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ACI 318M-19 (SI units)
Building Code Requirements for Structural Concrete and Commentary
Reported by ACI Committee 318
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ERRATA as of September 9, 2024

Section 23.4.4, p. 444, revise as follows:

23.4.4 If use of β_s of 0.75 is based on line (d) of Table 23.4.3(a), member dimensions shall be selected to satisfy Eq. (23.4.4), where λ_s is defined in 23.4.4.1.

$$V_u \leq \phi \cancel{0.5} \text{ and } \cancel{5} \underline{0.43} \tan(\theta) \lambda \lambda_s \sqrt{f'_c} b_w d \quad (23.4.4)$$

ERRATA as of June 6, 2023

Table 19.2.4.1(a), p. 357, revise table as follows:

Table 19.2.4.1(a)—Values of λ for lightweight concrete based on equilibrium density

w_c , kg/m ³	λ	
≤ 1600	0.75	(a)
$1600 < w_c \leq 2160$	~~0.0075~~ $w_c/2160 \leq 1.0$	(b)
> 2160	1.0	(c)

ERRATA as of March 8, 2023

Appendix C, equivalence table, p. 590, add size effect equation as follows:

Provision number	SI-metric stress in MPa	mks-metric stress in kgf/cm ²	U.S. Customary units stress in pounds per square inch (psi)
22.5.5.1.3	$\lambda_s = \sqrt{\frac{2}{1 + \frac{d}{254}}} \leq 1$	$\lambda_s = \sqrt{\frac{2}{1 + \frac{d}{25.4}}} \leq 1$	$\lambda_s = \sqrt{\frac{2}{1 + \frac{d}{10}}} \leq 1$

Table 9.6.3.1, p. 130, revised as follows: (26.4.1.5.1 changed to 26.4.1.6.1)

Beam type	Conditions
Shallow depth	$h \leq 10$ in.
Integral with slab	$h \leq$ greater of $2.5t_f$ or $0.5b_w$ and $h \leq 24$ in.
Constructed with steel fiber-reinforced normalweight concrete conforming to 26.4.1.5.6.1(a), 26.4.2.2(i), and 26.12.7.1(a) and with $f'_c \leq 6000$ psi	$h \leq 24$ in. and $V_u \leq \phi 2\sqrt{f'_c}b_w d$
One-way joist system	In accordance with 9.8

ERRATA as of September 29, 2022

R9.7.3.8.3, second paragraph, p. 143 revised as follows (*please note that the correction is a removal of a comma before the variable ℓ_d in the paragraph*):

The application of this provision is illustrated in Fig. R9.7.3.8.3(b) for simple supports and in Fig. R9.7.3.8.3(c) for points of inflection. For example, the bar size provided at a simple support is satisfactory only if the corresponding bar ℓ_d , calculated in accordance with 25.4.2, does not exceed $1.3M_n/V_u + \ell_a$.

R23.1, second paragraph, p. 435, revised as follows:

The shaded regions in Fig. R23.1(a) and (b) show typical D-regions (Schlaich et al. 1987). The plane sections assumption of ~~9.2.4~~22.2.1.2 is not applicable in such regions. In general, ...

ERRATA as of July 7, 2022

R8.6.1.2, p. 111, revised as follows:

R8.6.1.2 ... In such cases, sliding along the inclined crack can cause a flexure-driven punching failure at a shear force less than the strength calculated by the two-way shear equations of Table 22.6.5.2 for slabs without shear reinforcement and less than the strength calculated in accordance with ~~22.6.6.3~~Table 22.6.6.1 for slabs with shear reinforcement.

Tests of slabs...

ERRATA as of March 2, 2022

R8.7.5.6.2, p. 119, revised as follows:

R8.7.5.6.2 ~~Between~~ **Outside of** column ~~or~~**and** shear cap faces, structural integrity tendons should pass below the orthogonal tendons from adjacent spans so that vertical movements of the integrity tendons are restrained by the orthogonal tendons. Where tendons are distributed in one direction and banded in the orthogonal direction, this requirement can be satisfied by first placing the integrity tendons for the distributed tendon direction and then placing the banded tendons. Where tendons are distributed in both directions, weaving of tendons is necessary and use of 8.7.5.6.3 may be an easier approach.

ERRATA as of December 14, 2021

p. 84, Fig. R6.6.5, revised as follows:

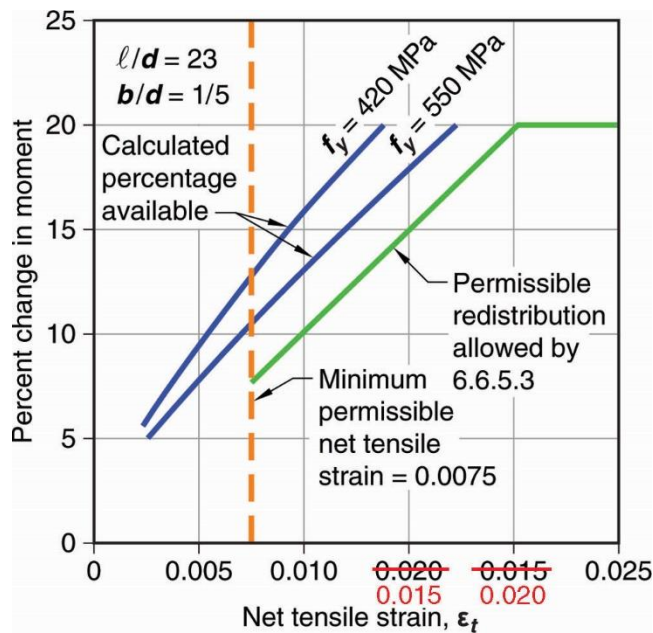


Fig. R6.6.6—Permissible redistribution of moments for minimum rotation capacity.

8.3.1.1, p. 101, revised as follows:

8.3.1.1 For nonprestressed slabs without interior beams spanning between supports on all sides, having a maximum ratio of long-to-short span of 2, overall slab thickness h shall not be less than the limits in Table 8.3.1.1, and shall be at least the value in (a) or (b), unless the calculated deflection limits of 8.3.2 are satisfied:

- (a) Slabs without drop panels as given in 8.2.4.... 125 mm
- (b) Slabs with drop panels as given in 8.2.4..... 100 mm

For f_y exceeding 550 MPa, the calculated deflection limits in 8.3.2 shall be satisfied ~~assuming a reduced modulus of rupture~~ $f_r = 5\sqrt{f'_c}$.

R8.7.7, p. 123, revised as follows:

R8.7.7 Shear reinforcement – headed studs

Using headed stud assemblies as shear reinforcement in slabs requires specifying the stud shank diameter, the spacing of the studs, and the height of the assemblies for the particular applications.

Tests (ACI 421.1R) show that vertical studs mechanically anchored as close as possible to the top and bottom of slabs are effective in resisting punching shear. The bounds of the overall specified height achieve

this objective while providing a reasonable tolerance in specifying that height, as shown in ~~Fig. R20.5.1.3.5~~Fig. R20.5.1.3.6.

p. 137, add R9.6.3.2 to document:

R9.6.3.2 Refer to R9.6.3.1.

22.5.1.11, p. 403, revise “ $\leq$ ” to “ $>$ ” in two cases below:

22.5.1.11 If $\frac{V_{u,x}}{\phi V_{n,x}} \leq > 0.5$ and $\frac{V_{u,y}}{\phi V_{n,y}} \leq > 0.5$ then Eq. (22.5.1.11) shall be satisfied.

23.5.3, p. 445, revised as follows:

23.5.3 Struts are considered laterally restrained if they are restrained perpendicular to the plane of the strut-and-tie model in accordance with (a), (b), or (c):

- (a) The discontinuity region is continuous perpendicular to the plane of the strut-and-tie model.
- (b) The concrete restraining the strut extends beyond each side face of the strut a distance not less than half the width of the strut.
- (c) The strut is in a joint that is restrained in accordance with 15.2.8 ~~15.2.5 or 15.2.6~~.

23.10.2 and R23.10.2, p. 449, revised as follows:

23.10.2 If specified clear cover normal to plane of bend is **2d_b** or greater, the bend radius **r_b** shall be in accordance with (a) or (b), but shall not be less than half the minimum bend diameter specified in 25.3.

- (a) Curved bar nodes with bends less than 180 degrees:

$$r_b \geq \frac{2A_{ts} f_y}{b_s f'_c} \quad (23.10.2a)$$

- (b) Ties anchored by 180-degree bends:

$$\cancel{r_b \geq \frac{1.5A_{ts} f_y}{w_t f'_c}} \quad r_b \geq \frac{A_{ts} f_y}{w_t f'_c} \quad (23.10.2b)$$

R23.10.2 Equation (23.10.2a) is intended to avoid f_{ce} exceeding the limit for C-T-T nodes given by 23.9.2 (Klein 2008). b_s is the width of the strut transverse to the plane of the strut-and-tie model. Equation (23.10.2a) applies whether the tie forces at the node are equal or different; where the tie forces are different, ℓ_{cb} required by 23.10.6 must also be satisfied.

Ties anchored by 180-degree bends can be used at C-C-T or C-T-T nodes, as illustrated in Fig. R23.10.2. The parallel straight legs of the bar(s) that extend into the member form a single tie, where A_{ts} is taken as the total area of reinforcement extending from both ends of the bend(s). Equation (23.10.2b) is intended to ensure that f_{ce} does not exceed the limit for C-C-T C-T-T nodes given by 23.9.2. Width w_t is the effective tie width as illustrated in Fig. R23.10.2.

p. 487, Table 25.4.9.3, second column, fourth row, add “≤” after “pitch” and before “100 mm”

Table 25.4.9.3—Modification factors for deformed bars and wires in compression

Modification factor	Condition	Value of factor
Lightweight λ	Lightweight concrete	0.75
	Normalweight concrete	1.0
Confining reinforcement ψ_r	Reinforcement enclosed within (1), (2), (3), or (4): (1) a spiral (2) a circular continuously wound tie with $d_b \geq 6$ mm and pitch ≤ 100 mm (3) No. 13 bar or MD130 wire ties in accordance with 25.7.2 spaced ≤ 100 mm on center (4) hoops in accordance with 25.7.4 spaced ≤ 100 mm on center	0.75
	Other	1.0

ERRATA as of January 14, 2021

R2.2, p. 27, add the following variable to the commentary notation:

w_n = length of the side of a nodal zone, mm

R6.6.5, p. 83, revised as follows:

The Code permissible redistribution is shown in Fig. R6.6.5. Using conservative values of limiting concrete strains and lengths of plastic hinges derived from extensive tests, flexural members with small rotation capacities were analyzed for redistribution of moments up to 20 percent, depending on the reinforcement ratio. As shown, the permissible redistribution percentages are conservative relative to the calculated percentages available for both $f_y = 60$ ksi 420 MPa and 80 ksi 550 MPa.

R7.6.3.1, p. 93, revised as follows:

R7.6.3.1 Solid slabs and footings have less stringent minimum shear reinforcement requirements than beams because there is a possibility of load sharing between weak and strong areas. However, research (Angelakos et al. 2001; Lubell et al. 2004; Brown et al. 2006) has shown that deep, lightly reinforced one-way slabs, particularly if constructed with high-strength concrete or concrete having a small coarse