamed before tempering.
- M. Extruded Aluminum: ASTM B 221 (ASTM B 221M), Alloy 6063.
- N. Adhesives for Field Application: Mildew-resistant, nonstaining adhesive for use with specific type of panels, sheets, or assemblies; and for substrate application; as recommended in writing by visual display unit manufacturer.
 - 1. Adhesives shall have a VOC content of 50 g/L or less.

2.13 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
 - 1. Protective covering shall not be removed from finished surface until final certificate of occupancy is granted. Protective covering shall be removed per the manufacturers recommendations.
- C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.14 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.
- B. Baked-Enamel or Powder-Coat Finish: AAMA 2603, except with a minimum dry film thickness of 1.5 mils (0.04 mm). Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, surface conditions of wall, and other conditions affecting performance of the Work.
- B. Examine roughing-in for electrical power systems to verify actual locations of connections before installation of motorized, sliding visual display units.
- C. Examine walls and partitions for proper preparation and backing for visual display units.
- D. Examine walls and partitions for suitable framing depth where sliding visual display units will be installed. Contractor shall pay particular attention to recessed pockets for counterweight assemblies.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions for surface preparation.
- B. Clean substrates of substances, such as dirt, mold, and mildew, that could impair the performance of and affect the smooth, finished surfaces of visual display boards.
- C. Prepare surfaces to achieve a smooth, dry, clean surface free of flaking, unsound coatings, cracks, defects, projections, depressions, and substances that will impair bond between visual display units and wall surfaces.
- D. Prime wall surfaces indicated to receive visual display units and as recommended in writing by primer/sealer manufacturer and visual display unit manufacturer.
- E. Prepare recesses for sliding visual display units as required by type and size of unit.

3.3 INSTALLATION

- A. General: Install visual display surfaces in locations and at mounting heights indicated on Drawings, or if not indicated, at heights indicated below. Keep perimeter lines straight, level, and plumb. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for complete installation.

- B. Field-Assembled Visual Display Board Assemblies: Coordinate field-assembled units with grounds, trim, and accessories indicated. Join parts with a neat, precision fit.
1. Make joints only where total length exceeds maximum manufactured length. Fabricate with minimum number of joints, balanced around center of board, as acceptable to Architect.
 2. Where size of visual display board assemblies or other conditions require support in addition to normal trim, provide structural supports or modify trim as indicated or as selected by Architect from manufacturer's standard structural support accessories to suit conditions indicated.
- C. Factory-Fabricated Visual Display Board Assemblies: Attach concealed clips, hangers, and grounds to wall surfaces and to visual display board assemblies with fasteners at not more than 16 inches (400 mm) o.c. Secure tops and bottoms of boards to walls.
- D. Visual Display Board Assembly Mounting Heights: Install visual display units at mounting heights indicated on Drawings, or if not indicated, at heights indicated below.
1. Mounting Height: 36 inches (914 mm) above finished floor to top of chalktray.
- E. Display Rails: Install rails at mounting heights indicated on Drawings, or if not indicated, at height indicated below. Attach to wall surface with fasteners at not more than 16 inches (400 mm) o.c.
1. Mounting Height: **[48 inches (1219 mm)] [60 inches (1524 mm)] [72 inches (1829 mm)]** <Insert dimension> above finished floor to top of rail.
- F. Floor-to-Ceiling Markerboard Panels: Attach panels to wall surface with egg-size adhesive gobs at 16 inches (400 mm) o.c., horizontally and vertically.
1. Join adjacent panels with concealed steel splines for smooth alignment.
- G. Floor-to-Ceiling Tackboard Panels: Attach panels to wall surface with egg-size adhesive gobs at 16 inches (400 mm) o.c., horizontally and vertically.
1. Install wrapped-edge panels with butt joints between adjacent wall panels.
 2. Join adjacent panels with exposed, H-shaped aluminum trim covered with same fabric as wall panels.
- H. Rail Support System: Install horizontal support rail at mounting heights indicated on Drawings, or if not indicated, at height indicated below. Attach to wall with fasteners at 12 inches (300 mm) o.c.
1. Mounting Height: **[72 inches (1829 mm)]** <Insert dimension> above finished floor to top of rail.
 2. Hang visual display units on rail support system.
- I. Sliding Visual Display Units: Install units at mounting heights indicated. Attach to wall framing with fasteners at not more than 16 inches (400 mm) o.c.
1. Adjust panels to operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.

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3.4 CLEANING AND PROTECTION

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

3.5 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain motorized, sliding visual display units.

END OF SECTION 10 1100

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SECTION 10 2113.15 - STAINLESS-STEEL TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes stainless-steel toilet compartments configured as toilet enclosures and urinal screens.
- B. Related Requirements:
 - 1. **[Section 061000 "Rough Carpentry"] [Section 061053 "Miscellaneous Rough Carpentry"]** for blocking.
 - 2. Section 102800 "Toilet, Bath, and Laundry Accessories" for toilet tissue dispensers, grab bars, purse shelves, and similar accessories mounted on toilet compartments.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for toilet compartments.
- B. LEED Submittals:
 - 1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
- C. Shop Drawings: For toilet compartments.
 - 1. Include plans, elevations, sections, details, and attachment details.
 - 2. Show locations of cutouts for compartment-mounted toilet accessories.
 - 3. Show locations of reinforcements for compartment-mounted grab bars and locations of blocking for surface-mounted toilet accessories.
 - 4. Show locations of centerlines of toilet fixtures.
 - 5. Show locations of floor drains.
- D. Samples for Initial Selection: For each type of toilet compartment material indicated.
 - 1. Include Samples of hardware and accessories involving material and color selection.

- E. 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 toilet compartments, prepared on 6-inch- (152-mm-) square Samples of same thickness and material indicated for Work.
 - 2. Each type of hardware and accessory.
- F. Product Schedule: For toilet compartments, prepared by or under the supervision of supplier, detailing location and selected colors for toilet compartment material.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of toilet compartment.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For toilet compartments to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Door Hinges: <Insert number> hinge(s) with associated fasteners.
 - 2. Latch and Keeper: <Insert number> latch(es) and keeper(s) with associated fasteners.
 - 3. Door Bumper: <Insert number> door bumper(s) with associated fasteners.
 - 4. Door Pull: <Insert number> door pull(s) with associated fasteners.
 - 5. Fasteners: <Insert number> fasteners of each size and type.

1.7 QUALITY ASSURANCE

- A. Comply with the most current edition of the Northwestern University Design Standards.

1.8 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Recycled Content of Metal Components: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for toilet compartments designated as accessible.

2.2 STAINLESS-STEEL TOILET COMPARTMENTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Accurate Partitions Corp.; ASI Group.
 2. American Sanitary Partition Corporation.
 3. Bradley Corporation.
 4. Knickerbocker Partition Corporation.
- B. Toilet-Enclosure Style: Floor mounted overhead braced.
- C. Urinal-Screen Style: Wall hung flat panel.
- D. Door, Panel, and Pilaster Construction: Seamless, metal facing sheets pressure laminated to core material; with continuous, interlocking molding strip or lapped-and-formed edge closures; corners secured by welding or clips and exposed welds ground smooth. Provide with no-sightline system. Exposed surfaces shall be free of pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections.
1. Core Material: Manufacturer's standard sound-deadening honeycomb of resin-impregnated kraft paper in thickness required to provide finished thickness of 1 inch (25 mm) for doors and panels and 1-1/4 inches (32 mm) for pilasters.
 2. Grab-Bar Reinforcement: Provide concealed internal reinforcement for grab bars mounted on units of size and material adequate for panel to withstand applied downward load on grab bar of at least 250 lbf (1112 N), when tested according to ASTM F 446, without deformation of panel.
 3. Tapping Reinforcement: Provide concealed reinforcement for tapping (threading) at locations where machine screws are used for attaching items to units.
- E. Urinal-Screen Construction:
1. Flat-Panel Urinal Screen: Matching panel construction.
- F. Facing Sheets and Closures: Stainless-steel sheet of nominal thicknesses as follows:
1. Pilasters, Braced at Both Ends: Manufacturer's standard thickness, but not less than 0.038 inch (0.95 mm).
 2. Pilasters, Unbraced at One End: Manufacturer's standard thickness, but not less than 0.050 inch (1.27 mm).
 3. Panels: Manufacturer's standard thickness, but not less than 0.031 inch (0.79 mm).
 4. Doors: Manufacturer's standard thickness, but not less than 0.031 inch (0.79 mm).
 5. Flat-Panel Urinal Screens: Thickness matching the panels.
- G. Pilaster Shoes and Sleeves (Caps): Stainless-steel sheet, not less than 0.031-inch (0.79-mm) nominal thickness and 3 inches (76 mm) high, finished to match hardware.
- H. Brackets (Fittings):
1. Full-Height (Continuous) Type: Manufacturer's standard design; stainless steel.
- I. Stainless-Steel Finish: No. 4 bright, directional polish on exposed faces. Protect exposed surfaces from damage by application of strippable, temporary protective covering before shipment.

2.3 HARDWARE AND ACCESSORIES

- A. Hardware and Accessories: Manufacturer's standard operating hardware and accessories.
 - 1. Material: Stainless steel.
 - 2. Hinges: Manufacturer's standard paired, self-closing type that can be adjusted to hold doors open at any angle up to 90 degrees, allowing emergency access by lifting door.
 - 3. Latch and Keeper: Manufacturer's standard surface-mounted latch unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.
 - 4. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent in-swinging door from hitting compartment-mounted accessories.
 - 5. Door Bumper: Manufacturer's standard rubber-tipped bumper at out-swinging doors.
 - 6. Door Pull: Manufacturer's standard unit at out-swinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible.
- B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.
- C. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless-steel, hot-dip galvanized-steel, or other rust-resistant, protective-coated steel anchors compatible with related materials.

2.4 MATERIALS

- A. Aluminum Castings: ASTM B 26/B 26M.
- B. Aluminum Extrusions: ASTM B 221 (ASTM B 221M).
- C. Brass Castings: ASTM B 584.
- D. Brass Extrusions: ASTM B 455.
- E. Stainless-Steel Sheet: ASTM A 666, Type 304, stretcher-leveled standard of flatness.
- F. Stainless-Steel Castings: ASTM A 743/A 743M.
- G. Zamac: ASTM B 86, commercial zinc-alloy die castings.

2.5 FABRICATION

- A. Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories and solid blocking within panel where required for attachment of toilet accessories.
- B. 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.

- C. Door Size and Swings: Unless otherwise indicated, provide 24-inch- (610-mm-) wide in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide out-swinging doors with a minimum 32-inch- (813-mm-) wide clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for fastening, support, alignment, operating clearances, and other conditions affecting performance of the Work.
 - 1. Confirm location and adequacy of blocking and supports required for installation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
 - 1. Maximum Clearances:
 - a. Pilasters and Panels: 1/2 inch (13 mm).
 - b. Panels and Walls: 1 inch (25 mm).
 - 2. Full-Height (Continuous) Brackets: Secure panels to walls and to pilasters with full-height brackets.
 - a. Locate bracket fasteners so holes for wall anchors occur in masonry or tile joints.
 - b. Align brackets at pilasters with brackets at walls.
- B. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Set pilasters with anchors penetrating not less than 1-3/4 inches (44 mm) into structural floor unless otherwise indicated in manufacturer's written instructions. Secure continuous head rail to each pilaster with no fewer than two fasteners. Hang doors to align tops of doors with tops of panels, and adjust so tops of doors are parallel with overhead brace when doors are in closed position.
- C. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

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3.3 ADJUSTING

- A. Hardware Adjustment: 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.

END OF SECTION 10 2113.15

SECTION 10 2113.19 - PLASTIC TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Solid-plastic toilet compartments configured as toilet enclosures and urinal screens.

- B. Related Requirements:

- 1. Section 102800 "Toilet, Bath, and Laundry Accessories" for toilet tissue dispensers, grab bars, purse shelves, and similar accessories mounted on toilet compartments.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for toilet compartments.

- B. LEED Submittals:

- 1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.

- C. Shop Drawings: For toilet compartments.

- 1. Include plans, elevations, sections, details, and attachment details.
 - 2. Show locations of centerlines of toilet fixtures.
 - 3. Show locations of floor drains.

- D. Samples for Initial Selection: For each type of toilet compartment material indicated.

- 1. Include Samples of hardware and accessories involving material and color selection.

- E. 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 toilet compartments, prepared on 6-inch- (152-mm-) square Samples of same thickness and material indicated for Work.

2. Each type of hardware and accessory.

F. Product Schedule: For toilet compartments, prepared by or under the supervision of supplier, detailing location and selected colors for toilet compartment material.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of toilet compartment.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For toilet compartments to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents and source.

1. Door Hinges: <Insert number> hinge(s) with associated fasteners.
2. Latch and Keeper: <Insert number> latch(es) and keeper(s) with associated fasteners.
3. Door Bumper: <Insert number> bumper(s) with associated fasteners.
4. Door Pull: <Insert number> door pull(s) with associated fasteners.
5. Fasteners: <Insert number> fasteners of each size and type.

1.7 QUALITY ASSURANCE

A. Comply with the most current edition of the Northwestern University Design Standards.

1.8 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Recycled Content of Solid-Plastic Components: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 10 percent.
- B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for toilet compartments designated as accessible.

2.2 SOLID-PLASTIC TOILET COMPARTMENTS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Santana Products, Inc.

- B. Toilet-Enclosure Style: Floor Mounted Overhead braced.
- C. Urinal-Screen Style: Wall hung.
- D. Door, Panel, and Pilaster Construction: Solid, high-density polyethylene (HDPE) panel material, not less than 1 inch (25 mm) thick, seamless, with eased edges, and with homogenous color and pattern throughout thickness of material.
 - 1. Integral Hinges: Configure doors and pilasters to receive integral hinges.
- E. Pilaster Shoes: Manufacturer's standard design; stainless steel.
- F. Brackets (Fittings):
 - 1. Full-Height (Continuous) Type: Manufacturer's standard design; stainless steel.

2.3 HARDWARE AND ACCESSORIES

- A. Hardware and Accessories: Manufacturer's standard operating hardware and accessories.
 - 1. Material: Stainless steel.
 - 2. Hinges: Manufacturer's standard continuous, cam type that swings to a closed or partially open position integral hinge for solid-plastic doors, allowing emergency access by lifting door.
 - 3. Latch and Keeper: Manufacturer's standard surface-mounted latch unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible.
 - 4. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent in-swinging door from hitting compartment-mounted accessories.
 - 5. Door Bumper: Manufacturer's standard rubber-tipped bumper at out-swinging doors.
 - 6. Door Pull: Manufacturer's standard unit at out-swinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible.
- B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.
- C. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless-steel, hot-dip galvanized-steel, or other rust-resistant, protective-coated steel compatible with related materials.

2.4 MATERIALS

- A. Aluminum Castings: ASTM B 26/B 26M.
- B. Aluminum Extrusions: ASTM B 221 (ASTM B 221M).
- C. Stainless-Steel Sheet: ASTM A 666, Type 304, stretcher-leveled standard of flatness.

- D. Stainless-Steel Castings: ASTM A 743/A 743M.

2.5 FABRICATION

- A. Fabrication, General: Fabricate toilet compartment components to sizes indicated. Coordinate requirements and provide cutouts for through-partition toilet accessories where required for attachment of toilet accessories.
- B. 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.
- C. Door Size and Swings: Unless otherwise indicated, provide 24-inch- (610-mm-) wide, in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide, out-swinging doors with a minimum 32-inch- (813-mm-) wide, clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for fastening, support, alignment, operating clearances, and other conditions affecting performance of the Work.
 - 1. Confirm location and adequacy of blocking and supports required for installation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
 - 1. Maximum Clearances:
 - a. Pilasters and Panels: 1/2 inch (13 mm).
 - b. Panels and Walls: 1 inch (25 mm).
 - 2. Full-Height (Continuous) Brackets: Secure panels to walls and to pilasters with full-height brackets.
 - a. Locate bracket fasteners so holes for wall anchors occur in masonry or tile joints.
 - b. Align brackets at pilasters with brackets at walls.
- B. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Set pilasters with anchors penetrating not less than 1-3/4 inches (44 mm) into structural floor unless otherwise indicated in manufacturer's written instructions. Secure continuous head rail to each pilaster with no fewer than two fasteners. Hang doors to align tops of doors with tops of panels, and adjust so tops of doors are parallel with overhead brace when doors are in closed position.

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- C. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

3.3 ADJUSTING

- A. Hardware Adjustment: 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.

END OF SECTION 10 2113.19

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SECTION 10 2239 - FOLDING PANEL PARTITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Manually operated, acoustical panel partitions.
- 2. Electrically operated, acoustical panel partitions.

B. Related Requirements:

- 1. Section 055000 "Metal Fabrications" for supports that attach supporting tracks to overhead structural system.
- 2. Section 092900 "Gypsum Board" for fire-rated assemblies and sound barrier construction above the ceiling at track.
- 3. Electrical and communications Sections for electrical service and connections for motor operators, controls, and limit switches and for system disconnect switches.

1.3 DEFINITIONS

- A. NIC: Noise Isolation Class.
- B. NRC: Noise Reduction Coefficient.
- C. STC: Sound Transmission Class.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

B. LEED Submittals:

- 1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
- 2. Certificates for Credit MR 7: Chain-of-custody certificates certifying that operable panel partitions comply with forest certification and chain-of-custody requirements. Include statement indicating cost for each certified wood product.
- 3. Product Data for Credit IEQ 4.4: For composite wood products, documentation indicating that products contain no urea formaldehyde.

- C. Shop Drawings: For operable panel partitions.
 - 1. Include plans, elevations, sections, details, numbered panel installation sequence, and attachments to other work.
 - 2. Indicate stacking and operating clearances. Indicate location and installation requirements for hardware and track, blocking, and direction of travel.
 - 3. Include diagrams for power, signal, and control wiring.
- D. Samples for Initial Selection: For each type of exposed material, finish, covering, or facing.
 - 1. Include Samples of accessories involving color selection.
- E. Samples for Verification: For each type of exposed material, finish, covering, or facing, prepared on Samples of size indicated below:
 - 1. Textile Facing Material: Full width by not less than 36-inch- (914-mm-) long section of **[fabric] [carpet]** from dye lot to be used for the Work, with specified treatments applied. Show complete pattern repeat.
 - 2. Panel Facing Material: Manufacturer's standard-size unit, not less than 3 inches (75 mm) square.
 - 3. Panel Edge Material: Not less than 3 inches (75 mm) long.
- F. Delegated-Design Submittal: For operable panel partitions.
 - 1. Include design calculations for seismic restraints.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Partition track, track supports and bracing, switches, turning space, and storage layout.
 - 2. Suspended ceiling components.
 - 3. Structural members to which suspension systems are attached.
 - 4. Size and location of initial access modules for acoustical tile.
 - 5. Items penetrating finished ceiling, including the following:
 - a. Lighting fixtures.
 - b. HVAC ductwork, outlets, and inlets.
 - c. Speakers.
 - d. Sprinklers.
 - e. Smoke detectors.
 - f. Access panels.
 - 6. Plenum acoustical barriers.
- B. Setting Drawings: For embedded items and cutouts required in other work, including support-beam, mounting-hole template.
- C. Qualification Data: For qualified Installer testing agency manufacturer and vendor.

- D. Seismic Qualification Certificates: For operable panel partitions, tracks, accessories, and components, from manufacturer. Include seismic capacity of partition assemblies to remain in vertical position during a seismic event and the following:
 - 1. Basis for Certification: Indicate whether certification is based on analysis, testing, or experience data, according to ASCE/SEI 7.
 - 2. Detailed description of partition anchorage devices on which the certification is based and their installation requirements.
- E. Product Certificates: For each type of operable panel partition.
 - 1. Include approval letter signed by manufacturer acknowledging Owner-furnished panel facing material complies with requirements.
- F. Product Test Reports: For each operable panel partition, for tests performed by a qualified testing agency.
- G. Field quality-control reports.
- H. Sample Warranty: For manufacturer's special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For operable panel partitions to include in maintenance manuals.
 - 1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
 - a. Panel finish facings and finishes for exposed trim and accessories. Include precautions for cleaning materials and methods that could be detrimental to finishes and performance.
 - b. Seals, hardware, track, track switches, carriers, and other operating components.
 - c. Electric operator and controls.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same production run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Panel Finish-Facing Material: Furnish full width in quantity to cover both sides of two panels when installed.

1.8 QUALITY ASSURANCE

- A. Comply with the most current edition of the Northwestern University Design Standards.
- B. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.
- C. Vendor Qualifications: A vendor that is certified for chain of custody by an FSC-accredited certification body.

- D. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Protectively package and sequence panels in order for installation. Clearly mark packages and panels with numbering system used on Shop Drawings. Do not use permanent markings on panels.

1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of operable panel partitions that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Faulty operation of operable panel partitions.
 - b. Deterioration of metals, metal finishes, and other materials beyond normal use.
 - 2. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design seismic bracing of tracks to structure above.
- B. Seismic Performance: Operable panel partitions shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
 - 1. The term "withstand" means "the partition panels will remain in place without separation of any parts from the system when subjected to the seismic forces specified."
- C. Acoustical Performance: Provide operable panel partitions tested by a qualified testing agency for the following acoustical properties according to test methods indicated:
 - 1. Sound-Transmission Requirements: Operable panel partition assembly tested for laboratory sound-transmission loss performance according to ASTM E 90, determined by ASTM E 413, and rated for not less than the STC indicated.
 - 2. Noise-Reduction Requirements: Operable panel partition assembly, identical to partition tested for STC, tested for sound-absorption performance according to ASTM C 423, and rated for not less than the NRC indicated.
- D. Fire-Test-Response Characteristics: Provide panels with finishes complying with one of the following as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1. Surface-Burning Characteristics: Comply with ASTM E 84 or UL 723; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

- a. Flame-Spread Index: 25 or less.
 - b. Smoke-Developed Index: 450 or less.
2. Fire Growth Contribution: Complying with acceptance criteria of local code and authorities having jurisdiction when tested according to NFPA 265 Method B Protocol or NFPA 286.
- E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 OPERABLE ACOUSTICAL PANELS

- A. Operable Acoustical Panels: Partition system, including panels, seals, finish facing, suspension system, operators, and accessories.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- a. Hufcor, Inc.
 - b. KWIK-WALL Company.
 - c. Moderco Inc.
 - d. Modernfold, Inc.
- B. Panel Operation: **[Manually operated, individual] [Manually operated, paired] [Manually operated, continuously hinged] [Electrically operated, continuously hinged]** panels.
- C. Panel Construction: As required to support panel from suspension components and with reinforcement for hardware attachment. Fabricate panels with tight hairline joints and concealed fasteners. Fabricate panels so finished in-place partition is rigid; level; plumb; aligned, with tight joints and uniform appearance; and free of bow, warp, twist, deformation, and surface and finish irregularities.
- D. Dimensions: Fabricate operable acoustical panel partitions to form an assembled system of dimensions indicated and verified by field measurements.
1. Panel Width: Standard widths.
- E. STC: Not less than 52.
- F. NRC: Not less than **[0.50] [0.60] [0.65] [0.90] <Insert number>**.
- G. Panel Weight: **<Insert value>** maximum.
- H. Panel Thickness: Not less than 4 inches (102 mm).
- I. Panel Materials:
- 1. Certified Wood: Wood for operable panel partitions shall be certified as "FSC Pure" according to FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship," and to FSC STD-40-004, "FSC Standard for Chain of Custody Certification."
 - 2. Recycled Content of Operable Panel Partitions:

- a. Recycled Content of Steel: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent by weight.
 3. Steel Frame: Steel sheet, manufacturer's standard nominal minimum thickness for uncoated steel.
 4. Steel Face/Liner Sheets: Tension-leveled steel sheet, manufacturer's standard minimum nominal thickness for uncoated steel.
 5. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use, corrosion resistance, and finish indicated; ASTM B 221 (ASTM B 221M) for extrusions; manufacturer's standard strengths and thicknesses for type of use.
 - a. Frame Reinforcement: Manufacturer's standard steel or aluminum.
 6. Gypsum Board: ASTM C 1396/C 1396M.
 7. Medium-Density Fiberboard: ANSI A208.2, made with binder containing no urea formaldehyde.
 8. Plywood: DOC PS 1; made with adhesive containing no urea formaldehyde.
- J. Panel Closure: Manufacturer's standard unless otherwise indicated.
1. Initial Closure: Flexible, resilient PVC, bulb-shaped acoustical seal.
 2. Final Closure: Constant-force, lever-operated mechanical closure expanding from panel edge to create a constant-pressure acoustical seal.
- K. Hardware: Manufacturer's standard as required to operate operable panel partition and accessories; with decorative, protective finish.
1. Hinges: Concealed (invisible).

2.3 SEALS

- A. General: Provide seals that produce operable panel partitions complying with performance requirements and the following:
1. Manufacturer's standard seals unless otherwise indicated.
 2. Seals made from materials and in profiles that minimize sound leakage.
 3. Seals fitting tight at contact surfaces and sealing continuously between adjacent panels and between operable panel partition perimeter and adjacent surfaces, when operable panel partition is extended and closed.
- B. Vertical Seals: Deep-nesting, interlocking astragals mounted on each edge of panel, with continuous PVC acoustical seal.
- C. Horizontal Top Seals: Continuous-contact, extruded-PVC seal exerting uniform constant pressure on track.
1. Mechanically Operated for Acoustical Panels: Extension and retraction of bottom seal by operating handle or built-in operating mechanism, with operating range not less than 1-1/2 inches (38 mm) between retracted seal and floor finish.

2.4 PANEL FINISH FACINGS

- A. General: Provide finish facings for panels that comply with indicated fire-test-response characteristics and that are factory applied to operable panel partitions with appropriate backing, using mildew-resistant nonstaining adhesive as recommended by facing manufacturer's written instructions.
1. Apply one-piece, seamless facings free of air bubbles, wrinkles, blisters, and other defects, with edges tightly butted, and with no gaps or overlaps. Horizontal seams are not permitted. Tightly secure and conceal raw and selvage edges of facing for finished appearance.
 2. Where facings with **[directional or repeating patterns or directional weave]** **[directional, repeating, or matching grain]** are indicated, mark facing top and attach facing in same direction.
 3. Match facing pattern 72 inches (1830 mm) above finished floor.
- B. Vinyl-Coated Fabric Wall Covering: Manufacturer's standard, mildew-resistant, washable, vinyl-coated fabric wall covering; complying with CFFA-W-101-D for type indicated; Class A.
1. Total Weight: **<Insert value>**.
 2. Antimicrobial Treatment: Additives capable of inhibiting growth of bacteria, fungi, and yeasts.
 3. Color/Pattern: **<Insert color/pattern>**.
- C. Carpet Wall Covering: Manufacturer's standard nonwoven, needle-punched carpet with fibers fused to backing, from same dye lot, treated to resist stains.
1. Color/Pattern: **<Insert color/pattern>**.
- D. Fabric Wall Covering: 100 percent polyolefin woven fabric, from same dye lot, treated to resist stains.
1. Color/Pattern: **<Insert color/pattern>**.
- E. High-Pressure Decorative Laminate: NEMA LD 3, Horizontal grade.
1. Color/Pattern: **<Insert color/pattern>**.
- F. Wood Veneer: Laminated to fire-retardant-treated wood core with moisture-resistant adhesive.
1. Species and Cut: **<Insert species and cut>**.
 2. Matching of Adjacent Veneer Leaves: **[Book]** **[Slip]** **[Random]** match.
 3. Veneer Matching within Panel Face: **[Running]** **[Balance]** **[Center-balance]** match.
 4. Panel-Matching Method: **<Insert requirement>**.
 5. Vertical Panel-Matching Method: **[Continuous match; veneer leaves of upper panels are continuations of veneer leaves of lower panels]** **[Vertical book match; veneer leaves are individually book matched from lower panels to upper panels]** **[Vertical slip match; veneer leaves are individually slip matched from lower panels to upper panels]** **[Panel vertical book match; panels are book matched from lower panels to upper panels]** **[Panel vertical slip match; panels are slip matched from lower panels to upper panels]**.
 6. Wood-Veneer Finish: **[As selected by Architect from manufacturer's full range]**, as follows:

a. Type: <Insert finish> over wood variety indicated.

- G. Trimless Edges: Fabricate exposed panel edges so finish facing wraps uninterrupted around panel, covering edge and resulting in an installed partition with facing visible on vertical panel edges, without trim, for minimal sightlines at panel-to-panel joints.

2.5 SUSPENSION SYSTEMS

- A. Tracks: Steel or aluminum [**mounted directly to overhead structural support,**] [**with adjustable steel hanger rods for overhead support,**] designed for operation, size, and weight of operable panel partition indicated. Size track to support partition operation and storage without damage to suspension system, operable panel partitions, or adjacent construction. Limit track deflection to no more than 0.10 inch (2.54 mm) between bracket supports. Provide a continuous system of track sections and accessories to accommodate configuration and layout indicated for partition operation and storage.

1. Panel Guide: Aluminum guide on both sides of the track to facilitate straightening of the panels; finished with factory-applied, decorative, protective finish.
2. Head Closure Trim: As required for acoustical performance; primed for field finish.

- B. Carriers: Trolley system as required for configuration type, size, and weight of partition and for easy operation; with ball-bearing wheels.

1. Multidirectional Carriers: Capable of negotiating intersections without track switches.

- C. Track Intersections, Switches, and Accessories: As required for operation, storage, track configuration, and layout indicated for operable panel partitions, and compatible with partition assembly specified. Fabricate track intersections and switches from steel or aluminum.

1. Curve-and-Diverter Switches: Allow radius turns to divert panels to an auxiliary track.
2. L Intersections: Allow panels to change 90 degrees in direction of travel.
3. T Intersections: Allow panels to pass through or change 90 degrees to another direction of travel.
4. X Intersections: Allow panels to pass through or change travel direction full circle in 90-degree increments, and allow one partition to cross track of another.
5. Multidirectional Switches: Adjustable switch configuring track into L, T, or X intersections and allowing panels to be moved in all pass-through, 90-degree change, and cross-over travel direction combinations.

- D. Aluminum Finish: Mill finish or manufacturer's standard, factory-applied, decorative finish unless otherwise indicated.

- E. Steel Finish: Manufacturer's standard, factory-applied, corrosion-resistant, protective coating unless otherwise indicated.

2.6 ELECTRIC OPERATORS

- A. General: Factory-assembled electric operation system of size and capacity recommended and provided by operable panel partition manufacturer for partition specified; with electric motor and factory-prewired motor controls, speed reducer, chain drive, control stations, control devices, and accessories required for operation. Include wiring from control stations to motor. Coordinate operator wiring requirements and electrical characteristics with building electrical system.

- B. Comply with NFPA 70.
- C. Control Equipment: Comply with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6.
- D. Motor Electrical Characteristics:
 - 1. Horsepower: Manufacturer's standard.
 - 2. Volts: 120.
 - 3. Phase: Single.
 - 4. Hertz: 60.
- E. Control Stations: Two single-key-operated, constant-pressure control stations located remotely from each other on opposite sides and opposite ends of partition run. Wire in series to require simultaneous activation of both key stations to operate partition. Each three-position control station labeled "Open," "Close," and " Stop." Furnish two keys per station.
- F. Obstruction-Detection Devices: Equip each motorized operable panel partition with indicated automatic safety sensor that causes operator to immediately shut off motor.
 - 1. Sensor Edge: Contact-pressure-sensitive safety edge along partition's leading edge.
- G. Limit Switches: Adjustable switches, interlocked with motor controls and set to automatically stop operable panel partition at fully extended and fully stacked positions.
- H. Emergency Release Mechanism: Quick disconnect-release of electric-motor drive system, permitting manual operation in event of operating failure.
- I. Electric Interlock: Equip each motorized operable panel partition with electric interlocks at locations indicated, to prevent operation of operable panel partition under the following conditions:
 - 1. On storage pocket door, to prevent operation if door is not in fully open position.
 - 2. On partitions at location of convergence by another partition, to prevent operation if merging partitions are in place.

2.7 ACCESSORIES

- A. Pass Doors: Swinging door built into and matching panel materials, construction, acoustical qualities, finish and thickness, complete with frames and operating hardware. Hinges finished to match other exposed hardware.
 - 1. Accessibility Standard: Fabricate doors to comply with applicable provisions in ICC A117.1 and the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities.
 - 2. Single Pass Door: 36 by 84 inches (914 by 2134 mm).
 - 3. Double Pass Door: 72 by 84 inches (1829 by 2134 mm).
 - 4. Pass-Door Hardware: Equip pass door with the following:
 - a. Door Seals: Mechanically operated floor seal on panels containing pass doors.
 - b. Panic hardware.
 - c. Concealed door closer.
 - d. Exit Sign: Recessed, self-illuminated.

- e. Lock: Deadlock to receive cylinder, operable from both sides of door. See Section 087100 "Door Hardware" for lock cylinder and keying requirements.
- B. Storage Pocket Door: Full height at end of partition runs to conceal stacked partition; of same materials, finish, construction, thickness, and acoustical qualities as panels; complete with operating hardware and acoustical seals at soffit, floor, and jambs. Hinges in finish to match other exposed hardware.
 - 1. Rim Lock: Deadlock to receive cylinder, to secure storage pocket door in closed position. See Section 087100 "Door Hardware" for lock cylinder and keying requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine flooring, structural support, and opening, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of operable panel partitions.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Comply with ASTM E 557 except as otherwise required by operable panel partition manufacturer's written installation instructions.
- B. Install operable panel partitions and accessories after other finishing operations, including painting, have been completed in area of partition installation.
- C. Install panels from marked packages in numbered sequence indicated on Shop Drawings.
- D. Broken, cracked, chipped, deformed, or unmatched panels are not acceptable.
- E. Broken, cracked, deformed, or unmatched gasketing or gasketing with gaps at butted ends is not acceptable.
- F. Light-Leakage Test: Illuminate one side of partition installation and observe vertical joints and top and bottom seals for voids. Adjust partitions for alignment and full closure of vertical joints and full closure along top and bottom seals. [**Perform test and make adjustments before NIC testing.**]

3.3 ADJUSTING

- A. Adjust operable panel partitions, hardware, and other moving parts to function smoothly, and lubricate as recommended by manufacturer.
- B. Adjust pass doors and storage pocket doors to operate smoothly and easily, without binding or warping.
- C. Verify that safety devices are properly functioning.

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JOB # _____

FOR: _____

ISSUED: 03/29/2017

3.4 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain operable panel partitions.

END OF SECTION 10 2239

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FOR: _____
ISSUED: 03/29/2017

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SECTION 10 2800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Public-use washroom accessories.
 - 2. Warm-air dryers.
 - 3. Childcare accessories.
 - 4. Underlavatory guards.
 - 5. Custodial accessories.

1.3 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - 2. Include anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
 - 3. Include electrical characteristics.
- B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
 - 1. Identify locations using room designations indicated.
 - 2. Identify accessories using designations indicated.

1.5 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For manufacturer's special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For accessories to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Comply with the most current edition of the Northwestern University Design Standards.

1.8 WARRANTY

- A. Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, visible silver spoilage defects.
2. Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 OWNER-FURNISHED MATERIALS

- A. Owner-Furnished Materials: Paper Towel Dispensers, Soap Dispensers, Toilet Paper Dispensers, and Feminine Napkin Dispensers.

2.2 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.3 PUBLIC-USE WASHROOM ACCESSORIES

- A. Source Limitations: Obtain public-use washroom accessories from single source from single manufacturer.

- B. Waste Receptacle:

1. Basis-of-Design: Bobrick Washroom Equipment, Inc.; B-43644 or subject to compliance with requirements, provide products by one of the following:

- a. American Specialties, Inc.
- b. Bobrick Washroom Equipment, Inc.
- c. Bradley Corporation.

2. Description: Recessed waste receptacle shall be type-304 stainless steel with all-welded construction; exposed surfaces shall have satin finish. Front of waste receptacle shall have same degree of arc and match other accessories in the washroom. Radius on corners and edges of flange and waste receptacle shall complement other washroom accessories. Flange shall be drawn, one-piece, seamless construction. Waste receptacle shall have a formed, one-piece, seamless, removable front panel with top edge hemmed. Waste receptacle shall be equipped with liner to facilitate installation and removal of

disposable trash liners and retains liner inside waste receptacle. Trash liner holder is fabricated with a molded plastic bag holder sleeve and a 20-gauge stainless steel, U-shaped support strap; riveted construction. Bag holder shall have an arc at front and same shape as inside of waste receptacle area. Capacity of waste receptacle shall be 12.8-gal.

3. Mounting: Semirecessed.
4. Minimum Capacity: 12.8 gal.
5. Material and Finish: Stainless steel, No. 4 finish (satin).
6. Lockset: Tumbler type for waste receptacle.

C. Grab Bar:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. AJW Architectural Products.
 - b. American Specialties, Inc.
 - c. Bobrick Washroom Equipment, Inc.
 - d. Bradley Corporation.
2. Mounting: Flanges with concealed fasteners.
3. Material: Stainless steel, 0.05 inch (1.3 mm) thick.
 - a. Finish: Smooth, No. 4 finish (satin).
4. Outside Diameter: 1-1/2 inches (38 mm).
5. Configuration and Length: As indicated on Drawings.

D. Sanitary-Napkin Disposal Unit:

1. Basis-of-Design: Bobrick Washroom Equipment, Inc.; B-270 or subject to compliance with requirements, provide products by one of the following:
 - a. AJW Architectural Products.
 - b. American Specialties, Inc.
 - c. Bobrick Washroom Equipment, Inc.
 - d. Bradley Corporation.
2. Description: Surface-mounted sanitary napkin disposal shall be type-304 stainless steel with all-welded construction; exposed surfaces shall have satin finish. Front of sanitary napkin disposal shall have same degree of arc and match other accessories in the washroom. Radius on corners and edges of sanitary napkin disposal shall complement other washroom accessories. Cover shall be drawn, one-piece, seamless construction and secured to container with a full-length stainless steel piano-hinge. Container shall have integral finger depression for opening cover.
3. Mounting: Surface mounted.
4. Door or Cover: Self-closing, disposal-opening cover.
5. Material and Finish: Stainless steel, No. 4 finish (satin).

E. Mirror Unit:

1. Basis-of-Design: Bobrick Washroom Equipment, Inc.; B-290 Series or subject to compliance with requirements, provide products by one of the following:

- a. AJW Architectural Products.
 - b. American Specialties, Inc.
 - c. Bobrick Washroom Equipment, Inc.
 - d. Bradley Corporation.
2. Frame: Stainless-steel angle, 0.05 inch (1.3 mm) thick.
 - a. Corners: Welded and ground smooth.
 3. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below.
 - a. Wall bracket of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.
 4. Size: As indicated on Drawings.

2.4 PUBLIC-USE SHOWER ROOM ACCESSORIES

- A. Source Limitations: Obtain public-use shower room accessories from single source from single manufacturer.
- B. Shower Curtain Rod:
 1. Basis-of-Design: Bobrick Washroom Equipment, Inc.; B-207 or subject to compliance with requirements, provide products by one of the following:
 - a. AJW Architectural Products.
 - b. American Specialties, Inc.
 - c. Bobrick Washroom Equipment, Inc.
 - d. Bradley Corporation.
 2. Description: 1-inch (25.4-mm) OD; fabricated from nominal 0.0375-inch- (0.95-mm-) thick stainless steel.
 3. Mounting Flanges: Stainless-steel flanges designed for concealed fasteners.
 4. Finish: Stainless steel, No. 4 finish (satin).
- C. Shower Curtain:
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. AJW Architectural Products.
 - b. American Specialties, Inc.
 - c. Bobrick Washroom Equipment, Inc.
 - d. Bradley Corporation.
 2. Size: Minimum 6 inches (152 mm) wider than opening by 72 inches (1828 mm) high.
 3. Material: Nylon-reinforced vinyl, minimum 10 oz. (284 g) or 0.008-inch- (0.2-mm-) thick vinyl, with integral antibacterial agent.
 4. Color: **<Insert color>**.
 5. Grommets: Corrosion resistant at minimum 6 inches (152 mm) o.c. through top hem.

6. Shower Curtain Hooks: Chrome-plated or stainless-steel, spring wire curtain hooks with snap fasteners, sized to accommodate specified curtain rod. Provide one hook per curtain grommet.

D. Folding Shower Seat:

1. Basis-of-Design: Bobrick Washroom Equipment, Inc.; B-5181 or subject to compliance with requirements, provide products by one of the following:
 - a. AJW Architectural Products.
 - b. American Specialties, Inc.
 - c. Bobrick Washroom Equipment, Inc.
 - d. Bradley Corporation.
2. Description: Reversible folding shower seat shall have a frame constructed of type-304, satin-finish stainless steel that consists of 16-gauge, 1-1/4" square tubing and 18-gauge, 1" diameter seamless tubing. Seat shall be one-piece, 1/2" thick, solid phenolic with matte-finish, antique white-colored, melamine surfaces, and black phenolic-resin core; secured to frame with stainless steel carriage bolts and acorn nuts. Seat shall be reversible for left- or right-hand installation in the field. Shower seat shall be equipped with two 3" diameter mounting flanges constructed of type-304, 3/16" thick, satin-finish stainless steel; a guide bracket constructed of type-304, 16-gauge, satin-finish stainless steel; and a spring constructed of type-301, 24-gauge stainless steel that is spot-welded to a baseplate of type-304, heavygauge stainless steel. Seat shall remain in upright position when not in use.
3. Configuration: L-shaped seat, designed for wheelchair access.
4. Seat: Phenolic or polymeric composite of slat-type or one-piece construction in color as selected by Architect.
5. Mounting Mechanism: Stainless steel, No. 4 finish (satin).

E. Robe Hook:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. AJW Architectural Products.
 - b. American Specialties, Inc.
 - c. Bobrick Washroom Equipment, Inc.
 - d. Bradley Corporation.
2. Description: Single-prong unit.
3. Material and Finish: Stainless steel, No. 4 finish (satin).

2.5 WARM-AIR DRYERS

- A. Source Limitations: Obtain warm-air dryers from single source from single manufacturer.

B. Warm-Air Dryer:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. AJW Architectural Products.

- b. American Dryer, Inc.
- c. American Specialties, Inc.
- d. Bobrick Washroom Equipment, Inc.
- e. Bradley Corporation.
- f. Excel Dryer Inc.

- 2. Description: Standard-speed, warm-air hand dryer.
- 3. Mounting: **[Recessed] [Semirecessed]**, with low-profile design].
- 4. Operation: Electronic-sensor activated.
- 5. Cover Material and Finish: Cast iron, with enamel finish in color selected by Architect.
- 6. Electrical Requirements: **<Insert electrical requirements>**.

C. High-Speed Warm-Air Dryer:

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. AJW Architectural Products.
 - b. American Dryer, Inc.
 - c. American Specialties, Inc.
 - d. Bradley Corporation.
 - e. Excel Dryer Inc.
- 2. Description: High-speed, warm-air hand dryer for rapid hand drying.
- 3. Mounting: **[Recessed] [Semirecessed]**, with low-profile design.
- 4. Operation: Electronic-sensor activated with operation time of 10 to 20 seconds.
- 5. Cover Material and Finish: Cast iron, with enamel finish in color selected by Architect.
- 6. Electrical Requirements: **<Insert electrical requirements>**.

2.6 CHILDCARE ACCESSORIES

A. Source Limitations: Obtain childcare accessories from single source from single manufacturer.

B. Diaper-Changing Station:

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc.
 - b. GAMCO Specialty Accessories; a division of Bobrick.
 - c. Koala Kare Products.
 - d. Or Equal.
- 2. Description: Horizontal unit that opens by folding down from stored position and with child-protection strap.
 - a. Engineered to support minimum of 250-lb (113-kg) static load when opened.
- 3. Mounting: **[Surface mounted, with unit projecting not more than 4 inches (100 mm) from wall when closed] [Semirecessed, with unit projecting not more than 1 inch (25 mm) from wall when closed]**.
- 4. Operation: By pneumatic shock-absorbing mechanism.

5. Material and Finish: Stainless steel, No. 4 finish (satin), exterior shell with rounded plastic corners; HDPE interior in manufacturer's standard color.
6. Liner Dispenser: Built in.
7. Manufacturer's name plate shall not be visible once installed.

2.7 UNDERLAVATORY GUARDS

A. Underlavatory Guard:

1. Description: Insulating pipe covering for supply and drain piping assemblies that prevents direct contact with and burns from piping; allow service access without removing coverings.
2. Material and Finish: Antimicrobial, molded plastic, white.

2.8 CUSTODIAL ACCESSORIES

A. Source Limitations: Obtain custodial accessories from single source from single manufacturer.

B. Mop and Broom Holder:

1. Basis-of-Design: Bobrick Washroom Equipment, Inc.; B-239 or subject to compliance with requirements, provide products by one of the following:
 - a. AJW Architectural Products.
 - b. American Specialties, Inc.
 - c. Bobrick Washroom Equipment, Inc.
 - d. Bradley Corporation.
2. Description: Utility shelf with mop/broom holders and rag hooks shall be type-304 stainless steel with all-welded construction; exposed surfaces shall have satin finish. Shelf shall be 18 gauge, 8" deep with 3/4" return edges, and shall have front edge hemmed for safety.
3. Length: 34 inches.
4. Hooks: Four.
5. Mop/Broom Holders: Three, spring-loaded, rubber hat, cam type.
6. Material and Finish: Stainless steel, No. 4 finish (satin).
 - a. Shelf: Not less than nominal 0.05-inch- (1.3-mm-) thick stainless steel.

2.9 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch (0.8-mm) minimum nominal thickness unless otherwise indicated.
- B. Brass: ASTM B 19, flat products; ASTM B 16/B 16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
- C. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.036-inch (0.9-mm) minimum nominal thickness.
- D. Galvanized-Steel Sheet: ASTM A 653/A 653M, with G60 (Z180) hot-dip zinc coating.

- E. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- F. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.
- G. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).
- H. Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.

2.10 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of <Insert number> keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. 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.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf (1112 N), when tested according to ASTM F 446.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written instructions.

END OF SECTION 10 2800