

EXHIBIT C – EXTERIOR SIGNAGE SPECS (X pages)

IFB # 88820 – SIGNAGE SERVICES

- POST AND PANEL / PYLON SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Non-illuminated or internally illuminated post and panel signs.
 - 2. Non-illuminated or internally illuminated pylon signs.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide post and panel and pylon signs capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Wind Loads: Determine loads based on governing codes.
 - 2. Seismic Performance: Determine loads based on governing codes.
- B. Thermal Movements: Provide post and panel and pylon signs that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.4 DEFINITIONS

- A. ADA-ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines."

1.5 SUBMITTALS (May be required for projects performed under this contract.)

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication and installation details for post and panel/pylon signage.
 - 1. Include plans, elevations, sections, details, and attachments to other work.
 - 2. Provide message list, typestyles, graphic elements, and layout for each sign at least half size and full-size details of graphics.
 - a. Include full-size templates for cutout characters and graphic symbols.
 - 3. Show locations of electrical service connections.
 - 4. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of actual units or sections of units showing the full range of colors available for the following:
 - 1. Aluminum.
 - 2. Acrylic sheet.
 - 3. Die-cut vinyl characters and graphic symbols. Include representative samples of available typestyles and graphic symbols.
- D. Samples for Verification: For each of the following products and for the full range of color, texture, and sign material indicated, of sizes indicated:
 - 1. Aluminum: For each form, finish, and color, on 6-inch- (150-mm-) long sections of extrusions and squares of sheet at least 4 by 4 inches (100 by 100 mm).
 - 2. Acrylic Sheet: 8 by 10 inches (200 by 250 mm) for each color required.
 - 3. Include a full-size representative sample of surface-applied graphic symbol cutout illuminated character required in each panel. Show graphic style, colors, finishes, typestyles, and graphic symbol.
 - 4. Trim: 6-inch- (150-mm) - long sections of each profile.
 - 5. Accessories: Manufacturer's full-size unit.
- E. Sign Schedule: Use same designations indicated on Drawings.
- F. Maintenance Data: For signs to include in maintenance manuals.
- G. Warranty: Special warranty, if applicable.

1.6 QUALITY ASSURANCE

- A. Source Limitations for Signs: Obtain each sign type indicated from one source from a single manufacturer.
- B. Regulatory Requirements: Comply with applicable provisions in ADA-ABA Accessibility Guidelines and ICC A117.1.

- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.7 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit installation of signs to be performed according to manufacturers' written instructions and warranty requirements.
- B. Field Measurements: Indicate measurements on Shop Drawings.

1.8 COORDINATION

- A. Coordinate installation of anchorages for post and panel/pylon signage. Furnish setting drawings, templates, and directions for installing anchorages and other items that are to be embedded in concrete.

1.9 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of post and panel and pylon signs that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Deterioration of metal and polymer finishes beyond normal weathering.
 - b. Deterioration of embedded graphic image colors and sign lamination.
 - 2. Warranty Period: Five years from date of Substantial Completion.
- B. Sign contractor / vendor warranty.
 - 1. Warranty Period: 2 years for labor and installation from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum Sheet and Plate: ASTM B 209 (ASTM B 209M), alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of Alloy 5005-H32.
- B. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of Alloy 6063-T5.
- C. Steel:

1. Galvanized Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating, either commercial or forming steel.
 2. Steel Sheet: electrolytic zinc-coated, ASTM A 591/A 591M, with steel sheet substrate complying with ASTM A 1008/A 1008M, commercial steel, exposed.
 3. Hot-Rolled Structural-Steel Shapes: ASTM A 36/A 36M or ASTM A 529/A 529M.
 4. Steel Tubing or Pipe: ASTM A 500, Grade B.
 5. Steel Members Fabricated from Plate or Bar Stock: ASTM A 529/A 529M or ASTM A 572/A 572M, 42,000-psi (290-MPa) minimum yield strength.
 6. Bolts for Steel Framing: ASTM A 307 or ASTM A 325 (ASTM A 325M) as necessary for design loads and connection details.
 7. For steel exposed to view on completion, provide materials having flat, smooth surfaces without blemishes. Do not use materials whose surfaces exhibit pitting, seam marks, roller marks, rolled trade names, or roughness.
- D. Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet), Type UVA (UV absorbing).
- E. Applied Vinyl: Die-cut characters from vinyl film of nominal thickness of 3 mils (0.076 mm) with pressure-sensitive adhesive backing, suitable for exterior applications.
- F. Colored Coatings for Acrylic Sheet: For copy and background colors, provide colored coatings, including inks, dyes, and paints, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and that are UV and water resistant for five years for application intended.
1. Custom Paint Colors: Match Pantone color matching system.
- G. Color: As selected from manufacturer's full range.

2.2 POST AND PANEL / PYLON SIGNS

- A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Allen Industries Architectural Signage.
 2. APCO Graphics, Inc.
 3. Best Sign Systems Inc.
 4. Bunting Graphics, Inc.
 5. Charleston Industries, Inc.
 6. Howard Industries Architectural signage
 7. Innerface Architectural Signage, Inc
 8. Signature Signs, Incorporated.
 9. Supersine Company (The).
 10. Vomar Products, Inc.

2.3 PANEL SIGNS

- A. Sign Message Panels: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch (1.5 mm) measured diagonally from corner to corner.

1. Coordinate dimensions and attachment methods to produce message panels with closely fitting joints. Align edges and surfaces with one another in the relationship indicated.
2. Increase metal thickness or reinforce with concealed stiffeners or backing materials as needed to produce surfaces without distortion, buckles, warp, or other surface deformations.
3. Continuously weld joints and seams unless other methods are indicated; grind, fill, and dress welds to produce smooth, flush, exposed surfaces with welds invisible after final finishing.

B. Message Panel Materials:

1. Aluminum Sheet: 0.080 inch (2.03 mm) thick.
 - a. Panel Finish: Baked enamel or Class I, color anodic finish.
 - b. Color: As selected from manufacturer's full range.
2. Composite Aluminum-Faced Sheet: 0.020-inch- (0.51-mm-) thick, aluminum sheet facings laminated to each side of 0.394-inch- (10.0-mm-) thick, phenolic core.
 - a. Panel Finish: Baked enamel or Class I, color anodic finish.
 - b. Color: As selected from manufacturer's full range.
3. Acrylic Sheet: Translucent or Opaque 0.250 inch (6.354 mm) thick.
 - a. Color: As selected from manufacturer's full range.
4. Edge Condition: Square cut
5. Corner Condition: Square.
6. Color: As selected from manufacturer's full range.

C. Laminated Panel Signs: Solid phenolic panel core with graphic image covered with thermosetting resin face layer.

1. Surface Finish: As indicated, UV resistant, outdoor.
2. Edge Condition: As indicated.
3. Corner Condition: As indicated.
4. Thickness: 1/4 inch (6 mm).

D. Panel Sign Frames:

1. Extruded-Aluminum Frames: Mitered with concealed anchors and welded.
2. Steel Sheet: Painted, not less than 0.050 inch (1.27 mm) thick for face and 0.031 inch (0.78 mm) thick for returns.
 - a. Color: As selected from manufacturer's full range.

E. Hollow-Box-Type Panel Signs: Frame message panel with formed aluminum sheet or extruded hollow-box-type frame with ends flanged to engage slots in posts or attached to posts with extruded-aluminum fittings. Close top and bottom edges of panels with manufacturer's standard welded seams or extrusions.

1. Message Panel Materials:
 - a. Aluminum Sheet: 0.080 inch (2.03 mm) thick.
 - 1) Panel Finish: Baked enamel Class I, color anodic finish.
 - 2) Color: As selected from manufacturer's full range.
 - b. Composite Aluminum-Faced Panel: 0.020-inch- (0.51-mm-) thick, aluminum sheet facings laminated to each side of 0.394-inch- (10.0-mm-) thick, phenolic core.
 - 1) Panel Finish: [Baked enamel or Class I, color anodic finish.
 - 2) Color: As selected from manufacturer's full range.
 - c. Acrylic Sheet: Translucent or Opaque 0.250 inch (6.354 mm) thick.
 - 1) Color: As selected manufacturer's full range.
2. Hollow-Box Depth: As indicated on drawings.
 - a. Corner Condition: As indicated.
 - b. Finish: As indicated.
 - c. Color: As selected from manufacturer's full range.
3. Mounting: As indicated.
 - a. Manufacturer's standard non-corroding anchors for substrates encountered.
 - b. Provide clips welded to back of panels for installation without visible fasteners.
4. Illuminated-Sign Units: Manufacturer's standard lighting including transformers, insulators, and other components. Make provisions for servicing and concealing connections to building electrical system.

F. Multiple-Message-Bar-Type Inserts: Fabricate signs to allow insertion of changeable messages in the form of slide-in aluminum or acrylic sheet changeable inserts for use in fixed frames.

G. Exterior Post and Panel Sign schedule:

5A	Exterior Post and Panel: Aluminum Panel & Post	2 Post sign 60"w x 30"ht.	each	10
5B	Exterior Post and Panel: Steel Panel and Post	2 Post sign 60"w x 30"ht.	each	10
5C	Exterior Post and Panel: Hollow Aluminum Box & Post w/ double-sided acrylic panel	2 Post sign 60"w x 24"ht. x 10"deep	each	10

2.4 POSTS

A. General: Fabricate posts to lengths required for mounting method indicated.

1. Direct-Burial Method: Provide posts 36 inches (910 mm) longer than height of sign to permit direct embedment in concrete foundations.
 2. Baseplate Method: Provide posts with baseplates, flanges, or other fittings, welded to bottom of posts. Drill holes in baseplate for anchor-bolt connection.
 - a. Provide anchor bolts of size required for connecting posts to concrete foundations.
 3. Reverse Sleeve Method: Provide inserts recommended by manufacturer, sized for close fit inside posts. Size inserts for direct embedment in concrete foundations and to attach sign posts securely and prevent sign from overturning when subjected to normal loading conditions prevailing at Project site, but not less than 1/3 of post height plus 36 inches (910 mm) for embedment. Drill posts and inserts for through bolts for fastening them together.
 - a. Provide bolts for fastening posts to inserts.
- B. Aluminum Posts: Manufacturer's standard 0.125-inch- (3.18-mm-) thick, extruded-aluminum tubing, with vertical slots to engage sign panels. Provide stop blocks in slots to hold panels in position. Include post caps, fillers, spacers, junction boxes, access panels, and related accessories required for complete installation.
1. Square Posts: As indicated on drawings.
 2. Rectangular Posts: As indicated on drawings.
 3. Post Finish: Match sign panel face.
 4. Color: As selected from manufacturer's full range.
- C. Steel Posts: Fabricate from 0.120-inch- (3.05-mm-) thick, square steel tubing. Include post caps, fillers, spacers, junction boxes, access panels, and related accessories required for complete installation. Hot-dip galvanized post assemblies after fabrication to comply with ASTM A 123/A 123M.
1. Post Size: As indicated on drawings.
 2. Post Finish: Baked enamel matching sign panel face.
 3. Color: As selected from manufacturer's full range.

2.5 PYLON STRUCTURE

- A. Base: Provide pylon signs with integral base consisting of channels, angles, plates, or other fittings. Drill holes in members for anchor-bolt connection.
1. Provide anchor bolts of size required for connecting base to concrete foundations.
- B. Internal Frames: Manufacturer's standard internal steel framing system, designed to withstand wind pressure indicated. Provide welded construction using mitered joints. Cut, drill, and tap units to receive hardware, bolts, and similar items.
1. Hot-dip galvanized steel framing system after fabrication to comply with ASTM A 123/A 123M.
- C. External Frames: Manufacturer's standard external aluminum framing system designed to withstand design wind pressure indicated and for direct attachment of sign message panels.

Provide welded construction using mitered joints. Cut, drill, and tap units to receive hardware, bolts, and similar items.

1. Frame Finish: Match finish of panels.
2. Corner Condition: As indicated.

2.6 ACCESSORIES

- A. Anchors and Inserts: Provide nonferrous-metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion-bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

2.7 FABRICATION

- A. General: Provide manufacturer's standard post and panel pylon signs of configurations indicated.
 1. Welded Connections: Comply with AWS standards for recommended practices in shop welding. Provide welds behind finished surfaces without distortion or discoloration of exposed side. Clean exposed welded surfaces of welding flux and dress exposed and contact surfaces.
 2. Mill joints to tight, hairline fit. Form joints exposed to weather to exclude water penetration.
 3. Preassemble signs in the shop to greatest extent possible. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in location not exposed to view after final assembly.
 4. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.

2.8 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.9 ALUMINUM FINISHES

- A. Color Anodic Finish: Manufacturer's standard Class 1 integrally colored or electrolytically deposited color anodic coating, 0.018 mm or thicker, in dark bronze applied over a satin (directionally textured) mechanical finish, complying with AAMA 611.

- B. Baked-Enamel Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Apply baked enamel complying with paint manufacturer's written instructions for cleaning, conversion coating, and painting.
 - 1. Organic Coating: Thermosetting, modified-acrylic enamel primer/topcoat system complying with AAMA 2603 except with a minimum dry film thickness of 1.5 mils (0.04 mm), medium gloss.
- C. High-Performance Organic Finish (2-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: conversion coating; Organic Coating: manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with [AAMA 2604] [AAMA 2605] and with coating and resin manufacturers' written instructions.
- D. High-Performance Organic Finish (3-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: conversion coatings; Organic Coating: manufacturer's standard 3-coat, thermocured system consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2605 and with coating and resin manufacturers' written instructions.

2.10 GALVANIZED STEEL FINISHES

- A. Surface Preparation: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A 780.
 - 1. Galvanizing Repair Paint: High-zinc-dust-content paint for re-galvanizing welds in steel, complying with SSPC-Paint 20.
- B. Factory Priming for Field-Painted Finish: Where field painting after installation is indicated, apply the air-dried primer specified below immediately after cleaning and pretreating.
 - 1. Shop Primer: Zinc-dust, zinc-oxide primer formulated for priming zinc-coated steel and for compatibility with finish paint systems indicated; complying with SSPC-Paint.
- C. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard 2-coat, baked-enamel finish consisting of prime coat and thermosetting topcoat, with a minimum dry film thickness of 1 mil (0.025 mm) for topcoat. Comply with paint manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 2 mils (0.05 mm).
- D. Color-Coated Finish: Apply manufacturer's standard baked finish complying with manufacturer's written instructions for surface preparation including pretreatment, application, baking, and minimum dry film thickness.

2.11 STEEL FINISHES

- A. Surface Preparation: Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACENo. 1, "White Metal Blast Cleaning," or SSPC-SP 8, "Pickling."
- B. Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment.
 - 1. Shop Primer: Manufacturer's or fabricator's standard, fast-curing, lead- and chromate-free, universal primer, selected for resistance to normal atmospheric corrosion, for compatibility with substrate and field-applied finish paint system indicated, and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.
- C. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-enamel finish consisting of prime coat and thermosetting topcoat. Comply with paint manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 2 mils (0.05 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Verify that items, including anchor inserts, and electrical power are sized and located to accommodate signs.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Excavation: Excavate for sign foundation to elevations and dimensions indicated. Reconstruct subgrade that is not firm, undisturbed, or compacted soil, or that is damaged by freezing temperatures, frost, rain, accumulated water, or construction activities by excavating a further 12 inches (300 mm), backfilling with satisfactory soil, and compacting to original subgrade elevation.
 - 1. Excavate hole depths approximately 39 inches (990 mm)] below finished grade.
- B. Set anchor bolts and other embedded items required for installation of signs. Use templates furnished by suppliers of items to be attached.
 - 1. Protect portion of posts, inserts, pylons above ground from concrete splatter.
- C. Locate signs and accessories where indicated, using mounting methods of types described and complying with manufacturer's written instructions.
 - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.

2. Mechanical Fasteners: Use non-removable mechanical fasteners placed through predrilled holes. Attach signs with fasteners and anchors suitable for secure attachment to substrate as recommended in writing by sign manufacturer.

3.3 CLEANING AND PROTECTION

- A. After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.

END OF SECTION 101426