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.

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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