PCI Design Handbook

Precast and Prestressed Concrete, Eighth Edition

In 2017, the Precast/Prestressed Concrete Institute published the eighth edition of the *PCI Design Handbook—Precast and Prestressed Concrete* (MNL–120–17). The committee devoted significant effort to provide an accurate document, however, some errata have been discovered. The errata published herein is intended to supplement the information provided in the handbook and revise or clarify the printed copy. PCI suggests you mark your copy to reflect all the errata, so that your handbook is as accurate as possible.

As this edition of the handbook is used, additional errata may be discovered. You are urged to notify PCI of any potential errata for committee review. You are also encouraged to send any questions or comments to PCI regarding the material in the handbook and suggested improvement or clarification. Please direct your comments to PCI at IHBerrata@pci.org

Chapter 1:

Page 1-3, left column, second paragraph, line 6: Delete ",Section 14.1 of this handbook,"

Committee note: The PCI Standard Design Practice for ACI 318-14 was not completed for publication with the 8th Edition handbook. The PCI Standard Design Practice will be distributed to registered handbook owners once published.

Page 1-9, left column, first paragraph, line 4: Replace "Section 14.4.4.3" with "Section 14.1.4".

Page 1-26, left column, second paragraph, line 8: Replace "Section 14.4" with "Section 14.1.4".

Chapter 2:

Page 2-25, below "Chapter 8", item 11: Add "e = Distance from center of gravity of component to top picking point of the rolling block (see Fig. 8.6.2)"

Chapter 4:

Page 4-5, Figure 4.1.1 Footnote: Replace "reference 2" with "reference 4"

Page 4-95, Design Aid 4.10.23: Replace "Reference 19" with "Reference 14"

Chapter 5:

Page 5-48, Example 5.3.1.1, under "*Given*": Replace "f_y = 65,000 psi" with "f_y = 60,000 psi". [*Committee note: Limit per ACI 318-14 Table 20.2.2.4a for plain WWR*]. Replace following results: A_v (from Eq. 5-29) = 0.085 in^2/ft or 0.042 in^2/ft per layer of WWR, A_v (from Eq. 5-30) = 0.080 in^2/ft or 0.040 in^2/ft per layer of WWR. Selected WWR 12 x 6 – W1.4 x W2.5 is OK.

Page 5-52, Example 5.3.3.1, under "Shear reinforcement": Replace "f_y = 65,000 psi" with "f_y = 60,000 psi". [*Committee note: Limit per ACI 318-14 Table 20.2.2.4a for plain WWR*]. Replace following results: *s* (from Eq. 5-29) = 6.9 in., *s* (from Eq. 5-30) = 9.7 in., Use W2.9 wires at a maximum spacing s = 9.7 in. (rounded to 9.5 in.).

Page 5-52, Example 5.3.3.2, under "Shear strength provided by reinforcement": Replace two instances of "(65)" with "(60)" in calculation for A_v and $V_{s,prov}$. [*Committee note: Limit per*

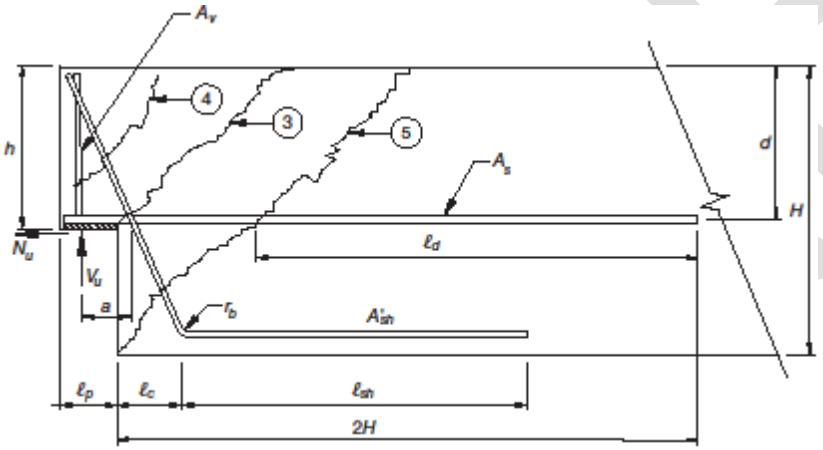
ACI 318-14 Table 20.2.2.4a for plain WWR]. Replace following results: A_v = .093 in.^{2}/ft, $V_{s,prov.}$ = 912.5 kip, OK.

Page 5-55, Example 5.3.4.1, below "Check maximum by Eq. 5-37b:": Replace "Therefore, design by Eq. 5-31a:" with "There, design by Eq. 5-37a:"

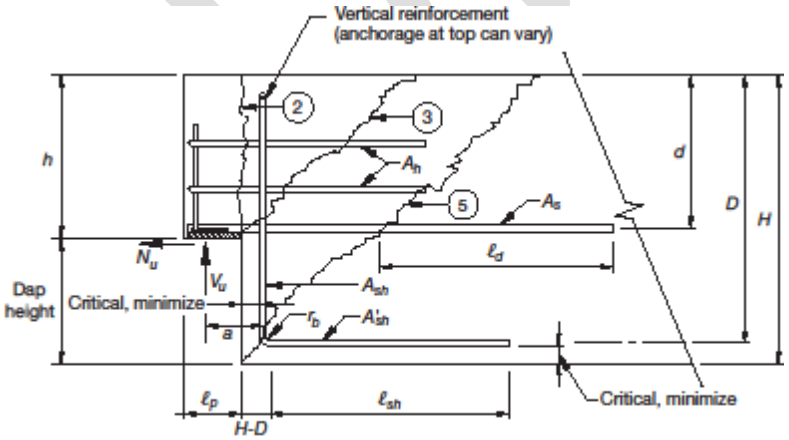
Page 5-75, right column, Item 1 in second numbered list: Replace "Eq. 5-64" with "Eq. 5-63"

Page 5-76, Figure 5.5.3, top figure: Replace "Center of gravity of flexure reinforcement" with "Critical, minimize, but no higher than center of gravity of flexural reinforcement"

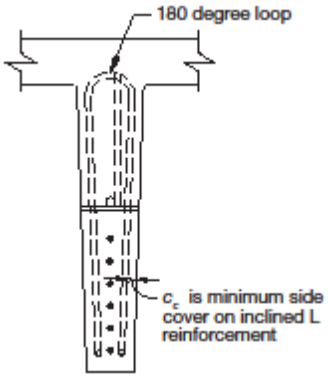
Page 5-78, Figure 5.5.5: Replace current figure with the following:



Dapped end with inclined L reinforcement



Dapped end with vertical reinforcement



Page 5-84, Example 5.5.3.2, step 2, line 3: Replace "Eq. 5-58, 5-59, and 5-60" with "Eq. 5-35, 5-64 and 5-65"

Page 5-87, right column, Equation 5-80: Insert λ into equation for lightweight concrete.

Page 5-89, left column, Equation 5-82: Delete ϕ from denominator.

Page 5-90, Example 5.6.1, below "Additional information": Replace "d = 78 in." with "d_p = 78 in.". Replace "d_l = 10.25 in." with "d_l = 9.75 in.". *Committee note: The condition on Page 5-87 set a minimum limit for b_t = 4 in. The value used is below that limit, however, there would be numerous corresponding changes throughout the example. Committee decided to leave as is currently.*

Page 5-90, Example 5.6.1, below "Check longitudinal bending of the ledge": Replace "10.25" with "9.75" and update result to "0.260 in^2".

Page 5-92, Example 5.6.1, below "Determine the transverse reinforcement (cantilever bending)": Replace "From Eq. 5-81:" with "From Eq. 5-63:"

Page 5-93, Example 5.6.1, below "Determine reinforcement for out-of-plane bending near beam end (Section 5.4.3)": Replace "From Eq. 5-55:" with "From Eq. 5-60:"

Page 5-99, left column, second paragraph under 5.7.1 Cantilever Beam Design Method: Replace "$(⅔)(A_{vf} + A_n)$" with "$(⅔A_{vf} + A_n)$"

Page 5-109, right column, first paragraph under 5.9.1 Initial Camber: Replace Design Aid 5.15.1" with "Design Aid 5.16.1"

Page 5-110, left column, second paragraph under "*Solution"*: Replace Design Aid 5.15.1" with "Design Aid 5.16.1"

Page 5-117, Example 5.9.4.1, footnote under table at end of example: Replace "from example 5.8.1.1" with "from example 5.9.1.1"

Page 5-126, right column, last paragraph, line 10: Delete (Section 14.1)

Page 5-132, left column, third paragraph under 5.10.6.2 Strength Design, line 3: Replace "(MNL-133-12)" with "(MNL-133-11)"

Chapter 6:

Page 6-19, Example 6.5.2.1, equation to calculate T_{pr}: Replace "s_1" with "s" and

Page 6-19, Example 6.5.2.1, equation to calculate $\phi N_{p,f}$: Replace "s_1" with "s"

Page 6-28, Example 6.5.4.1, line 3: Replace "From Eq. 5-29" with "From Eq. 5-35"

Page 6-28, Example 6.5.4.1, line 5: Replace "From Eq. 5-28b" with "From Eq. 5-34"

Page 6-64, Example 6.7.3.1, under "*Solution"*: Replace "(1) Carbon equivalent *CE* form Eq. 6-59" with ""(1) Carbon equivalent *CE* form Eq. 6-64"

Page 6-65, Figure 6.7.3: Replace "e_x(-)" with "e_x(+)" and "e_z(-)" with "e_z(+)"

Page 6-78, left column, line 2: Replace "(Eq. 5-25)" with "(Eq. 5-29)"

Page 6-78, right column, step 7, line 2: Replace "Section 5.6.1" with "Section 5.5.1"

Page 6-78, left column, step 11, line 11: Replace "(Eq. 5-29)" with "(Eq. 5-35)"

Page 6-80, Example 6.9.1, left column under Check minimum shear reinforcing: Replace "(Eq. 5-25)" with "(Eq. 5-29)"

Page 6-80, Example 6.9.1, right column under Design bottom dowel: Replace "(Eq. 5-29)" with "(Eq. 5-35)"

Page 6-80, Example 6.9.1, right column, under If anchor reinforcement is not provided, concrete breakout strength must be checked: Replace "*BED* = *h* = 14 in." with "*BED* = *h* = 16 in.". Replace following results: V_{CO3} = 46.6 kip, C_{c3} = 0.34, ϕV_{CO3} = 11.8 kip, and $V_{u,all}$ = 8.9 kip.

Page 6-84, Figure 6.10.3: Replace "Shape factor = $\sqrt{5000/f_c`}$" with "Shape factor = $S = \frac{wb}{2(w+b)t}$"

Page 6-90, Example 6.11.1.2, under Concrete breakout strength (Eq. 6-6): Replace "From Eq. 6-4" with "From Eq. 6-7"

Page 6-100, Example 6.13.3, under Double-tee deck place (see previous example): Replace "ϕV_n = 20.4 kip" with "ϕV_n = 19.4 kip"

Page 6-103, Example 6.13.5, under Solution step c: Replace "From Eq. 5-30" with "From Eq. 5-36"

Page 6-109, Reference 16.: Replace "American Institute of Steel Construction (AISC). 2017. *Steel Construction Manual*, 15th ed. Chicago, IL: AISC." with "American Institute of Steel Construction (AISC). 2011. *Steel Construction Manual*, 14th ed. Chicago, IL: AISC."

Page 6-111, Design Aid 6.15.3, footnote d: Replace "Design Aid 15.7.2" with "Design Aid 15.6.2"

Page 6-112, Design Aid 6.15.4, footnote b: Replace "Design Aid 15.7.2" with "Design Aid 15.6.2"

Page 6-112, Design Aid 6.15.5, equation for ℓ_w: Replace "$2\pi\left(d_b + \frac{a}{2}\right)$"with "$\pi\left(d_b + \frac{a}{2}\right)$"

Page 6-112, Design Aid 6.15.5, second bullet under Failure modes include: Replace "$[\phi(0.6F_y)]\ell_w(t_{pl})$"with "$[\phi(0.6F_y)][\pi(d_b + 2a)t_{pl}]$"

Page 6-112, Design Aid 6.15.5, third bullet under Failure modes include: Replace "$[\phi(0.6F_u)]\ell_w(t_{pl})$"with "$[\phi(0.6F_u)][\pi(d_b + 2a)t_{pl}]$"

Page 6-113, Design Aid 6.15.6, equation for ℓ_w: Replace "$2\pi(d_b + \frac{a}{2})$"with "$\pi(d_b + \frac{a}{2})$"

Page 6-113, Design Aid 6.15.6, second bullet under Failure modes include: Replace "$[\phi(0.6F_y)]\ell_w(t_{pl})$"with "$[\phi(0.6F_y)][\pi(d_b + 2a)t_{pl}]$"

Page 6-113, Design Aid 6.15.6, third bullet under Failure modes include: Replace "$[\phi(0.6F_u)]\ell_w(t_{pl})$"with "$[\phi(0.6F_u)][\pi(d_b + 2a)t_{pl}]$"

Page 6-114, Design Aid 6.15.7, footnote c: Replace "Design Aid 15.6.3" with "Design Aid 15.5.3"

Page 6-114, Design Aid 6.15.7, footnote d: Replace "Design Aid 15.5.1 and 15.5.2" with "Design Aid 15.5.3"

Page 6-116, Design Aid 6.15.9, at For design strength of concrete ϕ_c: Replace "see Design Aid 6.15.7" with "Design Aid 6.15.8"

Page 6-120, Design Aid 6.15.11, under CASE 4, line 3: Replace "(from Table 6.5.4)" with "(from Table 6.5.3)"

Chapter 8:

Page 8-27, right column, second paragraph under 8.7.2 Responsibilities, line 2: Replace "Section 14.5" with "Section 14.2".

Chapter 11:

Page 11-7, Table 11.1.3, 4th column, under Miscellaneous for "gypsum, lightweight aggregate": Replace "0.33" with "-"

Page 11-7, Table 11.1.3, 4th column, under Miscellaneous for "Roofing, ⅜ in. built-up": Replace "-" with "0.33"

Chapter 12:

Page 12-11, Figure 12.8.1: Replace "$\theta > 5$ deg." with "$\theta \geq 5$ deg."

Chapter 13:

Page 13-3, right column, under Drawings: Replace "See Section 14.4.6" with "See Section 14.1.6"

Page 13-4, left column, under Specially finished structural precast concrete, line 6: Replace "Section 14.4.4.3" with "Section 14.1.4.3"

END