Florida Department of Transportation

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SECRETARY

STRUCTURES DESIGN BULLETIN 13-03

ROADWAY DESIGN BULLETIN 13-04

(FHWA Approved: April 9, 2013)

DATE: April 9, 2013

TO: District Directors of Operations, District Directors of Production, District Design Engineers, District Construction Engineers, District Geotechnical Engineers, District Structures Design Engineers, District Maintenance Engineers, District Structures Maintenance Engineers, District Consultant Management Engineers

FROM: Robert V. Robertson, Jr., P. E., State Structures Design Engineer
Michael Shepard, P.E., State Roadway Design Engineer

COPIES: Tom Byron, Brian Blanchard, Duane Brautigam, David A. Sadler, Bob Crim, Charles Boyd, Jeffrey Ger (FHWA), Rafiq Darji (FHWA)

SUBJECT: Concrete Surface Finish Requirements

This bulletin revises and expands on the Department's policy for the use of concrete surface finishes on bridges, retaining walls, noise walls and roadway barriers.

REQUIREMENTS

1. Add the following new section to ***Structures Design Guidelines***, Section 1.4:

   1.4.5 Concrete Surface Finishes

   A. The use of smooth uncoated surfaces is preferred for all concrete elements. Textures, striations and/or graphics that are compliant with Department requirements may be used where appropriate at the discretion of the EOR. Approval by the DDE is required for the use of textures or graphics other than those shown in ***Design Standards*** Index 5200 for retaining walls and noise walls. Coatings, tints or stains may only be used on specific concrete elements as follows.

   B. When approved by the District Design Engineer (DDE), Class 5 coatings, tints or stains may be used on noise walls, bridges and retaining walls, except as noted below, that are formally recognized by the Department as requiring enhanced aesthetic treatments because of their close proximity to and/or high visibility from important or popular locations with the following land uses: historical, tourism, commercial, recreational or residential. At the

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discretion of the DDE, Class 5 coatings, tints or stains may also be used on other bridges or retaining walls that are in the visual proximity of noise walls that are coated, tinted or stained to enhance visual uniformity. Approval by the Chief Engineer is required for the use of coatings, tints or stains on all noise walls in rural locations and on all structures not specifically listed above.

C. Class 5 coatings, tints or stains may be used only on the outside of concrete traffic railings and parapets mounted on bridges and retaining walls as described in the preceding paragraph. Approval by the Chief Engineer is required for the use Class 5 coatings, tints or stains on median traffic railings and the inside and top surfaces of outside shoulder traffic railings and parapets mounted on bridges and retaining walls. See ***PPM*** Volume 1, Sections 4.3.7 and 4.4.4 for the companion policy on the use of Class 5 coatings on roadway concrete barrier walls.

D. The Department will cover the cost for coating, tints or stains on bridges, retaining walls and noise walls only as described above. If a Local Maintaining Agency desires a bridge, retaining wall or noise wall with coatings, tints or stains and the structure does not qualify for such treatment as determined by the Department, the structure may be treated with approval by the District Secretary. The Local Maintaining Agency shall provide the additional construction funding for the coatings, tints or stains and shall commit to cover the associated maintenance costs for the service life of the structure.

E. Determine the need for sacrificial or non-sacrificial anti-graffiti coatings based on project specific requirements. Coordinate the use of anti-graffiti coatings with the District Maintenance Office.

F. See also ***SDM*** 4.4 for examples of how to depict surface finish requirements in the plans.

Modification for Non-Conventional Projects:
Delete ***SDG*** 1.4.5 and see the RFP for requirements.

2. Replace ***Structures Design Guidelines***, Section 7.3.1.C with the following:

C. When widening an existing bridge that does not have an existing Class 5 coating, follow the requirements of ***SDG*** 1.4.5. When widening a bridge that has an existing Class 5 coating, coat the new portions of the bridge with Class 5 coating in accordance with ***SDG*** 1.4.5 or remove the existing Class 5 coating from the existing portion of the bridge as appropriate.

Modification for Non-Conventional Projects:
Delete ***SDG*** 7.3.1.C and see the RFP for requirements.

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3. Replace ***Structures Detailing Manual***, Section 4.4 with the following:

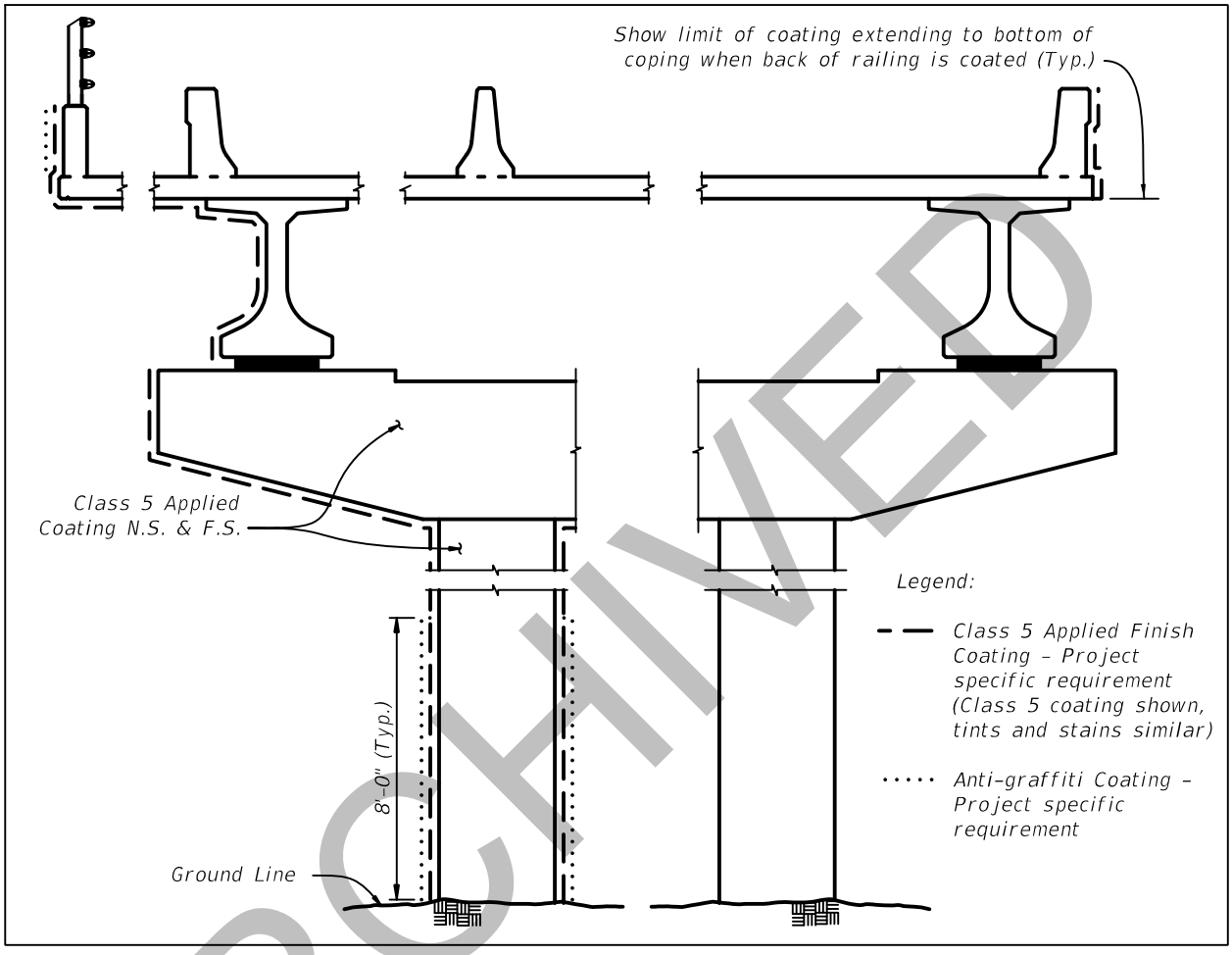
4.4 Concrete Surface Finishes

A. If the use of coatings, tints or stains is necessary to meet project specific requirements in accordance with the limitations specified in ***SDG*** 1.4.5, show the limits of the areas to be treated in the plans. See examples of how to depict the limits of treatments in Figure 4.4-1, Figure 4.4-2, Figure 4.4-3 and Figure 4.4-4. For bridges and retaining walls with Class 5 coatings, show appropriate "Class 5 Applied Finish Coating" notes in the General Notes and the corresponding Surface Finish Details on the General Notes drawing. For noise walls, see the ***Instructions for Design Standards*** Index 5200. If the finish color is other than Federal Color Standard No. 595, Color No. 36622 (standard concrete gray) (or Color No. 36642 for uncoated weathering steel bridges), specify the appropriate number(s) for the desired color(s). Do not use generic or brand names for colors, e.g. Pearl Grey. Provide similar notes and details for the use of tints and stains.

B. If the use of an anti-graffiti coating is necessary to meet project specific requirements, show the limits of the areas to be coated in the plans. See examples of how to depict the limits of anti-graffiti coatings and recommended areas to be coated in Figure 4.4-1, Figure 4.4-2, Figure 4.4-3 and Figure 4.4-4. Specify the type of anti-graffiti coating to be used in the plans, e.g. sacrificial or non-sacrificial.

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Figure 4.4-1 Example Surface Finish Depictions on Grade Separation Structures



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Figure 4.4-2 Example Surface Finish Depictions on Waterway Crossings and Railroad Separation Structures

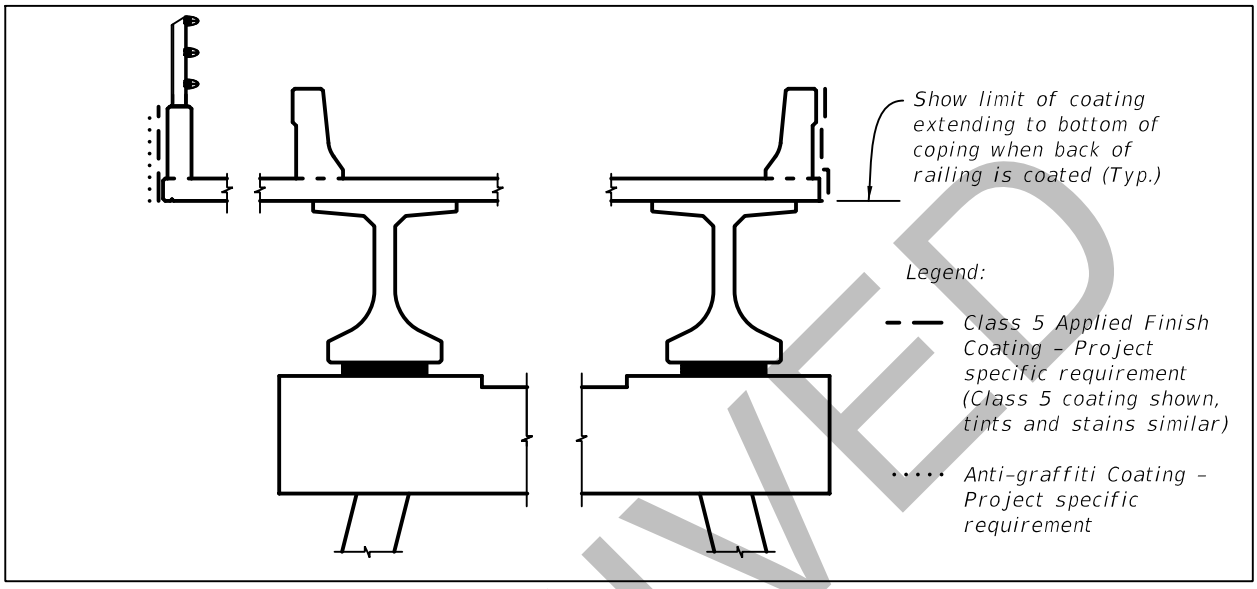
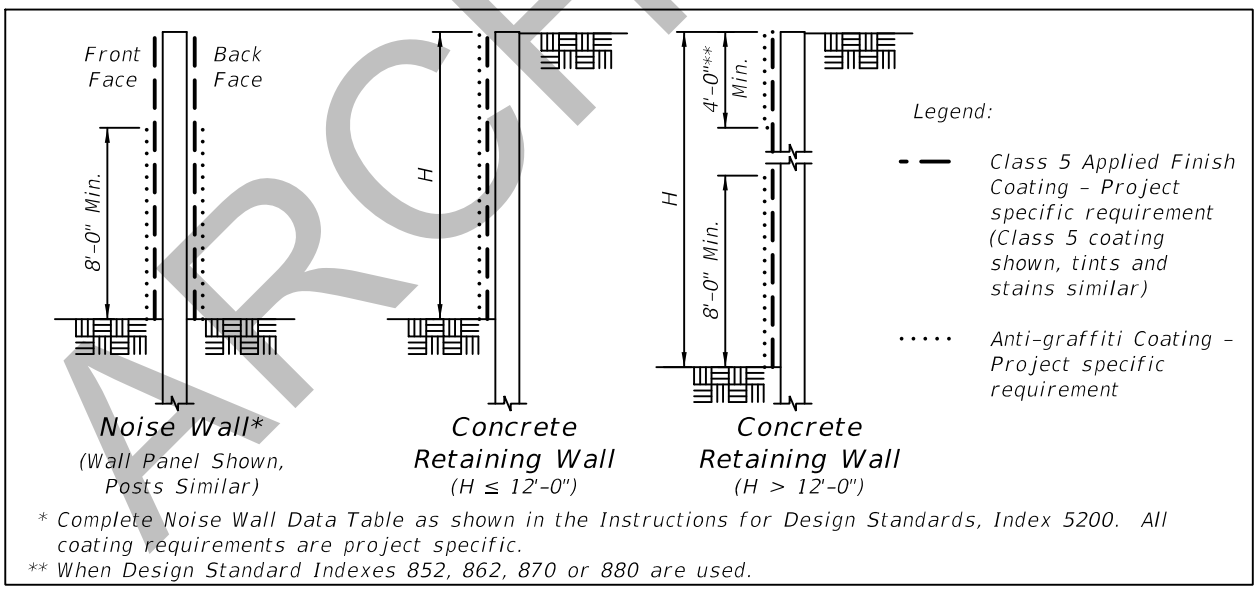


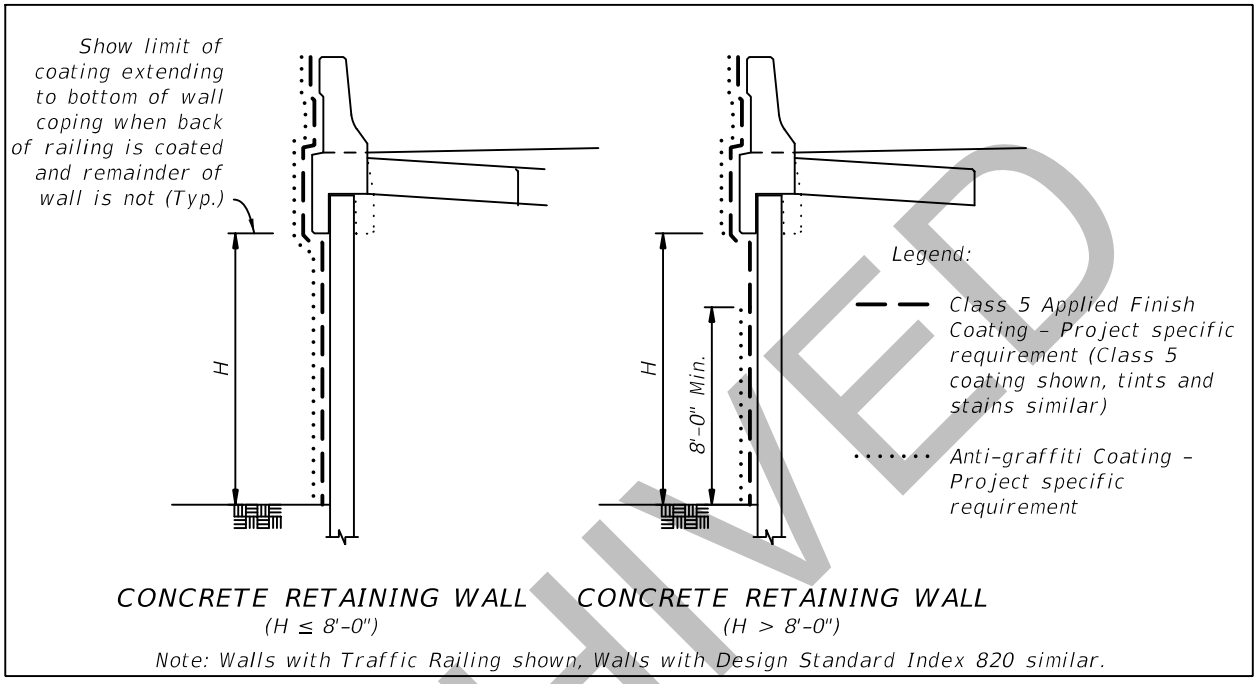
Figure 4.4-3 Example Surface Finish Depictions on Concrete Noise Walls and Retaining Walls Without Traffic Railings or Parapets



* Complete Noise Wall Data Table as shown in the Instructions for Design Standards, Index 5200. All coating requirements are project specific.
** When Design Standard Indexes 852, 862, 870 or 880 are used.

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Figure 4.4-4 Example Surface Finish Depictions on Retaining Walls with Traffic Railings or Parapets



4. Add the following new section to ***Plans Preparation Manual***, Volume 1, Chapter 4:

4.3.7 Surface Finishes

Class 5 coatings, tints or stains may be applied to roadway concrete barrier walls in order to be compatible with the treatment of bridge or retaining wall mounted traffic railings or for corridor uniformity when approved by the DDE. Approval by the Chief Engineer is required for the use of Class 5 coatings, tints or stains on median barriers and the inside and top surfaces of roadside barriers. Abrupt changes of aesthetic treatment of barriers/railings/parapets from a bridge to a roadway should be avoided. See ***SDG***, Section 1.4.5 for the policy on bridge, noise wall and retaining wall surface finishes.

The Department will cover the cost for coating, tints or stains on roadway concrete barrier walls only as described above. If a Local Maintaining Agency desires a roadway concrete barrier wall with coatings, tints or stains and the barrier wall does not qualify for such treatment as determined by the Department, the barrier may be treated with approval by the District Secretary. The Local Maintaining Agency shall provide the additional construction funding for the coatings, tints or stains and shall commit to cover the associated maintenance costs for the service life of the barrier wall.

Modification for Non-Conventional Projects:
Delete ***PPM*** 4.3.7 and see the RFP for requirements.

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5. Add the following new section to ***Plans Preparation Manual***, Volume 1, Chapter 4:

   4.4.4 Surface Finishes

   See Section 4.3.7 for surface finish requirements.

6. Replace the first paragraph of ***Plans Preparation Manual***, Volume 1, Section 30.2 with the following:

   See ***Chapter 4*** of this volume for guidance on roadside barrier requirements and ***SDG***, ***Chapter 6*** for retaining wall mounted traffic railing requirements. See ***Chapter 8*** of this volume for pedestrian and bicycle rail requirements. See ***SDG***, Section 1.4.5 for the policy on retaining wall surface finishes.

7. Add the following new sentence at the end of ***Plans Preparation Manual***, Volume 1, Section 32.1:

   See ***SDG***, Section 1.4.5 for the policy on noise wall surface finishes.

8. Replace ***Plans Preparation Manual***, Volume 1, Section 32.9 with the following:

   32.9 Detail Drawings

   The designer or project manager shall establish the project requirements for noise walls and include feasible commitments made during the PD&E phase or during the design phase public involvement. Project requirements may include color, textures, graphics, absorptive vs. reflective surface, flush vs. recessed panels, etc. The project requirements shall be listed in the plans. See ***Structures Detailing Manual***, Section 4.4 for details and plan content requirements.

BACKGROUND

In the past, the accepted practice governing the use of Class 5 coatings on bridges, retaining walls and noise walls has been to coat most concrete surfaces without exception. In this new policy the opposite practice is being implemented, i.e. no Class 5 coating will be used unless it is approved by an officially authorized Department Engineer. The intent is that coatings or other aesthetic surface treatments will be used only when formally justified which will reduce construction costs significantly. The elimination of Class 5 coating will also result in a more aesthetic appearance of the structure during its entire service life.

IMPLEMENTATION

Review all design-bid-build projects not yet in Phase IV and all design build projects that have yet to release the final RFP and implement this policy immediately. Design build projects that have had the final RFP released are exempt from this policy unless otherwise directed by the District.

Procedure and documentation requirements are included in the ***Project Management Handbook***. The ***Project Development and Environment (PD&E) Manual*** will be revised to include language that alerts project analysts and project managers of these requirements.

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