

9670000 COMPONENTS FOR GUARDRAIL
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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Comments: (12-17-20, Internal)

1. I am not sure what Tim is doing with the formatting for the Approved Product List Section. We don't usually make the format with products under an APL Section heading. The product requirements should be moved to a 9XX Section for consistency with the new format. It doesn't appear that any requirements were changed, only reorganized, so this is a formatting issue. If Specs is OK with the Format – it is OK with me.
2. There is a problem with missing project acceptance for Approach Terminal Assemblies and Offset Blocks in 967-6. The Assemblies and Blocks do not have product label requirements for the APL number or product identification to be on the product. These products do not have labels. They will need a certification that the Contractor gives to the PE for project acceptance. That needs to be added to 967-6.

Response: Some changes are being discussed that may add other items to this section, therefore, the certification section was removed. The certifications section can be written for each category, when the new language is introduced

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Comments: (12-22-20, Internal)

For Steel W-Bm and T-Bm Guardrail Panels, this revised spec Table 967-1 only references Class B, 10 Gauge. FDOT primarily uses Class A, 12 Gauge. Reference Standard drawing 536-001, sheet 4 of 24, W-Beam and Thrie-Beam Panel Details.

The prior 967 spec referenced “for either Class shown”, Class A and B. Therefore, Steel Panels should also reference Class “A” on Table 967-1.

Also, some “End Pieces” are Class A, 12 Gauge. Reference Rounded, Flared and Buffer End Units. Therefore, this too should also reference Class “A”.

Response FDOT will continue to accept both gauges of steel as specified in the Standard Plan.

Note: Rub rail will remain Class B, 10 Gauge.

Bryan Covell
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Comments: (1-4-21, Industry)

The two huge ones –

- 1) “Galvanize in accordance with ASTM B6, “Prime Western Grade” with a minimum 98.5% zinc composition.” Attached is ASTM B6 – it is only the composition of the zinc for HDG. ASTM A123 is the way in which you galvanize.
- 2) All guardrail is to be Type 2, Class B. Do they really want all guardrail in the state to be 10ga instead of 12ga? Where does this document define what Type 2, Class B guardrail is? They have removed all references to AASHTO M180, which defines these two items.
 - a. Assuming Type 2 means what we think it means ... all good, no Type 1 is allowed in the state.
 - b. Assuming Class B means what we think it means ... then all guardrail and buffers and such are to be 10ga only? So, no more 11Gs sold in the state – right? And what about within the paylength (my definition of the pay-length is the length that the pick-up traveled during head-on impact at 62.1mph on MASH 3-31) of the proprietary terminals? 10ga only? So on the SoftStop – what will we be supplying in Florida ...
 - i. a untested product, made from all 10ga?
 - ii. Or are terminals excluded?
 - iii. in the case of RSI/SPIG where they are selling only the 1st 12.5LF, but it still requires 50ft ... is it ok to put 10ga in that back 37.5 of the terminal?

Response: In an effort to minimize any confusion within the understanding of the requirement, the Department has changed the language on zinc bath composition requirement to read “Galvanizing shall have the composition that meets or exceeds “Prime Western Grade” in accordance with ASTM B6.”

The acceptance criteria listed in Table 967-1 was specific to non-APL qualified systems. FDOT will continue to accept both gauges of steel as outlined in the Standard Plan. Therefore, no additional testing is needed.

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Greg Neece
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Comments: (1-7-21, Industry)

Per your request during the call earlier today, here is the information we had concerns with or questions on in regards to FDOT Specification 967. Thanks for your time and consideration. Please let us know if we can clarify or provide additional information. Regards – Greg/Bryan
https://fdotwww.blob.core.windows.net/sitefinity/docs/defaultsource/programmanagement/implemented/workbooks/history/jul21/9670000-721ind.pdf?sfvrsn=f39badc4_2 ASTM B6 – references to it might be streamlined/clarified to remove the minimum % or possibly “Prime Western”, as Prime Western is the lowest grade option of ASTM B6. This appears in 967-3.1, 967-3.2 967-3.1 ... currently states: **Steel Posts, Special Steel Posts, Steel Offset Blocks, and Rub Rail:**

Posts must conform to the requirements of ASTM A6, ASTM A36 or ASTM A992. Posts must be fabricated from rolled sections with crosssections defined in the American Institute of Steel Construction (AISC) Manual of Steel Construction. Where applicable, posts and plates must be drilled, or punched and welded prior to galvanizing. in accordance with ASTM A123. Galvanize in accordance with ASTM B6, “Prime Western Grade” with a minimum 98.5% zinc composition. Posts shall not vary more than 1 inch and offset blocks shall not vary more than 0.25 inches from the specified dimensions shown in the Standard Plans. Please see highlighted portion above ... Steel Offset Blocks and Rub Rail does NOT have to be galvanized after fabrication? FDOT might consider rewording to indicate all (posts, special posts, steel offset

blocks and rubrail) are to be fabricated prior to hot dip galvanization. Also, the words “where applicable” may lead some to believe that posts and plates do not have to be fabricated prior to galvanizing. It certainly lets the door open to interpretation by someone other than FDOT. Might consider eliminating “where applicable” or indicating that it is with FDOT Engineering signoff only that fabrication after galvanizing products can be placed on the jobsite.

967-3.4 ... we did not talk about this during the call, however, “where applicable” appears in this portion as well. Likely needs to indicate all fabrication must be completed prior to hot dip galvanizing. Should it also indicate to galvanize per ASTM A123?

967-3.5 ... Indicates to galvanize “Steel Tube Foundations” per ASTM A153.

ASTM A153 is the coating specification for “hardware”. The correct galvanizing specification for steel tubes would be ASTM A123.

967-1 Chart ... Rub Rail – chart allows 12ga (Class A) rubrail? We are only aware of **10ga** formed/structural channel rubrail, having been tested and available. There IS testing of 12ga “rubrail”, BUT using W-beam Guardrail as a rubrail and NOT made from formed/structural channel. Is this the direction FDOT is going – to W-beam Guardrail as rubrail? If FDOT is NOT going towards utilizing W-beam Guardrail as Rubrail, it would appear the FDOT specification (967-1 Chart) should be changed to only allow **10ga** formed/structural rubrail and not 12ga.

967-2 Chart ... Specifies composite blocks are to be tested to ASTM D2240 Shore D and ASTM D5870 An independent lab has already conducted the following ASTM tests on our King MASH Blocks and the reports are available to share with FDOT. These are typical ASTM tests requested by other state DOTs. Of course we have the two full scale MASH16 crash tests (3-10 & 3-11) and a FHWA Eligibility Letter.

ASTM D1603-20 (Carbon Black Content)

ASTM D4218-20 (Carbon Black Content)

ASTM D695-15 (Compressive Strength Properties)

ASTM D792-13 (Specific Gravity)

QUESTION: In alignment with other state DOT specifications proposed currently, would FDOT consider the following ASTM testing, instead of ASTM D2240 and ASTM D5870?

ASTM D6108-19 (Compressive Strength Properties of Plastic Lumber & Shapes)

ASTM G90-17 (Accelerated Outdoor Weathering)

ASTM D256-18 (Izod / Pendulum Impact Resistance of Plastics)

OR – to Derwood’s point that these are proprietary blocks – would FDOT consider requiring the manufacturer to provide documentation of appropriate ASTM testing as to the composite block-out’s resistance to UV degradation or other weathering elements?

In this manner, if the specific “composite” materials in which the blocks are made from are more suited for ASTM D2240/5870 as opposed to ASTM G90/D256 (or vice versa) testing, then the manufacturer provides the appropriate documentation

The concern being the basic material of the blocks - if made from crumb rubber, vs. HDPE, vs a polyfin/polmer, or vs LDPE and the percentage of the “Composite” utilized differs from brand A to brand B the UV protection ingredient may differ as well?

Just some thoughts to address the concerns of FDOT (durability

in the conditions found in Florida) and not make FDOT the designer of the block.

Response: ASTM A123 is not appropriate for the panels, however it is appropriate for posts, and tube, therefore, ASTM A123 has been adopted. AASHTO M180 has specific galvanizing standards that need to be met when it comes to the steel panels. The Department has adopted the thicker of the two galvanizing thickness options specified in AASHTO M180 for steel panels.

The Department has changed the language on zinc bath composition requirement to read “Galvanizing shall have the composition that meets or exceeds “Prime Western Grade” in accordance with ASTM B6.” In an effort to minimize any confusion within the understanding of the requirement.

Changing the requirements for the composite blocks is new business. The information has been forwarded to the appropriate offices for review and consideration.