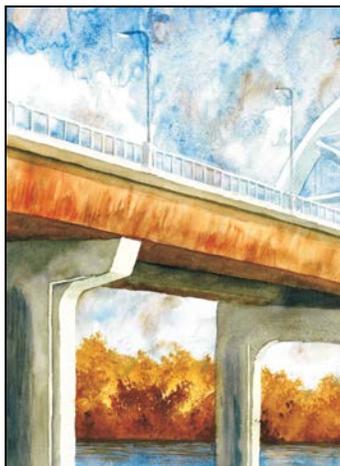
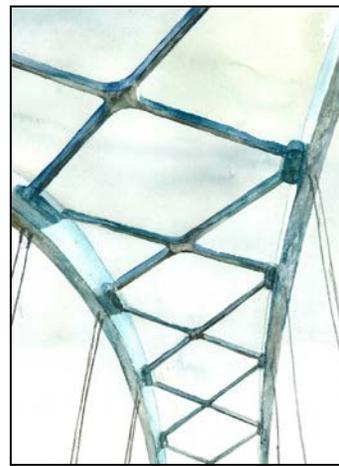




Division of Transportation
System Development
Bureau of Structures
PO Box 7916
Madison, WI 53707-7916



Bridge Manual



Standard Details

DATE: July 29, 2015
TO: Bridge Manual Users
FROM: DTSD – Bureau of Structures
SUBJECT: **July 2015 Bridge Manual Update**

The Bridge Manual revisions to text and standards are now complete and are being posted online for this six month cycle. **The days of July 28 - July 31, the website is to be considered “under construction”. By August 1st, all revisions will be complete.** Please see the attached sheets for a list, with brief explanation, of the Text and Standards that were revised. Corresponding plan insert sheets have also been updated and posted online. New insert sheets for sign structures will be posted soon.

Of particular interest in this edition:

- **Chapter 2:** Revised org chart showing Josh Dietsche as new supervisor of the Rating and Bridge Management Unit and Kristin Revello as new supervisor of the Structural Metals & Fabrication Quality Assurance Inspection Unit. Also noteworthy is Steve Revello taking over Kristin’s duties in Consultant Review.
- **Chapter 4:** *NEW* section 4.9 “Non-CSS Aesthetic Concepts”. This information reflects the recent State budget which prohibits State funds being used for CSS. Permissible aesthetic concepts are discussed, with references to new Chapter 4 standards. Renderings of the new standards are shown, as well.
- **Chapter 6:** Changed railing bid items to LF from LS. As a reminder, this change begins with the August, 2015 PS&E.
- **Chapter 9:** *NEW Appendix 9.11 – Draft Bar Tables.* The 2015 Interim Revisions to the AASHTO 7th Edition has revised tension development and lap lengths. BOS does not plan on implementing the changes until the July, 2016 edition of the Bridge Manual. This is in order for everyone to have sufficient time to account for the changes in software, detailing, etc.
- **Chapter 12:** Updated policy for the use of structural approach slabs. Structural approach slabs are now required on all bridges carrying traffic volumes greater than 3500 AADT in the future design year.

- **Chapter 14:** Adopted AASHTO LRFD [11.6.3.3] eccentricity limits.
- **Chapter 39:** Additional clarification and language added regarding sign structures.
- **Examples, Chapters 13, 14, 18, 19, 36, 45:** Several updates, most notably the concrete stress block being revised from $0.85(f'c)$ to $\alpha_1(f'c)$ in the 2015 Interim Revisions to the AASHTO 7th Edition (5.7.2.2). α_1 is a function of concrete strength.
- **Standards 4.02-4.05:** *NEW* standards showing permitted aesthetic concepts that do not require CSS funding.
- **Standards 12.10-12.13:** Renamed and reconfigured, with clarified details.
- **Standards 30.08 & 30.09:** *NEW* standards ‘**Combination Railing Type ‘3T’** and ‘**Combination Railing Type ‘3T’ Details**’. This railing, for use on top of a parapet, is a non-CSS pedestrian railing when galvanized and not painted.
- **All Chapter 39 Standards:** A number of sign structure standard changes and enhancements.
- **Insert Sheets:** Numerous insert sheets have been updated and/or created for this 6-month cycle. Please make sure that the current insert sheets are being utilized for structures projects. **New insert sheets for sign structures will be posted soon.**
- **Updated Special Provisions:** For bridge items, as well as non-bridge items, there is a Department-wide effort to clean-up and reduce SPV’s, getting as much into the Standard Spec (or even STSP’s) as possible. Be sure to use the latest and greatest.

Most other changes are fairly minor. If anything in a given chapter was edited, the date for the entire chapter was updated. A vertical black bar in the left margin notes all changes. Previous black bars were not removed from chapters which were not edited in this update.

The user’s feedback regarding the Bridge Manual is important to us as that is where we get many ideas for corrections, clarification and new ideas for enhancement.

July 2015 Bridge Manual Text Update Summary

<u>Chapter</u>	<u>Page Number(s)</u>	<u>Change</u>
2	3	Updated BOS org chart
3	3	Updated FDM Attachment numbers referenced for clearance requirements
	3	Mentioned Chapter number for Standard reference
4	2	Discusses high maintenance costs of staining
	5	Minor edits
	9	New Policy Item clarifying removal of state funded CSS work.
	10	Added note to bottom of page regarding future updates
	13-17	New Section 4.9 discusses non CSS aesthetic concepts, with renderings.
5	17	Updated cost for single-cell box culverts (was incorrect)
6	24	Added to the plan note that geotechnical engineers should be given 3 days advance notice to perform an on-site evaluation
	40	Changed Bid Item for Steel and Tubular Railing to lineal feet to match the Standard Specifications.
	43	Updated FDM reference for ice payment
7	8,11	Minor changes
	12	Added FHWA GRS-IBS Interim Implementation Guide to design standards
	16-17	Added GRS-IBS design steps
9	3	Referenced LRFD [C5.4.2.4] where our current equation for modulus of elasticity of concrete is now located.
	4,5	Included sign bridge footings as another element where epoxy coated reinforcement is being used.
	13	Removed the word "clad" as stainless steel clad bars are no longer available.
	15,16	Text added indicating which colors have the best color retention.
	24-29	Added Appendix to end of Chapter to show Draft Bar Tables for future implementation of 2015 Interim Revision to AASHTO Spec. for tension development lengths and tension lap lengths.
10	10-34	Updated Site Investigation Report for bridges
	35-45	Added Site Investigation Report for walls
11	22,41	Added variable k_c to the nominal axial resistance equation per LRFD [5.7.4.4], which is a function of concrete compressive strength.

12	37	Updated WisDOT policy item for structural approach slab usage.

13	18	Corrected the coefficient " C_a " used to calculate the horizontal force caused by moving ice.
	48,49	Removed Appendix A - Pier Details. Obsolete.
13E -1	2	Changed Edition of LRFD Spec. that Example is current through.
	52	Referenced LRFD [C5.4.2.4] where our current equation for modulus of elasticity of concrete is now located.
	53,69	Changed compressive stress block value of 0.85 f'c to alpha times f'c. The value of alpha is a function of the concrete strength per LRFD [5.7.2.2]
	39,43,45,46, 48,60,67	Added/modified text adjacent to the criteria check
	42,43	Corrected symbol in text
	50	Modified maximum column reinforcement per LRFD [5.7.4.2]
13E -2	60	Corrected vertical pile resistance for HP12x53 and used PDA with CAPWAP value for design check
	2	Changed Edition of LRFD Spec. that Example is current through.
	3	Referenced LRFD [C5.4.2.4] where our current equation for modulus of elasticity of concrete is now located.
	5	Corrected Figure number references for preliminary dimensions.
	16,18,21,22	Changed compressive stress block value of 0.85 f'c to alpha times f'c. The value of alpha is a function of the concrete strength per LRFD [5.7.2.2]
	16-23,26-28	Added/modified text adjacent to the criteria check
	28-29	Corrected longitudinal skin reinforcement calculations to match intent of LRFD [5.7.3.4]

14	42,68,83,84, 93,101,103, 116	Updated LRFD [Table 11.5.7-1] reference for Resistance Factors for Permanent Retaining Walls
	10,15,16,19, 24,25,118 ,119,121, 126	Changed all post and panel references to soldier pile references and added clarity to soldier pile walls.
	25	Revised Table 14.3-2 water tightness values
	26	Updated General Design Steps
	54,82,83, 101	Updated eccentricity checks per LRFD [11.6.3.3]
	72	Revised Table 14.6-1 pH values and organic content values

	7,8,78, 127,129	Changed submittal reference to Bureau of Structures
	114	Removed allowing specifying weathering steel for steel sheet piling.
	119	Revised soldier pile design requirements to include drained and undrained conditions
	126	Updated Structures Design Section SPV list
	7-9,11-13, 16,17,19,20, 22,24,47, 49,51,72, 77,80,95, 105,110, 112,127, 129	Other minor edits
14E -1	2	Changed Edition of LRFD Spec. that Example is current through.
	3	Referenced LRFD [C5.4.2.4] where our current equation for modulus of elasticity of concrete is now located.
	20,24,27	Changed compressive stress block value of 0.85 f'c to alpha times f'c. The value of alpha is a function of the concrete strength per LRFD [5.7.2.2]
	18,31	Updated eccentricity checks per LRFD [11.6.3.3]
	31	Corrected bearing CDR value in external stability summary table
14E - 2	12,22	Updated eccentricity checks per LRFD [11.6.3.3]
14E - 3	12,21	Updated eccentricity checks per LRFD [11.6.3.3]
14E - 4	2	Changed Edition of LRFD Spec. that Example is current through.
	3	Referenced LRFD [C5.4.2.4] where our current equation for modulus of elasticity of concrete is now located.
	21,22,29,32	Changed compressive stress block value of 0.85 f'c to alpha times f'c. The value of alpha is a function of the concrete strength per LRFD [5.7.2.2]
	36	Minor - corrected spelling
17	77	Added allowable tensile stress limit as found in LRFD [Table 5.9.4.2.2-1] for severe corrosion conditions as applied to concrete deck panels.
18	4	Referenced LRFD [C5.4.2.4] where our current equation for modulus of elasticity of concrete is now located.
	10,11	Changed compressive stress block value of 0.85 f'c to alpha times f'c. The value of alpha is a function of the concrete strength per LRFD [5.7.2.2]
18E -1	3	Changed Edition of LRFD Spec. that Example is current through.
	14,70	Changed compressive stress block value of 0.85 f'c to alpha times f'c. The value of alpha is a function of the concrete strength per LRFD [5.7.2.2]
19	9	Corrected value for relaxation loss estimate for low relaxation strands to match LRFD [5.9.5.3]
	14	Referenced LRFD [C5.4.2.4] where our current equation for modulus of elasticity of concrete is now located.

	15,16,17	Added allowable tensile stress limit as found in LRFD [Table 5.9.4.2.2-1] for moderate corrosion conditions
	22,23,24	Changed compressive stress block value of 0.85 f'c to alpha times f'c. The value of alpha is a function of the concrete strength per LRFD [5.7.2.2]
19E - 1	2	Changed Edition of LRFD Spec. that Example is current through.
	3	Referenced LRFD [C5.4.2.4] where our current equation for modulus of elasticity of concrete is now located.
	17,27	Added allowable tensile stress limit as found in LRFD [Table 5.9.4.2.2-1] for moderate corrosion conditions
	32,33,35,39	Changed compressive stress block value of 0.85 f'c to alpha times f'c. The value of alpha is a function of the concrete strength per LRFD [5.7.2.2]
19E - 2	2	Changed Edition of LRFD Spec. that Example is current through.
	5	Corrected reference shown for permanent load distribution to LRFD [4.6.2.2.1]
	13,17	Changed compressive stress block value of 0.85 f'c to alpha times f'c. The value of alpha is a function of the concrete strength per LRFD [5.7.2.2]
	13,14	Corrected value for beta, which is a function of girder concrete strength when the compressive stress block is located in the bottom flange; per LRFD [5.7.2.2]
19E - 3	2	Changed Edition of LRFD Spec. that Example is current through.
	3	Referenced LRFD [C5.4.2.4] where our current equation for modulus of elasticity of concrete is now located.
	13	Added allowable tensile stress limit as found in LRFD [Table 5.9.4.2.2-1] for moderate corrosion conditions
	22,26	Changed compressive stress block value of 0.85 f'c to alpha times f'c. The value of alpha is a function of the concrete strength per LRFD [5.7.2.2]
19E - 4	2	Changed Edition of LRFD Spec. that Example is current through.
27E - 1	2	Changed Edition of LRFD Spec. that Example is current through.

30	4	Added type "3T" to the list of combination railing types
	7	Referenced Chapter 4 for CSS considerations. Highlighted combination railing type "3T" for non-aesthetic applications. Clarified the railing type for parapet type "TX".
	8	Clarified combination railing relationship to crash test criteria
	13	Referenced Chapter 4 for CSS funding implications.

36	5	Referenced LRFD [C5.4.2.4] where our current equation for modulus of elasticity of concrete is now located.
36E - 1	2	Changed Edition of LRFD Spec. that Example is current through.
	4	Added LRFD reference for edge beam usage.
	4	Referenced LRFD [C5.4.2.4] where our current equation for modulus of elasticity of concrete is now located.
	6	Added LRFD references for Horizontal Earth Load and Live Load Surcharge.
	8	Added LRFD reference for length and width of equivalent wheel areas.

	9	Corrected typing error for Load Factor for (LS) - Service 1
	20,26,33	Changed compressive stress block value of 0.85 f'c to alpha times f'c. The value of alpha is a function of the concrete strength per LRFD [5.7.2.2]
	27	Corrected typing error in tensile stress equation.
	32	Corrected typing error in shear capacity equations for single cell box culverts, and provided an LRFD reference.
37	4	Updated FDM Attachment numbers referenced for horizontal and vertical clearance requirements
38	28	Std 38.01 is referenced for minimum footing depth adjacent to RR
	29	Corrected crashwall offset guidance
39	5	Designated version of AASHTO Specification to use for design
	9,10	Added text to make distinction on vertical clearance requirements for sign structures designed with future catwalk carrying type I, II and DMS signs.
	10	Text was edited to provide clarification for requirements of electrical elements for all DMS sign structures.
	10	Removed "4-chord" to clarify that the guidance for estimating design sign area is applied to all sign structures.
	13	Structures mounted on non-standard supports are added to overhead sign support category that are designed by structural engineers and plans are placed in Section 8 of the contract plans.
	7,9,12	Edits to provide clarity
45E - 1	5,8,10,12	Changed compressive stress block value of 0.85 f'c to alpha times f'c. The value of alpha is a function of the concrete strength per LRFD [5.7.2.2]
45E - 2	10,11,16	Changed compressive stress block value of 0.85 f'c to alpha times f'c. The value of alpha is a function of the concrete strength per LRFD [5.7.2.2]
	7	Corrected reference shown for permanent load distribution to LRFD [4.6.2.2.1]
	12	Corrected equation for modulus of rupture to match LRFD [5.4.2.6]
	22	Added allowable tensile stress limit as found in LRFD [Table 5.9.4.2.2-1] for moderate corrosion conditions
45E - 3	10	Changed compressive stress block value of 0.85 f'c to alpha times f'c. The value of alpha is a function of the concrete strength per LRFD [5.7.2.2]
	4	Corrected reference shown for permanent load distribution to LRFD [4.6.2.2.1]
45E - 4	6	Referenced LRFD [C5.4.2.4] where our current equation for modulus of elasticity of concrete is now located.

July 2015 Standard Details Update Summary

Chapter 4

- Std 4.01 ■ No revisions.
- NEW** Std 4.02 ■ Aesthetic Concepts Without Pedestrian Accommodations
- NEW** Std 4.03 ■ Aesthetic Concepts With Pedestrian Accommodations
- NEW** Std 4.04 ■ Wing & Parapet Aesthetic Details
- NEW** Std 4.05 ■ Multi-Columned Pier Aesthetic Details

Chapter 7

- Std 7.01 ■ No revisions.
- Std 7.02 ■ No revisions.
- Std 7.03 ■ No revisions.
- Std 7.04 ■ No revisions.

Chapter 11

- Std 11.01 ■ No revisions.

Chapter 12

- Std 12.01 ■ No revisions.
- Std 12.02 ■ No revisions.
- Std 12.03 ■ Added designer note for structural approach slabs
- Std 12.04 ■ Added designer note for structural approach slabs
 - Added Section W3 for structural approaches
- Std 12.05 ■ Added designer note for structural approach slabs
- Std 12.06 ■ Added designer note for structural approach slabs
 - Added Section A5 for structural approaches
- Std 12.07 ■ No revisions.
- Std 12.08 ■ No revisions.
- Std 12.09 ■ Added "saw cutting joint is not allowed" to Notes.
- Revised** Std 12.10 ■ Changed T509 bar length to 4'-10"
 - Updated Structural Approach Slab usage policy
 - Plan view shown as A1 abut. (A3 & A4 abut. similar)
- Revised** Std 12.11 ■ Standard updated to show sections only (added and updated sections)
- Revised** Std 12.12 ■ Standard updated to show sections only (added and updated sections)
- Revised** Std 12.13 ■ Standard updated to show partial plan views only (new plan views)

Chapter 13

- Std 13.01 ■ No revisions.
- Std 13.02 ■ No revisions.
- Std 13.03 ■ No revisions.
- Std 13.04 ■ No revisions.
- Std 13.05 ■ No revisions.
- Std 13.06 ■ Corrected tie (90 deg. hook) dimensional reference in Section P2
- Std 13.07 ■ No revisions.
- Std 13.10 ■ No revisions.
- Std 13.11 ■ Changed anchor embedment depth for "Masonry Anchor, Type S layout"

Chapter 14

- Std 14.01 ■ No revisions.
- Std 14.02 ■ No revisions.
- Std 14.03 ■ No revisions.

- Std 14.04 ■ No revisions.
- Std 14.05 ■ No revisions.

Chapter 15

- Std 15.01 ■ No revisions.
- Std 15.02 ■ No revisions.
- Std 15.03 ■ No revisions.

Chapter 17

- Std 17.01 ■ Added to deflection joint note 1. that the joint is to be normal to sidewalk/ppt
- Removed note to design superstructure for max 2% cross slope, even though designed for 1.5%. The extra weight is within normal construction tolerances.
- Updated "Cross Section Thru Median with a Joint"
- Added "Elastomeric Compression Seal Detail"
- Added "Anchored Median Curb Detail"
- Std 17.02 ■ No revisions.

Chapter 18

- Std 18.01 ■ No revisions.
- Std 18.02 ■ No revisions.

Chapter 19

- Std 19.01 ■ No revisions.
- Std 19.02 ■ No revisions.
- Std 19.03 ■ No revisions.
- Std 19.04 ■ No revisions.
- Std 19.11 ■ No revisions.
- Std 19.12 ■ No revisions.
- Std 19.13 ■ No revisions.
- Std 19.14 ■ No revisions.
- Std 19.15 ■ No revisions.
- Std 19.16 ■ No revisions.
- Std 19.17 ■ No revisions.
- Std 19.18 ■ No revisions.
- Std 19.19 ■ No revisions.
- Std 19.20 ■ No revisions.
- Std 19.31 ■ Added "Min." to 1'-3" dimension
- Added "3" min." dimension to all abutment details for bearing pad location
- Std 19.32 ■ No revisions.
- Std 19.33 ■ No revisions.
- Std 19.34 ■ No revisions.
- Std 19.35 ■ No revisions.
- Std 19.36 ■ No revisions.
- Std 19.37 ■ No revisions.
- Std 19.38 ■ No revisions.
- Std 19.51 ■ No revisions.
- Std 19.52 ■ No revisions.
- Std 19.53 ■ No revisions.

Chapter 23

- Std 23.01 ■ No revisions.
- Std 23.02 ■ No revisions.

Std 23.03 ■ No revisions.

Chapter 24

Std 24.02 ■ No revisions.

Std 24.03 ■ Reference Std 24.02 for diaphragm connection bar cope & weld information
■ Changed minimum connection bar dimension to 5-1/2" from 5".

Std 24.04 ■ Reference Std 24.02 for diaphragm connection bar cope & weld information

Std 24.06 ■ Reference Std 24.02 for diaphragm connection bar cope & weld information

Std 24.08 ■ No revisions.

Std 24.09 ■ No revisions.

Std 24.10 ■ No revisions.

Std 24.11 ■ No revisions.

Std 24.12 ■ No revisions.

Chapter 27

Std 27.02 ■ No revisions.

Std 27.05 ■ No revisions.

Std 27.06 ■ No revisions.

Std 27.07 ■ No revisions.

Std 27.08 ■ No revisions.

Std 27.09 ■ No revisions.

Chapter 28

Std 28.01 ■ No revisions.

Std 28.02 ■ No revisions.

Std 28.03 ■ No revisions.

Std 28.04 ■ No revisions.

Std 28.05 ■ No revisions.

Std 28.06 ■ No revisions.

Std 28.07 ■ No revisions.

Std 28.08 ■ No revisions.

Chapter 29

Std 29.01 ■ No revisions.

Std 29.02 ■ No revisions.

Std 29.03 ■ No revisions.

Chapter 30

Std 30.01 ■ No revisions.

Std 30.02 ■ No revisions.

Std 30.04 ■ No revisions.

Std 30.05 ■ No revisions.

Std 30.07 ■ No revisions.

NEW Std 30.08 ■ Combination Railing Type '3T'

NEW Std 30.09 ■ Combination Railing Type '3T' Details

Std 30.10 ■ Changed sidewalk x-slope to 1.5% (missed on this Std in 2013)

Std 30.11 ■ No revisions.

Std 30.12 ■ No revisions.

Std 30.13 ■ No revisions.

Std 30.14 ■ No revisions.

Std 30.15 ■ Changed Bid Item name to match Standard Specifications

Std 30.16 ■ No revisions.

- Std 30.17 ■ Changed Bid Item name to match Standard Specifications
- Std 30.18 ■ Changed Bid Item name to match Standard Specifications
- Std 30.19 ■ No revisions.
- Std 30.20 ■ No revisions.
- Std 30.21 ■ No revisions.
- Std 30.24 ■ No revisions.
- Std 30.25 ■ No revisions.
- Std 30.26 ■ Changed Bid Item name to match Standard Specifications
- Std 30.27 ■ Changed Bid Item name to match Standard Specifications
- Std 30.28 ■ No revisions.
- Std 30.29 ■ No revisions.
- Std 30.30 ■ No revisions.
- Std 30.31 ■ No revisions.
- Std 30.32 ■ No revisions.
- Std 30.33 ■ No revisions.
- Std 30.34 ■ No revisions.
- Std 30.35 ■ No revisions.
- Std 30.36 ■ No revisions.
- Std 30.37 ■ No revisions.

Chapter 36

- Std 36.01 ■ No revisions.
- Std 36.02 ■ No revisions.
- Std 36.03 ■ No revisions.
- Std 36.04 ■ No revisions.
- Std 36.05 ■ No revisions.
- Std 36.06 ■ No revisions.
- Std 36.07 ■ No revisions.
- Std 36.08 ■ No revisions.
- Std 36.10 ■ No revisions.
- Std 36.11 ■ No revisions.
- Std 36.12 ■ No revisions.
- Std 36.13 ■ No revisions.
- Std 36.14 ■ No revisions.
- Std 36.15 ■ No revisions.
- Std 36.16 ■ No revisions.

Chapter 37

- Std 37.01 ■ Changed sidewalk x-slope to 1.5% (missed on this Std in 2013)
- Std 37.02 ■ No revisions.

Chapter 38

- Std 38.01 ■ Table C value changed from 50'-0" to 25'-0" (to match Designer Notes -- missed in previous update)
- Corrected 6'-6" minimum footing depth to top of footing (was shown to bottom)

Chapter 39

- Std 39.01 ■ No revisions.
- Std 39.02 ■ Added Fatigue Group Load to Design Data
- Designated version of AASHTO Specification to use for design
- Added reference to ASTM Specifications covering nuts and washers to be used with the anchor bolts

- Designated that elevations are to be shown on Layout Sheet, and remove elevation table
 - Changed term "steel column" to "column"
 - Changed term "tower web" to "column web"
- Std 39.03 ■ No revisions.
- Std 39.09 ■ Changed threaded rods, and associated washers and nuts from aluminum to stainless steel
- Std 39.10 ■ Designated version of AASHTO Specification to use for design of catwalk
- Std 39.10 ■ Clarified Fatigue Load in Design Data
- Std 39.10 ■ Designated version of AASHTO Specification to use for design
- Std 39.10 ■ Added reference to ASTM Specifications covering nuts and washers to be used with the anchor bolts
- Std 39.10 ■ Designated that elevations are to be shown on Layout Sheet, and remove elevation table
- Std 39.10 ■ Changed term "upright" to "column"
- Std 39.10 ■ Added note to clarify typical sign connection details to be used for type I and II signs only
- Std 39.10 ■ Added "center line of truss" on plan view
- Std 39.11 ■ Changed term "upright" to "column"
- Std 39.12 ■ Changed "Allowable Design Stress" data to "Ultimate Design Stress"
- Std 39.12 ■ Updated bar steel reinforcement note conforming to latest designation
- Std 39.12 ■ Added to "General Notes", a note describing placement of anchor bolts prior to concrete pour
- Std 39.12 ■ Changed lap length for A402 bars
- Std 39.12 ■ Changed bar length for A402 bars in "Bill of Bars"
- Std 39.12 ■ Changed "center line of sign" to "center line of truss" to clarify anchor bolt orientation on base plate and footing

Chapter 40

- Std 40.01 ■ No revisions.
- Std 40.02 ■ No revisions.
- Std 40.03 ■ No revisions.
- Std 40.04 ■ No revisions.
- Std 40.05 ■ No revisions.
- Std 40.06 ■ No revisions.
- Std 40.07 ■ No revisions.
- Std 40.08 ■ Clarified Notes vs. Designer Notes. Added reminder to check for tapered plates.
- Std 40.08 ■ Added reminder to check for tapered plates.
- Std 40.08 ■ No longer allowing to omit top steel plate and epoxy bearing to girder for rehabs
- Std 40.09 ■ Updated ASTM spec information for the non-metallic washers
- Std 40.10 ■ No revisions.
- Std 40.11 ■ No revisions.
- Std 40.12 ■ No revisions.
- Std 40.13 ■ No revisions.
- Std 40.14 ■ No revisions.
- Std 40.15 ■ No revisions.
- Std 40.16 ■ No revisions.
- Std 40.17 ■ No revisions.
- Std 40.18 ■ No revisions.
- Std 40.19 ■ No revisions.
- Std 40.20 ■ No revisions.
- Std 40.21 ■ No revisions.

- Std 40.22 ■ No revisions.
- Std 40.23 ■ No revisions.
- Std 40.24 ■ No revisions.
- Std 40.25 ■ No revisions.
- Std 40.31 ■ No revisions.
- Std 40.32 ■ Changed polymer overlay Designer Notes from "service life less than" to "maximum age of"
- Std 40.33 ■ No revisions.