

SECTION 10 14 00
SIGNAGE

SPEC WRITER NOTES:

1. Delete // // if not applicable to project. Also, delete any other item or paragraph not applicable in the section and renumber the paragraphs.
2. Coordinate with electrical for location of junction boxes and service required for lighted signs.
3. The specifications require close coordination, taking into account the existing sign program at the medical center, any sign demolition, sign maintenance and future signing needs.
4. When preparing the specifications for a project, it will require editing to add and indicate new signs or eliminate signs that are not needed. Also, it will be necessary to adapt the specifications to project requirements required for the specific project in which they are intended.
5. The sign message schedule is considered a part of the specifications and comprises a portion of the spec section. The configuration and format of the message schedule may vary according to individual project requirements. The sign message schedule format is shown in the Need a Sign Program section of the VA Signage Design Guide. It provides the method for identifying each sign location, type and message along with other notations. The sign schedule contains important information that the sign manufacturer and the sign installer will require for manufacturing and sign installation.
6. The sign message schedule must be coordinated with a Sign Location Plan drawing showing where signs are to be placed within a building or on the site. Refer to the Sign Location Plan example shown in the Need a Sign Program section of the VA Signage Design Guide.
7. For convenience, the sign type drawings can also be included in the specifications as its own section.

PART 1 - GENERAL**1.1 DESCRIPTION:**

- A. This section specifies interior signage for room numbers, directional signs exterior signage, code required signs and temporary signs.
- B. This section specifies exterior signage.

1.2 RELATED WORK:

- //A. Sustainable Design Requirements: Section 01 81 13, SUSTAINABLE DESIGN REQUIREMENTS.//
- B. Electrical Work: Division 26, ELECTRICAL.
- C. Lighted EXIT signs for egress purposes are specified under Division 26, ELECTRICAL.
- D. Directories: Section 10 13 00, DIRECTORIES.
- E. Color and Finish of Interior Signs: Section 09 06 00, SCHEDULE FOR FINISHES.
- F. Structural Steel Supports: Section 05 12 00, STRUCTURAL STEEL FRAMING.
- G. Concrete Post Footings: Section 03 30 53, MISCELLANEOUS CAST-IN-PLACE CONCRETE.

1.3 QUALITY ASSURANCE:

- A. Manufacturer's Qualifications: Provide signage that is the product of one manufacturer, who has provided signage as specified for a minimum of three (3) years. Submit manufacturer's qualifications.
- B. Installer's Qualifications: Minimum three (3) years' experience in the installation of signage of the type as specified in this Section. Submit installer's qualifications.

1.4 SUBMITTALS:

- A. Submit in accordance with Section 01 33 00, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.
- //B. Sustainable Design Submittals, as described below:
 - //1. Volatile organic compounds per volume as specified in PART 2 - PRODUCTS.// //
- C. Interior Sign Samples: Sign panels and frames, with letters and symbols, for each sign type.
 - 1. Sign Panel, 203 x 254 mm (8 x 10 inches), with letters.
 - 2. Color samples of each color, 152 x 152 mm (6 x 6 inches). Show anticipated range of color and texture.
 - 3. Sample of typeface, arrow and symbols in a typical full size layout.
- D. Exterior Sign Samples: 152 x 152 mm (6 x 6 inches) samples of each color and material.

E. Manufacturer's Literature:

1. Showing the methods and procedures proposed for the anchorage of the signage system to each surface type.

2. Manufacturer's printed specifications and maintenance instructions.

F. Sign Location Plan, showing location, type and total number of signs required.

G. Shop Drawings: Scaled for manufacture and fabrication of sign types. Identify materials, show joints, welds, anchorage, accessory items, mounting and finishes.

H. Full size layout patterns for dimensional letters.

I. Manufacturer's qualifications.

J. Installer's qualifications.

//K. Structural calculations. //

1.5 DELIVERY AND STORAGE:

A. Deliver materials to job in manufacturer's original sealed containers with brand name marked thereon. Protect materials from damage.

B. Package to prevent damage or deterioration during shipment, handling, storage and installation. Maintain protective covering in place and in good repair until removal is necessary.

C. Deliver signs only when the site and mounting services are ready for installation work to proceed.

D. Store products in dry condition inside enclosed facilities.

1.6 WARRANTY:

A. Construction Warranty: Comply with FAR clause 52.246-21, "Warranty of Construction".

1.7 APPLICABLE PUBLICATIONS:

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

B. American Architectural Manufacturers Association (AAMA):
611-14.....Anodized Architectural Aluminum
2603-13.....Voluntary Specification, Performance
Requirements and Test Procedures for Pigmented
Organic Coatings on Aluminum Extrusions and
Panels

C. American National Standards Institute (ANSI):
A117.1-09.....Accessible and Usable Buildings and Facilities

D. ASTM International (ASTM):

- A36/A36M-14.....Carbon Structural Steel
- A240/A240M-15.....Chromium and Chromium-Nickel Stainless Steel
Plate, Sheet, and Strip for Pressure Vessels
and for General Applications
- A666-10.....Annealed or Cold-Worked Austenitic Stainless
Steel Sheet, Strip, Plate and Flat Bar
- A1011/A1011M-14.....Steel, Sheet and Strip, Hot-Rolled, Carbon,
Structural, High-Strength Low-Alloy, High-
Strength Low-Alloy with Improved Formability,
and Ultra-High Strength
- B36/B36M-13.....Brass Plate, Sheet, Strip, and Rolled Bar
- B152/B152M-13.....Copper Sheet, Strip, Plate, and Rolled Bar
- B209-14.....Aluminum and Aluminum-Alloy Sheet and Plate
- B209M-14.....Aluminum and Aluminum-Alloy Sheet and Plate
(Metric)
- B221-14.....Aluminum and Aluminum-Alloy Extruded Bars,
Rods, Wire, Shapes, and Tubes
- B221M-13.....Aluminum and Aluminum-Alloy Extruded Bars,
Rods, Wire, Shapes, and Tubes (Metric)
- C1036-11(R2012).....Flat Glass
- C1048-12.....Heat-Treated Flat Glass-Kind HS, Kind FT Coated
and Uncoated Glass
- C1349-10.....Architectural Flat Glass Clad Polycarbonate
- D1003-13.....Test Method for Haze and Luminous Transmittance
of Transparent Plastics
- D4802-10.....Poly(Methyl Methacrylate) Acrylic Plastic Sheet
- D. Code of Federal Regulation (CFR):
- 40 CFR 59.....Determination of Volatile Matter Content, Water
Content, Density Volume Solids, and Weight
Solids of Surface Coating
- E. Federal Specifications (Fed Spec):
- MIL-PRF-8184F.....Plastic Sheet, Acrylic, Modified.
- MIL-P-46144C.....Plastic Sheet, Polycarbonate
- F. National Fire Protection Association (NFPA):
- 70-14.....National Electrical Code

PART 2 - PRODUCTS

SPEC WRITER NOTE: Make material
requirements agree with applicable
requirements specified in the referenced

Applicable Publications. Update and specify only that which applies to the project.

2.1 SIGNAGE GENERAL:

- A. Provide signs of type, size and design shown on the construction documents.
- B. Provide signs complete with lettering, framing and related components for a complete installation.
- C. Provide graphics items as completed units produced by a single manufacturer, including necessary mounting accessories, fittings and fastenings.
- D. Do not scale construction documents for dimensions. Verify dimensions and coordinate with field conditions. Notify Contracting Officer Representative (COR) of discrepancies or changes needed to satisfy the requirements of the construction documents.

SPEC WRITERS NOTES:

- 1. Footing sizes for exterior signs can be determined by using the Footing Configuration Chart located in the VA Signage Design Guide. All site monument signs (sign type F1) require that the base be designed by a licensed structural engineer.
- 2. Show footing sizes on the construction documents.

2.2 EXTERIOR SIGNAGE PERFORMANCE REQUIREMENTS:

- //A. Structural Calculations: Engage a Professional Engineer (PE) who is registered in the state where the work is located to design sign structure and anchorage to withstand design loads. //
- B. Thermal Movements: For exterior signs, allow for thermal movements from ambient and surface temperature changes 67 degrees C (120 degrees F) ambient and 100 degrees C (180 degrees F) material surfaces.
- C. Provide installed electrical components and sign installations bearing the label and certifications of Underwriter's Laboratories, Inc., and comply with NFPA 70 as well as applicable federal codes for installation techniques, fabrication methods and general product safety.

2.3 INTERIOR SIGN MATERIALS:

- A. Aluminum:
 - 1. Sheet and Plate: ASTM B209M (B209).
 - 2. Extrusions and Tubing: ASTM B221M (B221).

- B. Cast Acrylic Sheet: MIL-PRF-8184F; Type II, class 1, Water white non-glare optically clear. Matt finish water white clear acrylic shall not be acceptable.
- C. Polycarbonate: MIL-P-46144C; Type I, class 1.
- D. Vinyl: Premium grade 0.1 mm (0.004 inch) thick machine cut, having a pressure sensitive adhesive and integral colors.
- //E. Adhesives:
 - 1. 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 signage manufacturer.
 - 2. Adhesives to have VOC content of // 50 // // // g/L or less when calculated according to 40 CFR 59, (EPA Method 24). //
- F. Typography: Comply with VA Signage Design Guide.
 - 1. Type Style: Helvetica Medium and Helvetica Medium Condensed. Initial caps or all caps, as indicated in // Sign Message Schedule // // //.
 - 2. Arrow: Comply with graphic standards in construction documents.
 - 3. Letter spacing: Comply with graphic standards in construction documents.
 - 4. Letter spacing: Comply with graphic standards in construction documents.
 - 5. Provide text, arrows, and symbols in size, colors, typefaces and letter spacing shown in construction documents. Text shall be a true, clean, accurate reproduction of typeface(s). Text shown in construction documents is for layout purposes only; final text for signs is listed in // Sign Message Schedule // // //.

2.4 EXTERIOR SIGN MATERIALS:

- A. Aluminum Sheet and Plate: ASTM B209M (B209).
- B. Aluminum Extrusions: ASTM B221M (B221).
- C. Brass Sheet (Yellow Brass): ASTM B36/B36M.
- D. Bronze Plate: ASTM B36/B36M.
- E. Copper Sheet: ASTM B152/B152M.
- F. Steel Products: Structural steel products that conform to ASTM A36/A36M. Sheet and strip steel products that conform to ASTM A1011/A1011M.
- G. Stainless Steel Sheet: ASTM A240/A240M, stretcher leveled standard of flatness.

- H. Acrylic Sheet: ASTM D4802; category as standard with manufacturer for each sign. Provide type UVF.
- I. Fiberglass Sheet: Multiple laminations of glass fiber reinforced polyester resin with UV light stabilized, colorfast, nonfading, weather and stain resistant, colored polyester gel coat with manufacturer's standard finish.
- J. Polycarbonate Sheet: ASTM C1349, Appendix X1, Type II (coated, mar resistant, UV stabilized polycarbonate) with coating on both sides.

SPEC WRITER NOTE: Specify color of signage in Section 09 06 00, SCHEDULE FOR FINISHES.

K. Finish:

1. Aluminum Finishes:

//a. Clear Anodic Finish: AAMA 611.//

//b. Color Anodic Finish: AAMA 611.//

//c. Baked Enamel or Powder Coat Finish: AAMA 2603 with a minimum dry film thickness of 0.04 mm (1.5 mils). //

2. Metallic Coated Steel Finish:

- a. Baked Enamel or Powder Coat Finish: After cleaning and pretreating, apply manufacturer's standard two (2) coat baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of 0.05 mm (2 mils).

SPEC WRITER NOTES:

- 1. Insert interior signage component system being provided as determined by the VA Signage Design Guide.
- 2. See VA Signage Design Guide for interior and exterior sign type requirements.
- 3. Signage installation method to be shown on Sign Message Schedule.

2.5 INTERIOR SIGN TYPES:

- A. Conform to the VA Signage Design Guide.
- B. Provide // sliding rail // // frame // // insert and frame //
// curved frame // component system.
- C. Component System Signs:
 - 1. Provide interior sign system as follows:
 - a. Interchangeable system that allows for changes of graphic components of the installed sign, without changing sign in its entirety.
 - b. Provide sign system comprised of following primary components:

- 1) Rail Back: Horizontal rails, spaced to allow for uniform, modular sizing of sign types.
 - 2) Rail Insert: Mount to back of Copy Panels to allow for attachment to Rail Back.
 - 3) Copy Panels: Fabricate of // ABS // // phopolymer // // acrylic // // aluminum // // stainless steel // // // materials to allow for different graphic needs.
 - 4) End Caps: Interlock to Rail Back to enclose and secure changeable Copy Panels.
 - 5) Joiners and Accent Joiners: To connect separate Rail Backs together.
 - 6) Top Accent Bars: To provide decorative trim cap that encloses the top of sign.
- c. Provide rail back, rail insert and end caps in anodized extruded aluminum.
 - d. Provide signs in system that are convertible in the field to allow for enlargement from one (1) size to another in height and width through use of joiners or accent joiners, which connect rail back panels together blindly, providing a butt joint between copy panels. Connect accent joiners to rail backs with a visible 3 mm (1/8") horizontal rib, flush to the adjacent copy insert surfaces.
 - e. Provide sign configurations as indicated on construction documents that vary in width from 228 mm (9 inches) to 2032 mm (80 inches), and have height dimensions of 50 mm (2 inches), 76 mm (3 inches), 152 mm (6 inches), 228 mm (9 inches) and 305 mm (12 inches). Height that can be increased beyond 305 mm (12 inches), by repeating height module in full or in part.
2. Provide rail back functions as internal structural member of sign. Fabricate of 6063T5-extruded aluminum, anodized black.
 - a. Fabricate to accept an extruded aluminum or plastic insert on either side, depending upon sign type.
 - b. Provide components that are convertible in field to allow for connection to other rail back panels.
 - c. Provide mounting devices including // wall mounting for screw-on applications //, // wall mounting with pressure sensitive tape //, // freestanding mount //, // ceiling mount // and other mounting devices as needed.

3. Provide rail insert functions as mounting device for copy panels on to the rail back. The rail insert mounts to the back of the copy panel with adhesive suitable for attaching particular copy insert material.
 - a. Provide copy panels that slide or snap into the horizontal rail back.
4. Provide copy panels that accept various forms of copy and graphics, and attach to the rail back with the rail insert. Provide copy panels fabricated of // ABS plastic with integral color or an acrylic lacquer finish // // photopolymer // // acrylic //.
 - a. Provide copy panels that are interchangeable by sliding horizontally from either side of sign, and to other signs in system of equal or greater width or height.
 - b. Provide materials that are cleanable without use of special chemicals or cleaning solutions.
 - c. Copy Panel Materials.
 - 1) ABS Inserts: 2.3 mm (.090 inches) extruded ABS plastic core with .07 mm (.003 inches) acrylic cap bonded during extrusion/texturing process.
 - a) Pressure bonded to extruded rail insert with adhesive.
 - b) Background Color: Integral or painted in acrylic lacquer.
 - c) Finished: Texture pattern.
 - 2) Photopolymer Inserts: 3.2 mm (.125 inches) phenolic photo polymer with raised copy etched to 2.3 mm (.0937 inches), bonded to an ABS plastic or extruded aluminum insert with adhesive.
 - a) Background Color: Painted, acrylic enamel.
 - 3) Changeable Paper/ Insert Holder: Extruded insert holder with integral rail insert for connection with structural back panel in 6063T5 aluminum with a black anodized finish.
 - a) Inserts into holder are paper with a clear 0.76 mm (.030 inches) textured cover.
 - b) Background Color: Painted, acrylic lacquer.
 - 4) Acrylic - 2 mm (.080 inches) non-glare acrylic.
 - a) Pressure bonded to extruded rail insert using adhesive.
 - b) Background Color: Painted in acrylic lacquer or acrylic enamel.

- 5) Extruded 6063T5 aluminum with a black anodized finish insert holder with integral rail insert for connection with structural back panel to hold 0.76 mm (.030 inches) textured polycarbonate insert and a sliding tile which mounts in the inset holder and slides horizontally.
5. End Caps: Extruded using 6063T5 aluminum with a black anodized finish. End caps interlock with rail back with clips to form an integral unit, enclosing and securing the changeable copy panels, without requiring tools for assembly.
 - a. Interchangeable to each end of sign and to other signs in signage system of equal height.
 - b. Provide mechanical fasteners that can be added to the end caps that will secure it to rail back to make sign tamper resistant.
6. Joiners: Extruded using 6063T5 aluminum with a black anodized finish. Rail joiners connect rail backs together blindly, providing a butt joint between copy inserts.
7. Accent Joiners: Extruded using 6063T5 aluminum with a mirror polished finish. Connect joiner and rail backs together with a visible 3 mm (.125 inches) horizontal rib, flush to the adjacent copy panel surfaces.
8. Top Accent Rail: Extruded rail using 6063T5 aluminum with a mirror polished finish that provides a 3.2 mm (.125 inches) high decorative trim cap. Cap butts flush to adjacent copy panel and encloses top of rail back and copy panel.
9. Typography:
 - a. Vinyl First Surface Copy (non-tactile): Applied vinyl copy.
 - b. Subsurface Copy Inserts: Textured 1 mm (.030 inches) clear polycarbonate face with subsurface applied vinyl copy.
 - 1) Spray face back with paint and laminated to extruded aluminum carrier insert.
 - c. Integral Tactile Copy Inserts: Phenolic photopolymer etched with 2.3 mm (.0937 inches) raised copy.
 - d. Silk-screened First Surface Copy (non-tactile): // Injection molded or extruded ABS plastic // // Aluminum // insert with first surface applied enamel silk-screened copy.
- D. Tactile Sign:
 1. Tactile sign made from a material that provides for letters, numbers and Braille to be integral with sign. Photopolymer etched metal,

- sandblasted phenolic or embossed material. Do not apply letters, numbers and Braille with adhesive.
2. Numbers, letters and Braille to be raised 0.8 mm (1/32 inches) from the background surface. The draft of the letters, numbers and Braille to be tapered, vertical and clean.
 3. Braille Dots: Conform with ANSI A117.1 for Braille position and layout; (a) Dot base diameter: 1.5 mm (.059 inches) (b) Inter-dot spacing: 2.3 mm (.090 inches) (c) Horizontal separation between cells: 6.0 mm (.241 inches) (d) Vertical separation between cells: 10.0 mm (.395 inches)
 4. Paint assembly specified color. After painting, apply white or other specified color to surface of the numbers and letters. Apply protective clear coat sealant to entire sign.
 5. Finish: Eggshell, 11 to 19 degree on a 60 degree glossmeter.
- E. Provide cork or felt on bottom or mounting bracket when sign is mounted on counter or desk.
- F. For ceiling mounted signs, provide mounting hardware on the sign that allows for sign disconnection, removal, reinstallation, and reconnection.
- //G. Glass Door and Side Light Graphics:
1. Provide text and graphics as first surface applied stylus cut vinyl.
 2. Provide typeface, color, and spacing, with each message or message group on a single quick release backing sheet. //
- //H. Dimensional Letters:
1. Provide dimensional letters that are mill or laser cut acrylic in size and thickness indicated in construction documents.
 2. Provide draft of letters perpendicular to letters face.
 3. Fabricate letters with square corners, such as where a letter stem and bar intersect.
 4. Paint letters with acrylic polyurethane. //
- I. Specialty Signs:
- //1. Small Freestanding Stanchion Sign: 57 mm (2.25 inches) polished aluminum tube mounted to weighted 356 mm (14 inches) diameter polished aluminum base. Sign bracket to hold a 6 mm (.25 inches) copy panel.//
- //2. Freestanding Informational Sign: 57 mm (2.25 inches) polished aluminum tube vertical support mounted to a weighted 356 mm (14 inches) diameter 57 mm (2.25 inches) polished aluminum base.

Provide rail back mechanically connected to vertical supports with copy panel attached to front and back. //

//3. Freestanding Informational Signs for Changeable Messages: 57 mm (2.25 inches) polished aluminum tube vertical support mounted to a weighted 365 mm (14 inches) 57 mm (2.25 inches) polished aluminum base. Provide rail back mechanically connected to vertical supports with hinged locking glass door. Provide interior surface with grooved felt covered changeable letter board or vinyl impregnated tackboard. //

//4. Card or Paper Holder: Extruded aluminum clip anodized black containing rollers to pinch and release paper.

a. End caps are black plastic. //

//5. Patient Information Holder: Provide chart, file, or binder holder constructed of 18 gauge formed. Galvanized steel or aluminum painted in specified color in Section 09 06 00, SCHEDULE FOR FINISHES.

a. Provide polished aluminum connecting rods and buttons. Provide button covers for mounting screws that permanently attach and securely conceal screws. //

J. Temporary Interior Signs:

1. Fabricated from 50 kg (110 pound) matte finished white paper cut to 101 mm (4 inch) wide by 305 mm (12 inch) long.

a. Punched 3.2 mm (.125 inch) hole with edge of hole spaced 13 mm (.5 inch) in from edge and centered on 101 mm (4 inch) side.

b. Reinforce hole on both sides with suitable material that prevents tie from pulling through hole.

c. Ties: Steel wire 0.3 mm (0.120 inch) thick attached to tag with twist leaving 152 mm (6 inch) long free ends.

2. Mark architectural room number on sign, with broad felt marker in clearly legible numbers or letters that identify room, corridor or space as shown on construction documents.

3. Install temporary signs to rooms that have a room, corridor or space number. Attach to door frame, door knob or door pull.

a. Doors that do not require signs are: corridor doors in corridor with same number, folding doors or partitions, toilet doors, bathroom doors within and between rooms, closet doors within rooms, communicating doors in partitions between rooms with corridor entrance doors.

b. Replace and missing, damaged or illegible signs.

2.6 EXTERIOR SIGN TYPES:

A. General:

1. Fabricate signs that comply with VA Signage Design Guide.

B. Text and Graphics:

1. Illuminated Signs: Form graphics with router and backed with 3 mm (0.0125 inch) thick minimum translucent white acrylic diffuser. Mechanically fasten diffuser and letter voids to sign face.
2. Non-illuminated Signs: Provide surface applied reflective white opaque vinyl graphics.

//C. Illuminated Signs:

1. Construct UL approved cabinet from aluminum extrusion system with internal lamping 239 mm (9 inches) on center, maximum.
2. Provide energy saving fluorescent lamps that are turned on or off by photocell.
3. Provide power disconnect switch mounted on bottom or side away from traffic thoroughfare. Select lockable disconnect in accordance with Division 26, ELECTRICAL.
4. The sign face and changeable sign strips are to be 2.3 mm (0.090 inch) minimum to 3.2 mm (0.125 inch) thick aluminum. Mount aluminum faces and changeable strips into framed extruded cabinet face to allow for removal from top or side, so that faces can be changed without affecting extruded sign structure.
5. Changeable Strip Sign Text Modules: Extruded aluminum sliding panels which are retained by a horizontal aluminum channel mounted behind the insert panel joints. Text module heights are 101 mm (4 inches), 152 mm (6 inches) and 203 mm (8 inches).
6. Provide underground power in accordance with construction documents, and up through base or post. Exposed electrical conduit runs are not acceptable. //

//D. Post and Panel Signs:

1. Construct Sign of extruded Aluminum System Including the Following Integral Features: Water relief channel, integral flanges for attachment of additional structural supports and mounting to posts with minimum 3 mm (0.125 inch) wall thickness. Weld post caps or mechanically attach with concealed fasteners.
2. Reveal Between the Post and Sign Cabinet: Extruded aluminum.

- a. Provide adjustable extruded connector to allow for // flush //
// 12 mm (0.5 inch) // // // // 25 mm (1 inch) // reveal between
the sign post and cabinet or tube. //
- //E. Illuminated Monument Sign:
1. Provide sign with an illuminated sign cabinet mounted on a concrete base with a reveal between the base and the cabinet.
 2. Construct sign of an aluminum extrusion system including the following integral features:
 - a. Concealed hinge for lamp access.
 - b. Water relief channel.
 - c. Ballast bracket channel and enclosed electrical raceway with cover.
 - d. Internal flanges for attachment of additional structural supports and mounting to base.
 - e. Frame retainer, maximum 25 mm (1 inch) face dimension, to allow for sign face removal. //
- //F. Illuminated Monument with Stacking Text Modules:
1. Provide sign with an illuminated sign cabinet mounted to a concrete base with a reveal between the base and the cabinet.
 2. Construct sign with an aluminum extrusion system including the following integral features:
 - a. Concealed hinge for lamp access.
 - b. Water relief channel for proper drainage.
 - c. Ballast bracket channel and enclosed electrical raceway with cover.
 - d. Internal flanges for attachment of additional structural supports and mounting to base.
 - e. Inter-changeable side loading sign text modules to allow for individual sign panel removal without the removal of the entire face. //
- //G. Illuminated Monument with Electronic Message Center:
1. Provide sign with an illuminated sign cabinet mounted to a concrete base with a reveal between the base and the cabinet.
 2. Construct sign of an aluminum extrusion system including the following integral features:
 - a. Concealed hinge for lamp access.
 - b. Water relief channel for proper drainage.

- c. Ballast bracket channel and enclosed electrical raceway with cover.
 - d. Internal flanges for attachment of additional structural supports and mounting to base.
3. Display:
- a. Character Height: 7 pixel font.
 - b. The Estimated LED Lifetime: 100,000+ hours.
 - c. The viewing angle to be 90 degrees horizontal x 40 degrees vertical.
 - d. Provide allowance for service access to the sign to be from the front.
 - e. Provide graphic capability to include text, graphics, logos, basic animation, multiple font styles and sizes.
 - f. Power: // 120/240 VAC single phase // // 120/208 VAC three phase //.
 - g. Display Dimming: 64 levels with // automatic // // manual control //.
 - h. Communication Connections: // RS232 // // RS422 // // Serial Fiber // // Ethernet Fiber and Radio //.

//H. Illuminated Post and Panel Sign:

- 1. Provide illuminated sign cabinet mounted to extruded aluminum posts with adjustable reveal between posts and cabinet.
- 2. Construct sign of aluminum extrusion system including:
 - a. Concealed hinge for lamp access.
 - b. Water relief channel for proper drainage.
 - c. Ballast bracket channel and enclosed electrical raceway with cover.
 - d. Internal flanges for attachment of additional structural supports and mounting to posts.
 - e. Extruded aluminum posts and extruded aluminum reveal which is adjustable. Frame retainer, maximum 25 mm (1 inch) face dimension to allow for sign face removal. //

//I. Illuminated Post with Stacking Text Modules:

- 1. Provide illuminated sign cabinet mounted to extruded aluminum posts with an adjustable reveal between the posts and the cabinet.
- 2. Construct sign of an aluminum extrusion system including following integral features:
 - a. Concealed hinge for lamp access.

- b. Water relief channel for proper drainage.
 - c. Ballast bracket channel and enclosed electrical raceway with cover.
 - d. Internal flanges for attachment of additional structural supports and mounting posts.
 - e. Extruded aluminum posts and extruded aluminum reveal which is adjustable in dimension.
 - f. Interchangeable side loading sign text modules to allow for individual sign panel removal without removal of entire face. //
- //J. Illuminated Wall Panel Sign:
- 1. Provide extruded aluminum illuminated sign cabinet configured for wall mounting.
 - 2. Construct sign of an aluminum extrusion system including the following integral features:
 - a. Concealed hinge for lamp access.
 - b. Water relief channel for proper drainage.
 - c. Ballast bracket channel and enclosed electrical raceway with cover.
 - d. Internal flanges for attachment of additional structural supports and mounting to wall.
 - e. Frame retainer maximum 25 mm (1 inch) face dimension to allow for sign face removal. //
- //K. Halo Illuminated Dimensional Letters:
- 1. Halo illuminated fabricated aluminum letter, fully welded construction, utilizing minimum 3.2 mm (0.125 inch) wall aluminum for letter faces and edges and 6.4 mm (0.25 inch) acrylic back diffuser.
 - 2. Internal Illumination: 13 mm (0.5 inch) minimum glass luminous tube, with two strokes minimum per letter. Tubing illuminates white.
 - 3. Letters painted with acrylic polyurethane. Paint inside of letters high gloss white. //
- //L. Non-illuminated Monument with Stacking Text Modules:
- 1. Provide non-illuminated sign cabinet mounted to concrete base with reveal between base and cabinet.
 - 2. Constructed of aluminum extrusion system including the following integral features:
 - a. Water relief channel for proper drainage.

- b. Internal flanges for attachment of additional structural supports and mounting to base.
- c. Interchangeable side loading sign text modules to allow for individual sign panel removal without the removal of the entire face. //

//M. Non-illuminated Post and Panel Sign:

- 1. Provide non-illuminated sign cabinet mounted to extruded aluminum posts with adjustable reveal between posts and cabinet.
- 2. Construct sign of aluminum extrusion system including the following integral features:
 - a. Water relief channel for proper drainage.
 - b. Internal flanges for attachment of additional structural supports and mounting to posts.
 - c. Extruded aluminum posts.
 - d. Extruded aluminum reveal which is adjustable and frame retainer (maximum 25 mm (1 inch) face dimension) to allow for sign face removal.
- 3. Weld sign cabinet at mitered corners and provide internal bracing to ensure structural rigidity. Shop weld and grind exposed welds smooth so surface is consistent with surrounding surface, and accepts paint finish in like manner.
- 4. Sign Faces: 2.3 mm (0.090 inch) thick aluminum. Mount aluminum faces into the framed extruded cabinet to allow for removal from the top or side, so faces can be changed without affecting extruded sign structure. //

//N. Non-illuminated Post and Stacking Bar Sign:

- 1. Provide sign with aluminum tubes mounted to extruded aluminum posts with adjustable reveal between the posts and tubes.
- 2. Construct sign of aluminum extrusion system including the following integral features:
 - a. Water relief channel for proper drainage.
 - b. Internal flanges for attachment of additional structural supports and mounting to posts.
 - c. Extruded aluminum posts.
 - d. Extruded aluminum reveal which is adjustable and interchangeable aluminum tube text modules to allow for individual stacking bar removal.

3. Sign Text Stacking Bar Modules: Extruded aluminum sliding tubes retained by a reveal. Mounted to allow for removal from top, so tubes can be changed without affecting sign structure.

a. Stacking bar (tube) module height is 152 mm (6 inches). //

//O. Non-illuminated Single Post Sign:

1. Provide sign constructed of an extruded aluminum square post with aluminum plate sign panel.
2. Sign Panel: 3.2 mm (0.125 inch) aluminum plate. Mechanically fasten panel to support post with tamper resistant fasteners.
3. Posts: Aluminum, minimum 3.2 mm (0.125 inch) wall thickness.
 - a. Post Caps: Welded or mechanically attached with concealed fasteners. //

//P. Non-illuminated Single Post Traffic Regulatory Sign:

1. Construct sign of extruded aluminum square post with aluminum plate sign panel.
2. Sign Panel: 3.2 mm (0.125 inch) aluminum plate with surface applied reflective vinyl traffic regulatory decals. Mechanically fasten to support post with tamper resistant fasteners.
3. Posts: Aluminum with minimum 3.2 mm (0.125 inch) wall thickness. Post caps to be welded or mechanically attached with concealed fasteners.
4. Provide reflective traffic control symbols complying to Department of Transportation, Manual for Uniform Traffic Control Devices in color, shape, proportions, text and symbols. //

//Q. Non-illuminated Single Post & Panel Street Sign:

1. Provide sign constructed of extruded aluminum square post, cast or fabricated aluminum post cap and panel retainers and aluminum plate sign panels.
2. Sign Panels: 3.2 mm (0.125 inch) aluminum plate. Mechanically fasten panel to panel retainers with tamper resistant fasteners.
3. Provide cast or fabricated aluminum post cap and panel retainers, with a minimum 3.2 mm (0.125 inch) wall thickness.
 - a. Provide post cap element that slides over square sign post and mechanically fastens to post with tamper resistant fasteners.
4. Aluminum Post: Minimum 3.2 mm (0.125 inch) wall thickness. //

//R. Non-illuminated Single Post Street Sign:

1. Provide sign constructed of extruded aluminum square post.

2. Posts: Extruded aluminum with minimum 3.2 mm (0.125 inch) wall thickness. //

//S. Non-illuminated Wall Panel Sign:

1. Provide sign constructed of an aluminum extrusion system including:
 - a. Internal flanges for attachment of additional structural supports and mounting to wall.
 - b. Frame retainer maximum 25 mm (1 inch) face dimension to allow for sign face removal.
2. Weld sign cabinet at mitered corners and provide internal bracing to ensure structural rigidity. Shop weld and grind smooth exposed welds so that surface is consistent with surrounding surface, and accepts paint finish in a like manner.
3. Sign Faces: 2.3 mm (0.090 inch) thick aluminum with surface applied reflective white vinyl graphics.
 - a. Mount aluminum face in extruded cabinet frame to allow for removal from top or side, so that faces can be changed without affecting extruded sign structure. //

//T. Non-illuminated Wall Panel Sign:

1. Constructed of flat sheet of aluminum for wall mounting.
2. Sign Face: 3.2 mm (0.125 inch) thick aluminum with surface applied reflective white vinyl graphics.
3. Installed with mechanical fasteners into wall surface. Exposed support brackets are not acceptable. //

//U. Non-Illuminated Cut Out Dimensional Letters:

1. Provide cut out aluminum letters which are mill cut (vertical sides) out of // 9 mm (0.375 inch) //, // 12 mm (0.5 inch) // or // 19 mm (0.75 inch) // plate as required by sign type.
2. Letters: Studded and mounted with 9 mm (.375 inch) spacers to wall surface using adhesive appropriate to the surface.
3. Paint letters with acrylic polyurethane in specified color and finish in Section 09 06 00, SCHEDULE FOR FINISHES. //

2.7 FABRICATION:

- A. Design interior signage components to allow for expansion and contraction for a minimum material temperature range of 38 degrees C (100 degrees F), without causing buckling, excessive opening of joints or over stressing of adhesives, welds and fasteners.

- B. Form work to required shapes and sizes, with true curve lines and angles. Provide necessary rebates, lugs and brackets for assembly of units. Provide concealed fasteners wherever possible.
- C. Shop fabricate so far as practicable. Fasten joints flush to conceal reinforcement, or weld joints, where thickness or section permits.
- D. Level and assemble contact surfaces of connected members so joints will be tight and practically unnoticeable, without applying filling compound.
- E. Signs: Fabricate with fine, even texture to be flat and sound.
 - 1. Maintain lines and miters sharp, arises unbroken, profiles accurate and ornament true to pattern.
 - 2. Plane surfaces to be smooth, flat and without oil-canning, free of rack and twist.
 - 3. Maximum variation from plane of surface plus or minus 0.3 mm (0.015 inches). Restore texture to filed or cut areas.
- F. Finish extruded members to be free from extrusion marks. Fabricate square turns, sharp corners, and true curves.
- G. Finish hollow signs with matching material on all faces, tops, bottoms and ends. Mitere edge joints to give appearance of solid material.
- H. Do not manufacture signs until final sign message schedule and location review has been completed by the COR and forwarded to contractor.
- I. Drill holes for bolts and screws. Mill smooth exposed ends and edges with corners slightly rounded.
- J. Form joints exposed to weather to exclude water.
- K. Movable Parts, Including Hardware: Cleaned and adjusted to operate as designed without binding or deformation of members. Center doors and covers in opening or frame.
 - 1. Align contact surfaces fit tight and even without forcing or warping components.
- L. Pre-assemble items in shop to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation.
- M. Prime painted surfaces as required. Apply finish coating of paint for complete coverage with no light or thin applications allowing substrate or primer to show.
 - 1. Finish surface smooth, free of scratches, gouges, drips, bubbles, thickness variations, foreign matter and other imperfections.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Locate signs as shown on the // construction documents // // Sign Location Plans //.
- B. Conform to the VA Signage Design Guide for installation requirements.
- C. At each sign location there are no utility lines behind each sign location that will be affected by installation of signs.
 - 1. Correct and repair damage done to utilities during installation of signs at no additional cost to Government.
- D. Provide inserts and anchoring devices which must be set in concrete or other material for installation of signs. Submit setting drawings, templates, instructions and directions for installation of anchorage devices, which may involve other trades.
- E. Refer to Sign Message Schedule for mounting method. Mount signs in proper alignment, level and plumb according to the Sign Location Plan and the dimensions given on elevation and Sign Location Plans. When exact position, angle, height or location is not clear, contact COR for resolution.
- F. When signs are installed on glass, provide blank glass back up to be placed on opposite side of glass exactly behind sign being installed. Provide blank glass back that is the same size as sign being installed.
- G. Touch up exposed fasteners and connecting hardware to match color and finish of surrounding surface.
- H. At completion of sign installation, clean exposed sign surfaces. Clean and repair adjoining or adjacent surfaces that became soiled or damaged as a result of installation of signs.

SPEC WRITER NOTES:

- 1. Include Interior and Exterior Sign Message Schedule as part of this specification section.
- 2. Provide method of installation for each sign on schedule as recommended by the VA Signage Design Guide.
- 3. Specify signage color and finish in Section 09 06 00, SCHEDULE FOR FINISHES.

- - - END - - -