

SECTION 10440

BUILDING SIGNAGE

PART 1 GENERAL

1.1 SUMMARY

- A. Extent of the signage and graphics is shown on the Drawings and in the Appendix. Building Signage to match existing site standards. Quantities of required signs shall be per scheduled in Message Schedule unless revised by Owner.
- B. Symbols shall be as specified by the United States Department of Transportation (DOT) and the American with Disabilities Act (ADA).
- C. Related Work In Other Sections
 - 1. Steel Supports for Signs; Metal Fabrications – Division 5.
 - 2. Concrete – Division 3.
 - 3. Column Numbering; Painting – Division 9.
 - 4. Electrical Wiring and Lighting; - Division 16.

1.2 SCOPE OF WORK

- A. Sign Contractor shall provide and install new signs per design intent drawings; provide electrical hook-up to illuminated signs; engineer signs and sign foundations, and provide fastenings for attachment and installation all of signs; field verify dimensions and site conditions at sign locations.
- B. Sign Contractor shall provide and install the following new sign types per design intent:
 - 1. Pedestrian and Vehicle Safety Aisle Marking.
 - 2. Regulatory.
 - 3. Informational.
 - 4. Direction (Wayfinding).
 - 5. Room Identification.
 - 6. Exterior Signage.
 - 7. Parking Area / Space Identification.
 - 8. Site Identification.
- C. Installation of all work shall be completed according to deadlines determined by Owner's Representative.
- D. Install materials, hardware, and structural supports and make necessary electrical connections. Installation shall include unloading, receiving and handling, storing, relocating, uncrating, inspecting, cleaning and assembly, testing and adjusting sign units into final locations.
 - 1. Coordinate with other trades as required to complete the Work.

- E. The Sign Contractor shall engineer signs and provide fastenings for attachments of signs supplied by the Sign Contractor.
- F. The Sign Contractor shall field verify dimensions and site conditions at sign locations supplied by the Sign Contractor.
- G. The Sign Contractor shall furnish labor, materials, equipment and services necessary and reasonably incidental to the complete fabrication of signs as indicated as specified.
- H. The Sign Contractor shall coordinate with Owner and other trades as required to complete the Work.

1.3 DESIGN INTENT

- A. The contents of the APPENDICES are to illustrate design intent, font style, panel set-up, and nominal sizing of each sign type. It is the intent of the Sign Program to incorporate STANDARD product line signs for each type, except where noted.

1.4 QUALITY ASSURANCE

- A. Use only personnel thoroughly skilled and experienced with the products and methods for fabrication of signage specified.
- B. Uniformity of Manufacturer: For each sign type and graphic image process indicated furnish products of a single manufacturer.
- C. Materials and workmanship shall be new and of the best grades of their kind for their specified purpose.
- D. The term “or as approved” shall mean a material and/or method approved by the Architect-Engineer as equal to those named in specifications.
- E. Contractors who wish to bid on a material or method assumed “equal” to those specified must submit a written request including supporting technical data with their bid. The Owner does not guarantee use of or consideration of any material or method not specified.
- F. Sign units shall be engineered to be rigid, without buckling of any member, failure of any points, distortion or other damage. Joints shall be weathertight and vandal proof.
- G. Joints in members shall be internally aligned and shall provide for thermal expansion and contraction. Exposed corners of frames shall be mitered and welded, with sharp 90-degree corners, unless otherwise specified. Joints and seams shall be filled and ground smooth so as not to be visible on the finished sign.
- H. Welding shall conform to applicable AWS standard and shall be free of defects. Welding shall be done prior to finishing. Aluminum-to-aluminum joints on the exterior of a sign shall be continuous heli-arc welded and finished smooth.

- I. Exterior signs shall be engineered to be rigid and withstand movement, shear and torsion loads. Exposed areas of sign shall not oilcan. Sign shall withstand windload of 30 psf without permanent malformation or damage.field measurements

1.5 ELECTRICAL WORK

- A. Electrical work shall bear the label of Underwriters Laboratories, Inc. (UL) approval.
- B. Manufacture shall provide required illumination and electrical connections. Electrical fixtures and assemblies shall meet UL requirements and be installed in accordance with NEC standards.
- C. Coordinate with Division 16 Sections and Drawings.

1.6 FIELD MEASUREMENTS

- A. Take field measurements where required to verify or supplement dimensions indicated and be responsible for accurate fit of the work.

1.7 UTILITIES AND SERVICES

- A. Protect existing utilities and services within and adjacent to area of Work, from damage while performing the Work.
- B. If utilities or services are uncovered that are not indicated on the Drawings, advise Owner and do not work in the immediate area until instructed by the Owner.

1.8 EARTHWORK

- A. Backfill excavations as promptly as work permits.
- B. Repair and re-establish grades where damaged during demolition and installation.

1.9 SUBMITTALS

- A. Furnish submittals for items that are identified in this Section by a different typeface and a bracketed code (*e.g., Item [L]*). Refer to Division 1 - General Requirements, for definition of codes for types of submittals and the administrative requirements governing submittal procedure. General submittal requirements pertaining to this Section are specified herein under this Article.
- B. *Drawings [D]*: Submit shop drawings for fabrication and installation of the signs. Include plans, elevations, and typical large-scale details of construction, sign working and lettering layout. Show anchorages and accessory items. Furnish location template drawings for items supported or anchored to permanent construction.

- C. *Samples [S]*: : Submit samples/prototypes for verification of the following:
 - 1. Two samples of each specified sign color, paint and vinyls, for color verification, 4" x 4" min. size.
 - 2. Two samples of Casocryl Black'n White acrylic sheet, 4" x 4" min. size.
 - 3. Samples of metal finishes and colors.
- D. Submit within 10 days following approvals a final schedule of fabrication and installation and total completion.
- E. Submit two copies of maintenance and instructional information for use by the Owner. Information shall describe proper maintenance such as cleaning and touch-up; shall include guarantees, special warrantee sand replacement data.
- F. All submittals shall be sent to the Architect-Engineer through the Owner's Representative per Division 1 requirements.
- G. *Sign Product [P]*: Submit product data for lamping/lighting fixtures.

1.10 WARRANTY

- A. During the warranty period, the Contractor agrees to restore defective work to the standard of the Contract Documents without cost to the Owner, including materials and labor.
- B. Lamps and light fixtures shall be warranted a minimum of one year from final approval against failure of operation. If a unit becomes defective within this time period it shall be replaced at no cost to Owner.
- C. Joints in acrylic plastic construction shall be warranted for five years against failure or delamination.
- D. Vinyl die-cut letters shall be warranted for five years against delamination from substrate.
- E. Interior plaques signs shall be warranted for five years against discoloration and delamination.
- F. All warranties shall begin on the date of the Owner's final acceptance of the Work.

PART 2 PRODUCTS

2.1 SIGN CONTRACTOR SUPPLIED SIGN TYPES

- A. Signs: Regulatory and Informational
 - 1. Signs are Aluminum Sheet stock with permanent applied screen graphics. Signs are mounted.

- B. Signs: Room Identification (Wayfinding)
 - 1. Modular components including structural rail, removable copy inserts of painted ABS plastic and square profile aluminum locking end caps. Signs are mounted.
- C. Signs: Pedestrian and Vehicle Safety Aisle Marking
 - 1. Epoxy coating field applied text, marking, and graphics.

2.2 SAFETY MARKING EPOXY COATING

- A. Overall Thickness: 3.5 mils.
- B. Finish Sheen: 80-100.
- C. Percent Epoxy Solids by Volume: Minimum 38% (2% variable allowed).
- D. Percent Epoxy Solids by Weight: Minimum 52% (2% variable allowed).
- E. Acceptable Manufacturers:
 - 1. Pittsburg Paint, "Auaspon WB Waterborne High Performance Epoxy", 98-Series.
 - 2. Sherwin Williams, "Tile Clad HS Epoxy".

2.3 ADHESIVE VERY HIGH BOND TAPE

- A. Double-coated high bond acrylic tape for joining of sign units, of thickness needed to achieve maximum adhesion with minimum visibility.
- B. Acceptable manufacturers:
 - 1. Graphtec Industries
 - 2. 3M Co.
 - 3. Owner's approved equivalent.

2.4 ALUMINUM

- A. Aluminum Sheet: Provide aluminum sheet of alloy and temper recommended by the aluminum producer or finisher for the type of use and finish indicated, and with not less than the strength and durability properties specified in ASTM B 209 for 5005-H-15.
- B. Aluminum Extrusions: Provide aluminum extrusions of alloy and temper recommended by the aluminum producer or finisher for the type of use and finish indicated, and with not less than the strength and durability properties specified in ASTM B 221 for 6063-T5.
- C. Filler metal for welding aluminum shall be the alloy recommended for each application by the manufacturer of aluminum alloy.
- D. Aluminum shall be separated from direct contact with concrete and metals other than stainless steel, zinc, cadmium or nickel bronze, by painting contact surfaces with zinc chromate primer

and aluminum paint or with a coat of heavy-bodied bituminous paint or by non-absorptive tape or gasket.

2.5 SIGN POSTS

- A. Perforated steel support signposts 3-1/4 inch x 3-1/4 inch square. Factory finish all surfaces of pole gloss black.

2.6 ANCHORS AND FASTENERS

- A. Anchors and Inserts: Use non-ferrous metal inserts for interior installations. Furnish inserts, as required, to be set into masonry work.
- B. Fasteners: Unless otherwise indicated, use concealed fasteners fabricated from metals that are non-corrosive to either the sign material or the mounting surface.
- C. Ceiling Suspension Cabling: Follow manufacturer recommendation.

2.7 PLASTICS

- A. Cast Acrylic Sheet: Provide cast (not extruded or continuous cast) methyl methacrylate monomer plastic sheet, in sizes and thickness indicated, with a minimum allowable continuous service temperature of 176 degrees F (80 degrees C), and of the following types:
 - B. Transparent Sheet: Where sheet material is indicated as “clear” provide colorless sheet in matte finish, with light transmittance of 92%, when tested in accordance with the requirements of ASTM D 1003.
 - C. Acceptable Manufacturer (Transparent Sheets)
 - 1. Plexiglass (Rohm and Haas Co.).
 - 2. Lexan (General Electric Co.).
 - D. Opaque Plastic Sheet: ABS sheet, in thickness indicated, with lightly textured surface. Polyvinylchloride (PVC) sheet, expanded low-density closed cell material with smooth flat surfaces.
 - E. Acceptable Manufacturer (Opaque Sheet)
 - 1. Alucobond Technologies, Inc.
 - 2. Architect-Engineer approval equivalent.

2.8 VINYL FILM

- A. Provide opaque non-reflective, vinyl film, 2-mil minimum thickness, with pressure sensitive adhesive backing, suitable for interior applications.

- B. Legends shall securely adhere when subjected to any temperature within the range of minus 30 degrees F (-34 degrees C) to 200 degrees F (93 degrees C) and shall not crack, chip or peel voluntarily.
- C. Shrinkage of letters shall not exceed 1/64 inch (0.4 MM) in any direction.
- D. Acceptable Products Are
 - 1. 3M's "Scotchcal"
 - 2. Avery Dennison's "Fasson 1000 series Premium Vinyl."
 - 3. Architect-Engineer approval equivalent.

2.9 CONCRETE

- A. Concrete work shall conform to applicable ACI codes and standards in conformance with the requirements of Section 03300.
- B. Concrete work for sign foundations shall be 3000-psi mix, air entrained in conformance with the requirements of Section 03300. Concrete shall be vibrated during the pour to adequately distribute aggregate and eliminate air pockets or other surface imperfections. Exposed concrete shall be smooth finish, without form marks or discoloration. Exposed edges shall be even.
- C. Metal reinforcement shall be steel bars or wire as engineered by the sign fabricator and as shown on the shop drawings.
- D. Install inserts as required for anchorage of sign units and cast in conduit as indicated, in conformance with the requirements of Section 03300.

2.10 FABRICATION

- A. The Work shall be shop fabricated.
- B. Fastenings shall be concealed where possible. Exposed fastenings shall occur only where approved by the Architect-Engineer and shall be finished to match work.
- C. Silk-screened images shall be executed with photo screens prepared from original art. No handcut screens will be accepted. Original art shall be defined as artwork that is a first generation reproduction of the specified art.
- D. Touch-up of artwork for photographic enlargement, quality of artwork for finished signage shall be the responsibility of the Contractor. The Architect-Engineer reserves the right to reject artwork if it fails to meet the standards of quality established.
- E. Edges and corners of finished letter forms and symbols shall be photographically precise, crisp, clean; tick marks, rounded corners, discontinuous curves, line wave, cut or ragged edges, edge build-up, bleeding, surface pinholes or other imperfections will not be accepted.

- F. Letterforms and symbols shall be aligned to maintain a base line parallel to the sign format. Letterforms and symbols shall conform to the prescribed letter from proportions.
- G. Message copy, unless otherwise specified, shall be **Helvetica Regular and Medium**, all caps as indicated. Alternate letterforms shall not be accepted. Message copy colors shall be as indicated on the drawings.
- H. Message copy on drawings is for layout purposes. Actual copy for signs shall be as scheduled.
- I. Fabrication of acrylic plastic sheet shall be in accordance with approved shop drawings and with techniques and recommendations of the manufacturer.
- J. Remove protective paper from acrylic sheet only as required during fabrication. Exercise care in handling and fabrication to avoid scratching, chipping or crazing of the acrylic plastic sheet.
- K. Panel Signs: Fabricate panel signs to comply with the requirements indicated for materials, thickness, finishes, colors, designs, shapes, sizes and details of construction. Produce smooth, even, level sign panel surfaces, constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally.
- L. Brackets: Fabricate brackets and fittings for bracket-mounted signs from extruded aluminum to suit sign panel construction and mounting conditions indicated.
- M. Graphic Image Process: Provide sign copy to comply with the requirements indicated for sizes, styles, spacing, content, positions, materials, finishes and colors of letters, numbers, symbols and other graphic devices.
- N. Graphics shall be executed in such manner that edges and corners are true, clean and photographically precise. Graphics with rounded corners, cut or ragged edges or edge build-up will not be accepted.
- O. Apply pressure-sensitive vinyl graphics to clean surface; surface and air temperature shall be 60 degrees F (16 degrees C) minimum.
- P. Substrates shall be considered dirty and shall be wiped with a solvent recommended by the acrylic manufacturers prior to the application of vinyl film or sheeting. Dry the surface with a lint-free cloth before the solvent evaporates from the surface.

2.11 FINISHES

- A. Metal Finishes: Comply with NAAMM "Metal Finishes Manual" for finish designations and applications recommendations.
- B. Aluminum Finishes: Aluminum shall be pretreated as recommended by the paint manufacturer. Prime surfaces to be painted with paint manufacturer's recommended primer.

- C. Paints and inks shall be made of other surface material on which they are to be applied and as recommended by the manufacturer of the paint or ink. Identification of paint or ink shall be noted on shop drawings with method of application. Prime coats or other surface pre-treatments, where recommended, shall be included in the work. Coating shall be even over entire surface to be painted, without voids, runs, sags, brush or roller marks.
- D. In general, paint application shall be by brush or airless spray. Paint applied by brush shall be free of objectionable brush marks and meet the approval of the Architect-Engineer.
- E. Interior paint finishes shall be acrylic polyurethane, semi-gloss on aluminum substrates, matte finish on plastic substrates.
- F. Acrylic Polyurethane finish shall be applied at the rate of 2.5 mils per coat by air or airless spray.
- G. Acceptable Manufacturers Include
 1. Matthews Paint Co.
 2. Akzo Coatings Inc.
 3. Architect-Engineer approval equivalent.
- H. Sign colors shall match approved samples and shall be exactly as specified. Sign colors shall be consistent in chroma and in value, shall maintain even opacity and be free of any imperfections.

2.12 SIGN GRAPHICS

- A. The attached sketches, in the Appendices, show sign design, graphics, and locations.
- B. Monument Identity Signs (MN)
 1. Aluminum framing and faces, painted, constructed to create frameless box with flat sign faces. Sign type is internally illuminated, with routed out graphics with translucent acrylic back up.
 2. Provide metal halide lamps, 277 Volt, for even illumination with no halation. Provide electrical shut-off switch inside sign box.
 3. Location and quantity as shown on Drawings included in Appendix
- C. Pylon Directional Signs (P)
 1. Aluminum framing and faces, painted, constructed to create frameless box with flat sign faces.
 2. Sign type is non-illuminated, with applied vinyl graphics.
 3. Location and quantity as shown on Drawings included in Appendix
- D. Directional Post and Panel Signs (DP)
 1. Aluminum extruded framing and removable panels, .090 min. sheet, painted. Aluminum extruded half-round profile posts, .125-inch thickness, painted, with extruded aluminum caps, and designed to accept panel-framing system on an integral track.
 2. Sign type is non-illuminated, with surface applied vinyl graphics.
 3. Location and quantity as shown on Drawings included in Appendix

- E. Flagmount Signs (FM)
 - 1. Aluminum removable sign panels, .125-inch thickness, painted. Single aluminum post, round profile, slotted to accept sign panel, .125-inch thickness, painted, with extruded aluminum caps.
 - 2. Sign type is non-illuminated, with surface applied vinyl graphics.
 - 3. Location and quantity as shown on Civil Drawings not included in this package.

- F. Regulatory Signs (R)
 - 1. Aluminum sign panels, .090 min. thickness, painted. Single aluminum post, half-round profile, with sign panel centered on post, fastened mechanically through sign panel, .125 inch thickness, painted, with extruded aluminum caps.
 - 2. Sign type is non-illuminated, with surface applied vinyl graphics. Stop symbol signs have reflective graphics.
 - 3. Location and quantity as shown on Civil Drawings not included in this package.

- G. Light Pole Parking Area ID Signs
 - 1. Aluminum sign panels, .090 min. thickness, painted, mounted to aluminum light poles with mechanical fasteners. Surface applied vinyl graphics.
 - 2. Location and quantity as shown on Civil Drawings not included in this package.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Locate sign units and accessories where shown or scheduled, using mounting methods of the type described and in compliance with the manufacturer's instructions. Exact position of exterior directional signs shall be field located.
- B. Install sign units level, plumb and at the height indicated, with sign surfaces free from distortion or other defects in appearance.

3.2 CLEANING AND PROTECTION

- A. Keep the premises free of rubbish and debris caused by this work, and upon completion of the work leave the area included in the contract broom clean. Remove waste materials and debris from the site and dispose of at legal disposal area away from the site.
- B. Provide adequate protections for sign units from damage to materials or finish due to handling, storage, assembly and installation, until acceptance from Owner.
- C. In the event of damage, be responsible to immediately make repairs and replacements to the approval of the Architect-Engineer, at no cost to the Owner.
- D. Use only those cleaning materials and methods recommended by manufacturers of surface materials to be cleaned.

- E. At completion of installation, clean soiled sign surfaces in accordance with material manufacturer's instructions.
- F. All installed sign units shall be free of tape, dirt, smudges and other foreign material.

END OF SECTION

Revision History	
Date	Rev. No.
A	0
B	0
C	0
D	0
E	0
F	0
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