2014 Structures Related Design Standards Updates

Design Update Training

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**Introduction:**

- Guide to FDOT Publications
- Website navigation specific to structures related Design Standards and their support documents. (Emphasis on IDS)
- Developmental Design Standards (DDS) – No new DDSs
- Mobile Webpage
- General Revisions to structures related Design Standards
- Significant changes to structures related Design Standards
Guide to FDOT Publications

Speaking to the Designer:
- Structures Manual
- Plans Preparations Manual
- Basis of Estimates
- Instructions for Design Standards
- Design Bulletins
- Other design manuals such as Traffic Engineering, Drainage, Pavement, Soils and Foundations, etc.

Speaking to the Contractor/Manufacturer’s: Designers must be familiar with each of these components, but direction to, or information for designers are not (should not be) included in these documents.
- Design Standards
- Specifications
- Materials Manual
- Qualified Products

Speaking to the CEI:
- Construction Project Administration Manual (CPAM)
- Construction Memos
Instructions for Design Standards (IDS):
Provides specific instructions to assist the Design Engineer of Record in properly incorporating the associated Design Standards into the Contract Plans.

Design Standards:
Established to ensure uniform application of standard designs and details in the preparation of Contract Plans.

True or False?
When available, the IDS is a design contract document and must be followed to ensure proper use of the associated Design Standard.
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Provides specific instructions to assist the Design Engineer of Record in properly incorporating the associated Design Standards into the Contract Plans.

Design Standards:
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True or False?
When available, the IDS is a design contract document and must be followed to ensure proper use of the associated Design Standard.

TRUE: The IDS is in the boilerplate language for all design standard scope of services. They are extremely important to ensure proper use of each associated Design Standard.
### Design Standards Procedure (Topic Number: 625-010-003)

#### Current Design Standards

<table>
<thead>
<tr>
<th>Year</th>
<th>Design Standards eBooklet</th>
<th>Revised Index Drawings</th>
<th>Developmental Design Standards</th>
</tr>
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<tbody>
<tr>
<td>2013</td>
<td>DSeB</td>
<td>RID</td>
<td>DDS</td>
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Select the desired Current Design Standards eBooklet (DSeB), Revised Index Drawings (RID) or Developmental Design Standards (DDS) by clicking on their underlined symbol.

#### Historical Design Standards

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Design Standards eBooklet</th>
<th>Design Standards Revisions</th>
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<tr>
<td>2012/13</td>
<td>DSeB</td>
<td>DSR</td>
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**Design Standards Modifications**

Select the desired Historical Standard Booklet, Interim Standards or Standards Modification by clicking on their underlined symbol.

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<td>2000</td>
<td>S</td>
<td>I</td>
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</table>

The dates shown under Standards Modifications are the effective dates of the Modifications.
Website Navigation

Office of Design

Office of Design / Design Standards
Design Standards

INDUSTRY REVIEW
Origination Form - Instructions - Example
Current Submittals Under Review
Submittal History

CURRENT

<table>
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<th>Year</th>
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HISTORICAL

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Design Standards Website:
http://www.dot.state.fl.us/rrdesign/DesignStandards/Standards.shtm
Support Documents for Structures Related Design Standards

Support Documents include:

- IDS
- Data Tables
- DGN’s (see Terms Of Use)

<table>
<thead>
<tr>
<th>Design Standards eBooklet</th>
<th>Design Information</th>
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<tr>
<td>Index No</td>
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<td>(PDF)</td>
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<td>Complete eBooklet (268mb)</td>
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**COVER, TABLE OF CONTENTS AND REVISIONS**

- Cover
- Content
- Revisions

**ABBREVIATIONS AND SYMBOLS**

TERMS OF USE

The Microstation Drawings listed with their related index (as zipped DGN files) are provided for designers who decide to modify a Design Standard to suit project specific requirements. It should be clearly understood that if modifications to the Design Standards are required, the work shall be performed under the direct supervision of a Professional Engineer. If any portion of a Design Standard is modified, the Professional Engineer responsible for the modifications to the drawings becomes the EOR. Use one of the following methods:

**Method 1:**
Produce a new project specific drawing using the details within the Microstation Drawing as a guide or template. In this event, reference to the related Design Standard will be called out in the plans. The details in the plans which were created from the Microstation drawing cease to be a standard and the engineer responsible for the modifications to the drawings becomes the EOR for the application of the entire system, including the applicability and correctness of the unaltered portions of the Microstation Drawings.

**Method 2:**
Modify the details and notes within the Microstation Drawing for the project specific requirements. In this event, no reference to the related Design Standard will be called out in the plans. It is important that the plans clearly depict evidence that modifications have been made to the original design standard to avoid any confusion by the user. A plain note indicating the details are based on modifications to the original Design Standard may be appropriate. The details in the plans which were created from the Microstation drawing cease to be a standard and the engineer responsible for the modifications to the drawings becomes the EOR for the application of the entire system, including the applicability and correctness of the unaltered portions of the Microstation Drawings.

**Method 3:**
If the required modifications are minor, use the Microstation drawing to create details showing the modifications to the Design Standard on a separate sheet in the plans. In this event, reference the related Design Standard in the plans. Place the modified details in the plans on a sheet entitled, “Modifications to Design Standards Index XXXX.” The engineer responsible for the modifications to the Design Standard becomes the EOR for the details on this sheet and for all effects the modification has on other components within the Design Standard.
# Support Documents for Structures Related Design Standards

<table>
<thead>
<tr>
<th><em>PRESTRESSED CONCRETE BEAMS</em></th>
<th>Structures Contact</th>
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<tr>
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<td>IDS-20005 CEL-20005 DGN-20005</td>
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<td>20010 2 Typical Florida I-Beam Details and Notes</td>
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<td>20036 2 Florida I 36 Beam - Standard Details</td>
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<td>20096 2 Florida I 96 Beam - Standard Details</td>
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<tr>
<td>20199 1 Build-Up &amp; Deflection Data for Florida I Beams</td>
<td>IDS-20199 CEL-20199 DGN-20199</td>
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<tr>
<td>20299 1 Build-up and Deflection Data for Florida U Beams</td>
<td>IDS-20299 CEL-20299 DGN-20299</td>
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</table>

**Individual IDS**

**Individual MicroStation Cell (Data Table)**

**Index DGN (without the Border)**
Support Documents for Structures Related Design Standards

Welcome
The Engineering CADD Systems Office (ECDO) mission is to coordinate and manage computer-based technology to provide the Department's engineering community with engineering/CADD oriented applications, support and training; to be used in the planning, design, construction, and maintenance of transportation facilities.

News
- The CADD Production Criteria Handbook (CPCH) for FDOT2010 MR4 is now available!  
  Posted: May 08, 2013
- The FDOT 2012 Civil 3D CADD State Kit is now available!  
  Posted: April 30, 2013
- The FDOT2010 MR4 CADD Software Suite (version 2010.04.00) is now available!  
  Posted: January 31, 2012

http://www.dot.state.fl.us/ecso/
Must manually replace "cells.xml" with file from SDO website
Support Documents for Structures Related Design Standards
Support Documents for Structures Related Design Standards

Also available on the Structures Office website: MicroStation cell libraries; .pdf’s of Load Rating Tables (since not associated with a particular Design Standard); and Structures Bar Menu cells.xml file (Data Tables pull-down menu update for FDOT2010 MR3 CADD Software download):
Mobile Webpage – Simple, Direct Access

- Collection of links to FDOT publications most commonly used in the field.
- We value feedback. Please take the quick 3 question survey and leave comments.

Tips:
- Download free Adobe Reader App for optimal viewing. It also saves files in “Recents” for quick future access.
- Use iBooks App to store PDF manuals on your “bookshelf” for quick future access.

Home Page for access to all content. Adobe Reader must be installed for optimal viewing.

Click here to take a survey

**Construction**
- Construction Memos (Link to Webpage)
- CPAM (7.13 MB)
- Individual Chapters (Link to Webpage)

**Design Standards eBooklet**
- 2014 (Link to Webpage)
- 2013 (Link to Webpage)
- FY 2012/2013 (Link to Webpage)

**Materials Manual** (Link to Webpage)
- 2013 Standard Specifications eBook (6.3 MB)
- Additional Specifications (Link to Webpage)
- Additional Construction Office Manuals (Link to Webpage)

**Design**
- Basis of Estimates Manual, Chapter 11-20 (3.82 MB)
- Florida Greenbook (4 MB)
- Instructions for Design Standards
  - 2014 (11 MB)
  - 2013 (10 MB)
  - FY 2012/2013 (11 MB)

**Plans Preparation Manual** (Link to Webpage)
- Vol. 1 (9 MB)
- Vol. 2 (12 MB)

**Soils and Foundations Handbook** (6.84 MB)
- Structures Manual
  - Vol. 1 SDG (2.44 MB)
  - Vol. 2 SDM (6.81 MB)
  - Vol. 9 LTS-5 (0.2 MB)

**Additional Office of Design Publications** (Link to Webpage)
General Revisions

- Survey Elevation Markers placed on bridge railings were no longer being used and not required on new construction. They need not be replaced for railing retrofits.

- Specifications for Welded Wire Reinforcement (WWR) are centrally located in Specification Section 931.

- Removed surface finish requirements from Design Standards for walls, railings, etc. Guidance is now provided in the Structures Manual to include project specific details in the plans. See Structures Design Bulletin (SDB) 13-03 (Roadway Design Bulletin 13-04).

- Reorganized Index 501 and updated Approved Geosynthetic Product Tables.

- “Pull boxes” for utilities have been renamed to “Embedded Junction Box(es) (EJB)” to clarify usage and align with changes to Specification Section 630.

- Quantity Boxes have been removed from Data Tables. A summary of all quantities will be shown in a single location within the plans. See SDB 13-12 for more information.
**New Design Standards**

**Indexes 404, 405 and 477**

- Developed to compliment/support the policy of Practical Design

- Indexes 404 (Narrow and Recessed Curbs) and 405 (Wide Curbs) are new Indexes and are solutions for bridge traffic railing approach and trailing end transition treatments for RRR Projects where the railing on the bridge structure will not be modified or improved.

- Index 477 has been migrated from the DDS and uses a thrie-beam panel attached to the railing to improve the crashworthiness and slightly increase the strength. This Index also includes details for approach and trailing end transitions.

- See the IDS for each Index to determine applicability.

- These Indexes may only be used with railings having **structurally continuous top rails**.
New Design Standards
Indexes 404, 405 and 477

For railings having discontinuous top rails, the bridge railings most likely need improvement for RRR Projects. Use Indexes 470-476 or Index 480 Series.
Index 5200

Sound Barriers => Noise Walls

- Added Side-Installed Panels:
AASHTO TYPE II BEAMS

They’re Back!!

For short-medium span (50’-85’) bridges where efficiency of FIB-36 is not optimized.

AASHTO TYPE II BEAMS

The AASHTO Type II Beam nicely fills the efficiency gap
AASHTO TYPE II BEAMS

See IDS-20010 or IDS-20120 for span length charts
Industry requested beveled bearing plates which could be used on either end of beam.

- “Plate B” was modified to accommodate this request
- Updated to include AASHTO Type II Beams
Index 20601

- Slightly increased the allowable length for pile build-up.
- Allow for overlap of 1’-0” where contractor has options for either CIP build-up or non-drivable splice.
- Considered pinned, fixed, tension and compression pile conditions.
- Added Note 5 to address requirements for tension piles terminating less than 3 feet from the cut-off elevation.
Added Thrie-Beam Panel; fully detailed in new Index 21640 with approach and trailing end transitions included.

Thrie beam panels improve the crashworthiness of the temporary bridges and provide increased protection against impact to the main structural elements.
Questions?
Please feel free to contact me anytime using my information below:

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