

SECTION 101100
VISUAL DISPLAY UNITS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Chalkboards.
- B. Porcelain enamel steel markerboards.
- C. Glass markerboards.
- D. Tackboards.
- E. Bulletin board cabinets.
- F. Horizontal sliding visual display units.
- G. Vertical sliding visual display units.
- H. Porcelain markerboard sliding wall system.
- I. Glass markerboard wall.
- J. Porcelain markerboard wall.
- K. Tackstrips.

1.02 REFERENCE STANDARDS

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.
- B. ANSI A208.1 - American National Standard for Particleboard; 2022.
- C. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).
- D. ASTM A424/A424M - Standard Specification for Steel, Sheet, for Porcelain Enameling; 2025.
- E. ASTM C208 - Standard Specification for Cellulosic Fiber Insulating Board; 2022.
- F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.
- G. ASTM F793/F793M - Standard Classification of Wall Coverings and Ceiling Coverings by Use Characteristics; 2025.
- H. PS 1 - Structural Plywood; 2023.

1.03 SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Provide manufacturer's data on Markerboard, Chalkboard, Tackboard, glass markerboard, bulletin boards, display cases, horizontal sliding boards, vertical sliding boards, marker wall, glass marker wall, sliding wall systems, and tackstrip
 - 2. Submit construction details, descriptions of materials, dimensions of each component and profile, finishes, and accessories for all visual display units.
- B. Shop Drawings: Indicate wall elevations, dimensions, joint locations , special anchor details.
 - 1. Indicate panel joint locations, including field-assembled joints for factory units exceeding shipping size, if applicable.
- C. Samples: Color charts for selection of color and texture of each type of visual display unit indicated.
- D. Samples: Two, 10" by 10" inches (254 by 254 mm) in size illustrating materials and finish, color and texture of Markerboard, Chalkboard, Tackboard, glass markerboard, bulletin boards, display cases, horizontal sliding boards, vertical sliding boards, marker wall, glass marker wall, sliding wall systems, and tackstrip.
- E. Manufacturer's printed installation instructions.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum 20 years documented experience.

1.05 WARRANTY

- A. Provide [Life Time] warranty for chalkboard and markerboard to include warranty against discoloration due to cleaning, crazing or cracking, and staining.
- B. For Tackboard, bulletin boards, display cases, and tackstrip provide [5 year] warranty against defects in materials, finish product and workmanship.
- C. For Glass markerboard provide [10 years] and for Glass marker wall provide [3 years] warranty against defects in materials, finish product and workmanship.
- D. When properly installed per manufacturer instructions, Visual Display Units are warranted for one year against workmanship defects. This warranty excludes damage from misuse, vandalism, or improper handling and covers only material replacement, not removal or reinstallation costs.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. VISUAL DISPLAY UNITS

1. Nelson Adams NACO
2. Address: 420 S E st, San Bernardino, CA, 92401
3. P. (877) 810-4080
4. Web Page: <https://www.nelsonadamsnaco.com>

2.02 CHALKBOARDS

A. Chalkboards: Porcelain enamel on steel, laminate to core.

1. **Color:** [Green][Black]
2. **Steel Face Sheet Thickness:** 24 gauge, 0.0239 inch (0.61 mm).
3. **Standard Thickness Core:** [Particleboard], [1/2" Inch Thick (12.7 mm)], laminated to face sheet.
 - a. **Alternate Cores:**
 - 1) Particleboard.
 - 2) Fiberboard.
 - 3) Hardboard.
 - 4) MDF.
 - 5) Honey Comb.
 - b. **Alternate Thickness**
 - 1) 7/16" Inch Thick ([11.11 mm])
 - 2) 1/2" Inch Thick ([12.7 mm])
 - 3) 3/8" Inch Thick ([9.52 mm])
 - 4) 1/4" Inch Thick ([6.35 mm])
4. **Backing:** Aluminum foil [0.015 in (0.38 mm)][0.005 in (0.12 mm)], laminated to core.
5. **Height:** As indicated on drawings.
6. **Length:** As indicated on drawings.
7. **Frame:** Extruded aluminum.
8. **Frame Profile:** As indicated on drawings.
9. **Frame Finish:** [Anodized, natural][Powder Coating].
10. **Accessories:** Provide flag holder and map hook.

2.03 MARKERBOARDS

A. Porcelain enamel markerboards: Porcelain enamel markerboards, laminated to core.

1. **Color:** [White], [High][Low] gloss.
2. **Steel Face Sheet Thickness:** 24 gauge, 0.0239 inch (0.61 mm).
3. **Core:** Particleboard, manufacturer's standard thickness, laminated to face sheet.
4. **Backing:** Aluminum foil, [0.015 in (0.381 mm)][0.005 in (0.127 mm)], laminated to core.
5. **Height:** 48 inches (1220 mm).
6. **Length:** As indicated on drawings.
7. **Frame:** Extruded aluminum.
8. **Frame Profile:** As indicated on drawings.

9. **Frame Finish:** [Anodized, natural][Powder Coating].
10. **Accessories:** Provide flag holder and map hook.

2.04 **MARKER TRAY AND MAP RAIL OPTIONS AVAILABLE FOR MARKERBOARDS AND CHALKBOARDS.**

- A. **Marker Tray Options Available:**
 1. **Blade Tray:** Slim, low-profile tray fabricated from extruded aluminum, offering a clean, minimalist profile that blends seamlessly with modern surfaces.
 2. **Box Tray:** Square-profile tray constructed from extruded aluminum, providing durability, balanced design, and everyday functionality.
 3. **Traditional Box Tray:** Classic rounded-profile tray made from extruded aluminum, combining strength with timeless architectural detail.
- B. **Map Rail:** Extruded aluminum, manufacturer's standard profile, with cork insert and runners for accessories; [1" inch][2" inch] wide overall, full width of frame.
 1. **Map Rail Insert Options:** [Natural Cork]
 - a. Natural Cork.
 - b. Bulletin Forbo.
 - 1) **Color:** As indicated on drawings.

2.05 **GLASS MARKERBOARDS**

- A. **Glass Markerboards:** Glass markerboards are made of 1/4" clear tempered glass and powder coated to one of our color choices. The GMB can include a steel backing for magnetic purposes.
 1. **Glass:** Tempered, low iron, 1/4 inch thick (6 mm thick), with bevel edges and radiused corners, laminated to steel backing sheet for use with magnets. Coated or treated for use as dry erase board or projection surface.
 2. **Glass Finish:** As selected from manufacturer's full range.
 3. **Steel Backing Sheet Thickness:** 24 gauge, 0.0239 inch (0.61 mm).
 4. **Height:** As indicated on drawings.
 5. **Length:** As indicated on drawings.
 6. **Framed Glass Markerboard:**
 - a. **Frame Profile:** [As indicated on drawings].
 - b. **Frame Finish:** [Anodized, natural][Powder Coating].
 7. **Mounting:** [Concealed Z clips][Stainless Steel Standoffs].
 8. **Accessories:** Provide magnetic marker tray, Caddy, and magnetic eraser.

2.06 **TACKBOARDS**

- A. **Tackboards:** Vinyl or Fabric on Natural Cork and MDF.
 1. **Material Facing:** [Vinyl][Fabric].
 - a. **Options Available:**
 - 1) Koroseal - Vinyl
 - 2) Carnegie Xorel
 - 3) Guildofrd of Maine - Fabric
 - 4) Maharam - Vinyl
 2. **Color and Pattern:** As selected from manufacturer's full range.
 3. **Core:** [1/4" Inch (6 mm) Natural Cork on 1/4" Inch (6 mm) MDF]

- a. **Alternate Cores:**
 - 1) 1/4" Inch (6 mm) Natural Cork on 1/4" Inch (6 mm) Hardboard
 - 2) 1/4" Inch (6 mm) Natural Cork on 1/4" Inch (6 mm) MDF
 - 3) 1/2" Inch (12.7 mm) Fiberboard
- B. **Tackboards:** Forbo Bulletin Board
 - 1. **Options:** [1/4" Inch (6 mm) Forbo on 1/4" (6 mm) Inch MDF]
 - a. **Alternate Options:**
 - 1) 1/4" Inch (6 mm) Forbo on 1/4" (6 mm) Inch MDF
 - 2) 1/4" Inch (6 mm) Forbo on 1/4" Inch (6 mm) Hardboard
 - b. **Color:** As indicated on drawings.
- C. **Dimensions and Frame Information:**
 - 1. **Height:** As indicated on drawings.
 - 2. **Length:** As indicated on drawings.
 - 3. **Frame:** Extruded aluminum.
 - 4. **Frame Profile:** As indicated on drawings.
 - 5. **Frame Finish:** [Anodized, natural][Powder Coating].

2.07 BULLETIN BOARDS

- A. **Bulletin Boards Cabinets:** Factory-fabricated aluminum-framed unit with tackable panel on back inside surface and glazed doors at front.
 - 1. **Location:** [Interior][Exterior].
 - 2. **Mounting:** [Recessed][Surface].
 - 3. **Width:** As indicated on drawings.
 - 4. **Height:** As indicated on drawings.
 - 5. **Depth:** As indicated on drawings.
 - 6. **Aluminum Frames:** Extruded aluminum, with concealed fasteners. [Anodized, natural][Powder Coating] finish.
 - 7. **Frame profile:** As indicated on drawings.
 - 8. **Components:**
 - a. **Glazed Doors:** [Sliding][Hinge], [3/6" Inches][1/4" Inches][Other indicated glass thickness] tempered glass.
 - 1) Number of Doors: As indicated on drawings.
 - b. **Tackable Back Panel:**
 - 1) **Color and Pattern:** As selected from manufacturer's full range.
 - 2) **Facing:** [Vinyl][Fabric]; minimum fabric weight: 13 oz/sq yd (440 g/sq m).
 - 3) **Multiple Options Available:**
 - a) Koroseal
 - b) Maharam
 - c) Guildford of Maine
 - d) Carnegie Xorel
 - 4) **Core:** [1/4" Inch (6 mm) Natural Cork]
 - 5) **Forbo Bulletin Core Option:** [1/4" Inch (6 mm) Bulletin Forbo]
 - a) **Color:** As indicated on drawings.
 - c. **Lighting:** [LED].

- d. **Header Panel:** Illuminated; with translucent acrylic sheet panel set within overall cabinet frame; with matching frame that separates header panel from bulletin board.
 - 1) Graphics and Text: As shown on drawings.
 - 2) Color: As shown on drawings.
 - 3) Lighting: Fluorescent.

2.08 **Horizontal Sliding Visual Display Unit:** Cabinet with horizontal sliding panels and fixed rear panel.

A. **HOUSING**

- 1. **Cabinet:**
 - a. **Housing:** Cabinet (By Others)
 - b. **Tracks:** [One][Two][Three][Four][Five][As indicated on drawings].
 - c. **Height:** As indicated on drawings.
 - d. **Length:** As indicated on drawings.
 - e. **Frame:** Extruded aluminum
 - f. **Frame Profile:** As indicated on drawings.
 - g. **Frame Finish:** [Anodized, natural][Powder Coating].
- 2. **Surface mounted:**
 - a. **Housing:** Nelson Adams NACO Aluminum.
 - b. **Tracks:** [One][Two][Three][Four][Five][As indicated on drawings].
 - c. **Size:** As indicated on drawings.
 - d. **Length:** As indicated on drawings.
 - e. **Frame:** Extruded Aluminum.
 - f. **Frame Profile:** As indicated on drawings.
 - g. **Frame finish:** [Anodized, natural][Powder Coating]

B. **Configuration (Available Alternate Configurations):**

- 1. Two-Track:
 - a. Fixed Rear Panel: Full length of unit.
 - b. 2 Sliding Panels: Each panel not less than one-half of unit length.
- 2. Three-Track:
 - a. Fixed Rear Panel: Full length of unit.
 - b. 3 Sliding Panels: Each panel not less than one-half of unit length.
- 3. Four-Track:
 - a. Fixed Rear Panel: One-half length of unit, minimum; centered in unit.
 - b. 2 Fixed Front Panels: One-quarter length of unit, minimum; on each side of unit.
 - c. 4 Sliding Panels: Each panel not less than one-quarter of unit length.

C. **Sliding Panels:** [Markerboard][Chalkboard][Tackboard].

D. **Fixed Rear Panel:** [Markerboard][Chalkboard][Tackboard][Forbo].

E. **Sliding Panels - General:**

- 1. **Height:** As indicated on drawings.
- 2. **Length:** As indicated on drawings.
- 3. **Frame:** Extruded aluminum.
- 4. **Frame Profile:** As indicated on drawings.
- 5. **Frame Finish:** [Anodized, natural][Powder Coating].

6. **Ball Bearing Nylon Rollers:** Two per panel up to 4 feet (1220 mm) wide and three per panel up to 8 feet (2440 mm) wide.
7. **Nylon Guide Rollers:** Two per panel up to 4 feet (1220 mm) and three per panel up to 8 feet (2440 mm) wide.
8. **Finger Pulls:** One pair per sliding panel.

F. **Sliding Panel Options:**

1. **Sliding Chalkboard Panels:** Porcelain enamel on steel, laminated to core.
 - a. **Color:** [Green][Black].
 - b. **Steel Face Sheet Thickness:** 24 gauge, 0.0239 inch (0.61 mm).
 - c. **Core:** [Particleboard], [1/2" Inch Thick (12.7 mm)] laminated to face sheet.
 - 1) **Alternate Cores - Available:**
 - a) Particleboard.
 - b) Fiberboard.
 - c) Hardboard.
 - d) MDF.
 - e) Honey Comb.
 - 2) **Alternate Thickness - Available:**
 - a) 7/16" Inch Thick ([11.11 mm]).
 - b) 1/2" Inch Thick ([12.7 mm]).
 - c) 3/8" Inch Thick ([9.52 mm]).
 - d) 1/4" Inch Thick ([6.35 mm]).
 - d. **Backing:** Aluminum foil [0.015 in (0.381 mm)][0.005 in (0.127 mm)], laminated to core.
 - e. **Map Rail:** Extruded aluminum, manufacturer's standard profile, with cork insert and runners for accessories; [1" inch][2" inch] wide overall, full width of frame.
 - 1) **Map Rail Insert Options:** [Natural Cork]
 - a) Natural Cork
 - b) Bulletin Forbo
 - 1 Color: As indicated on
2. **Sliding Markerboard Panels:** Porcelain enamel on steel, laminated to core.
 - a. **Color:** [White].
 - b. **Steel Face Sheet Thickness:** 24 gauge, 0.0239 inch (0.61 mm).
 - c. **Core:** [Particleboard], [1/2" Inch Thick (12.7 mm)], laminated to face sheet.
 - 1) **Alternate Cores - Available:**
 - a) Particleboard.
 - b) Fiberboard
 - c) Hardboard.
 - d) MDF.
 - e) Honey Comb.
 - 2) **Alternate Thicknesses - Available:**
 - a) 7/16" Inch Thick ([11.11 mm]).
 - b) 1/2" Inch Thick ([12.7 mm]).
 - c) 3/8" Inch Thick ([9.52 mm]).
 - d) 1/4" Inch Thick ([6.35 mm]).
 - d. **Backing:** Aluminum foil [0.015 in (0.381 mm)][0.005 in (0.127 mm)], laminated to core.

- e. **Map Rail:** Extruded aluminum, manufacturer's standard profile, with cork insert and runners for accessories; [**1" inch**][**2" inch**] wide overall, full width of frame.
 - 1) **Map Rail Insert Options:** [Natural Cork]
 - a) Natural Cork.
 - b) Bulletin Forbo.
 - 1 **Color:** As indicated on drawings.
 - 3. **Sliding Tackboard Panels:** Vinyl or Fabric on Natural Cork and MDF.
 - a. **Material Facing:** [Vinyl][Fabric].
 - b. **Color:** As selected from manufacturer's full range.
 - c. **Options Available:**
 - 1) Koroseal - Vinyl
 - 2) Carnegie Xorel - Fabric
 - 3) Guildford of Maine - Fabric
 - 4) Maharam - Vinyl
 - d. **Core:** [1/4" Inch (6 mm) Natural Cork on 1/4" Inch (6 mm) MDF]
 - 1) **Alternate Core Options:**
 - a) 1/2" Inch (12.7 mm) Fiberboard
 - b) 1/4" Inch (6 mm) Natural Cork on 1/4" Inch (6 mm) Hardboard
 - c) 1/4" Inch (6 mm) Natural Cork on 1/4" Inch (6 mm) MDF
 - 4. **Sliding Tackboard Panels:** Forbo Bulletin.
 - a. **Options:** [1/4" Inch (6 mm) Forbo on 1/4 Inch MDF]
 - 1) **Alternate Options:**
 - a) 1/4" Inch (6 mm) Forbo on 1/4 Inch MDF
 - b) 1/4" Inch (6 mm) Forbo on 1/4 Inch Hardboard
 - b. **Color:** As indicated on drawings.
 - 5. **Custom Panels are Available.**
- G. **Accessories:** Provide flag holder and map hook.
- 2.09 **Vertical Sliding Visual Display Unit:** Cabinet with vertical sliding panels and fixed rear panel.
- A. **HOUSING**
 - 1. **Housing:** Nelson Adams NACO Aluminum.
 - a. Height: 8 feet (2438 mm).
 - b. **Length:** As indicated on drawings.
 - c. **Mounting:** [Wall mounted][Floor Mounted].
 - d. Operation: Manual, with ball bearing pulleys and counterweights.
 - e. Frame: Extruded aluminum.
 - f. Frame Profile: As indicated on drawings.
 - g. **Frame Finish:** [Anodized, natural][Powder Coating].
 - B. **Configuration (Alternate Configuration are Available):**
 - 1. One-Track:
 - a. Fixed Rear Panel: Full height of unit.
 - b. One Sliding Panel: Panel not less than one-half of unit height.
 - 2. Two-Track:
 - a. Fixed Rear Panel: Full height of unit.
 - b. Two Sliding Panels: Each panel not less than one-half of unit height.

3. Three-Track:
 - a. Fixed Rear Panel: Full height of unit.
 - b. Three Sliding Panels: Each panel not less than one-half of unit height.
- C. **Sliding Panels:** [Markerboard][Chalkboard][Tackboard].
- D. **Fixed Rear Panel:** [Markerboard][Chalkboard][Tackboard][Forbo Bulletin].
- E. **Sliding Panels - General:**
 1. Height: As indicated on drawings.
 2. Length: As indicated on drawings.
 3. Frame: Extruded aluminum.
 4. Frame Profile: As indicated on drawings.
 5. Frame Finish: [Anodized, natural][Powder Coating].
 6. Ball Bearing Rollers: Four per panel.
 7. Finger Pulls: One pair per sliding panel.
- F. **Sliding Panel Options:**
 1. **Chalkboard Panels:** Porcelain enamel on steel, laminated to core.
 - a. **Color:** [Green][Black].
 - b. **Steel Face Sheet Thickness:** 24 gauge, 0.0239 inch (0.61 mm).
 - c. **Core:** [Fiberboard], [1/2" Inch Thick (12.7 mm)], laminated to face sheet.
 - 1) **Alternate Cores - Available:**
 - a) Particleboards.
 - b) Fiberboard.
 - c) Hardboard.
 - d) MDF.
 - e) Honey Comb.
 - 2) **Alternate Thicknesses - Available:**
 - a) 7/16" Inch Thick ([11.11 mm])
 - b) 1/2" Inch Thick (12.7 mm)
 - c) 3/8" Inch Thick ([9.52 mm])
 - d) 1/4" Inch Thick ([6.35 mm])
 - d. **Backing:** Aluminum foil [0.015 in (0.381 mm)][0.005 in (0.127 mm)], laminated to core.
 2. **Markerboard Panels:** Porcelain enamel on steel, laminated to core.
 - a. **Color:** [White].
 - b. **Steel Face Sheet Thickness:** 24 gauge, 0.0239 inch (0.61 mm).
 - c. **Core:** [Fiberboard], [1/2" Inch Thick (12.7 mm)], laminated to face sheet.
 - 1) **Alternate Cores - Available:**
 - a) Particleboard.
 - b) Fiberboard.
 - c) Hardboard.
 - d) MDF.
 - e) Honey Comb.
 - 2) **Alternate Thicknesses - Available:**
 - a) 7/16" Inch Thick ([11.11 mm])
 - b) 1/2" Inch Thick (12.7 mm)
 - c) 3/8" Inch Thick ([9.52 mm])

- d) 1/4" Inch Thick ([6.35 mm])
 - d. **Backing:** Aluminum foil, [0.015 in (0.381 mm)][0.005 in (0.127 mm)], laminated to core.
- 3. **Tackboard Panels:** Vinyl or Fabric on Natural Cork and MDF.
 - a. **Material Facing:** [Vinyl][Fabric].
 - b. **Options Available:**
 - 1) Koroseal - Vinyl
 - 2) Carnegie Xorel - Fabric
 - 3) Guildford of Maine - Fabric
 - 4) Maharam - Vinyl
 - c. **Color:** As selected from manufacturer's full range.
 - d. **Core:** [1/4" Inch (6 mm) Natural Cork on 1/4" Inch (6 mm) MDF]
 - 1) **Alternate Cores:**
 - a) 1/4" Inch (6 mm) Natural Cork on 1/4" Inch (6 mm) MDF
 - b) 1/4" Inch (6 mm) Natural Cork on 1/4" Inch (6 mm) Hardboard
 - c) 1/2" Inch (12.7 mm) Fiberboard
- 4. **Tackboards:** Forbo Bulletin Board
 - a. **Options:** [1/4" Inch (6 mm) Forbo on 1/4 Inch MDF]
 - 1) Alternate Options:
 - a) 1/4" Inch (6 mm) Forbo on 1/4 Inch MDF] [1/4" Inch (6 mm) Forbo on 1/4 Inch Hardboard.
 - b) 1/4" Inch (6 mm) Forbo on 1/4 Inch Hardboard.
 - b. **Color:** As indicated on drawings.

2.10 SLIDING WALL SYSTEMS:

- A. **Sliding Wall System:** Factory-fabricated, top-hung sliding wall system for interior space division. Panels feature aluminum frames with specified core and surface materials such as markerboard, tackable, or chalkboard. Includes concealed track, soft-close hardware, and trim for complete, smooth, and precise installation.
 - 1. **Sliding Wall System Options:** [Chalkboard][Markerboard][Tackboard]
 - 2. **Height:** As indicated on drawings.
 - 3. **Length:** As indicated on drawings.
 - 4. **Frame:** Extruded aluminum.
 - 5. **Frame Profile:** As indicated on drawings.
 - 6. **Frame Finish:** [Anodized, clear][Powder Coating].
 - a. **Color:** As indicated on drawings.
- B. **Configuration:**
- C. Two-Track:
 - 1. Two Sliding Panels: Each panel not less than one-half of unit length.
- D. Three-Track:
 - 1. Three Sliding Panels: Each panel not less than one-half of unit length.
- E. Four-Track:
 - 1. Two Fixed Front Panels: One-quarter length of unit, minimum; on each side of unit.
 - 2. Four Sliding Panels: Each panel not less than one-quarter of unit length.

- F. **Sliding Markerboard Panels:** [Sliding Markerboard Panels] [Sliding Chalkboard Panels], laminated to core.
1. **Markerboard Color:** [White], [High][Low] gloss.
 2. **Chalkboard Color:** [Green][Black]
- G. **Steel Face Sheet Thickness:** 24 gauge, 0.0239 inch (0.61 mm) and 28 gauge, 0.0149 inch (0.38 mm).
1. **Core:** [Fiberboard], [1/2" Inch Thick (12.7 mm)], laminated to face sheet.
 - a. **Alternate Cores:**
 - 1) Particleboard.
 - 2) Fiberboard.
 - 3) Hardboard.
 - 4) MDF.
 - 5) Honey Comb.
 - b. **Alternate Thicknesses:**
 - 1) 7/16" Inch Thick ([11.11 mm])
 - 2) 3/8" Inch Thick ([9.52 mm])
 - 3)
 - 4) 1/4" Inch Thick ([6.35 mm])
 2. **Backing:** Aluminum foil, [0.015 in (0.381 mm)] laminated to core.
 3. **Panel Width:** As indicated on drawings.
 4. **Height:** As indicated on drawings.
 5. **Length:** As indicated on drawings.
 6. **Frame:** Extruded aluminum.
 7. **Frame Profile:** As indicated on drawings.
 8. **Frame Finish:** [Anodized, natural][Powder Coating].
 9. **Top Supported:** Aluminum track and ball bearing nylon rollers at top, aluminum track and nylon guide rollers at bottom.
 10. **Bottom Supported:** Aluminum track and nylon guide rollers at top, aluminum track and ball bearing nylon rollers at bottom.
 11. **Finger Pulls:** One pair per sliding panel.
 12. **Special-Purpose Graphics:** Apply graphics such as [semi-visible writing guides], [penmanship lines], [music staff lines], [1-inch (25 mm) grid] or [2-inch (50 mm) grid], [polar graph coordinates], [USA map], [world map], [soccer field], [football field], [basketball court], or other designated special graphics to the surface of the visual display unit, in the locations shown.
- H. **Sliding Tackboard Panels**
1. **Material Facing:** [Vinyl][Fabric]
 - a. **Options Available:**
 - 1) Koroseal - Vinyl
 - 2) Carnegie Xorel - Fabric
 - 3) Guildofrd of Maine - Fabric
 - 4) Maharam - Vinyl
 - b. **Color and Pattern:** As selected from manufacturer's full range.
 2. **Core:** [1/4" Inch (6 mm) Natural Cork on 1/4" Inch (6 mm) MDF]
 - a. **Alternate Cores:**
 - 1) 1/4" Inch (6 mm) Natural Cork on 1/4" Inch (6 mm) MDF
 - 2) 1/4" Inch (6 mm) Natural Cork on 1/4" Inch (6 mm) Hardboard

- 3) 1/2" Inch (12.7 mm) Fiberboard

I. **Tackboards:** Forbo Buletin Option

1. **Options:** 1/4" Inch (6 mm) Forbo on 1/4" (6 mm) Inch MDF
 - a. **Alternate Options:**
 - 1) 1/4" Inch (6 mm) Forbo on 1/4" (6 mm) Inch MDF
 - 2) 1/4" Inch (6 mm) Forbo on 1/4" Inch (6 mm) Hardboard
 - b. **Color:** As indicated on drawings.

- 2.11 **Accessories:** Provide magnetic marker tray (Only on Markerboard or Chalkboard).

2.12 **GLASS MARKER WALL**

A. **Magnetic Glass Markerboard Wall:** Room-size presentation surface made of multiple floor-to-ceiling glass panels.

1. **Glass:** Back-coated glass, tempered, low iron, 1/4 inch thick (6 mm), with bevel edges and radiused corners, laminated to steel backing sheet for use with magnets. Coated or treated for use as dry-erase board or projection surface.
2. **Glass Finish:** As selected from manufacturer's full range.
3. **Steel Backing Sheet Thickness:** 24 gauge, 0.0239 inch (0.61 mm).
4. **Panel Width:** 48 inches (1220 mm).
5. **Height:** As indicated on drawings.
6. **Length:** As indicated on drawings.
7. **Accessories:** Provide magnetic marker tray, magnetic marker holder, and [magnetic eraser].

2.13 **MARKER WALL**

A. **Marker Wall:** The markerwall consists of e3 porcelain on 1/2" particle board with moisture barrier backer, and satin clear anodized aluminum C4-trim. Magnetic tray & Map rail provided at an additional cost.

1. **Markerboard Color:** [White].
2. **Markerboard Gloss:** [High][Low] gloss.
3. **Chalkboard Color:** [Green][Black]
4. **Steel Face Sheet Thickness:** 24 gauge, 0.0239 inch (0.61 mm).
5. **Core:** [Particleboard], [1/2" Inch Thick (12.7 mm)], laminated to face sheet.
 - a. **Alternate Cores:**
 - 1) Particleboard.
 - 2) Fiberboard.
 - 3) Hardboard.
 - 4) MDF.
 - 5) Honey Comb.
 - b. **Alternate Thicknesses:**
 - 1) 7/16" Inch Thick ([11.11 mm])
 - 2) 3/8" Inch Thick ([9.52 mm])
 - 3) 1/2" Inch Thick ([12.7 mm])
 - 4) 1/4" Inch Thick ([6.35 mm])
6. **Backing:** Aluminum foil [0.015 in (0.381 mm)], laminated to core.
7. **Panel Width:** 48 inches (1220 mm).

8. **Height:** Full height of wall; no horizontal seams.
9. **Length:** Full length of wall.
10. **Mounting Method:** [Fastened Directly to Wall][Glued Directly to Wall]
11. **Aluminum Frame:** Provide metal J-mold type edge trim for exposed edges at door and window openings and similar conditions.
 - a. Trim fabricated from not less than [0.062" inch (1.57 mm)] thick, extruded aluminum.
12. **Aluminum Finish:** [Clear Anodize][Powder Coating]
 - a. **Color:** As selected by architects from full range of manufacturers standards colors and density.
13. **Adhesives:** Manufacturer's recommended adhesive for substrate indicated on drawings.

2.14 **DISPLAY RAILS**

- A. **Tackstrips:** Fabric or Vinyl laminated to cork..
 1. **Cork Thickness:** 1/4 inch (6 mm).
 2. **Material Facing:** [Vinyl][Fabric].
 - a. **Multiple Options Availabl**
 - 1) Koroseal - Vinyl
 - 2) Carnegie Xorel - Fabric
 - 3) Guildford of Maine - F
 - 4) Maharam -
 - b. **Color:** As selected from manufacturer's full range.
- B. **Tackstrips:** Forbo Bulletin
 1. **Forbo Bulletin Thickness:** [1/4" Inch (6 mm)].
 2. **Color:** As indicated on drawings.
- C. **General Dimension and Frame Information:**
 1. **Surface Burning Characteristics:** Flame spread index of 25, maximum, and smoke developed index of 450, maximum, when tested in accordance with ASTM E84.
 2. **Height:** 1 inch (25 mm).
 3. **Length:** As indicated on drawings.
- D. **Frame and End Stops:** Extruded aluminum, with concealed fasteners.
 1. **Frame Profile:** As indicated on drawings.
 2. **Frame Finish:** Anodized, natural.

2.15 **Combination Units and Units Made of More Than One Panel:** Factory-assembled chalkboards, markerboards, and tackboards in a single frame, of materials specified above.

- A. Join panels of different construction with H-shaped extruded aluminum molding finished to match frame.
- B. Join panels of similar construction with butt joints, aligned and secured with steel spline concealed in edge of core.
- C. **Configuration:** As indicated on drawings.
- D. **Units Too Large to Ship Assembled:** Fully assembled in factory, then disassembled for shipping.

2.16 MATERIALS

1. Porcelain Enameled Steel Sheet: ASTM A424/A424M, Type I, Commercial Steel, with fired-on vitreous finish.
2. Glass: Provide glass-based glazing unless otherwise indicated.
 - a. Fully Tempered Safety Glass: Comply with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.
3. Vinyl-Coated Fabric: ASTM F793 Category VI.
4. Forbo Bulletin Board: self-healing linoleum surface made from natural materials including linseed oil, resins, cork, and pigments.
5. Plywood: PS 1 Grade C-D , softwood.
6. Particleboard: ANSI A208.1; wood chips, set with waterproof resin binder, sanded faces.
7. Fiber Board: ASTM C208, cellulosic fiber board.
8. Foil Backing: Aluminum foil sheet, 0.005 inch thick (0.13 mm thick).
9. Aluminum Sheet Backing: 27 gauge, 0.014 inch (0.36 mm) thick.
10. Steel Sheet Backing: 28 gauge, 0.0149 inch (0.38 mm), galvanized.
11. Adhesives: Type used by manufacturer.

2.17 ACCESSORIES

1. Map Rail: Extruded aluminum, manufacturer's standard profile, with cork insert and runners for accessories 1 inch (25 mm) and 2" inch (50 mm) , full width of frame.
2. Map Supports: Formed aluminum sliding hooks and roller brackets to fit map rail.
3. Temporary Protective Cover: Sheet polyethylene, 8 mil (0.2 mm) thick.
4. Flag Holders: Cast aluminum bored to receive 1 inch (25 mm) diameter flag staff, bracketed to fit top rail of board.
5. Marker Tray: Aluminum, manufacturer's standard profile, one piece full length of markerboard, molded ends, concealed fasteners, same finish as frame.
6. Mounting Brackets: Concealed.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that internal wall blocking is ready to receive work and positioning dimensions are as indicated on shop drawings.
- C. Verify flat wall surface for frameless adhesive-applied boards.

3.02 PREPARATION

- A. Remove switchplates, wall plates, and surface-mounted fixtures where tackable wall paneling is applied. Reinstall items on completion of installation. **[By Other]**
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions. **[By Others]**

3.03 INSTALLATION

- A. Install boards in accordance with manufacturer's instructions.
- B. Secure units level and plumb.
- C. Butt Joints: Install with tight hairline joints.

3.04 CLEANING

- A. Clean board surfaces in accordance with manufacturer's instructions.
- B. Cover with protective cover, taped to frame.
- C. Remove temporary protective cover at Date of Substantial Completion.

END OF SECTION