



Florida Department of Transportation

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ROADWAY DESIGN BULLETIN 14-05

(FHWA Approved: March 6, 2014)

DATE: March 6, 2014

TO: District Directors of Operations, District Directors of Transportation Development, District Design Engineers, District Construction Engineers, District Structures Design Engineers

FROM: 
for Michael A. Shepard, P. E., State Roadway Design Engineer

COPIES: Brian Blanchard, Tom Byron, Duane Brautigam, Robert Robertson, David Sadler, Tim Lattner, Bruce Dana, Trey Tillander, Rudy Powell, Chad Thompson (FHWA) and Felix Delgado (FHWA)

SUBJECT: **W-BEAM GUARDRAIL MOUNTING HEIGHT IMPLEMENTATION**

This bulletin establishes the Department's policy for installation of standard W-beam guardrail on the State Highway System. The following requirements apply to all new W-beam installations.

REQUIREMENTS

The Department's policy shall be to require all new W-beam guardrail installations to be mounted at 2'-1" to the center of beam using 8" offset blocks with panel splices set to mid-span between posts. Revisions to Design Standards, Index 400, Index 402, Index 403, Index 404, Index 410, Index 420, Index 421, Index 422, Index 423, Index 425, Index 430 and Index 477 are included to enable the implementation of this policy.

Design:

Design all new guardrail installations to meet the 2'-1" mounting height requirement. Offsetting existing guardrail laterally will be to the new 2'-1" mounting height in its new location reusing existing posts and guardrail panels as shown in the Design Standards. Payment for offsetting existing guardrail will be paid as Guardrail Reset pay item 538-1. Designers should be aware that the following changes affect the layout of new W-beam guardrail installations:

1. A 15'-7 1/2" panel is required for the Type II, MELT and CRT End Anchorage Assemblies instead of a 12'-6" panel.
2. All TL-3 End Anchorage Assemblies are 53'-1 1/2" long instead of 50' long.

3. All TL-2 End Anchorage Assemblies are 40'-7 1/2" long instead of 37'-6" long.
4. Detail 'J' has a transition length of 56'-3" instead of 43'-9".
5. Rub rail terminates at the first post in advance of the End Anchorage Assembly.
6. A 15'-7 1/2" panel is required for resetting guardrail to offset the splice from the post location.

Qualified Products List:

Use on all jobs as directed by this Bulletin. Products tested and approved for the new installation height will be added to the Qualified Products List (QPL) with new QPL numbers. A limitation will be placed on all end anchorage assembly products approved for existing 1'-9" mounting height W-beam guardrail systems.

Design Standards Revisions:

Design Standard Index 400 "Guardrail" is revised to reflect an installation height of 2'-1" to the center of beam and provides a construction tolerance of one half inch (1/2") below to one inch (1") above the standard mounting height requirement.

Design Standards Index 402, Index 403, Index 404, Index 410, Index 420, Index 421, Index 422, Index 423, Index 425 and Index 477 reflect the new mounting height requirement and include an asymmetrical 6'-3" W-beam to Thrie beam transition panel for guardrail transitions to the 2'-1" mounting height of W-beam guardrail systems.

Design Standards Index 430 "Crash Cushion Details" reflects revisions to the crash cushion design lengths in the "Concrete Barrier Wall Applications" table, and includes an asymmetrical 6'-3" W-beam to Thrie beam transition panel to transition the connection from the manufacturer's transition to the 2'-1" mounting height of W-beam guardrail systems.

Summary of Major Changes to W-beam Guardrail Standard Indexes:

Summary of Major Changes to W-beam Guardrail			
Criteria	Existing	New	Sheet Number
Standard Guardrail Mounting Height	1'-9"	2'-1"	Index 400 - 1, 16, 18, 23, & 25
Approach End Anchorage Assembly (Flared and Parallel)	Assembly Length Flared 50'-0" Parallel 37'-6"	Assembly Length Flared 53'-1 1/2" Parallel 53'-1 1/2"	Index 400 - 2
Rail to Post Attachments	Attach the Rail to the Post at the Guardrail Splice	Offsets the Post 3'-1 1/2" from the Slot of the Guardrail Splice	Index 400 - 2A
Index 400 Detail J	43'-9" Guardrail Transition Did Not Require to Nest First W-beam Panel	56'-3" Guardrail Transition Requires to Nest First W-beam Panel	Index 400 - 13A
	11 Posts Required in 43'-9" Guardrail Transition	15 Posts Required in 56'-3" Guardrail Transition	

Guardrail Transition from 27" to 31"	N/A with a 1'-9" Mounting Height to Center of Beam	Transition from existing 1'-9" Mounting Height to 2'-1" Mounting Height	Index 400 - 13B
W-Three Beam Transition Panel	Symmetric	Asymmetric	Index 400 - 20A
Standard W-beam Panel (12'-6")	3 Slots at 6'-3" Apart (2 Spaces)	5 Slots at 3'-1½" Apart (4 Spaces)	Index 400 - 20B
Non-Standard 15'-7½" W-beam Panel	Not Required to Offset the Panel Splice to Mid-span	May Require 15'-7½" Panel to Transition the Panel Splice to Mid-span	Index 400 - 20C
End Anchorage Assembly Type II or Type CRT	Required a 12'-6" W-beam Panel with Anchor Plate Attachment	Requires a 15'-7½" W-beam Panel with Anchor Plate Attachment	Index 400 - 20D, 23A and 25

BACKGROUND

The Federal Highways Administration issued guidance on guardrail height to state transportation agencies for new installations on the National Highway System (NHS). Based on this guidance the Department will implement a 2'-1" mounting height as our policy for W-beam guardrail systems.

IMPLEMENTATION

These requirements are effective for all projects LET on or after July 1, 2014. Insert the revised design standards into the plans, as applicable, for projects requiring new installations of W-beam guardrail.

CONTACTS

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Attachments – Index 400, Index 402, Index 403, Index 404, Index 410, Index 420, Index 421, Index 422, Index 423, Index 425, Index 430 and Index 477

Link to Design Standards Revisions: <http://www.dot.state.fl.us/rddesign/DS/14/Rev.shtm>