

## ERRATA

May 2022

To Bridge Design Specifications Users:

Recently, we were made aware of some revisions that need to be applied to the California Amendments to the AASHTO LRFD Bridge Design Specifications – 8<sup>th</sup> Edition.

Please replace the existing Amendments with the revisions in these errata.

Page	Existing Text	Corrected Text
Section 3		
3-31B	Last sentence in item b) reads Live loads shall be placed in the controlling of one or two separate lines chosen to create the most severe conditions.	Replace with Live loads shall be placed in the controlling of one or two separate lanes chosen to create the most severe conditions.
3-40A	The 4 <sup>th</sup> row in Table 3.7.5-1 column 5 reads “50%”	Change “50%” to “100%”
3-40A	The last row in Table 3.7.5-1 column 5 reads “50%”	Change “50%” to “0%”
3-148A	Equation 3.12.2.1-1 reads $\Delta_T = \pm \frac{\alpha L (T_{MaxDesign} - T_{MinDesign})}{2}$	Revise equation to read $\Delta_T = \alpha L (T_{MaxDesign} - T_{MinDesign})$
3-148A	Equation number reads “3.12.2.1-1”	Change equation number from “3.12.2.1-1” to “3.12.2.3-1”
Section 4		
4-38A	8 <sup>th</sup> row in Table 4.6.2.2b-2, last column, Range of Applicability, reads “20 ≤ W <24”	Change “20 ≤ W <24” to 20 ≤ W ≤24
4-43A	The formula in the last row of column 3 in Table 4.6.2.2.3a-2 reads $3 \left( \frac{S}{4.8} \right)^{0.4} \left( \frac{d}{12L} \right)^{0.06}$	Revise formula to read $3 \left( \frac{S}{4.8} \right)^{0.5} \left( \frac{d}{12L} \right)^{0.09}$
4-43A	4 <sup>th</sup> and 8 <sup>th</sup> row in Table 4.6.2.2.3A-2, last column, Range of Applicability, reads “6 ≤ S <14”	Change “6 ≤ S <14” to “6 ≤ S ≤14”
4-46A	Several of the last column, Range of Applicability, in Table 4.6.2.2.3c-1 read “less than” signs.	Replace “<” with “≤”
4-46A	17 <sup>th</sup> row, last column, Range of Applicability, in Table 4.6.2.2.3c-1 reads “17 < d <110”	Replace “17 < d <110” to “17 ≤ d ≤60”
4-46A	4 <sup>th</sup> , 9 <sup>th</sup> , and 14 <sup>th</sup> row, last column, Range of Applicability, in Table 4.6.2.2.3c-1 read “greater than” signs	Replace “>” with “≥”

Page	Existing Text	Corrected Text
Section 5		
5-34A	<p>Amendment to the 11<sup>th</sup> bullet reads “Sections are tension-controlled where the net tensile stain in the extreme tension steel is equal to or greater than the tension-controlled strain limit, <math>\epsilon_{tl}</math> just as the concrete in compression reaches its assumed strain limit of 0.003. Sections with net tensile strain in the extreme tension steel between the compression-controlled strain limit and the tension-controlled strain limit constitute a transition region between compression controlled and tension-controlled sections. For nonprestressed concrete members with factored axial compressive load less than <math>0.1f'_cA_g</math>, the net tensile strain in the extreme tension steel at a section shall not be less than 0.004 just as the concrete in compression reaches its assumed strain limit of 0.003. The tension-controlled strain limit, <math>\epsilon_{tl}</math>, shall be taken as 0.005 for nonprestressed reinforcement with a specified minimum yield strength, <math>f_y = 100</math> ksi. For nonprestressed reinforcement with a specified minimum yield strength between 75.0 and 100 ksi, the tension-controlled strain limit shall be determined by linear interpolation based on specified minimum yield strength.”</p>	<p>Revise to “Sections are tension-controlled where the net tensile strain in the extreme tension steel is equal to or greater than the tension-controlled strain limit, <math>\epsilon_{tl}</math>, just as the concrete in compression reaches its assumed strain limit of 0.003. Sections with net tensile strain in the extreme tension steel between the compression-controlled strain limit and the tension-controlled strain limit constitute a transition region between compression-controlled and tension-controlled sections. For nonprestressed concrete members with factored axial compressive load less than <math>0.1f'_cA_g</math>, the net tensile strain in the extreme tension steel at a section shall not be less than 0.004 just as the concrete in compression reaches its assumed strain limit of 0.003. The tension-controlled strain limit, <math>\epsilon_{tl}</math>, shall be taken as 0.005 for nonprestressed reinforcement with a specified minimum yield strength, <math>f_y \leq 75</math> ksi and prestressed reinforcement. The tension-controlled strain limit, <math>\epsilon_{tl}</math>, shall be taken as 0.008 for nonprestressed reinforcement with a specified minimum yield strength, <math>f_y = 100</math> ksi. For nonprestressed reinforcement with a specified minimum yield strength between 75.0 and 100 ksi, the tension-controlled strain limit shall be determined by linear interpolation based on specified minimum yield strength.”</p>

Page	Existing Text	Corrected Text
5-125B	No Amendment	<p>Add 1st paragraph of 5.9.2.3.3—Principal Tensile Stresses in Webs as follows:</p> <p>Except for nonsegmental cast-in-place prestressed concrete box girders with conventional geometries, the provisions specified herein shall apply to all types of post-tensioned superstructures with internal and/or external tendons. The provisions specified herein shall also apply to pretensioned girders with a compressive strength of concrete for use in design greater than <math>f'_c = 10.0</math> ksi. As maximum principal tensions may not occur at the neutral axis, various locations along the height of the web should be checked.</p>

Page	Existing Text	Corrected Text
5-125B	No Amendment	<p>Add 1<sup>st</sup> paragraph of C5.9.2.3.3 as follows:</p> <p>The principal stress check is introduced to limit web cracking at the service limit state for all types of post-tensioned superstructures with internal and/or external tendons and pretensioned girders with a compressive strength of concrete for use in design greater than <math>f'_c = 10.0</math> ksi. Experience has shown that the cracking in the webs of conventional pretensioned girders with a compressive strength of concrete for use in design up to 10.0 ksi and in the webs of nonsegmental cast-in-place prestressed concrete box girders with conventional geometries has not been a problem and the check may be omitted. In the context of this article, nonsegmental cast-in-place prestressed concrete box girders with unconventional geometries include, but are not limited to, any of the following:</p> <ul style="list-style-type: none"><li>• Variable structure depths</li><li>• Structure depths greater than 12 feet</li><li>• Span lengths greater than 300 feet</li><li>• Minimum depth-to-span ratios less than 0.045 and 0.040 for simple and continuous spans respectively for vehicular bridges</li><li>• Girder spacing to depth ratios greater than 2.0</li><li>• Individual web thicknesses less than 12 inches</li><li>• Webs with openings larger than 10% of the structure depth</li><li>• Any superstructure where a single spine beam analysis is not allowed</li></ul>

Page	Existing Text	Corrected Text
5-127A	No Amendment	<p>Add revised Equation 5.9.2.3.3-4 as follows:</p> $f_{\min} = \frac{1}{2} \left( (f_{pcx} + f_{pcy}) - \sqrt{(f_{pcx} - f_{pcy})^2 + (2\tau)^2} \right)$ <p>(5.9.2.3.3-4)</p>
5-127A	No Amendment	<p>Add revised Equation C5.9.2.3.3-1 as follows:</p> $f_{\max} = \frac{1}{2} \left( (f_{pcx} + f_{pcy}) + \sqrt{(f_{pcx} - f_{pcy})^2 + (2\tau)^2} \right)$ <p>(C5.9.2.3.3-1)</p>
5-164C	8 <sup>th</sup> row in Table 5.10.1-1, first column reads, Exposed faces of box girder webs and all other exposed girders. Bent caps, diaphragms and hinged joints <sup>(f)</sup>	Replace with, Exposed faces of box girder webs and all other exposed girders, bent caps, diaphragms, and hinged joints <sup>(f)</sup>
5-164C	Table 5.10.1-1	Add three rows to Table 5.10.1-1
5-164D	General Notes 1 reads, Except for the Non-corrosive Environment, all exposure conditions must meet the Supplementary Cementitious Materials (SCM) requirements of Section 90, “Concrete in Corrosive Environments” that correspond to the specific environment.	Replace with, Except for the Non-corrosive Environment, all exposure conditions must meet the Supplementary Cementitious Materials (SCM) requirements of Caltrans Standard Specifications Section 90, “Concrete in Corrosive Environments” that correspond to the specific environment.
5-164D	General Notes 2 reads, For protection of bundled bars, ducts, and/or pre-stressing steel, see Articles 5.10.1.	Replace with, For protection of bundled bars, ducts, and/or pre-stressing steel, see Article 5.10.1.
5-164D	General Notes 5 reads, For concrete surfaces not exposed to weather, soil, or water, the minimum concrete cover to principal reinforcement is 1.5 inches and to stirrups, ties, and spirals is 1.0 inch.	Delete General Notes 5

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Section 10		
10-126E	<p>First and second paragraphs read, In order to improve concrete flow when constructing drilled shafts, a 5 in. x 5 in. clear window between the horizontal and vertical shaft reinforcing steel shall be maintained, except at the locations of the inspection pipes where the minimum clear spacing between the longitudinal reinforcing bars and the inspection pipes is 3.0 in.</p> <p>The maximum center-to-center spacing of longitudinal bars in drilled shafts (CIDH Piles) is limited to 10 in. when the shaft diameter is less than 5 ft., and 12 in. for larger shafts, except at the locations of inspection pipes where 8.5 in of clear spacing between the main longitudinal bars is required.</p>	<p>Replace with,</p> <p>In order to improve concrete flow when constructing drilled shafts, a minimum 5 in. x 5 in. clear window between the horizontal and vertical shaft reinforcing steel shall be maintained. The maximum center-to-center spacing of longitudinal bars in drilled shafts (CIDH Piles) is limited to 10 in. when the shaft diameter is less than 5 ft., and 12 in. for larger shafts.</p> <p>At locations of inspection pipes, 8.5 in. of clear spacing shall be provided between the main longitudinal reinforcing bars adjacent to the inspection pipe, and the minimum clear spacing between the longitudinal reinforcing bars and the inspection pipe shall be 3.0 in.</p>
Section 11		
11-111A	<p>Equation (A11.3.1-2) reads,</p> $\delta = \tan^{-1} \left\{ \frac{\sin(2\theta_{Mo}) + m_{\alpha} \sin(2i)}{2 \left[ \sin^2 \theta_{Mp} - m_{\alpha} \cos^2 i \right]} \right\} \text{ (degrees)}$	<p>Revise Equation (A11.3.1-2) as follows:</p> $\delta = \tan^{-1} \left\{ \frac{\sin(2\theta_{Mo}) + m_{\alpha} \sin(2i)}{2 \left[ \sin^2 \theta_{Mp} + m_{\alpha} \cos^2 i \right]} \right\} \text{ (degrees)}$
Section 12		
12-22A	<p>Several “greater than” signs in the last column, Minimum Cover, in Table 12.6.6.3-1</p>	<p>Change “&gt;” signs to “≥” signs</p>