

TECHNICAL SPECIAL PROVISIONS
FOR
CENTRAL FLORIDA COMMUTER RAIL TRANSIT
STATION GRAPHICS
FINANCIAL PROJECT ID 412994-3-52-01

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Prepared by: Jim Bockstall, President
Bockstall Design Associates. LLC

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SECTION 10410 - DIRECTORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Internally illuminated Directories.
- B. Related Section include the following:
 - 1. Post and Panel & Pylon Signs: Section 10436
 - 2. Plaques and Dimensional Letter signs: Section 10431

1.2 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide post and panel & pylon signs capable of withstanding wind loads of 130 miles per hour.
- B. Thermal Movements: Provide post and panel & 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 degrees F, ambient; 180 degrees F, material surfaces.

1.3 DEFINITIONS

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

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated in drawings.
- B. Shop Drawings: Show fabrication and installation details for internally illuminated directory signage.

1. Include plans, elevations, sections, details, and attachments to other work.
 2. Content is not a part of this Work: Posters, maps, schedules, & graphics are not the responsibility of the signage contractor.
 3. Show locations of electrical service connections and shut-off switch for internally illuminated directories.
 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 Verification: For each of the following:
1. Provide two color samples for every color, minimum 4" square, on the same aluminum material and extrusions to be used for full size fabrication, including clear coat finish. One set of samples to be kept by FDOT and one set to be kept by signage contractor.
 2. Provide 6" long sample of vandal frame directory extrusions, including hinge and lock – by SignComp or approved equivalent.
 3. Provide a painted 12" long section of 1/4" thick x 4" diameter pipe and cap, fitted into a full size baseplate cover – painted, including clear coat finish.
- D. Qualification data: For fabricator and installer
- E. Maintenance Data: For all signs – to be included in maintenance manuals.
- F. Warranty: Special warranty to be specified in this Section.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with applicable provisions in ADA and ABA Accessibility Guidelines and ICC (International Code Council) A1171.1.
- B. Electrical Components, Devices, and Accessories: Comply with Underwriters Laboratories (UL) listing and labeling in accordance with, and acceptable to, authorities having jurisdiction.
- C. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1.6 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 critical measurements and tolerances on Shop Drawings.

1.7 COORDINATION

- A. Closely coordinate installation of anchorages and power feed for posts, footers and baseplates with other trades. Refer to footer details - especially regarding finish pavers on the platforms. Furnish setting drawings, templates, and directions for installing anchorages and other items that are to be embedded in concrete.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of the directory 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 finishes beyond normal weathering.
 - b. Deterioration of the clear polycarbonate vandal cover finish beyond normal weathering.
 - 2. Warranty Period: Five years from date of Final Acceptance.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum Extrusions: ASTM B 221 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.
- B. Acrylic Sheet: ASTM D 4802, Category A-1, Type UVA (UV Absorbing).
- C. Clear Acrylic Sheet – Vandal Cover: ASTM D 4802, Category A-1 (cell-cast sheet), with smooth or polished finish.
 - 1. .177 inch thick colorless sheet with visible light transmittance of 92 percent measured per ASTM D 1003.
- D. Translucent Acrylic Sheet – Diffuser: ASTM D 4802, Category A-1 (cell-cast sheet), with smooth or polished finish.
 - 1. 1/8 inch thick white colored sheet of density required to produce uniform brightness and minimum halation effects.
- E. Paint: Matthews Acrylic Polyurethane (MAP). Vandal-resistant automotive-grade paint with UV protection.

1. Undercoats: Matthews hardeners, pretreatments, fillers and primers as prescribed by paint manufacturer.
2. Color Coats: Matthews Acrylic Polyurethane (MAP) as prescribed by paint manufacturer. See Color Schedule – G20.840 series.
3. Top Coats: Matthews Acrylic Polyurethane (MAP) 42 228SP Satin Clear with UV protection as prescribed by paint manufacturer. Apply on top of all painted surfaces.

2.2 DIRECTORY SIGNS

- A. Available 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. Internally illuminated Directory Signs.
- B. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings by one of the following:
 1. ASI-Modulex, Inc. – Orlando, FL
 2. Bunting Graphics, Inc. – Verona, PA
 3. Creo-Industrial Arts – Seattle, WA
 4. Don Bell Signs – Daytona, FL [local fabrication facility]
 5. Federal Heath – Daytona, FL
 6. NW Sign Industries – Orlando, FL [local fabrication facility]
 7. Quality Sign Company – Jacksonville, FL [local fabrication facility]

2.3 DIRECTORY SIGNS

- A. Aluminum Extrusion Vandal Frame: SignComp – Extrusions for the Sign Industry.
 1. Provide smooth surfaces constructed to remain uniform within a tolerance of plus or minus 1/16 inch measured diagonally from corner to corner.
 2. Continuously weld joints and seams unless other methods are indicated; grind, fill, and dress welds and seams to produce smooth, flush, exposed surfaces with welds minimally visible after final finishing.
 3. Frame Finish: Painted. See 2.1- G above
 4. Color: See Color Schedule – G20.840 series.
 5. Edge Condition: Square
 6. Corner Condition: Square
 7. Mitered
 8. Concealed anchors, bolts and screws.
 9. Provide Lock and two sets of Keys

10. Provide hinge at top.
11. Provide shut-off switch for servicing concealed within frame
12. Provide full size example of UL listing label. Minimum size required. Black and White text or Black on silver metal finish preferred.

2.4 POSTS

- A. General: Fabricate posts to lengths required for mounting method indicated.
 1. Baseplate Method: Provide posts with baseplates welded to the bottom of posts.
 - a. Provide anchor bolts of size required for connecting posts to concrete foundations. To be installed underneath finish pavers.
 - b. Provide plate cover as indicated on drawings – to be installed above finish pavers. See sheet G20.718
- B. Aluminum Posts: All posts are to be Round. Manufacturer's standard thick extruded-aluminum tubing. Include post caps, top and bottom.
 1. Post Finish: Painted. See 2.1- G above
 - a. Post Color: See Color Schedule – G20.840 series.
 - 1) One color.
 - b. Post Size: 4" diameter. As indicated on drawings.

2.5 FABRICATION

- A. General: Provide Directory signs of configurations as indicated in drawings.
 1. Welded Connections: Comply with AWS standards for recommended practices in shop welding. Provide welds behind finished surfaces as needed 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. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous, unless part of the design aesthetic.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine finished directory & posts, platform conditions and architectural conditions with Installer present for compliance with requirements for

installation tolerances and other conditions affecting performance of work, especially when signs are installed on architectural platforms with other trades present.

- B. Verify that footers are sized and located properly to accommodate directories.
- C. Verify that electrical power is located properly for directories.
- D. Verify that architectural conditions are suitable prior to installation to avoid damage by other trades after installation has been completed.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Pre-placement Inspection - Platforms: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other trades sufficiently in advance, to permit installation of their work, cooperate with other trades in setting such work. All aforementioned work must be completed and the Engineer and/or Department notified at least 24 hours prior to concrete placement to allow time for adequate inspection. Moisten wood forms immediately before placing concrete where form coating is not used.
- B. Set anchor bolts and other embedded items required for installation of directories. Use approved templates furnished by suppliers of items to be attached.
- C. Locate directories where indicated, using mounting methods of types described and complying with manufacturer's written instructions.
 - 1. Install directories level, plumb, and at heights indicated, with surfaces free of distortion and other defects in appearance.
 - 2. Coordinate installations with Architect and Sign Designer as directed by FDOT.

3.3 CLEANING AND PROTECTION

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

3.4 CLEAN-UP

- A. Remove from time to time, as directed, all rubbish and debris resulting from the Work and upon completion of the Work remove all unused materials, equipment and similar construction-related items, and perform such final cleaning services

as may be necessary to leave the completed Work in a condition acceptable to the FDOT.

END OF SECTION 10410

SECTION 10431 – PLAQUES & DIMENSIONAL LETTER SIGNS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Wall-mounted / Flag-mounted Plaque signs
 - 2. Dimensional Letter signs.
- B. Related Section include the following:
 - 1. Internally illuminated Directories: Section 10410
 - 2. Post and Panel & Pylon signs: Section 10436

1.2 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide wall-mounted signs, flag-mounted signs, and dimensional letter signs capable of withstanding wind loads of 130 miles per hour.
- B. Thermal Movements: Provide post and panel & 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 degrees F, ambient; 180 degrees F, material surfaces.

1.3 DEFINITIONS

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

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated in drawings.

- B. Shop Drawings: Show fabrication and installation details for post and panel and pylon signage.
 - 1. Include plans, elevations, sections, details, and attachments to other work.
 - 2. Provide message schedule, location plans and scaled layouts at 3/4"= 1'-0" for every unique sign face, including various Symbols as noted in drawings and provided by THE DEPARTMENT.
 - 3. 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 Verification: For each of the following:
 - 1. Provide full size digital print mock-ups for each sign type – “simulated paint colors” using Pantone Matching System specifications. Include reflective vinyl where indicated.
 - 2. Provide two color samples for every color, minimum 4” square, on the same aluminum sign face material to be used for full size fabrication, including clear coat finish. One set of samples to be kept by THE DEPARTMENT and one set to be kept by signage contractor.
 - 3. Provide one full size prototype of Sign Type L (Tickets), including extrusions and attachment detail.
 - 4. Provide one full size prototype of Platform ID Sign Type I-2 (Winter Park) – partial sign only, minimum two letterforms.
 - a. Include raceway
 - b. Include sign on a mock-up to replicate a 4”x 8” beam section (pvc or other)
 - c. Include partial Wayfinding plaque (on one face of beam)

- D. Message Schedule: Use same designations indicated on Drawings.

- E. Qualification data: For fabricator and installer

- F. Maintenance Data: For all signs – to be included in maintenance manuals.

- G. Warranty: Special warranty to be specified in this Section.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with applicable provisions in ADA and ABA Accessibility Guidelines and ICC (International Code Council) A1171.1.

- B. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1.6 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.

1.7 COORDINATION

- A. Coordinate installation of signs on architectural elements by others.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of wall-mounted, flag-mounted and dimensional letter 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 finishes beyond normal weathering.
 - b. Deterioration of vinyl text and symbols beyond normal weathering.
 - 2. Warranty Period: Five years from date of Final Acceptance.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum Sheet and Plate: (American Society for Testing and Materials) ASTM B 209 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 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. Applied Vinyl letterforms and symbols: Die-cut characters from vinyl film of nominal thickness of 3 mils with pressure-sensitive adhesive backing, suitable for exterior applications.
- D. Paint: Matthews Acrylic Polyurethane (MAP). Vandal-resistant automotive-grade paint with UV protection.

1. Undercoats: Matthews hardeners, pretreatments, fillers and primers as prescribed by paint manufacturer.
2. Color Coats: Matthews Acrylic Polyurethane (MAP) as prescribed by paint manufacturer. See Color Schedule – G20.840 series.
3. Top Coats: Matthews Acrylic Polyurethane (MAP) 42 228SP Satin Clear with UV protection as prescribed by paint manufacturer. Apply on top of all painted surfaces and vinyl graphics.

2.2 WALL-MOUNTED, FLAG-MOUNTED AND DIMENSIONAL LETTER SIGNS

- A. Available 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. Wall-mounted signs
 2. Flag-mounted signs
 3. Dimensional Letter signs
- B. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings by one of the following:
 1. ASI-Modulex, Inc. – Orlando, FL
 2. Bunting Graphics, Inc. – Verona, PA
 3. Creo-Industrial Arts – Seattle, WA
 4. Don Bell Signs – Daytona, FL [local fabrication facility]
 5. Federal Heath – Daytona, FL
 6. NW Sign Industries – Orlando, FL [local fabrication facility]
 7. Quality Sign Company – Jacksonville, FL [local fabrication facility]

2.3 FLAG-MOUNTED SIGNS

- A. Message Panels: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally from corner to corner.
 1. Continuously weld joints and seams unless other methods are indicated; grind, fill, and dress welds and seams to produce smooth, flush, exposed surfaces with welds minimally visible after final finishing.
- B. Message Panel Materials:
 1. Aluminum Sheet: 1/8" thick.

- a. Panel Finish: Painted. See 2.1- G above
 - b. Color: See Color Schedule – G20.840 series.
- C. Message Panel Extruded Frames: SignComp – Extrusions for the Sign Industry.
- 1. An extensive catalog of aluminum extrusions in various sizes and configurations are to be used for all Panels and Cabinets unless otherwise noted or approved.
 - a. Frame Finish: Painted. See 2.1- G above
 - b. Color: See Color Schedule – G20.840 series.
 - 2. Edge Condition: Square
 - 3. Corner Condition: Square
 - 4. Mitered
 - 5. Exposed stainless steel bolts used for Sign Type I (Tickets) .

2.4 WALL-MOUNTED SIGNS

- A. Message Panels: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally from corner to corner.
- 1. Continuously weld joints and seams unless other methods are indicated; grind, fill, and dress welds and seams to produce smooth, flush, exposed surfaces with welds minimally visible after final finishing.
- B. Message Panel Materials:
- 1. Aluminum Sheet: 1/8” thick.
 - a. Panel Finish: Painted. See 2.1- G above
 - b. Color: See Color Schedule – G20.840 series.
 - c. Two-tone paint scheme for Platform ID Sign Type I-1 (Orlando Health Station). Mask and spray, face and returns.
 - d. Aluminum extrusions may not be available for this arched sign face profile.
 - 2. Edge Condition: Square
 - 3. Profile Condition: Arched
 - 4. Concealed anchors, bolts and screws.

2.5 DIMENSIONAL LETTER SIGNS (Non-illuminated)

- A. Metal stand-up channel letters on raceway: Provide smooth surfaces (visible all sides) constructed to remain plumb under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally from corner to corner.
 - 1. Continuously weld or solder, as required, all joints and seams unless other methods are indicated; grind, fill, and dress visible welds and seams to produce smooth, flush, exposed surfaces.
 - 2. Aluminum Sheet: .090" thick.
 - a. Painted. See 2.1- G above
 - b. Color: See Color Schedule – G20.840 series.
 - c. One color paint scheme for faces, returns, backs and raceway.
 - 3. Edge Condition: Square
 - 4. Profile Condition: Configuratory letterforms
 - 5. Concealed anchors, bolts and screws.

2.6 FABRICATION

- A. General: Provide wall-mounted, flag-mounted and dimensional letter signs of various sizes and configurations as indicated in drawings.
 - 1. Welded Connections: Comply with AWS standards for recommended practices in shop welding. Provide welds behind finished surfaces as needed 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. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous, unless part of the design aesthetic.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine finished signs and architectural conditions with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of work, especially when signs are installed on architectural canopies and platforms with other trades present.
- B. Verify that architectural conditions are suitable prior to installation to avoid damage by other trades after installation has been completed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Notify other trades sufficiently in advance to avoid conflicts, cooperate with other trades in setting such work.
- B. 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. Coordinate installations with Architect and Sign Designer as directed by THE DEPARTMENT.

3.3 CLEANING AND PROTECTION

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

3.4 CLEAN-UP

- A. Remove from time to time, as directed, all rubbish and debris resulting from the Work and upon completion of the Work remove all unused materials, equipment and similar construction-related items, and perform such final cleaning services as may be necessary to leave the completed Work in a condition acceptable to the THE DEPARTMENT.

END OF SECTION 10431

SECTION 10436 - POST AND PANEL & PYLON SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Non-illuminated Post and Panel signs.
 - 2. Internally illuminated Pylon signs.
- B. Related Section include the following:
 - 1. Internally illuminated Directories: Section 10410
 - 2. Plaques and Dimensional Letter signs: Section 10431

1.2 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide post and panel & pylon signs capable of withstanding wind loads of 130 miles per hour.
- B. Thermal Movements: Provide post and panel & 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 degrees F, ambient; 180 degrees F, material surfaces.

1.3 DEFINITIONS

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

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated in drawings.

- B. Shop Drawings: Show fabrication and installation details for post and panel and pylon signage.
 - 1. Include plans, elevations, sections, details, and attachments to other work.
 - 2. Provide message schedule, location plans and scaled layouts at 3/4"= 1'-0" for every sign face, including the approved SunRail Logo and various Symbols as noted in drawings and provided by FDOT.
 - 3. Show locations of electrical service connections and shut-off switch for internally illuminated pylon signs.
 - 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 Verification: For each of the following:
 - 1. Provide full size digital print mock-ups for each sign type – “simulated paint colors” using Pantone Matching System specifications. Include reflective vinyl where indicated. SunRail Logo does not need to be back-lit for the pylon mock-up.
 - 2. Provide two color samples for every color, minimum 4" square, on the same aluminum sign face material to be used for full size fabrication, including clear coat finish. One set of samples to be kept by FDOT and one set to be kept by signage contractor.
 - 3. Provide full size mock up of the SunRail Logo, surface-mounted on acrylic, back-lit per specifications. Provide a dark environment for this review and evaluation.
 - 4. Provide 6" long samples of pylon cabinet extrusion & each post and panel extrusion – by SignComp or approved equivalent.
 - 5. Provide full size prototype of Sign Type F, including extrusions, reveals, base plate cover and two-tone painted post.
 - 6. Provide full size base plate prototype for 6" diameter post.

- D. Message Schedule: Use same designations indicated on Drawings.

- E. Qualification data: For fabricator and installer

- F. Maintenance Data: For all signs – to be included in maintenance manuals.

- G. Warranty: Special warranty to be specified in this Section.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with applicable provisions in ADA and ABA Accessibility Guidelines and ICC (International Code Council) A1171.1.

- B. Electrical Components, Devices, and Accessories: Comply with Underwriters Laboratories (UL) listing and labeling in accordance with, and acceptable to, authorities having jurisdiction.
- C. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1.6 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.

1.7 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.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of post and panel & 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 finishes beyond normal weathering.
 - b. Deterioration of acrylic finishes beyond normal weathering.
 - c. Deterioration of vinyl graphic images, symbols, logos, text, colors and laminations beyond normal weathering.
 - 2. Warranty Period: Five years from date of Final Acceptance.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum Sheet and Plate: (American Society for Testing and Materials) ASTM B 209 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 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. Acrylic Sheet: ASTM D 4802, Category A-1, Type UVA (UV Absorbing).
 - 1. Vandal resistant Lexan to be used for the large, back-lit SunRail Logo.
 - 2. Plexiglas or Acrylite brands to be used for backlit letterforms.
- D. Applied Vinyl letterforms and symbols: Die-cut characters from vinyl film of nominal thickness of 3 mils with pressure-sensitive adhesive backing, suitable for exterior applications.
- E. Printed Vinyl SunRail Logo on internally illuminated pylons: 3M outdoor material.
 - 1. 3M Scotchcal IJ40C 3-mil translucent vinyl with Comply Adhesive.
 - 2. Print image at 300 dpi at 100% with solvent-based inks.
 - 3. 3M Scotchcal Luster Overlamine 8509 for ultraviolet and physical protection.
- F. Printed Vinyl SunRail Logo on non-illuminated post and panel signs: 3M outdoor material
 - 1. 3M Scotchcal IJ40C 3-mil opaque vinyl with Comply Adhesive.
 - 2. Print image at 300 dpi at 100% with solvent-based inks.
 - 3. 3M Scotchcal Luster Overlamine 8509 for ultraviolet and physical protection.
- G. Paint: Matthews Acrylic Polyurethane (MAP). Vandal-resistant automotive-grade paint with UV protection.
 - 1. Undercoats: Matthews hardeners, pretreatments, fillers and primers as prescribed by paint manufacturer.
 - 2. Color Coats: Matthews Acrylic Polyurethane (MAP) as prescribed by paint manufacturer. See Color Schedule – G20.840 series.
 - 3. Top Coats: Matthews Acrylic Polyurethane (MAP) 42 228SP Satin Clear with UV protection as prescribed by paint manufacturer. Apply on top of all painted surfaces and vinyl graphics.

2.2 POST AND PANEL & PYLON SIGNS

- A. Available 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. Non-illuminated Post and Panel signs
 - 2. Internally illuminated Pylon Signs

- B. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings by one of the following:
 - 1. ASI-Modulex, Inc. – Orlando, FL
 - 2. Bunting Graphics, Inc. – Verona, PA
 - 3. Creo-Industrial Arts – Seattle, WA
 - 4. Don Bell Signs – Daytona, FL [local fabrication facility]
 - 5. Federal Heath – Daytona, FL
 - 6. NW Sign Industries – Orlando, FL [local fabrication facility]
 - 7. Quality Sign Company – Jacksonville, FL [local fabrication facility]

2.3 NON-ILLUMINATED (POST AND) PANEL SIGNS

- A. Message Panels: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally from corner to corner.
 - 1. Continuously weld joints and seams unless other methods are indicated; grind, fill, and dress welds and seams to produce smooth, flush, exposed surfaces with welds minimally visible after final finishing.

- B. Message Panel Materials:
 - 1. Aluminum Sheet: 1/8" thick.
 - a. Panel Finish: Painted. See 2.1- G above
 - b. Color: See Color Schedule – G20.840 series.

- C. Message Panel Extruded Frames: SignComp – Extrusions for the Sign Industry.
 - 1. An extensive catalog of aluminum extrusions in various sizes and configurations are to be used for all Panels and Cabinets unless otherwise noted or approved.
 - a. Frame Finish: Painted. See 2.1- G above
 - b. Color: See Color Schedule – G20.840 series.

 - 2. Edge Condition: Square

3. Corner Condition: Square
4. Mitered
5. Concealed anchors, bolts and screws.

2.4 INTERNALLY ILLUMINATED (PYLON) CABINET SIGNS

- A. Message Panels: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally from corner to corner.
 1. Continuously weld joints and seams unless other methods are indicated; grind, fill, and dress welds and seams to produce smooth, flush, exposed surfaces with welds minimally visible after final finishing.
- B. Message Panel Materials:
 1. Aluminum Sheet: 1/8" thick.
 - a. Panel Finish: Painted. See 2.1- G above
 - b. Color: See Color Schedule – G20.840 series.
- C. Message Panel Extruded Frames: SignComp – Extrusions for the Sign Industry.
 1. An extensive catalog of aluminum extrusions in various sizes and configurations are to be used for all Panels and Cabinets unless otherwise noted or approved.
 - a. Frame Finish: Painted. See 2.1- G above
 - b. Color: See Color Schedule – G20.840 series.
 2. Edge Condition: Square
 3. Corner Condition: Square
 4. Mitered
 5. Concealed anchors, bolts and screws.
 6. Illumination: Even illumination without hot spots or dark areas is required. T-5 Slimline fluorescent tube lighting – 6" on-center, is required unless otherwise approved. Include transformers, insulators and other UL approved components as needed. Make provisions for servicing and concealing connections to electrical supply.
 7. Provide shut-off switch for servicing concealed within frame
 8. Provide full size example of UL listing label. Minimum size required. Black and White text or Black on silver metal finish preferred.

2.5 POSTS (FOR ALL PANEL & PYLON SIGNS)

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

1. Baseplate Method: Provide posts with baseplates welded to the bottom of posts.
 - a. Provide anchor bolts of size required for connecting posts to concrete foundations.
 - b. Provide plate cover as indicated on drawings
- B. Aluminum Posts: All posts are to be Round. Manufacturer's standard ¼ inch thick extruded-aluminum tubing. Include post caps, top and bottom.
 1. Post Finish: Painted. See 2.1- G above
 - a. Post Color: See Color Schedule – G20.840 series.
 - 1) Two-tone color scheme. Mask and spray.
 - 2) Very important that color breaks for posts match up with color breaks for channel spacers (reveals), panel frames & faces, and cabinet frames & faces.
 - b. Post Sizes: As indicated on drawings.
 - 1) Sign Type A – 8” diameter posts
 - 2) Sign Type A1 – 6” diameter posts
 - 3) Sign Type A2 – 6” diameter posts
 - 4) Sign Type B & C – 7” diameter posts
 - 5) Sign Type E & F – 6” diameter posts

2.6 FABRICATION

- A. General: Provide 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 as needed 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. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous, unless part of the design aesthetic.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine finished signs & posts, landscape conditions and architectural conditions with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of work,

especially when signs are installed on architectural platforms with other trades present.

- B. Verify that footers are sized and located properly to accommodate signs.
- C. Verify that electrical power is located properly for illuminated pylons.
- D. Verify that architectural conditions are suitable prior to installation to avoid damage by other trades after installation has been completed.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Pre-placement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other trades sufficiently in advance, to permit installation of their work, cooperate with other trades in setting such work. All aforementioned work must be completed and the Engineer and/or Department notified at least 24 hours prior to concrete placement to allow time for adequate inspection. Moisten wood forms immediately before placing concrete where form coating is not used.
- B. 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 backfilling with satisfactory soil, and compacting to original subgrade elevation.
- C. Set anchor bolts and other embedded items required for installation of signs. Use approved templates furnished by suppliers of items to be attached.
- D. 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. Coordinate installations with Landscape Architects and Sign Designer as directed by FDOT.

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.

3.4 CLEAN-UP

- A. Remove from time to time, as directed, all rubbish and debris resulting from the Work and upon completion of the Work remove all unused materials, equipment and similar construction-related items, and perform such final cleaning services as may be necessary to leave the completed Work in a condition acceptable to the FDOT.

END OF SECTION 10436

END OF GRAPHICS PACKAGE