Origination Form

Specifications

Name:	Shae Gibbs	**Standard Specification Section:**	965
Email:	shae.gibbs@dot.state.fl.us	**Special Provision:**	
Date:	2025-06-30T18:02:49Z	**Associated Specs:**	550, 954, 962

Summary:

Moved materials requirements from the Standard Plans and add APL requirements.

Justification:

Moved to the appropriate specification to ensure BABA compliance

Do the changes affect other types of specifications?

Neither

List Specifications Affected:

Other Affected Documents/Offices	Contacted	Yes/No
Other Standard Plans	Rick Jenkins	Yes
Florida Design Manual		No
Structures Manual		No
Basis of Estimates Manual		No
Approved Product List	Missy Hollis	Yes
Construction Office		No
Maintenance Office		No
Materials Manual		No
Traffic Engineering Manual		No

Are changes in line with promoting and making progress on improving safety, enhancing mobility, inspiring innovation, and fostering talent; explain how?

Yes

What financial impact does the change have; project costs, pay item structure, or consultant fees?

None

What impact does the change have on production or construction schedules?

None

How does this change improve efficiency or quality?

Ensure materials information is in the correct specification

Which FDOT offices does the change impact?

Design and SMO

What is the impact to districts with this change?

None

Does the change shift risk and to who?

No

Provide summary and resolution of any outstanding comments from the districts or industry.

Comments and Responses are available on the Track the Status of Revisions hyperlink located on the Specifications landing page: https://www.fdot.gov/programmanagement/Specs.shtm

What is the communication plan?

Through the established specification revision process (e.g., Internal and Industry Review)

What is the schedule for implementation?

The Standard Specifications eBook and Workbook are effective July 1st every year.

GENERAL PROVISIONS FOR ALUMINUM ITEMS (INCLUDING WELDING)
(REV 6-30-25)

SECTION 965 is deleted and the following substituted:

965-1 General.

This Section covers the material and fabrication requirements for aluminum components.

965-1.1 Approved Producer Requirements: Provide aluminum light poles and Gantry J-arms from Producers who are approved in one of the following fabrication categories:

1. American Institute of Steel Construction, Highway Component Manufacturer
2. American Welding Society, Certified Welding Fabricator
3. Canadian Welding Bureau, Fusion Welding of Aluminum (W47.2).

Certificates of compliance shall be provided for each product and must identify the reportable properties of Table 965-2.

965-1.2 Approved Product List (APL): All products not subject to Approved Producer Requirements above must be listed on the APL.

Manufacturers seeking evaluation of their product shall submit an application in accordance with Section 6 and include the documentation identified in Table 965-1.

Table 965-1
APL Requirements for Aluminum Items

Documentation	Requirements (edit as needed for specific products)
Product Photo	Provide product photos that display the significant features of the product. Provide photos for all manufacturer supplied installation materials.
Technical Data Sheet	Provide product literature that uniquely identifies the product and includes product specifications, storage instructions, and recommended installation materials and equipment, as applicable.
Product Label and Packaging	Provide label and packaging photos for each component of the product system.
Certified Test Report	Provide a certified test report showing compliance with specification requirements, as required for specific products.
FHWA Eligibility Letter	Provide a FHWA Eligibility letter, as required for specific products.
Drawings and Calculations	Provide drawings and calculations, as required for specific products. Drawings and calculations must be signed and sealed by a Professional Engineer licensed in the State of Florida.
Manufacturer's Installation Instructions	Provide Manufacturer's Installation Instructions which include surface preparation details, calibration details, inspection details, maintenance details, or repair instructions, as applicable.
Product Sample (for APL listing)	A sample may be requested to verify the product, in accordance with the specifications. If the product is a system, a sample of each component must be submitted.

965-2 Fabrication.

Provide fabricated components in accordance with AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, the Design Plans, and this section. Verify the strength of each Lot by tensile test. Alternate testing will not be accepted. Protect against damage and marring during transit and delivery. Provide an anodic coating (minimum 0.0002 inch) and chromate seal all hardware.

An American Welding Society certified welding inspector must visually inspect all welds for final approval. A certifying statement from the welding inspector must be provided with the component. The document must identify the project information, date of inspection, welding inspector name, and inspector certification number.

Table 965-~~1~~2
Material Requirements for Aluminum Components

Product	Test Method	Alloy/Temper	Reported Properties
Pole, Arm, Extrusions	ASTM B221	6061-T6 6063-T6	Alloy, Temper, Thickness, Tensile Strength
Pedestal, Posts for signs and signals	ASTM B429	6061-T6	
Bars, Plates, Stiffeners, Backing Ring, Shims, Shapes	ASTM B221	6063-T6 6061-T6	
	ASTM B209 ASTM B308	6061-T6	
Pedestrian/Bicycle Railing, Aluminum Bullet Railing, and Guide Rail	ASTM B221	6351-T5	
	ASTM B241 ASTM B210 ASTM B429	6061-T6	
J-Arm Tube	ASTM B429 ASTM B221	6061-T6	
J-Arm Connection Plate	ASTM B209	6061-T6	
Sheet	ASTM B209	6061-T6 5154-H38 5052-H38	
Structural Shapes	ASTM B308 ASTM B221	6061-T6	
Single Column Ground Sign Sand Castings	ASTM B26	A356-T6	
	ASTM B108	A356-T61	
Washers	ASTM B221	7075-T6 2024-T4	
Button Head or Flat Head Bolts	ASTM F468	2024-T4 6061-T6	S2 Lot Testing, Alloy, Temper
Hex Nuts	ASTM F467	6061-T6 6262-T9 2024-T4	S2 Lot Testing, Alloy, Temper

965-2.1 Light Poles: Provide aluminum lighting poles in accordance with this section ~~and Table 965-1~~. Weld arms and poles in the T4 condition, using the filler metal ER4043, ER4047, ER5183, ER5356, or ER5556 in accordance with AWS- D1.2 Aluminum Structural welding Code. Weld to castings in accordance with 965-2.3. Heat treat the arm and pole, until aged to the T6 condition. Transverse welds are only allowed at the base. Equip poles with a vibration damper, when specified in the contract documents.

Provide exterior surface with a clean, uniform silvery appearance, free of dark streaks and discoloration. Finish the pole and arm with a satin rubbed finish.

965-2.2 Overhead Sign Components: Provide aluminum toll gantry J-arms in accordance with this section ~~and Table 965-1~~. Weld tube to plate connections in the T4 or T6 condition, using the filler metal ER4043, ER4047, ER5183, ER5356, or ER5556 in accordance with AWS- D1.2 Aluminum Structural welding Code. Heat treat tube and plate in the T4 condition until aged to the T6 condition.

Provide exterior surface with a clean, uniform silvery appearance, free of dark streaks and discoloration.

965-2.3 Castings: Provide aluminum castings in accordance with this section ~~and Table 965-1~~. Weld aluminum castings to itself or aluminum tube to castings using the filler metal ER4043, in accordance with AWS- D1.2 Aluminum Structural welding Code. Heat treat the castings, until aged to the T6 condition.

965-2.4 Railing: Provide aluminum railing in accordance with this section ~~and Table 965-1~~. Weld aluminum railing using the filler metal ER4043, ER4047, ER5183, ER5356, or ER5556 in accordance with AWS- D1.2 Aluminum Structural welding Code.

965-2.5 Static Sign Assemblies: Provide aluminum sheet, plate, and structural shapes in accordance with this section ~~and Table 965-1~~. Weld structural profiles to itself or aluminum components using ER4043, ER4047, ER5183, ER5356 or ER5556 in accordance with AWS D1.2 Aluminum Structural Welding Code. Heat treat the structural profiles, until aged to the T6 condition.

965-2.6 Transformer Bases (Excluding Lighting):

~~**965-2.6.1 Product Acceptance:** Manufacturers seeking evaluation of products for inclusion on the APL shall submit an application in accordance with Section 6 and include the following documentation, showing that the product meets the applicable requirements.~~

~~Table 965-2~~
~~Submittal Compliance Requirements~~

~~Documentation~~	~~Requirements~~
~~Certified Test Report~~	~~Shows that product meets Moment Capacity~~
~~Installation Instructions~~	~~Include installation instructions~~
~~Product Identification Photo~~	~~Display's the manufacturer's name or logo and the model number.~~
~~Product Photo~~	~~Displays the significant features of the product as required in this section.~~
~~Technical Data Sheet or Product Drawing~~	~~Uniquely identifies the product and includes product details, notes, material specifications, dimensions, and sizes meeting the specification~~

~~965-2.6.2 Physical Requirements:~~ Provide documentation showing that the product meets ~~Meet~~ the physical requirements of Table 965-3.

Table 965-3 Physical Requirements for Transformer Base		
Feature	Requirement	Documentation
Height	Base is 12 to 18 inches in height	Technical Data Sheet or Product Drawing
Base Material	ASTM B26, 356 T6 or 319	Technical Data Sheet or Product Drawing
Threaded Hub	Hub located at the top for mounting a nominal 4-inch Schedule 40 (4-1/2-inch outside diameter) aluminum pole. The threaded hub must be tapped to allow full pole engagement.	Technical Data Sheet or Product Drawing
Fastening	Provides for fastening to a foundation with four 3/4-inch anchor bolts located 90 degrees apart. The base design must allow for bolts that are placed off-center.	Technical Data Sheet or Product Drawing
Door Size	Provides a door opening of not less than 8 inches by 8 inches.	Technical Data Sheet or Product Drawing
Door Material	The door must be constructed of fiberglass or other non-combustible, non-aluminum material.	Technical Data Sheet or Product Drawing
Door Attachment	Attach the door to the base with cleats and one stainless steel socket button head screw or by other means suitable for NEMA 3 electrical enclosures.	Technical Data Sheet or Product Drawing
Moment Capacity	Supports an ultimate moment capacity of 10,000 foot-pounds, without breaking, cracking or rupturing in any manner.	Certified Test Report
Breakaway	Meets the requirements in the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals.	FHWA Eligibility Letter.

965-3 Paint for Poles, Pedestals, and Posts.

Paint systems used on aluminum poles, pedestals, and posts shall meet the color requirements as specified in the Contract Documents. All paint systems shall possess physical properties and handling characteristics that are compatible with the application requirements of Section 646. Materials shall be specifically intended for use over aluminum. ~~Paint systems shall exhibit no loss of adhesion or total color difference (ΔE^*_{ab}) greater than 8.0 units for five years after final acceptance as specified in 5-11. An aluminum pole, pedestal, post, or sign panel that exhibits a cumulative surface area of delamination in excess of 50 square inches will constitute an adhesion failure. Delamination shall be defined as any area of exposed metal surface subsequent to hand tool cleaning. A ΔE^*_{ab} value exceeding 8.0 units per the International~~

~~Commission on Illumination L*a*b* 1976 (CIELAB) space and color difference formula, measured in accordance with ASTM D2244, will constitute a color retention failure.~~

~~The Department will measure and enter in the Department's database the CIELAB color chromaticity coordinates for the color of the top coat of sample coupons provided as required by 646-2.7 using a BYK-Gardner Handicolor colorimeter using D65 illuminant and 2-degree geometry settings. The Department-measured CIELAB chromaticity coordinates shall define the initial color and will be used for resolution of color retention failures and the resolution of color retention disputes.~~ Color retention failure and adhesion failure shall be defined as described in 975-4 except the cumulative delamination area shall not exceed 50 square inches. Paint systems shall exhibit no color retention failure or adhesion failure for five years after final acceptance as specified in 5-11.

~~**965-4 Certification.**~~

~~Produce a certificate of compliance for non-APL products, upon request of the Engineer. Certificates of compliance shall identify the reportable properties of Table 965-1.~~

965-4 Aluminum Fence Components.

Fence components listed below must meet the requirements of Table 965-4 and be listed on the APL.

Table 965-4
Fence Components

Item	Type	Requirement	Standard
Line post option	Type B	Aluminum alloy H-Beam- 1-7/8" x 1-5/8"	See Standard Plans, Index 550-002 detail
	Type B	Aluminum alloy pipe- 2" nominal dia.	ASTM B241 or ASTM B221, Alloy 6063,T6
Corner, end, and pull post	Type B	aluminum alloy pipe 2-1/2" nominal dia.	
Fence Rail	Type B	aluminum alloy pipe-11#4" nominal dia.: ASTM B241 or B221, Alloy 6063, T6	
Tension wire	Type B	Aluminum alloy wire with a diameter of 0.1875" or larger	ASTM B211, Alloy 5056 Temper H38, or, Alclad Alloy 5056 Temper H192
Aluminum Barbed Wire	Type A (Farm) or Type B	Fabricated of two strands of 0.110-inch wire with 0.08-inch diameter four-point barbs spaced at approximately 5-1/2" ", and at a maximum spacing of 6".	ASTM B211M Alloy 5052-H38 or equal (for strands and barbs)

Tie wire and hog ring	Type B	aluminum alloy wire with a diameter of 0.1443" or larger	TM B211, Alloy 5056 Temper H38, or, Alclad Alloy 5056 Temper H192.