



*Florida Department of Transportation*

RICK SCOTT  
GOVERNOR

605 Suwannee Street  
Tallahassee, FL 32399-0450

ERIK FENNIMAN  
INTERIM SECRETARY

December 4, 2018

Khoa Nguyen  
Director, Office of Technical Services  
Federal Highway Administration  
3500 Financial Plaza, Suite 400  
Tallahassee, Florida 32312

Re: State Specifications Office  
Section: **706**  
Proposed Specification: **7060000 Raised Pavement Markers and Bituminous Adhesive.**

Dear Mr. Nguyen:

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

The changes are proposed by Ed Cashman to add internally illuminated raised pavement markers as an option.

Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to [dan.hurtado@dot.state.fl.us](mailto:dan.hurtado@dot.state.fl.us).

If you have any questions relating to this specification change, please call me at 414-4130.

Sincerely,

Signature on file

Dan Hurtado, P.E.  
State Specifications Engineer

DH/rf

Attachment

cc: Florida Transportation Builders' Assoc.  
State Construction Engineer

**RAISED PAVEMENT  
MARKERS AND BITUMINOUS ADHESIVE  
(REV ~~120-426-18~~)**

SECTION 706 is deleted and the following substituted:

**706-1 Description.**

Place raised pavement markers (RPMs) and adhesive, which upon installation produces a positive guidance system to supplement other reflective pavement markings.

**706-2 Materials.**

Use only Class B markers unless otherwise shown in the Plans.

Meet the requirements of Section 970.

**706-2.1 Product Acceptance on the Project.** Use only RPMs and bituminous adhesive that are listed on the Department's Approved Product List (APL). For Class F RPMs, provide a warranty assigned to the Department in accordance with Section 970.

**706-3 Equipment.**

Use equipment having either thermostatically controlled double boiler type units utilizing heat transfer oil or thermostatically controlled electric heating pots to install hot applied bituminous adhesive. ~~Do not use direct flame melting units with flexible adhesives; however, this type of unit may be used with standard adhesive in accordance with manufacturer's recommendations.~~ Use a melter/applicator unit suited for both melting and pumping the bituminous adhesive through heated applicator hoses.

Heat the bituminous adhesive to between 375°F and 425°F and apply directly to the bonding surface from the melter/applicator by either pumping or pouring. Maintain the application temperature between 375°F and 425°F. The bituminous adhesive may be reheated. However, do not exceed the manufacturer's recommendations for pot life at application temperatures.

**706-4 Application.**

Install RPMs in accordance with the Plans and Standard Plans, ~~Indexes 706-001 and 711-003.~~

Apply RPMs to the bonding surface using bituminous or epoxy adhesives only in accordance with the manufacturer's instructions. ~~The Engineer will conduct field testing in accordance with FM 5-566. Correct RPMs not applied in accordance with these requirements at no cost to the Department.~~

For Class F RPMs, installation may include the removal of roadway surface material to recess a portion of the RPM housing.

Prior to application of adhesive, clean the portion of the bonding surface of any material which would adversely affect the adhesive.

Apply the adhesive to the bonding surface (not the RPM) so that 100% of the bonding area of the RPM will be covered, in accordance with adhesive manufacturer's recommendations. Apply sufficient adhesive to ensure; that when the marker is pressed downward into the adhesive, adhesive will be forced out around the entire perimeter of the RPM.

Immediately remove excess adhesive from the bonding surface and exposed surfaces of the RPMs. Soft rags moistened with mineral spirits meeting Federal Specifications TT-T-291 or kerosene may be used to remove adhesive from exposed faces of the RPMs. Do not use any other solvent. If any adhesive, pavement marking materials or other foreign matter adheres to the reflective-traffic face of the RPM, replace the RPM at no cost to the Department.

Restore any areas impacted by the installation of Class F RPMs to original condition.

Ensure that all final RPMs are in place prior to opening the road to traffic.

If more than 2% of the RPMs fail in adhesion or alignment within the first 45 days under traffic, replace all failed RPMs at no expense to the Department. If more than 5% of the RPMs fail in adhesion and or alignment during the initial 45 day period, the Engineer will extend the replacement period an additional 45 days from the date that all replacement RPMs have been installed. If, at the end of the additional 45 day period, more than 2% of all RPMs (initial installation and 45 day replacements combined) fail in adhesion or alignment, replace all failed RPMs at no expense to the Department.

#### **706-5 Contractor's Responsibility for Notification.**

Notify the Engineer prior to the placement of RPMs. At the time of notification, submit the APL number and the batch or Lot numbers of RPMs and bituminous adhesive to be used.

#### **706-6 Method of Measurement.**

The quantities to be paid for will be the number of RPMs, furnished and installed, completed and accepted.

#### **706-7 Basis of Payment.**

~~706-7.1 General: Price and payment will be full compensation for all work specified in this Section.~~

~~706-7.21 Lump Sum Payment~~Class B RPMs: Price and payment for Class B RPMs will not be measured or paid for separately; when the item for painted pavement markings (Final Surface) is included in the proposal. Price and payment for all work and materials in this Section will be made in accordance with 710-11.2.

For projects without Final Surface Pavement Markings, price and payment for Class B PRMs will be full compensation for all work and materials in this Section.

706-7.2 Class F RPMs: Price and payment for Class F RPMs will be full compensation for all work and materials in this Section.

706-7.3 Payment Items: Payment will be made under:

Item No. 706- 1-      Raised Pavement Marker - per each.

**RAISED PAVEMENT  
MARKERS AND BITUMINOUS ADHESIVE  
(REV 12-4-18)**

SECTION 706 is deleted and the following substituted:

**706-1 Description.**

Place raised pavement markers (RPMs) and adhesive, which upon installation produces a positive guidance system to supplement other reflective pavement markings.

**706-2 Materials.**

Use only Class B markers unless otherwise shown in the Plans.

Meet the requirements of Section 970.

**706-2.1 Product Acceptance on the Project.** Use only RPMs and bituminous adhesive that are listed on the Department's Approved Product List (APL). For Class F RPMs, provide a warranty assigned to the Department in accordance with Section 970.

**706-3 Equipment.**

Use equipment having either thermostatically controlled double boiler type units utilizing heat transfer oil or thermostatically controlled electric heating pots to install hot applied bituminous adhesive. Use a melter/applicator unit suited for both melting and pumping the bituminous adhesive through heated applicator hoses.

Heat the bituminous adhesive to between 375°F and 425°F and apply directly to the bonding surface from the melter/applicator by either pumping or pouring. Maintain the application temperature between 375°F and 425°F. The bituminous adhesive may be reheated. However, do not exceed the manufacturer's recommendations for pot life at application temperatures.

**706-4 Application.**

Install RPMs in accordance with the Plans and Standard Plans.

Apply RPMs to the bonding surface using bituminous or epoxy adhesives in accordance with the manufacturer's instructions.

For Class F RPMs, installation may include the removal of roadway surface material to recess a portion of the RPM housing.

Prior to application of adhesive, clean the portion of the bonding surface of any material which would adversely affect the adhesive.

Apply the adhesive to the bonding surface (not the RPM) so that 100% of the bonding area of the RPM will be covered, in accordance with adhesive manufacturer's recommendations. Apply sufficient adhesive to ensure that when the marker is pressed downward into the adhesive, adhesive will be forced out around the entire perimeter of the RPM.

Immediately remove excess adhesive from the bonding surface and exposed surfaces of the RPMs. Soft rags moistened with mineral spirits meeting Federal Specifications TT-T-291 or kerosene may be used to remove adhesive from exposed faces of the RPMs. Do not use any other solvent. If any adhesive, pavement marking materials or other foreign matter adheres to the traffic face of the RPM, replace the RPM at no cost to the Department.

Restore any areas impacted by the installation of Class F RPMs to original condition.

Ensure that all final RPMs are in place prior to opening the road to traffic.

If more than 2% of the RPMs fail in adhesion or alignment within the first 45 days under traffic, replace all failed RPMs at no expense to the Department. If more than 5% of the RPMs fail in adhesion and or alignment during the initial 45 day period, the Engineer will extend the replacement period an additional 45 days from the date that all replacement RPMs have been installed. If, at the end of the additional 45 day period, more than 2% of all RPMs (initial installation and 45 day replacements combined) fail in adhesion or alignment, replace all failed RPMs at no expense to the Department.

**706-5 Contractor's Responsibility for Notification.**

Notify the Engineer prior to the placement of RPMs. At the time of notification, submit the APL number and the batch or Lot numbers of RPMs and bituminous adhesive to be used.

**706-6 Method of Measurement.**

The quantities to be paid for will be the number of RPMs, furnished and installed, completed and accepted.

**706-7 Basis of Payment.**

**706-7.1 Class B RPMs:** Price and payment for Class B RPMs will not be measured or paid for separately when the item for painted pavement markings (Final Surface) is included in the proposal. Price and payment for all work and materials in this Section will be made in accordance with 710-11.2.

For projects without Final Surface Pavement Markings, price and payment for Class B RPMs will be full compensation for all work and materials in this Section.

**706-7.2 Class F RPMs:** Price and payment for Class F RPMs will be full compensation for all work and materials in this Section.

**706-7.3 Payment Items:** Payment will be made under:

Item No. 706- 1-      Raised Pavement Marker - per each.