

SECTION 10 11

CHALKBOARDS, MARKERBOARDS BULLETIN BOARDS & DISPLAY RAIL

HIGHLIGHTED SECTIONS REQUIRE SELECTION BY ARCHITECT OR OWNER BEFORE BID SUBMITTAL. REMOVE HIGHLIGHTED TEXT UPON COMPLETION.

PART 1 – GENERAL

* Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section

1.1 DESCRIPTION OF WORK

- A. ProSteel Marker and Chalk Boards
- B. ProTak Bulletin Boards
- C. Visual Display Rails (tack strips)

1.2 REFERENCES

ARCHITECT TO DELETE REFERENCES NOT APPLICABLE TO PARTS 2 OR 3

- A. (ANSI) American National Standards Institute
 - 1. ANSI H35.1 - Alloy and Temper Designation for Aluminum.
 - 2. ANSI A208.1 - American National Standard for Particleboard.
 - 3. ANSI A135.4 - American National Standard for Basic Hardboard.
- B. (ASTM) American Society for Testing and Materials
 - 1. ASTM A424 - Specification for Steel, Sheet, for Porcelain Enameling.
 - 2. ASTM B 221 - Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - 3. ASTM C 614 - Test Method for Alkali Resistance of Porcelain Enamel.
 - 4. ASTM C 282-99 - Standard Test Method for Acid Resistance of Porcelain Enamels.
 - 5. ASTM C 448-88 - Standard Test Methods for Abrasion Resistance of Porcelain Enamels.
 - 6. ASTM C 208 - Specification for Cellulosic Fiber Insulating Board.
 - 7. ASTM E-84 – Standard Testing Method for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

- A. PRODUCT DATA: For each type of visual display board indicated, provide technical data & materials test reports (where applicable)
- B. SHOP DRAWINGS: For each type of visual display board required.
 - 1. Include dimensional elevations.
 - 2. Show location of joints between individual panels where unit dimensions exceed maximum panel length.
 - 3. Show anchors, grounds, reinforcement, and installation details.
 - 4. Show locations and quantities of accessories.

5. Show special purpose graphics required in rooms as indicated on drawings as listed below:
REMOVE UNUSED
- a. Porcelain-fused graphics on certain marker or chalk surfaces:
 - i. Music staff lines: 1/16-inch (1.6-mm) thick lines at 1-inch (25-mm) apart with 5-inches (127-mm) between sections.
 - ii. Polar coordinates: 1/16-inch (1.6-mm) thick lines except 3/32-inch (2.4-mm) thick at x & y axis. Concentric circles on 1.75-inch (45-mm) centers with lines at 15-degrees apart.
 - iii. Penmanship Lines: Alternating 1/16-inch (1.6-mm) and 1/32-inch (0.8-mm) thick lines at 2-inch (50.8-mm) apart and a 4-inch (100-mm) border at the top and bottom.
 - iv. Graphs: 1-inch (25-mm) and 2-inch (50-mm) squares available with or without axes.
 - b. Custom epoxy painted lines on any marker or chalk surface.
 - c. Color graphics on tackable surfaces: Cork or Vinyl surfaces up to 4-feet high. Full vector art files required.

C. **SAMPLES & COLOR CHARTS:**

Manufacturer's color charts showing the full range of colors and textures available for the following and dispersed at architect request:

ARCHITECT TO DELETE REFERENCES NOT APPLICABLE TO PART 2

- 1. **PANELS:**
 - a. Chalkboards and Markerboards: Actual sections of porcelain enamel finish for each type of chalkboard and markerboard required at not less than 4-inch (100-mm) squares of sheet or plate.
 - b. Tackboards: Furnish swatches for color sections as described in Part 2.2 - Materials:
 - i. Vinyl: Manufacturer standard 22 OZ. Vinyl - Burlap Weave color range Class A (Type 1). (or as chosen by architect)
 - ii. Fabric: Guilford of Maine panel 2100- FR701 standard panel fabric color range Class A (Type 1). (or as chosen by architect)
 - iii. Colored Cork: Forbo Linoleum Inc. 1/4-inch (6-mm) cork bulletin board color range.
 - iv. Natural Cork: Required at not less than 4-inch (100-mm) squares.
- 2. **TRIM:**
 - a. Anodized aluminum trim and accessories: Samples of each type and finish on 6-inch (150-mm) long sections of extrusions. Include sample sets showing the full range of color variations expected.
 - b. Paint: Sherwin Williams polyurethane enamel standard Polane color selector chart or color selected to match architect specification.

1.4 QUALITY ASSURANCE

- A. **Installer Qualifications:** Engage an experienced installer who is an authorized representative of visual display board manufacturer for both installation and maintenance of the type of display products required for this project.
- B. **Source Limitations:** Obtain visual display boards through one source from a single manufacturer.
- C. **Product Options:** Drawings indicate size, profiles, and dimensional requirements of visual display boards and are based on the products indicated. Other manufacturers' products with equal performance characteristics may be considered. Refer to Division 1 Section "Substitutions."

1. Do not modify intended aesthetic effects, as judged solely by the Architect, except with the Architect's approval and only to the extent needed to comply with performance requirements. Where modifications are proposed, submit comprehensive explanatory data to Architect for review.
- D. Fire-Test-Response Characteristics: For vinyl/fabric-faced tack surfaces, provide Class A (or Class 1) performance characteristics identical to those required in this Section per ASTM E 84.
- E. Operation and Maintenance: Include data on regular cleaning, stain removal and general precautions.
- F. Delivery, Storage and Protection: Deliver factory built units crated for protection and secured to the trailer whenever possible. Once delivered, inspect the unit for damage and return to crating for storage. Store crated units protected from low temperatures (above 55 degrees Fahrenheit) and humidity variations or possible jobsite traffic damage until the system is ready to be installed.

1.5 PROJECT CONDITIONS

- A. Verify field measurements before fabrication to ensure proper fitting. Coordinate fabrication lead time with construction progress to avoid delaying the work. Notify Architect of any conflicts with other construction such as casework, electrical switches, outlets, clocks, fire detector devices, etc.
 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with the fabricating without field measurements allowing time for trimming and fitting. Coordinate wall construction to ensure actual dimensions correspond to established dimensions.
 2. Coordinate delivery with field conditions to provide proper temperature (above 55 degrees Fahrenheit) and humidity variations and protect from possible jobsite traffic damage until the system is ready to be installed.

1.6 WARRANTY

- A. Porcelain Enamel Writing Surface Warranty: Submit a written warranty executed by manufacturer agreeing to supply replacement porcelain enamel materials that do not retain their original writing and erasing qualities, become slick and shiny, or exhibit crazing, cracking, or flaking within the specified warranty period, provided the manufacturer's written instructions for handling, installation, protection, and maintenance have been followed.
 1. Warranty Period: Life of the building or 50 years.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work.
 1. ProSteel or ProTak as distributed by K-Pro Specialty Products, P.O. Box 731, Bath, Ohio, 44210-0731, telephone 330-668-1515, fax 330-668-1515, www.k-prosteel.com.
 2. Acceptable Manufacturers:

- a. Educational Equipment Corporation
- b. Schalow Manufacturing Company Inc.
- c. Cig- Jan Products Ltd.
- d. Marsh Industries Inc.
- e. Substitutions: See Section 01 – Product Requirements

2.2 MATERIALS

A. PROSTEEL CHALKBOARDS & MARKERBOARDS:

1. **SIZE AND CONFIGURATION:**
Constructed in one piece up to 5-feet high and 16-feet wide with no seams. Oversized boards require Mullion or Spline as described in Section 2.2A3e.
2. **PANELS:**
Consist of 3-ply construction with facing material laminated to core material, then laminated to backing material to form a 1/2-inch (12.7-mm) thick nominal panel. Backing material 0.005-inch (0.15-mm) thick aluminum-sheet [Other aluminum backer thicknesses include 0.015-inch (0.45-mm) and 1/32-inch (0.85-mm)]. Laminating adhesive consists of manufacturer's standard, moisture-resistant, thermoplastic-type adhesive.
 - a. **Facing:**
Porcelain enamel ProSteel chalk and marker surfaces shall be manufactured in accordance with Porcelain Enamel Institute's specification. Porcelain enamel shall be machine sprayed or rolled to enameling grade steel with a ground coat both sides and colored cover coat on the face. Backing coat to be a minimum 15-microns and facing cover coat to be a minimum 60-microns.
CHOOSE ONE
 - 28 Gauge Marker Skin [standard] – Low gloss finish at 0.016-inch (0.42-mm) thick minimum
 - 24 Gauge Marker Skin – Low gloss finish at 0.021-inch (0.55-mm) thick minimum
 - 28 Gauge Chalk Skin – Matt Finish at 0.016-inch (0.42-mm) thick minimum
 - 24 Gauge Chalk Skin – Matt Finish at 0.021-inch (0.55-mm) thick minimum
 - b. **Core:**
CHOOSE ONE
 - Fiberboard [standard]
 - MDF, (Medium Density Fiberboard)
 - Particleboard (boards over 4-feet high)
 - Fire Rated Fiberboard
 - Other (specify)
3. **FRAME & FINISH:**
 - a. **Finish:**
Trim of not less than 1/16-inch (1.57-mm) thick, extruded-aluminum alloy 6063T5. Size and shape as indicated, to suit type of installation.
CHOOSE FINISH
 - Clear Satin Anodized Aluminum [standard]
 - Dark Bronze Anodized Aluminum

- Aluminum with polyurethane enamel coating with a minimum film thickness of 1.5 mils when dry. All exposed surfaces to be free of scratches, blemishes or any other imperfections. Extra touch-up paint available upon request.

b. Vertical Edge Trim Style:

CHOOSE ONE TRIM STYLE

- J-Trim [standard]
- EZ Hang Trim
- Deluxe Trim
- Deluxe EZ Hang Trim
- Narrow-faced J-Trim
- Other (specify)

c. Bottom Trim Style:

CHOOSE BOTTOM

- Box Tray - Hollow type extrusion with end closures
- Blade Tray - Single solid tray style
- Same as Vertical Edge Trim

d. Top Trim Style:

CHOOSE TOP

- 1-inch high Maprail with tan or gray cork insert & end caps
- 2-inch high Maprail with tan or gray cork insert & end caps
- Wiserrail – tackless paper holder strip
- Same as Vertical Edge Trim

e. Panel Connector Trim:

CHOOSE ONE CONNECTOR STYLE

- Mullion [H-Bar] aluminum extrusion compatible with trim style chosen above.
- Spline [No facing - writing panel connections only]

4. ACCESSORIES:

CHOOSE AND REMOVE AS REQUIRED

- a. Map Hooks: Adjustable width hook and clips to hang small items like paper sheets & large items like ring boards and maps [2 per board minimum]
- b. Roller Brackets: Map Winders [1 pair per board as required]
- c. Flag Holders: [1 holder per room]
- d. EecoClean Markerboard Kit: [1 kit per board]
 - 1) Four (4) colors of marker pens including black, blue, red & green
 - 2) One (1) Felt Eraser #1 stitched
 - 3) One (1) 12 OZ. (355 ml) spray bottle of EecoClean markerboard cleaner
- e. Magnetic Chalk Tray – Removable tray at 18-inches long (custom lengths per architect) [1 per board as required for framed-only boards]

B. PROTAK BULLETIN BOARDS

1. SIZE AND CONFIGURATION:

Constructed in one piece up to 4-feet high and 16-feet wide with no seams. Oversized boards include Mullion connections available with mullion-wrapped fabric/vinyl facing.

2. PANELS:

Consist of facing material laminated to core laminated to backing to total 1/2-inch (12-mm) thick following factory laminating procedures. Other thicknesses available including fabric/vinyl edge wrapping & concealed aluminum edge wrapped panels [HCR]. Laminating adhesive consist of manufacturer's standard, moisture-resistant, thermoplastic-type adhesive.

a. Facing:

CHOOSE FACING

- Tackable Fabric: Mildew-resistant, Washable fabric weighing not less than 16 oz./lin. yd. Provide Class 1 (A) fabric with a flame-spread rating of 25 or less when tested according to ASTM E-84. Provide color and texture as scheduled or as selected from manufacturer's standard Guilford of Maine Panel Fabric style 2100 – FR701 or as chosen by architect.
- Tackable Vinyl: 22 OZ. PLY specifically produced for tackable surfaces. Mildew-resistant, washable vinyl complying with FS CCC-W-408, Type 1 Class A vinyl.
- Colored Cork: Forbo Linoleum resilient tackable surface, 1/4-inch (6-mm) all natural materials with burlap binders, Uni-color shall extend throughout thickness of material, contains no harmful byproducts or carcinogens, Class B rated in accordance to ASTM E-84, Class II rated in accordance to NFPA 255, Zero-effect chemical resistance to diluted acids and solvents with no resistance to high alkalis, Washable finish to retain original appearance and resists cracking, drying and peeling, Self-healing from thumbtacks and pin punctures, Self-sanitizing quality in the form of a bactericidal effect. Provide color as selected from manufacturer's standard Forbo Bulletin Board color chart.
- Natural Cork: Face-sanded natural granulated cork surface 1/4-inch (6-mm) or 1/8-inch (3-mm) thick.
- Hook and Loop fabric: Colors chosen from manufacturer standards.
- Other fabric or vinyl (specify)

b. Core:

CHOOSE CORE

- Fiberboard [standard for vinyl and fabric]
- Fire Rated Fiberboard
- 1/4-inch (6-mm) thick Cork laminated to 1/4-inch (6-mm) thick Hardboard [can be used with fabric or vinyl]
- 1/8-inch (3-mm) thick Cork laminated to 3/8-inch (9-mm) thick Fiberboard [to be used with fabric or vinyl]
- Other (specify)

3. FRAME & FINISH:

Trim of not less than 1/16-inch (1.6-mm) thick, extruded-aluminum alloy 6063T5. Size and shape as indicated, to suit installation type.

a. Finish:

CHOOSE FINISH

- Clear Satin Anodized Aluminum [standard]
- Dark Bronze Anodized Aluminum
- Aluminum with polyurethane enamel coating with a minimum film thickness of 1.5 mils when dry. All exposed surfaces to be free of scratches, blemishes or any other imperfections. Extra touch-up paint available upon request.

b. Style:

CHOOSE TRIM STYLE

- J-Trim [standard]
- EZ Hang Trim: concealed fasteners
- Deluxe Trim
- Deluxe EZ Hang: concealed fasteners
- Edge wrapped: Fabric or Vinyl (No edge trim)
- HCR Trim: Faceless aluminum trim edge-wrapped by Fabric or Vinyl with concealed fasteners
- Top trim style to match marker boards in Section 2.2A3
- Other (specify)

c. Panel Connector Trim:

REMOVE SECTION E and OPTIONAL FACE WRAPPING AS REQUIRED

- Mullion [H-Bar] aluminum extrusion compatible with trim style chosen above.
- Optional Connector Trim face-wrapped by vinyl or fabric to match Section 2.2B2a.

C. VISUAL DISPLAY RAIL (TACK STRIPS)

1. GENERAL:

1-inch or 2-inch high aluminum rail with colored cork insert and end stops or a magic strip paper holder designed to hold paper without the use of tacks. Oversized heights to be ProTak bulletin boards as described in Section 2.2B

2. Tackable Cork Display Rail:

a. Aluminum Rail:

Clear satin anodized aluminum trim of not less than 0.062-inch- (1.57-mm-) thick, extruded-aluminum 6063T5 alloy

CHOOSE ONE

- 1-inch high Display Rail
- 2-inch high Display Rail

b. Colored Cork Insert:

Forbo Linoleum resilient tackable surface, 1/4-inch (6-mm) all natural materials with burlap binders, Uni-color shall extend throughout thickness of material, contains no harmful byproducts or carcinogens, Class B rated in accordance to ASTM E-84, Class II rated in accordance to NFPA 255, Zero-effect chemical resistance to diluted acids and solvents with no resistance to high alkalis, Washable finish to retain original appearance and resists cracking, drying and peeling, Self-healing from thumbtacks and pin punctures, Self-sanitizing quality in the form of a bactericidal effect.

CHOOSE ONE

- #2166 Tan
- #2182 Gray

3. Tackless Magic Strip paper holder:

Clear satin anodized aluminum trim of not less than 0.062-inch- (1.57-mm-) thick, extruded 6063T5 alloy. Lengths as indicated on drawings.

2.3 FABRICATION

A. General:

1. Comply with indicated requirements for materials, thickness, finishes, colors, and sizes of construction.
2. Factory assembled units to be completely assembled prior to delivery in accordance to dimensions shown on architectural drawings.
3. For structural integrity, all corners to be notched and bent within an acceptable alloy range or mitered to a neat, hairline closure and braced internally by corner angles. Corners shall be self-supporting and not dependent on core panel for strength and stability.
4. Splices: Make joints only where total length exceeds maximum manufactured length or job site conditions require. Fabricate minimum number of joints, balanced around center of board, coordinate with Architect.
5. When supplying vinyl/fabric coated tackboards provide vinyl/fabric covered "H" mullion trim between tackboard panels.

B. Substitutions:

1. No substitutions permitted.

2.4 FINISHES

- A. Aluminum Trim: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying and designating finishes. Finish designations prefixed by AA conform to the system established by The Aluminum Association for designating aluminum finishes. Class II, Clear Anodic Finish: AA-M12C22A31 (Mechanical Finish: Nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating; Architectural Class II, clear coating 0.010 mm or thicker) complying with AAMA 607.1.
- B. Porcelainized steel special writing surface: Engineered from enameling-grade steel. Exposed coat face produced with a 3-coat process and concealed coat face produced with a 2-coat process fused at manufacturer's standard firing temperatures, but not less than 1200 degrees Fahrenheit (649 degrees Celsius). Exposed face color coat 60-micro-mm thick enamel minimum.

PART 3 – EXECUTION

3.1 EXAMINATION

A. General:

1. Examine wall surfaces, with Installer present, for compliance with requirements and other conditions affecting installation.
2. Verify required anchorage have been installed such as blockings.
3. Surfaces to receive chalkboards or markerboards shall be free of dirt, scaling paint, and projections or depressions that would affect smooth, finished surfaces of chalkboards or markerboards.
4. Surfaces to receive tackboards shall be dry and free of substances that would impair the bond between tackboards and substrate.
5. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General:
 - 1. When overall dimensions require delivery in separate units, prefit components at the factory, disassemble for delivery, and make final joints at the site. Use mullions or splines at panel joints to maintain surface alignment. Do not make any contact with panel edges to be splined.
 - 2. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim and accessories necessary for complete installation.
 - 3. Install fasteners for perimeter trim at 12 to 16 inches on center.
 - 4. Install units in locations and at mounting heights indicated and according to manufacturer's written instructions. Keep perimeter lines straight, plumb, and level.
 - 5. Do not install visual display boards over or block any mechanical or electrical openings or utilities. Should this condition occur, notify the Construction Manager for directions.
 - 6. Apply linoleum type adhesive or spacers behind each fixed board as recommended by manufacturer at no less than 2-feet apart.
- B. Standard Board Mounting Heights:
 - 1. Kindergarden: 24 inches above finished floor.
 - 2. First through Third Grades: 26 inches above finished floor.
 - 3. Fourth through Sixth Grades: 30 inches above finished floor.
 - 4. Seventh through Ninth Grades: 34 inches above finished floor.
 - 5. Tenth and higher Grades: 37 inches above finished floor.
- C. Accessories: Mount as indicated

3.3 CLEANING AND PROTECTION

- A. General:
 - 1. Verify that accessories required for each unit have been properly installed and that operating units function properly.
 - 2. Clean face panels and aluminum trim in accordance to manufacturer recommendations, leaving all materials ready for use.
 - 3. Remove construction debris from project site and dispose of in accordance to local laws.
- B. Protection:
 - 1. Properly protect finished surfaces from site damage where possible.

End of Section