



## Florida Department of Transportation

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GOVERNOR

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SECRETARY

August 30, 2005

TO: District Directors of Operations, District Directors of Production,  
District Design Engineers, District Structures and Facilities Engineers,  
District Maintenance Engineers, District Construction Engineers, District  
Structures Design Engineers,

FROM: William N. Nickas, State Structures Design Engineer

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SUBJECT: Temporary Design Bulletin C05-14  
Traffic Railing Surface Texture Requirements

### REQUIREMENT

Delete the current Section 6.7.2.B of the Structures Design Guidelines and replace it with the following:

B. Submit all proposed non-FDOT standard, new or modified structure mounted traffic railing designs and proposed surface textures, patterns, formliners, etc. to the Structures Design Office for review and possible approval. Make this submittal early in the design process preferably prior to submittal of the Typical Section Package.

Add the following new language to the Structures Design Guidelines after Section 6.7.2.D:

E. Use the general traffic railing surface texture guidelines given below for the selection of proposed texturing of the traffic face of 32" and 42" Vertical Face Traffic Railings and the upper vertical portion of the Traffic Railing / Sound Barrier combination. Concrete cover requirements contained in Section 1.4 shall be maintained and will be measured at the point of the deepest relief. Modify standard concrete products to maintain the proper cover but do not modify the geometry of the traffic face of the railing.

General Traffic Railing Surface Texture Guidelines:

- 1.) Sandblasted textures covering the majority of the railing surface with a maximum relief of 3/8".
- 2.) Images or geometric patterns inset into the face of the railing 1" or less and having 45 degree or flatter chamfered or beveled edges to minimize vehicular sheet metal or wheel snagging.
- 3.) Textures or patterns of any shape and length inset into the face of the railing up to 1/2" deep and 1" in width and having 60 degree or flatter chamfered or beveled edges to facilitate form removal.
- 4.) Any texture or pattern with gradual undulations (e.g. cobblestone) that has a maximum relief of 3/4" over a distance of 1'-0".

Patterns or textures must be cast into or otherwise integral with the traffic face or top of traffic railings. Do not specify textures, patterns or features, e.g. brick, stone or tile veneers, etc. on the traffic face or top of traffic railings that have to be attached as a separate element. Such features may be considered for attachment to the back face of traffic railings and pedestrian railings on a project by project basis in locations not over or directly beside other travelways.

**COMMENTARY**

Add the following new commentary language to the Structures Design Guidelines after Section 6.7.2.D:

The above guidelines for concrete railing texturing will not adversely affect the NCHRP Report 350 test level of the railing to which a texture or pattern is applied. However, it is clear from crash test results that textured railings can result in more vehicular body damage in a crash due to increased friction even if their crash performance remains within acceptable limits.

Aesthetic attachments to the back of the traffic railing may become dislodged when the railing is impacted and create a hazard to roadways located under or beside the structure. For this reason, aesthetic attachments shall not be used on the back of railings located over or directly beside other travelways. Railings with aesthetic features generally cannot be slip formed resulting in increased construction time and cost.

The selection of a proposed railing texture or pattern should take into account the overall aesthetic concept of the structure, maintainability of the feature and the long service life of the structure. Shapes of traffic railings create the major aesthetic impression, colors, textures and patterns are secondary. Form liners that try to imitate small scale detail are wasted at highway speeds but may be appropriate for areas with pedestrian traffic.

## **BACKGROUND**

In recent years, numerous requests have been made to add aesthetic features to bridge traffic railings. Until recently, there were no recognized parameters for these features which would allow for the proper performance of the railing as required by NCHRP Report 350. Only a few railings have been crash tested with patterns or textures but these few tests show the disruption of the surface does affect the performance of the vehicle during impact.

These requirements and commentary are based in part on FHWA Acceptance Letter HSA-10/B110.

## **IMPLEMENTATION**

This requirement shall be implemented on all projects let after February 1, 2006.

## **CONTACT**

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