



## Florida Department of Transportation

**RICK SCOTT**  
GOVERNOR

605 Suwannee Street  
Tallahassee, FL 32399-0450

**STEPHANIE KOPELOUSOS**  
SECRETARY

January 31, 2011

Monica Gourdine  
Program Operations Engineer  
Federal Highway Administration  
545 John Knox Road, Suite 200  
Tallahassee, Florida 32303

Re: Office of Design, Specifications  
Section 783  
Proposed Specification: 7831221 ITS – Fiber Optic Cable and Interconnect – Splice  
Enclosures

Dear Ms. Gourdine:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

These changes were proposed by Gene Glotzbach of the State ITS Office to correct a reference.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via Email to SP965RP or rudy.powell@dot.state.fl.us.

If you have any questions relating to this specification change, please call Rudy Powell, State Specifications Engineer at 414-4280.

Sincerely,

Rudy Powell, Jr., P.E.  
State Specifications Engineer

RP/ft

Attachment

cc: Gregory Jones, Chief Civil Litigation  
Florida Transportation Builders' Assoc.  
State Construction Engineer

**INTELLIGENT TRANSPORTATION SYSTEMS - FIBER OPTIC CABLE AND INTERCONNECT.**

(REV ~~11-23-10~~~~1-27-11~~) (~~FA-1-5-11~~)(~~7-11~~)

SUBARTICLE 783-1.2.2.1 (of the Supplemental Specification) is deleted and the following substituted:

**783-1.2.2.1 Splice Enclosures:** Contain all optical fiber splices within a splice enclosure. Ensure that the enclosures provide storage for fiber splices, nonspliced fiber, and buffer tubes. Ensure that the splice enclosure restores the mechanical and environmental integrity of the fiber optic cable, encases the sheath opening in the cable, and organizes and stores optical fiber. Ensure all hinges and latching devices are stainless steel. Ensure that the enclosure is airtight and prevents water intrusion. Ensure that the splice enclosure can accommodate pressurization and has the ability to be reentered without requiring specialized tools or equipment. Ensure that the enclosure provides fiber and splice organizers including splice trays and strain relief.

Ensure that splice enclosures allow re-entry and are hermetically sealed to protect internal components from environmental hazards such as moisture, insects, and UV light. Fiber optic splice enclosures shall also:

Comply with the Telcordia Technologies' GR-~~711~~771-CORE standard and all applicable NEC requirements.

Provide space for future expansion equal to 100% of the initial utilization.

Provide fiber optic cable penetration end caps to accommodate a minimum installation of two trunk fiber optic cables and two fiber optic drop cables. Ensure that the enclosure end caps are factory-drilled to the proper diameter to accept and seal the fiber optic cable entries. Ensure that the cable entry locations can accommodate an assortment of cables with ODs ranging from 0.45 to 0.55 inch, *+plus* 10%, without jeopardizing the waterproof characteristics of the enclosure.

Provide fiber optic splice enclosures meeting the following requirements:

Mechanical
Resist compression deformation to a maximum of 400 pounds.
Withstand an impact energy to a maximum of 40 foot-pounds at 0°F.
Axial Tension: 100 pounds for 30 minutes.
Cable Torsion: ten 90-degree rotations.
<b>Cable Flexing: ten 90-degree bends.</b>
Environmental
Hydrostatic Pressure Head: Up to 20 foot-pounds (-9 pounds per square inch).
Withstand 40 freeze/thaw temperature cycles.
Ultraviolet resistant during a maximum 30-day exposure in compliance with the requirements detailed in the ASTM B117 standard.

Chemical

Withstand a 90-day exposure to solutions of 3% sulfuric acid, 0.2 normal of sodium hydroxide, 10% Igepal®, kerosene, and be fungus resistant as required in the ASTM G21 standard.

**INTELLIGENT TRANSPORTATION SYSTEMS - FIBER OPTIC CABLE AND INTERCONNECT.**

**(REV 1-27-11)**

SUBARTICLE 783-1.2.2.1 (of the Supplemental Specification) is deleted and the following substituted:

**783-1.2.2.1 Splice Enclosures:** Contain all optical fiber splices within a splice enclosure. Ensure that the enclosures provide storage for fiber splices, nonspliced fiber, and buffer tubes. Ensure that the splice enclosure restores the mechanical and environmental integrity of the fiber optic cable, encases the sheath opening in the cable, and organizes and stores optical fiber. Ensure all hinges and latching devices are stainless steel. Ensure that the enclosure is airtight and prevents water intrusion. Ensure that the splice enclosure can accommodate pressurization and has the ability to be reentered without requiring specialized tools or equipment. Ensure that the enclosure provides fiber and splice organizers including splice trays and strain relief.

Ensure that splice enclosures allow re-entry and are hermetically sealed to protect internal components from environmental hazards such as moisture, insects, and UV light. Fiber optic splice enclosures shall also:

Comply with the Telcordia Technologies' GR-771-CORE standard and all applicable NEC requirements.

Provide space for future expansion equal to 100% of the initial utilization.

Provide fiber optic cable penetration end caps to accommodate a minimum installation of two trunk fiber optic cables and two fiber optic drop cables. Ensure that the enclosure end caps are factory-drilled to the proper diameter to accept and seal the fiber optic cable entries. Ensure that the cable entry locations can accommodate an assortment of cables with ODs ranging from 0.45 to 0.55 inch, plus 10%, without jeopardizing the waterproof characteristics of the enclosure.

Provide fiber optic splice enclosures meeting the following requirements:

Mechanical
Resist compression deformation to a maximum of 400 pounds.
Withstand an impact energy to a maximum of 40 foot-pounds at 0°F.
Axial Tension: 100 pounds for 30 minutes.
Cable Torsion: ten 90-degree rotations.
<b>Cable Flexing: ten 90-degree bends.</b>
Environmental
Hydrostatic Pressure Head: Up to 20 foot-pounds (-9 pounds per square inch).
Withstand 40 freeze/thaw temperature cycles.
Ultraviolet resistant during a maximum 30-day exposure in compliance with the requirements detailed in the ASTM B117 standard.

Chemical

Withstand a 90-day exposure to solutions of 3% sulfuric acid, 0.2 normal of sodium hydroxide, 10% Igepal®, kerosene, and be fungus resistant as required in the ASTM G21 standard.