

## APPENDIX E—EQUIVALENCE BETWEEN SI-METRIC, MKS-METRIC, AND U.S. CUSTOMARY UNITS OF NONHOMOGENOUS EQUATIONS IN THE CODE

| Provision number | SI-metric stress in MPa                                                                                     | mks-metric stress in kgf/cm <sup>2</sup>                                                                       | U.S. Customary units stress in pounds per square inch (psi)                                                   |
|------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
|                  | 1 MPa                                                                                                       | 10 kgf/cm <sup>2</sup>                                                                                         | 145 psi                                                                                                       |
|                  | $f'_c = 21$ MPa                                                                                             | $f'_c = 210$ kgf/cm <sup>2</sup>                                                                               | $f'_c = 3000$ psi                                                                                             |
|                  | $f'_c = 28$ MPa                                                                                             | $f'_c = 280$ kgf/cm <sup>2</sup>                                                                               | $f'_c = 4000$ psi                                                                                             |
|                  | $f'_c = 35$ MPa                                                                                             | $f'_c = 350$ kgf/cm <sup>2</sup>                                                                               | $f'_c = 5000$ psi                                                                                             |
|                  | $f'_c = 40$ MPa                                                                                             | $f'_c = 420$ kgf/cm <sup>2</sup>                                                                               | $f'_c = 6000$ psi                                                                                             |
|                  | $f_y = 280$ MPa                                                                                             | $f_y = 2800$ kgf/cm <sup>2</sup>                                                                               | $f_y = 40,000$ psi                                                                                            |
|                  | $f_y = 420$ MPa                                                                                             | $f_y = 4200$ kgf/cm <sup>2</sup>                                                                               | $f_y = 60,000$ psi                                                                                            |
|                  | $f_y = 550$ MPa                                                                                             | $f_y = 5600$ kgf/cm <sup>2</sup>                                                                               | $f_y = 80,000$ psi                                                                                            |
|                  | $f_y = 690$ MPa                                                                                             | $f_y = 7000$ kgf/cm <sup>2</sup>                                                                               | $f_y = 100,000$ psi                                                                                           |
|                  | $f_{pu} = 1725$ MPa                                                                                         | $f_{pu} = 17,600$ kgf/cm <sup>2</sup>                                                                          | $f_{pu} = 250,000$ psi                                                                                        |
|                  | $f_{pu} = 1860$ MPa                                                                                         | $f_{pu} = 19,000$ kgf/cm <sup>2</sup>                                                                          | $f_{pu} = 270,000$ psi                                                                                        |
|                  | $\sqrt{f'_c}$ in MPa                                                                                        | $3.18 \sqrt{f'_c}$ in kgf/cm <sup>2</sup>                                                                      | $12 \sqrt{f'_c}$ in psi                                                                                       |
|                  | $0.313 \sqrt{f'_c}$ in MPa                                                                                  | $\sqrt{f'_c}$ in kgf/cm <sup>2</sup>                                                                           | $3.77 \sqrt{f'_c}$ in psi                                                                                     |
|                  | $0.083 \sqrt{f'_c}$ in MPa                                                                                  | $0.27 \sqrt{f'_c}$ in kgf/cm <sup>2</sup>                                                                      | $\sqrt{f'_c}$ in psi                                                                                          |
|                  | $0.17 \sqrt{f'_c}$ in MPa                                                                                   | $0.53 \sqrt{f'_c}$ in kgf/cm <sup>2</sup>                                                                      | $2 \sqrt{f'_c}$ in psi                                                                                        |
| 6.6.4.5.4        | $M_{2,min} = P_u(15 + 0.03h)$                                                                               | $M_{2,min} = P_u(1.5 + 0.03h)$                                                                                 | $M_{2,min} = P_u(0.6 + 0.03h)$                                                                                |
| 7.3.1.1.1        | $\left(0.4 + \frac{f_y}{700}\right)$                                                                        | $\left(0.4 + \frac{f_y}{7000}\right)$                                                                          | $\left(0.4 + \frac{f_y}{100,000}\right)$                                                                      |
| 7.3.1.1.2        | $(1.65 - 0.0003w_c)$                                                                                        | $(1.65 - 0.0003w_c)$                                                                                           | $(1.65 - 0.005w_c)$                                                                                           |
| 7.7.3.5(c)       | $0.41 \frac{b_w s}{f_{yt}}$                                                                                 | $4.2 \frac{b_w s}{f_{yt}}$                                                                                     | $60 \frac{b_w s}{f_{yt}}$                                                                                     |
| 8.3.1.2(b)       | $h = \frac{\ell_n \left(0.8 + \frac{f_y}{1400}\right)}{36 + 5\beta(\alpha_{fm} - 0.2)} \geq 125 \text{ mm}$ | $h = \frac{\ell_n \left(0.8 + \frac{f_y}{14,000}\right)}{36 + 5\beta(\alpha_{fm} - 0.2)} \geq 12.5 \text{ cm}$ | $h = \frac{\ell_n \left(0.8 + \frac{f_y}{200,000}\right)}{36 + 5\beta(\alpha_{fm} - 0.2)} \geq 5 \text{ in.}$ |
| 8.3.1.2(d)       | $h = \frac{\ell_n \left(0.8 + \frac{f_y}{1400}\right)}{36 + 9\beta} \geq 90 \text{ mm}$                     | $h = \frac{\ell_n \left(0.8 + \frac{f_y}{14,000}\right)}{36 + 9\beta} \geq 9 \text{ cm}$                       | $h = \frac{\ell_n \left(0.8 + \frac{f_y}{200,000}\right)}{36 + 9\beta} \geq 3.5 \text{ in.}$                  |
| 8.3.4.1          | $f_t \leq 0.50 \sqrt{f'_c}$                                                                                 | $f_t \leq 1.6 \sqrt{f'_c}$                                                                                     | $f_t \leq 6 \sqrt{f'_c}$                                                                                      |
| 8.6.2.3          | $0.17 \sqrt{f'_c}$<br>$0.50 \sqrt{f'_c}$                                                                    | $0.53 \sqrt{f'_c}$<br>$1.6 \sqrt{f'_c}$                                                                        | $2 \sqrt{f'_c}$<br>$6 \sqrt{f'_c}$                                                                            |

| Provision number       | SI-metric stress in MPa                                                                                                                                                                                                      | mks-metric stress in kgf/cm <sup>2</sup>                                                                                                                                                                                    | U.S. Customary units stress in pounds per square inch (psi)                                                                                                                                                         |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8.7.5.6.3.1(a) and (b) | $A_s = \frac{0.37\sqrt{f'_c}c_2d}{f_y}$<br>$A_s = \frac{2.1c_2d}{f_y}$                                                                                                                                                       | $A_s = \frac{1.2\sqrt{f'_c}c_2d}{f_y}$<br>$A_s = \frac{21c_2d}{f_y}$                                                                                                                                                        | $A_s = \frac{4.5\sqrt{f'_c}c_2d}{f_y}$<br>$A_s = \frac{300c_2d}{f_y}$                                                                                                                                               |
| 8.7.7.1.2              | $\phi 0.5\sqrt{f'_c}$                                                                                                                                                                                                        | $\phi 1.6\sqrt{f'_c}$                                                                                                                                                                                                       | $\phi 6\sqrt{f'_c}$                                                                                                                                                                                                 |
| 9.3.1.1.1              | $\left(0.4 + \frac{f_y}{700}\right)$                                                                                                                                                                                         | $\left(0.4 + \frac{f_y}{7000}\right)$                                                                                                                                                                                       | $\left(0.4 + \frac{f_y}{100,000}\right)$                                                                                                                                                                            |
| 9.3.1.1.2              | $(1.65 - 0.0003w_c)$                                                                                                                                                                                                         | $(1.65 - 0.0003w_c)$                                                                                                                                                                                                        | $(1.65 - 0.005w_c)$                                                                                                                                                                                                 |
| 9.6.1.2(a) and (b)     | $\frac{0.25\sqrt{f'_c}}{f_y}b_wd$<br>$\frac{1.4}{f_y}b_wd$                                                                                                                                                                   | $\frac{0.80\sqrt{f'_c}}{f_y}b_wd$<br>$\frac{14}{f_y}b_wd$                                                                                                                                                                   | $\frac{3\sqrt{f'_c}}{f_y}b_wd$<br>$\frac{200}{f_y}b_wd$                                                                                                                                                             |
| 9.6.3.1                | $V_u > 0.083\phi\lambda\sqrt{f'_c}b_wd$                                                                                                                                                                                      | $V_u > 0.27\phi\lambda\sqrt{f'_c}b_wd$                                                                                                                                                                                      | $V_u > \phi\lambda\sqrt{f'_c}b_wd$                                                                                                                                                                                  |
| 9.6.3.4                | $\frac{A_{v,min}}{s} \geq 0.062\sqrt{f'_c}\frac{b_w}{f_{yt}}$<br>$\frac{A_{v,min}}{s} \geq 0.35\sqrt{f'_c}\frac{b_w}{f_{yt}}$                                                                                                | $\frac{A_{v,min}}{s} \geq 0.2\sqrt{f'_c}\frac{b_w}{f_{yt}}$<br>$\frac{A_{v,min}}{s} \geq 3.5\sqrt{f'_c}\frac{b_w}{f_{yt}}$                                                                                                  | $\frac{A_{v,min}}{s} \geq 0.75\sqrt{f'_c}\frac{b_w}{f_{yt}}$<br>$\frac{A_{v,min}}{s} \geq 50\sqrt{f'_c}\frac{b_w}{f_{yt}}$                                                                                          |
| 9.6.4.2(a) and (b)     | $(A_v + 2A_t)_{min} / s \geq 0.062\sqrt{f'_c}\frac{b_w}{f_{yt}}$<br>$(A_v + 2A_t)_{min} / s \geq 0.35\sqrt{f'_c}\frac{b_w}{f_{yt}}$                                                                                          | $(A_v + 2A_t)_{min} / s \geq 0.2\sqrt{f'_c}\frac{b_w}{f_{yt}}$<br>$(A_v + 2A_t)_{min} / s \geq 3.5\sqrt{f'_c}\frac{b_w}{f_{yt}}$                                                                                            | $(A_v + 2A_t)_{min} / s \geq 0.75\sqrt{f'_c}\frac{b_w}{f_{yt}}$<br>$(A_v + 2A_t)_{min} / s \geq 50\sqrt{f'_c}\frac{b_w}{f_{yt}}$                                                                                    |
| 9.6.4.3(a) and (b)     | $A_{\ell,min} \leq \frac{0.42\sqrt{f'_c}A_{cp}}{f_y} - \left(\frac{A_t}{s}\right)p_h\frac{f_{yt}}{f_y}$<br>$A_{\ell,min} \leq \frac{0.42\sqrt{f'_c}A_{cp}}{f_y} - \left(\frac{0.175b_w}{f_{yt}}\right)p_h\frac{f_{yt}}{f_y}$ | $A_{\ell,min} \leq \frac{1.33\sqrt{f'_c}A_{cp}}{f_y} - \left(\frac{A_t}{s}\right)p_h\frac{f_{yt}}{f_y}$<br>$A_{\ell,min} \leq \frac{1.33\sqrt{f'_c}A_{cp}}{f_y} - \left(\frac{1.75b_w}{f_{yt}}\right)p_h\frac{f_{yt}}{f_y}$ | $A_{\ell,min} \leq \frac{5\sqrt{f'_c}A_{cp}}{f_y} - \left(\frac{A_t}{s}\right)p_h\frac{f_{yt}}{f_y}$<br>$A_{\ell,min} \leq \frac{5\sqrt{f'_c}A_{cp}}{f_y} - \left(\frac{25b_w}{f_{yt}}\right)p_h\frac{f_{yt}}{f_y}$ |
| 9.7.3.5(c)             | $0.41\frac{b_ws}{f_{yt}}$                                                                                                                                                                                                    | $4.2\frac{b_ws}{f_{yt}}$                                                                                                                                                                                                    | $60\frac{b_ws}{f_{yt}}$                                                                                                                                                                                             |
| 9.7.6.2.2              | $0.33\sqrt{f'_c}b_wd$                                                                                                                                                                                                        | $1.1\sqrt{f'_c}b_wd$                                                                                                                                                                                                        | $4\sqrt{f'_c}b_wd$                                                                                                                                                                                                  |
| 9.9.2.1                | $V_u \leq \phi 0.83\sqrt{f'_c}b_wd$                                                                                                                                                                                          | $V_u \leq \phi 2.65\sqrt{f'_c}b_wd$                                                                                                                                                                                         | $V_u \leq \phi 10\sqrt{f'_c}b_wd$                                                                                                                                                                                   |

| Provision number    | SI-metric stress in MPa                                                                                                                                                  | mks-metric stress in kgf/cm <sup>2</sup>                                                                                                                                 | U.S. Customary units stress in pounds per square inch (psi)                                                                                                            |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10.6.2.2            | $A_{v,min} \geq 0.062 \sqrt{f'_c} \frac{b_w s}{f_{yt}}$<br>$A_{v,min} \geq 0.35 \frac{b_w s}{f_{yt}}$                                                                    | $A_{v,min} \geq 0.2 \sqrt{f'_c} \frac{b_w s}{f_{yt}}$<br>$A_{v,min} \geq 3.5 \frac{b_w s}{f_{yt}}$                                                                       | $A_{v,min} \geq 0.75 \sqrt{f'_c} \frac{b_w s}{f_{yt}}$<br>$A_{v,min} \geq 50 \frac{b_w s}{f_{yt}}$                                                                     |
| 10.7.6.5.2          | $0.33 \sqrt{f'_c} b_w d$                                                                                                                                                 | $1.1 \sqrt{f'_c} b_w d$                                                                                                                                                  | $4 \sqrt{f'_c} b_w d$                                                                                                                                                  |
| 11.5.4.2            | $0.67 \sqrt{f'_c} A_{cv}$                                                                                                                                                | $2.12 \sqrt{f'_c} A_{cv}$                                                                                                                                                | $8 \sqrt{f'_c} A_{cv}$                                                                                                                                                 |
| 11.5.4.3            | $V_n = (\alpha_c \lambda \sqrt{f'_c} + \rho_t f_y) A_{cv}$<br>$\alpha_c = 0.25$ for $\frac{h_w}{\ell_w} \leq 1.5$<br>$\alpha_c = 0.17$ for $\frac{h_w}{\ell_w} \geq 2.0$ | $V_n = (\alpha_c \lambda \sqrt{f'_c} + \rho_t f_y) A_{cv}$<br>$\alpha_c = 0.80$ for $\frac{h_w}{\ell_w} \leq 1.5$<br>$\alpha_c = 0.53$ for $\frac{h_w}{\ell_w} \geq 2.0$ | $V_n = (\alpha_c \lambda \sqrt{f'_c} + \rho_t f_y) A_{cv}$<br>$\alpha_c = 3.0$ for $\frac{h_w}{\ell_w} \leq 1.5$<br>$\alpha_c = 2.0$ for $\frac{h_w}{\ell_w} \geq 2.0$ |
| 11.5.4.4            | $\alpha_c = 0.17 \left( 1 + \frac{N_u}{3.5 A_g} \right) \geq 0.0$                                                                                                        | $\alpha_c = 0.53 \left( 1 + \frac{N_u}{35 A_g} \right) \geq 0.0$                                                                                                         | $\alpha_c = 2 \left( 1 + \frac{N_u}{500 A_g} \right) \geq 0.0$                                                                                                         |
| 11.6.1              | $V_u \leq 0.5 \phi \alpha_c \lambda \sqrt{f'_c} A_{cv}$                                                                                                                  | $V_u \leq 0.5 \phi \alpha_c \lambda \sqrt{f'_c} A_{cv}$                                                                                                                  | $V_u \leq 0.5 \phi \alpha_c \lambda \sqrt{f'_c} A_{cv}$                                                                                                                |
| 11.6.2              | $V_u > 0.5 \phi \alpha_c \lambda \sqrt{f'_c} A_{cv}$                                                                                                                     | $V_u > 0.5 \phi \alpha_c \lambda \sqrt{f'_c} A_{cv}$                                                                                                                     | $V_u > 0.5 \phi \alpha_c \lambda \sqrt{f'_c} A_{cv}$                                                                                                                   |
| 12.5.3.3            | $V_n = A_{cv} (0.17 \lambda \sqrt{f'_c} + \rho_t f_y)$<br>$\sqrt{f'_c} \leq 8.3$ MPa                                                                                     | $V_n = A_{cv} (0.53 \lambda \sqrt{f'_c} + \rho_t f_y)$<br>$\sqrt{f'_c} \leq 27$ kgf/cm <sup>2</sup>                                                                      | $V_n = A_{cv} (2 \lambda \sqrt{f'_c} + \rho_t f_y)$<br>$\sqrt{f'_c} \leq 100$ psi                                                                                      |
| 12.5.3.4            | $V_u \leq \phi 0.66 A_{cv} \sqrt{f'_c}$<br>$\sqrt{f'_c} \leq 8.3$ MPa                                                                                                    | $V_u \leq \phi 2.1 A_{cv} \sqrt{f'_c}$<br>$\sqrt{f'_c} \leq 27$ kgf/cm <sup>2</sup>                                                                                      | $V_u \leq \phi 8 A_{cv} \sqrt{f'_c}$<br>$\sqrt{f'_c} \leq 100$ psi                                                                                                     |
| 13.2.6.2(a)         | $V_c = 0.17 \lambda \sqrt{f'_c} b_w d$                                                                                                                                   | $V_c = 0.53 \lambda \sqrt{f'_c} b_w d$                                                                                                                                   | $V_c = 2 \lambda \sqrt{f'_c} b_w d$                                                                                                                                    |
| 13.3.6.1.1          | $V_c = 0.17 \lambda \sqrt{f'_c} b_w d$                                                                                                                                   | $V_c = 0.53 \lambda \sqrt{f'_c} b_w d$                                                                                                                                   | $V_c = 2 \lambda \sqrt{f'_c} b_w d$                                                                                                                                    |
| 13.3.7.1(c)         | $V_c = 0.17 \lambda \sqrt{f'_c} b_w d$                                                                                                                                   | $V_c = 0.53 \lambda \sqrt{f'_c} b_w d$                                                                                                                                   | $V_c = 2 \lambda \sqrt{f'_c} b_w d$                                                                                                                                    |
| 13.4.6.8(a)         | $V_c = 0.17 \lambda \sqrt{f'_c} b_w d$                                                                                                                                   | $V_c = 0.53 \lambda \sqrt{f'_c} b_w d$                                                                                                                                   | $V_c = 2 \lambda \sqrt{f'_c} b_w d$                                                                                                                                    |
| 14.5.2.1(a)         | $M_n = 0.42 \lambda \sqrt{f'_c} S_m$                                                                                                                                     | $M_n = 1.33 \lambda \sqrt{f'_c} S_m$                                                                                                                                     | $M_n = 5 \lambda \sqrt{f'_c} S_m$                                                                                                                                      |
| 14.5.4.1(a)         | $\frac{M_u}{S_m} - \frac{P_u}{A_g} \leq \phi 0.42 \lambda \sqrt{f'_c}$                                                                                                   | $\frac{M_u}{S_m} - \frac{P_u}{A_g} \leq \phi 1.33 \lambda \sqrt{f'_c}$                                                                                                   | $\frac{M_u}{S_m} - \frac{P_u}{A_g} \leq \phi 5 \lambda \sqrt{f'_c}$                                                                                                    |
| 14.5.5.1(a)         | $V_n = 0.11 \lambda \sqrt{f'_c} b_w h$                                                                                                                                   | $V_n = 0.35 \lambda \sqrt{f'_c} b_w h$                                                                                                                                   | $V_n = \frac{4}{3} \lambda \sqrt{f'_c} b_w h$                                                                                                                          |
| 14.5.5.1(b) and (c) | $V_n = 0.11 \left[ 1 + \frac{1}{\beta} \right] \lambda \sqrt{f'_c} b_o h$<br>$V_n = 0.22 \lambda \sqrt{f'_c} b_o h$                                                      | $V_n = 0.35 \left[ 1 + \frac{2}{\beta} \right] \lambda \sqrt{f'_c} b_o h$<br>$V_n = 0.71 \lambda \sqrt{f'_c} b_o h$                                                      | $V_n = \left[ 1 + \frac{2}{\beta} \right] \frac{4}{3} \lambda \sqrt{f'_c} b_o h$<br>$V_n = 2 \left( \frac{4}{3} \lambda \sqrt{f'_c} b_o h \right)$                     |

| Provision number    | SI-metric stress in MPa                                                                                                   | mks-metric stress in kgf/cm <sup>2</sup>                                                                                 | U.S. Customary units stress in pounds per square inch (psi)                                                          |
|---------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 15.5.2.1            | $2.0\lambda\sqrt{f'_c} A_j$<br>$1.7\lambda\sqrt{f'_c} A_j$<br>$1.3\lambda\sqrt{f'_c} A_j$<br>$1.0\lambda\sqrt{f'_c} A_j$  | $6.4\lambda\sqrt{f'_c} A_j$<br>$5.3\lambda\sqrt{f'_c} A_j$<br>$4.0\lambda\sqrt{f'_c} A_j$<br>$3.2\lambda\sqrt{f'_c} A_j$ | $24\lambda\sqrt{f'_c} A_j$<br>$20\lambda\sqrt{f'_c} A_j$<br>$15\lambda\sqrt{f'_c} A_j$<br>$12\lambda\sqrt{f'_c} A_j$ |
| 16.4.4.1            | $\lambda\left(1.8 + 0.6\frac{A_{vf,yt}}{b_v s}\right)b_v d$<br>$3.5b_v d$<br>$0.55b_v d$                                  | $\lambda\left(18 + 0.6\frac{A_{vf,yt}}{b_v s}\right)b_v d$<br>$35b_v d$<br>$5.6b_v d$                                    | $\lambda\left(260 + 0.6\frac{A_{vf,yt}}{b_v s}\right)b_v d$<br>$500b_v d$<br>$80b_v d$                               |
| 16.4.6.1            | $A_{vf,min} \geq 0.35\frac{b_v s}{f_y}$                                                                                   | $A_{vf,min} \geq 3.5\frac{b_v s}{f_y}$                                                                                   | $A_{vf,min} \geq 50\frac{b_v s}{f_y}$                                                                                |
| 16.5.2.4(b) and (c) | $(3.3 + 0.08f'_c)b_w d$<br>$11b_w d$                                                                                      | $(34 + 0.08f'_c)b_w d$<br>$110b_w d$                                                                                     | $(480 + 0.08f'_c)b_w d$<br>$1600b_w d$                                                                               |
| 16.5.2.5(b)         | $\left(5.5 - 1.9\frac{a_v}{d}\right)b_w d$                                                                                | $\left(55 - 20\frac{a_v}{d}\right)b_w d$                                                                                 | $\left(800 - 280\frac{a_v}{d}\right)b_w d$                                                                           |
| 17.6.2.2.1          | $N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$<br>$k_c = 10 \text{ or } 7$                                                | $N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$<br>$k_c = 10 \text{ or } 7$                                               | $N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$<br>$k_c = 24 \text{ or } 17$                                          |
| 17.6.2.2.3          | $N_b = 3.9\lambda_a \sqrt{f'_c} h_{ef}^{5/3}$                                                                             | $N_b = 5.8\lambda_a \sqrt{f'_c} h_{ef}^{5/3}$                                                                            | $N_b = 16\lambda_a \sqrt{f'_c} h_{ef}^{5/3}$                                                                         |
| 17.6.4.1            | $N_{sb} = 13c_{a1} \sqrt{A_{brg}} \lambda_a \sqrt{f'_c}$                                                                  | $N_{sb} = 42.5c_{a1} \sqrt{A_{brg}} \lambda_a \sqrt{f'_c}$                                                               | $N_{sb} = 160c_{a1} \sqrt{A_{brg}} \lambda_a \sqrt{f'_c}$                                                            |
| 17.6.5.1.2b         | $10d_a \sqrt{\frac{\tau_{uncr}}{7.6}}$                                                                                    | $10d_a \sqrt{\frac{\tau_{uncr}}{76}}$                                                                                    | $10d_a \sqrt{\frac{\tau_{uncr}}{1100}}$                                                                              |
| 17.7.2.2.1a         | $V_b = 0.6\left(\frac{\ell_e}{d_a}\right)^{0.2} \sqrt{d_a} \lambda_a \sqrt{f'_c} (c_{a1})^{1.5}$                          | $V_b = 1.9\left(\frac{\ell_e}{d_a}\right)^{0.2} \sqrt{d_a} \lambda_a \sqrt{f'_c} (c_{a1})^{1.5}$                         | $V_b = 7\left(\frac{\ell_e}{d_a}\right)^{0.2} \sqrt{d_a} \lambda_a \sqrt{f'_c} (c_{a1})^{1.5}$                       |
| 17.7.2.2.1b         | $V_b = 3.7\lambda_a \sqrt{f'_c} (c_{a1})^{1.5}$                                                                           | $V_b = 3.8\lambda_a \sqrt{f'_c} (c_{a1})^{1.5}$                                                                          | $V_b = 9\lambda_a \sqrt{f'_c} (c_{a1})^{1.5}$                                                                        |
| 17.7.2.2.2          | $V_b = 0.66\left(\frac{\ell_e}{d_a}\right)^{0.2} \sqrt{d_a} \lambda_a \sqrt{f'_c} (c_{a1})^{1.5}$                         | $V_b = 2.1\left(\frac{\ell_e}{d_a}\right)^{0.2} \sqrt{d_a} \lambda_a \sqrt{f'_c} (c_{a1})^{1.5}$                         | $V_b = 8\left(\frac{\ell_e}{d_a}\right)^{0.2} \sqrt{d_a} \lambda_a \sqrt{f'_c} (c_{a1})^{1.5}$                       |
| 18.7.5.3            | $s_o = 100 + \left(\frac{350 - h_x}{3}\right)$                                                                            | $s_o = 10 + \left(\frac{35 - h_x}{3}\right)$                                                                             | $s_o = 4 + \left(\frac{14 - h_x}{3}\right)$                                                                          |
| 18.7.5.4(a)         | $k_f = \frac{f'_c}{175} + 0.6 \geq 1.0$                                                                                   | $k_f = \frac{f'_c}{1750} + 0.6 \geq 1.0$                                                                                 | $k_f = \frac{f'_c}{25,000} + 0.6 \geq 1.0$                                                                           |
| 18.8.4.3            | $1.7\lambda\sqrt{f'_c} A_j$<br>$1.3\lambda\sqrt{f'_c} A_j$<br>$1.0\lambda\sqrt{f'_c} A_j$<br>$0.66\lambda\sqrt{f'_c} A_j$ | $5.3\lambda\sqrt{f'_c} A_j$<br>$4.0\lambda\sqrt{f'_c} A_j$<br>$3.2\lambda\sqrt{f'_c} A_j$<br>$2.1\lambda\sqrt{f'_c} A_j$ | $20\lambda\sqrt{f'_c} A_j$<br>$15\lambda\sqrt{f'_c} A_j$<br>$12\lambda\sqrt{f'_c} A_j$<br>$8\lambda\sqrt{f'_c} A_j$  |

| Provision number | SI-metric stress in MPa                                                                                                                                                  | mks-metric stress in kgf/cm <sup>2</sup>                                                                                                                                 | U.S. Customary units stress in pounds per square inch (psi)                                                                                                            |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 18.8.5.1         | $\ell_{dh} = f_y d_b / (5.4 \lambda \sqrt{f'_c})$                                                                                                                        | $\ell_{dh} = f_y d_b / (17 \lambda \sqrt{f'_c})$                                                                                                                         | $\ell_{dh} = f_y d_b / (65 \lambda \sqrt{f'_c})$                                                                                                                       |
| 18.10.2.1        | $0.083 \lambda \sqrt{f'_c} A_{cv}$                                                                                                                                       | $0.27 \lambda \sqrt{f'_c} A_{cv}$                                                                                                                                        | $\lambda \sqrt{f'_c} A_{cv}$                                                                                                                                           |
| 18.10.2.2        | $0.17 \lambda \sqrt{f'_c} A_{cv}$                                                                                                                                        | $0.53 \lambda \sqrt{f'_c} A_{cv}$                                                                                                                                        | $2 \lambda \sqrt{f'_c} A_{cv}$                                                                                                                                         |
| 18.10.2.4        | $0.50 \frac{\sqrt{f'_c}}{f_y}$                                                                                                                                           | $1.6 \frac{\sqrt{f'_c}}{f_y}$                                                                                                                                            | $6 \frac{\sqrt{f'_c}}{f_y}$                                                                                                                                            |
| 18.10.4.1        | $V_n = (\alpha_c \lambda \sqrt{f'_c} + \rho_t f_y) A_{cv}$<br>$\alpha_c = 0.25$ for $\frac{h_w}{\ell_w} \leq 1.5$<br>$\alpha_c = 0.17$ for $\frac{h_w}{\ell_w} \geq 2.0$ | $V_n = (\alpha_c \lambda \sqrt{f'_c} + \rho_t f_y) A_{cv}$<br>$\alpha_c = 0.80$ for $\frac{h_w}{\ell_w} \leq 1.5$<br>$\alpha_c = 0.53$ for $\frac{h_w}{\ell_w} \geq 2.0$ | $V_n = (\alpha_c \lambda \sqrt{f'_c} + \rho_t f_y) A_{cv}$<br>$\alpha_c = 3.0$ for $\frac{h_w}{\ell_w} \leq 1.5$<br>$\alpha_c = 2.0$ for $\frac{h_w}{\ell_w} \geq 2.0$ |
| 18.10.4.4        | $\alpha_{sh} 0.66 \sqrt{f'_c} A_{cv}$<br>$\alpha_{sh} 0.83 \sqrt{f'_c} A_{cv}$                                                                                           | $\alpha_{sh} 2.12 \sqrt{f'_c} A_{cv}$<br>$\alpha_{sh} 2.65 \sqrt{f'_c} A_{cv}$                                                                                           | $\alpha_{sh} 8 \sqrt{f'_c} A_{cv}$<br>$\alpha_{sh} 10 \sqrt{f'_c} A_{cv}$                                                                                              |
| 18.10.4.5        | $0.83 \sqrt{f'_c} A_{cw}$                                                                                                                                                | $2.65 \sqrt{f'_c} A_{cw}$                                                                                                                                                | $10 \sqrt{f'_c} A_{cw}$                                                                                                                                                |
| 18.10.6.2b       | $\frac{\delta_c}{h_{wcs}} = \frac{1}{100} \left( 4 - \frac{1}{50} \left( \frac{t_w}{b} \right) \left( \frac{c}{b} \right) - \frac{V_u}{0.66 \sqrt{f'_c} A_{cv}} \right)$ | $\frac{\delta_c}{h_{wcs}} = \frac{1}{100} \left( 4 - \frac{1}{50} \left( \frac{t_w}{b} \right) \left( \frac{c}{b} \right) - \frac{V_u}{2.1 \sqrt{f'_c} A_{cv}} \right)$  | $\frac{\delta_c}{h_{wcs}} = \frac{1}{100} \left( 4 - \frac{1}{50} \left( \frac{t_w}{b} \right) \left( \frac{c}{b} \right) - \frac{V_u}{8 \sqrt{f'_c} A_{cv}} \right)$  |
| 18.10.6.5(a)     | $0.083 \lambda \sqrt{f'_c} A_{cv}$                                                                                                                                       | $0.27 \lambda \sqrt{f'_c} A_{cv}$                                                                                                                                        | $\lambda \sqrt{f'_c} A_{cv}$                                                                                                                                           |
| 18.10.6.5(b)     | $2.8/f_y$                                                                                                                                                                | $28/f_y$                                                                                                                                                                 | $400/f_y$                                                                                                                                                              |
| 18.10.7.2        | $0.33 \lambda \sqrt{f'_c} A_{cw}$                                                                                                                                        | $1.1 \lambda \sqrt{f'_c} A_{cw}$                                                                                                                                         | $4 \lambda \sqrt{f'_c} A_{cw}$                                                                                                                                         |
| 18.10.7.4        | $V_n = 2 A_{vd} f_y \sin \alpha \leq 0.83 \sqrt{f'_c} A_{cw}$                                                                                                            | $V_n = 2 A_{vd} f_y \sin \alpha \leq 2.65 \sqrt{f'_c} A_{cw}$                                                                                                            | $V_n = 2 A_{vd} f_y \sin \alpha \leq 10 \sqrt{f'_c} A_{cw}$                                                                                                            |
| 18.12.7.7        | $A_{v,min} \geq 0.062 \sqrt{f'_c} \frac{b_w s}{f_{yt}}$<br>$A_{v,min} \geq 0.35 \frac{b_w s}{f_{yt}}$                                                                    | $A_{v,min} \geq 0.2 \sqrt{f'_c} \frac{b_w s}{f_{yt}}$<br>$A_{v,min} \geq 3.5 \frac{b_w s}{f_{yt}}$                                                                       | $A_{v,min} \geq 0.75 \sqrt{f'_c} \frac{b_w s}{f_{yt}}$<br>$A_{v,min} \geq 50 \frac{b_w s}{f_{yt}}$                                                                     |
| 18.12.9.1        | $V_n = A_{cv} (0.17 \lambda \sqrt{f'_c} + \rho_t f_y)$                                                                                                                   | $V_n = A_{cv} (0.53 \lambda \sqrt{f'_c} + \rho_t f_y)$                                                                                                                   | $V_n = A_{cv} (2 \lambda \sqrt{f'_c} + \rho_t f_y)$                                                                                                                    |
| 18.12.9.2        | $0.66 \sqrt{f'_c} A_{cv}$                                                                                                                                                | $2.12 \sqrt{f'_c} A_{cv}$                                                                                                                                                | $8 \sqrt{f'_c} A_{cv}$                                                                                                                                                 |
| 18.14.5.3        | $0.29 \sqrt{f'_c}$                                                                                                                                                       | $0.93 \sqrt{f'_c}$                                                                                                                                                       | $3.5 \sqrt{f'_c}$                                                                                                                                                      |
| 19.2.2.1(a)      | $E_c = w_c^{1.5} 0.043 \sqrt{f'_c}$                                                                                                                                      | $E_c = w_c^{1.5} 0.14 \sqrt{f'_c}$                                                                                                                                       | $E_c = w_c^{1.5} 33 \sqrt{f'_c}$                                                                                                                                       |
| 19.2.2.1(b)      | $E_c = 4700 \sqrt{f'_c}$                                                                                                                                                 | $E_c = 15,100 \sqrt{f'_c}$                                                                                                                                               | $E_c = 57,000 \sqrt{f'_c}$                                                                                                                                             |
| 19.2.3.1         | $f_r = 0.62 \lambda \sqrt{f'_c}$                                                                                                                                         | $f_r = 2 \lambda \sqrt{f'_c}$                                                                                                                                            | $f_r = 7.5 \lambda \sqrt{f'_c}$                                                                                                                                        |
| 19.2.4.1         | $0.00047 w_c \leq 1.0$                                                                                                                                                   | $0.00047 w_c \leq 1.0$                                                                                                                                                   | $0.0075 w_c \leq 1.0$                                                                                                                                                  |

| Provision number | SI-metric stress in MPa                                                                                              | mks-metric stress in kgf/cm <sup>2</sup>                                                                                 | U.S. Customary units stress in pounds per square inch (psi)                                                                        |
|------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| 20.3.2.4.1       | $f_{se} + 70 + \frac{f'_c}{100\rho_p}$<br>$f_{se} + 420$<br>$f_{se} + 70 + \frac{f'_c}{300\rho_p}$<br>$f_{se} + 210$ | $f_{se} + 700 + \frac{f'_c}{100\rho_p}$<br>$f_{se} + 4200$<br>$f_{se} + 700 + \frac{f'_c}{300\rho_p}$<br>$f_{se} + 2100$ | $f_{se} + 10,000 + \frac{f'_c}{100\rho_p}$<br>$f_{se} + 60,000$<br>$f_{se} + 10,000 + \frac{f'_c}{300\rho_p}$<br>$f_{se} + 30,000$ |
| 21.2.3           | $\ell_{tr} = \left(\frac{f_{se}}{21}\right) d_b$                                                                     | $\ell_{tr} = \left(\frac{f_{se}}{210}\right) d_b$                                                                        | $\ell_{tr} = \left(\frac{f_{se}}{3000}\right) d_b$                                                                                 |
| 22.2.2.4.3(b)    | $0.85 - \frac{0.05(f'_c - 28)}{7}$                                                                                   | $0.85 - \frac{0.05(f'_c - 280)}{70}$                                                                                     | $0.85 - \frac{0.05(f'_c - 4000)}{1000}$                                                                                            |
| 22.5.1.2         | $V_u \leq \phi(V_c + 0.66\sqrt{f'_c} b_w d)$                                                                         | $V_u \leq \phi(V_c + 2.2\sqrt{f'_c} b_w d)$                                                                              | $V_u \leq \phi(V_c + 8\sqrt{f'_c} b_w d)$                                                                                          |
| 22.5.5.1(a)      | $\left(0.17\lambda\sqrt{f'_c} + \frac{N_u}{6A_g}\right) b_w d$                                                       | $\left(0.53\lambda\sqrt{f'_c} + \frac{N_u}{6A_g}\right) b_w d$                                                           | $\left(2\lambda\sqrt{f'_c} + \frac{N_u}{6A_g}\right) b_w d$                                                                        |
| 22.5.5.1(b)      | $\left(0.66\lambda(\rho_w)^{\frac{1}{3}}\sqrt{f'_c} + \frac{N_u}{6A_g}\right) b_w d$                                 | $\left(2.1\lambda(\rho_w)^{\frac{1}{3}}\sqrt{f'_c} + \frac{N_u}{6A_g}\right) b_w d$                                      | $\left(8\lambda(\rho_w)^{\frac{1}{3}}\sqrt{f'_c} + \frac{N_u}{6A_g}\right) b_w d$                                                  |
| 22.5.5.1(c)      | $\left(0.66\lambda_s\lambda(\rho_w)^{\frac{1}{3}}\sqrt{f'_c} + \frac{N_u}{6A_g}\right) b_w d$                        | $\left(2.1\lambda_s\lambda(\rho_w)^{\frac{1}{3}}\sqrt{f'_c} + \frac{N_u}{6A_g}\right) b_w d$                             | $\left(8\lambda_s\lambda(\rho_w)^{\frac{1}{3}}\sqrt{f'_c} + \frac{N_u}{6A_g}\right) b_w d$                                         |
| 22.5.5.1.1       | $0.42\lambda\sqrt{f'_c} b_w d$                                                                                       | $1.33\lambda\sqrt{f'_c} b_w d$                                                                                           | $5\lambda\sqrt{f'_c} b_w d$                                                                                                        |
| 22.5.5.1.3       | $\lambda_s = \sqrt{\frac{2}{1 + \frac{d}{254}}} \leq 1$                                                              | $\lambda_s = \sqrt{\frac{2}{1 + \frac{d}{25.4}}} \leq 1$                                                                 | $\lambda_s = \sqrt{\frac{2}{1 + \frac{d}{10}}} \leq 1$                                                                             |
| 22.5.6.2.1a      | $V_{ci} = 0.05\lambda\sqrt{f'_c} b_w d_p + V_d + \frac{V_i M_{cre}}{M_{max}}$                                        | $V_{ci} = 0.16\lambda\sqrt{f'_c} b_w d_p + V_d + \frac{V_i M_{cre}}{M_{max}}$                                            | $V_{ci} = 0.6\lambda\sqrt{f'_c} b_w d_p + V_d + \frac{V_i M_{cre}}{M_{max}}$                                                       |
| 22.5.6.2.1b      | $V_{ci} = 0.14\lambda\sqrt{f'_c} b_w d$                                                                              | $V_{ci} = 0.45\lambda\sqrt{f'_c} b_w d$                                                                                  | $V_{ci} = 1.7\lambda\sqrt{f'_c} b_w d$                                                                                             |
| 22.5.6.2.1c      | $V_{ci} = 0.17\lambda\sqrt{f'_c} b_w d$                                                                              | $V_{ci} = 0.53\lambda\sqrt{f'_c} b_w d$                                                                                  | $V_{ci} = 2\lambda\sqrt{f'_c} b_w d$                                                                                               |
| 22.5.6.2.1d      | $M_{cre} = \left(\frac{I}{y_i}\right) (0.5\lambda\sqrt{f'_c} + f_{pe} - f_d)$                                        | $M_{cre} = \left(\frac{I}{y_i}\right) (1.6\lambda\sqrt{f'_c} + f_{pe} - f_d)$                                            | $M_{cre} = \left(\frac{I}{y_i}\right) (6\lambda\sqrt{f'_c} + f_{pe} - f_d)$                                                        |
| 22.5.6.2.2       | $V_{cw} = (0.29\lambda\sqrt{f'_c} + 0.3f_{pc})b_w d_p + V_p$                                                         | $V_{cw} = (0.93\lambda\sqrt{f'_c} + 0.3f_{pc})b_w d_p + V_p$                                                             | $V_{cw} = (3.5\lambda\sqrt{f'_c} + 0.3f_{pc})b_w d_p + V_p$                                                                        |
| 22.5.6.2.3       | $0.33\lambda\sqrt{f'_c}$                                                                                             | $1.1\lambda\sqrt{f'_c}$                                                                                                  | $4\lambda\sqrt{f'_c}$                                                                                                              |
| 22.5.8.6.2(b)    | $V_s = 0.25\sqrt{f'_c} b_w d$                                                                                        | $V_s = 0.8\sqrt{f'_c} b_w d$                                                                                             | $V_s = 3\sqrt{f'_c} b_w d$                                                                                                         |
| 22.6.3.1         | $\sqrt{f'_c} \leq 8.3 \text{ MPa}$                                                                                   | $\sqrt{f'_c} \leq 27 \text{ kgf/cm}^2$                                                                                   | $\sqrt{f'_c} \leq 100 \text{ psi}$                                                                                                 |
| 22.6.5.2(a)      | $v_c = 0.33\lambda_s\lambda\sqrt{f'_c}$                                                                              | $v_c = 1.1\lambda_s\lambda\sqrt{f'_c}$                                                                                   | $v_c = 4\lambda_s\lambda\sqrt{f'_c}$                                                                                               |

| Provision number    | SI-metric stress in MPa                                                                                                         | mks-metric stress in kgf/cm <sup>2</sup>                                                                                      | U.S. Customary units stress in pounds per square inch (psi)                                                            |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| 22.6.5.2(b)         | $v_c = 0.17 \left( 1 + \frac{2}{\beta} \right) \lambda_s \lambda \sqrt{f'_c}$                                                   | $v_c = 0.53 \left( 1 + \frac{2}{\beta} \right) \lambda_s \lambda \sqrt{f'_c}$                                                 | $v_c = \left( 2 + \frac{4}{\beta} \right) \lambda_s \lambda \sqrt{f'_c}$                                               |
| 22.6.5.2(c)         | $v_c = 0.083 \left( 2 + \frac{\alpha_s d}{b_o} \right) \lambda_s \lambda \sqrt{f'_c}$                                           | $v_c = 0.27 \left( 2 + \frac{\alpha_s d}{b_o} \right) \lambda_s \lambda \sqrt{f'_c}$                                          | $v_c = \left( 2 + \frac{\alpha_s d}{b_o} \right) \lambda_s \lambda \sqrt{f'_c}$                                        |
| 22.6.5.5            | $\sqrt{f'_c} \leq 5.8 \text{ MPa}$<br>$f_{pc} \leq 3.5 \text{ MPa}$                                                             | $\sqrt{f'_c} \leq 19 \text{ kgf/cm}^2$<br>$f_{pc} \leq 35 \text{ kgf/cm}^2$                                                   | $\sqrt{f'_c} \leq 70 \text{ psi}$<br>$f_{pc} \leq 500 \text{ psi}$                                                     |
| 22.6.5.5a           | $v_c = 0.29 \lambda_s \sqrt{f'_c} + 0.3 f_{pc} + V_p / (b_o d)$                                                                 | $v_c = 0.93 \lambda_s \sqrt{f'_c} + 0.3 f_{pc} + V_p / (b_o d)$                                                               | $v_c = 3.5 \lambda_s \sqrt{f'_c} + 0.3 f_{pc} + V_p / (b_o d)$                                                         |
| 22.6.5.5b           | $v_c = 0.083 \left( 1.5 + \frac{\alpha_s d}{b_o} \right) \lambda \sqrt{f'_c}$<br>$+ 0.3 f_{pc} + V_p / (b_o d)$                 | $v_c = 0.27 \left( 1.5 + \frac{\alpha_s d}{b_o} \right) \lambda \sqrt{f'_c}$<br>$+ 0.3 f_{pc} + V_p / (b_o d)$                | $v_c = \left( 1.5 + \frac{\alpha_s d}{b_o} \right) \lambda \sqrt{f'_c}$<br>$+ 0.3 f_{pc} + V_p / (b_o d)$              |
| 22.6.6.1(a) and (e) | $0.17 \lambda_s \lambda \sqrt{f'_c}$                                                                                            | $0.53 \lambda_s \lambda \sqrt{f'_c}$                                                                                          | $2 \lambda_s \lambda \sqrt{f'_c}$                                                                                      |
| 22.6.6.1(b)         | $0.25 \lambda_s \lambda \sqrt{f'_c}$                                                                                            | $0.80 \lambda_s \lambda \sqrt{f'_c}$                                                                                          | $3 \lambda_s \lambda \sqrt{f'_c}$                                                                                      |
| 22.6.6.1(c)         | $\left( 0.17 + \frac{0.33}{\beta} \right) \lambda_s \lambda \sqrt{f'_c}$                                                        | $\left( 0.53 + \frac{1.06}{\beta} \right) \lambda_s \lambda \sqrt{f'_c}$                                                      | $\left( 2 + \frac{4}{\beta} \right) \lambda_s \lambda \sqrt{f'_c}$                                                     |
| 22.6.6.1(d)         | $\left( 0.17 + \frac{0.083 \alpha_s d}{b_o} \right) \lambda_s \lambda \sqrt{f'_c}$                                              | $\left( 0.53 + \frac{0.27 \alpha_s d}{b_o} \right) \lambda_s \lambda \sqrt{f'_c}$                                             | $\left( 2 + \frac{\alpha_s d}{b_o} \right) \lambda_s \lambda \sqrt{f'_c}$                                              |
| 22.6.6.2(a)         | $\frac{A_v}{s} \geq 0.17 \sqrt{f'_c} \frac{b_o}{f_{yt}}$                                                                        | $\frac{A_v}{s} \geq 0.53 \sqrt{f'_c} \frac{b_o}{f_{yt}}$                                                                      | $\frac{A_v}{s} \geq 2 \sqrt{f'_c} \frac{b_o}{f_{yt}}$                                                                  |
| 22.6.6.2(b)         | $\frac{A_v}{s} \geq 0.17 \sqrt{f'_c} \frac{b_o}{f_{yt}}$                                                                        | $\frac{A_v}{s} \geq 0.53 \sqrt{f'_c} \frac{b_o}{f_{yt}}$                                                                      | $\frac{A_v}{s} \geq 2 \sqrt{f'_c} \frac{b_o}{f_{yt}}$                                                                  |
| 22.6.6.3(a)         | $\phi 0.5 \sqrt{f'_c}$                                                                                                          | $\phi 1.6 \sqrt{f'_c}$                                                                                                        | $\phi 6 \sqrt{f'_c}$                                                                                                   |
| 22.6.6.3(b)         | $\phi 0.66 \sqrt{f'_c}$                                                                                                         | $\phi 2.1 \sqrt{f'_c}$                                                                                                        | $\phi 8 \sqrt{f'_c}$                                                                                                   |
| 22.6.8.3            | $\frac{A_v}{s} \geq 0.17 \sqrt{f'_c} \frac{b_o}{f_{yt}}$                                                                        | $\frac{A_v}{s} \geq 0.53 \sqrt{f'_c} \frac{b_o}{f_{yt}}$                                                                      | $\frac{A_v}{s} \geq 2 \sqrt{f'_c} \frac{b_o}{f_{yt}}$                                                                  |
| 22.7.2.1            | $\sqrt{f'_c} \leq 8.3 \text{ MPa}$                                                                                              | $\sqrt{f'_c} \leq 27 \text{ kgf/cm}^2$                                                                                        | $\sqrt{f'_c} \leq 100 \text{ psi}$                                                                                     |
| 22.7.4.1(a)(a)      | $T_{th} = 0.083 \lambda \sqrt{f'_c} \left( \frac{A_{cp}^2}{P_{cp}} \right)$                                                     | $T_{th} = 0.27 \lambda \sqrt{f'_c} \left( \frac{A_{cp}^2}{P_{cp}} \right)$                                                    | $T_{th} = \lambda \sqrt{f'_c} \left( \frac{A_{cp}^2}{P_{cp}} \right)$                                                  |
| 22.7.4.1(a)(b)      | $T_{th} = 0.083 \lambda \sqrt{f'_c} \left( \frac{A_{cp}^2}{P_{cp}} \right) \sqrt{1 + \frac{f_{pc}}{0.33 \lambda \sqrt{f'_c}}}$  | $T_{th} = 0.27 \lambda \sqrt{f'_c} \left( \frac{A_{cp}^2}{P_{cp}} \right) \sqrt{1 + \frac{f_{pc}}{1.1 \lambda \sqrt{f'_c}}}$  | $T_{th} = \lambda \sqrt{f'_c} \left( \frac{A_{cp}^2}{P_{cp}} \right) \sqrt{1 + \frac{f_{pc}}{4 \lambda \sqrt{f'_c}}}$  |
| 22.7.4.1(a)(c)      | $T_{th} = 0.083 \lambda \sqrt{f'_c} \left( \frac{A_{cp}^2}{P_{cp}} \right) \sqrt{1 + \frac{N_u}{0.33 A_g \lambda \sqrt{f'_c}}}$ | $T_{th} = 0.27 \lambda \sqrt{f'_c} \left( \frac{A_{cp}^2}{P_{cp}} \right) \sqrt{1 + \frac{N_u}{1.1 A_g \lambda \sqrt{f'_c}}}$ | $T_{th} = \lambda \sqrt{f'_c} \left( \frac{A_{cp}^2}{P_{cp}} \right) \sqrt{1 + \frac{N_u}{4 A_g \lambda \sqrt{f'_c}}}$ |

| Provision number          | SI-metric stress in MPa                                                                                                                           | mks-metric stress in kgf/cm <sup>2</sup>                                                                                                       | U.S. Customary units stress in pounds per square inch (psi)                                                                                    |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 22.7.4.1(b)(a)            | $T_{th} = 0.083\lambda\sqrt{f'_c}\left(\frac{A_g^2}{p_{cp}}\right)$                                                                               | $T_{th} = 0.27\lambda\sqrt{f'_c}\left(\frac{A_g^2}{p_{cp}}\right)$                                                                             | $T_{th} = \lambda\sqrt{f'_c}\left(\frac{A_g^2}{p_{cp}}\right)$                                                                                 |
| 22.7.4.1(b)(b)            | $T_{th} = 0.083\lambda\sqrt{f'_c}\left(\frac{A_g^2}{p_{cp}}\right)\sqrt{1+\frac{f_{pc}}{0.33\lambda\sqrt{f'_c}}}$                                 | $T_{th} = 0.27\lambda\sqrt{f'_c}\left(\frac{A_g^2}{p_{cp}}\right)\sqrt{1+\frac{f_{pc}}{1.1\lambda\sqrt{f'_c}}}$                                | $T_{th} = \lambda\sqrt{f'_c}\left(\frac{A_g^2}{p_{cp}}\right)\sqrt{1+\frac{f_{pc}}{4\lambda\sqrt{f'_c}}}$                                      |
| 22.7.4.1(b)(c)            | $T_{th} = 0.083\lambda\sqrt{f'_c}\left(\frac{A_g^2}{p_{cp}}\right)\sqrt{1+\frac{N_u}{0.33A_g\lambda\sqrt{f'_c}}}$                                 | $T_{th} = 0.27\lambda\sqrt{f'_c}\left(\frac{A_g^2}{p_{cp}}\right)\sqrt{1+\frac{N_u}{1.1A_g\lambda\sqrt{f'_c}}}$                                | $T_{th} = \lambda\sqrt{f'_c}\left(\frac{A_g^2}{p_{cp}}\right)\sqrt{1+\frac{N_u}{4A_g\lambda\sqrt{f'_c}}}$                                      |
| 22.7.5.1(a)               | $T_{cr} = 0.33\lambda\sqrt{f'_c}\left(\frac{A_{cp}^2}{p_{cp}}\right)$                                                                             | $T_{cr} = \lambda\sqrt{f'_c}\left(\frac{A_{cp}^2}{p_{cp}}\right)$                                                                              | $T_{cr} = 4\lambda\sqrt{f'_c}\left(\frac{A_{cp}^2}{p_{cp}}\right)$                                                                             |
| 22.7.5.1(b)               | $T_{cr} = 0.33\lambda\sqrt{f'_c}\left(\frac{A_{cp}^2}{p_{cp}}\right)\sqrt{1+\frac{f_{pc}}{0.33\lambda\sqrt{f'_c}}}$                               | $T_{cr} = \lambda\sqrt{f'_c}\left(\frac{A_{cp}^2}{p_{cp}}\right)\sqrt{1+\frac{f_{pc}}{1.1\lambda\sqrt{f'_c}}}$                                 | $T_{cr} = 4\lambda\sqrt{f'_c}\left(\frac{A_{cp}^2}{p_{cp}}\right)\sqrt{1+\frac{f_{pc}}{4\lambda\sqrt{f'_c}}}$                                  |
| 22.7.5.1(c)               | $T_{cr} = 0.33\lambda\sqrt{f'_c}\left(\frac{A_{cp}^2}{p_{cp}}\right)\sqrt{1+\frac{N_u}{0.33A_g\lambda\sqrt{f'_c}}}$                               | $T_{cr} = \lambda\sqrt{f'_c}\left(\frac{A_{cp}^2}{p_{cp}}\right)\sqrt{1+\frac{N_u}{1.1A_g\lambda\sqrt{f'_c}}}$                                 | $T_{cr} = 4\lambda\sqrt{f'_c}\left(\frac{A_{cp}^2}{p_{cp}}\right)\sqrt{1+\frac{N_u}{4A_g\lambda\sqrt{f'_c}}}$                                  |
| 22.7.7.1a                 | $\sqrt{\left(\frac{V_u}{b_w d}\right)^2 + \left(\frac{T_u p_h}{1.7 A_{oh}^2}\right)^2} \leq \phi\left(\frac{V_c}{b_w d} + 0.66\sqrt{f'_c}\right)$ | $\sqrt{\left(\frac{V_u}{b_w d}\right)^2 + \left(\frac{T_u p_h}{1.7 A_{oh}^2}\right)^2} \leq \phi\left(\frac{V_c}{b_w d} + 2\sqrt{f'_c}\right)$ | $\sqrt{\left(\frac{V_u}{b_w d}\right)^2 + \left(\frac{T_u p_h}{1.7 A_{oh}^2}\right)^2} \leq \phi\left(\frac{V_c}{b_w d} + 8\sqrt{f'_c}\right)$ |
| 22.7.7.1b                 | $\left(\frac{V_u}{b_w d}\right) + \left(\frac{T_u p_h}{1.7 A_{oh}^2}\right) \leq \phi\left(\frac{V_c}{b_w d} + 0.66\sqrt{f'_c}\right)$            | $\left(\frac{V_u}{b_w d}\right) + \left(\frac{T_u p_h}{1.7 A_{oh}^2}\right) \leq \phi\left(\frac{V_c}{b_w d} + 2\sqrt{f'_c}\right)$            | $\left(\frac{V_u}{b_w d}\right) + \left(\frac{T_u p_h}{1.7 A_{oh}^2}\right) \leq \phi\left(\frac{V_c}{b_w d} + 8\sqrt{f'_c}\right)$            |
| 22.9.4.4(b), (c), and (e) | $(3.3 + 0.08f'_c)A_c$<br>$11A_c$<br>$5.5A_c$                                                                                                      | $(34 + 0.08f'_c)A_c$<br>$110A_c$<br>$55A_c$                                                                                                    | $(480 + 0.08f'_c)A_c$<br>$1600A_c$<br>$800A_c$                                                                                                 |
| 23.4.4                    | $V_u \leq \phi 0.42 \tan(\theta) \lambda \lambda_s \sqrt{f'_c} b_w d$                                                                             | $V_u \leq \phi 1.33 \tan(\theta) \lambda \lambda_s \sqrt{f'_c} b_w d$                                                                          | $V_u \leq \phi 5 \tan(\theta) \lambda \lambda_s \sqrt{f'_c} b_w d$                                                                             |
| 23.4.4.1                  | $\lambda_s = \sqrt{\frac{2}{1 + 0.004d}} \leq 1.0$                                                                                                | $\lambda_s = \sqrt{\frac{2}{1 + 0.04d}} \leq 1.0$                                                                                              | $\lambda_s = \sqrt{\frac{2}{1 + \frac{d}{10}}} \leq 1.0$                                                                                       |
| 24.3.2                    | $s = 380\left(\frac{280}{f_s}\right) - 2.5c_c$<br>$s = 300\left(\frac{280}{f_s}\right)$                                                           | $s = 38\left(\frac{2800}{f_s}\right) - 2.5c_c$<br>$s = 30\left(\frac{2800}{f_s}\right)$                                                        | $s = 15\left(\frac{40,000}{f_s}\right) - 2.5c_c$<br>$s = 12\left(\frac{40,000}{f_s}\right)$                                                    |
| 24.5.2.1                  | $f_i \leq 0.62\sqrt{f'_c}$<br>$0.62\sqrt{f'_c} < f_i \leq 1.0\sqrt{f'_c}$<br>$f_i > 1.0\sqrt{f'_c}$<br>$f_i \leq 0.50\sqrt{f'_c}$                 | $f_i \leq 2\sqrt{f'_c}$<br>$2\sqrt{f'_c} < f_i \leq 3.2\sqrt{f'_c}$<br>$f_i > 3.2\sqrt{f'_c}$<br>$f_i \leq 1.6\sqrt{f'_c}$                     | $f_i \leq 7.5\sqrt{f'_c}$<br>$7.5\sqrt{f'_c} < f_i \leq 12\sqrt{f'_c}$<br>$f_i > 12\sqrt{f'_c}$<br>$f_i \leq 6\sqrt{f'_c}$                     |

| Provision number       | SI-metric stress in MPa                                                                                                        | mks-metric stress in kgf/cm <sup>2</sup>                                                                                       | U.S. Customary units stress in pounds per square inch (psi)                                                                     |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 24.5.3.2               | $0.50 \sqrt{f'_c}$<br>$0.25 \sqrt{f'_c}$                                                                                       | $1.6 \sqrt{f'_c}$<br>$0.8 \sqrt{f'_c}$                                                                                         | $6 \sqrt{f'_c}$<br>$3 \sqrt{f'_c}$                                                                                              |
| 25.4.1.4               | $\sqrt{f'_c} \leq 8.3 \text{ MPa}$                                                                                             | $\sqrt{f'_c} \leq 27 \text{ kgf/cm}^2$                                                                                         | $\sqrt{f'_c} \leq 100 \text{ psi}$                                                                                              |
| 25.4.2.3 (top left)    | $\left( \frac{f_y \Psi_t \Psi_e \Psi_g}{2.1 \lambda \sqrt{f'_c}} \right) d_b$                                                  | $\left( \frac{f_y \Psi_t \Psi_e \Psi_g}{6.6 \lambda \sqrt{f'_c}} \right) d_b$                                                  | $\left( \frac{f_y \Psi_t \Psi_e \Psi_g}{25 \lambda \sqrt{f'_c}} \right) d_b$                                                    |
| 25.4.2.3 (top right)   | $\left( \frac{f_y \Psi_t \Psi_e \Psi_g}{1.7 \lambda \sqrt{f'_c}} \right) d_b$                                                  | $\left( \frac{f_y \Psi_t \Psi_e \Psi_g}{5.3 \lambda \sqrt{f'_c}} \right) d_b$                                                  | $\left( \frac{f_y \Psi_t \Psi_e \Psi_g}{20 \lambda \sqrt{f'_c}} \right) d_b$                                                    |
| 25.4.2.3 (lower left)  | $\left( \frac{f_y \Psi_t \Psi_e \Psi_g}{1.4 \lambda \sqrt{f'_c}} \right) d_b$                                                  | $\left( \frac{f_y \Psi_t \Psi_e \Psi_g}{4.4 \lambda \sqrt{f'_c}} \right) d_b$                                                  | $\left( \frac{3 f_y \Psi_t \Psi_e \Psi_g}{50 \lambda \sqrt{f'_c}} \right) d_b$                                                  |
| 25.4.2.3 (lower right) | $\left( \frac{f_y \Psi_t \Psi_e \Psi_g}{1.1 \lambda \sqrt{f'_c}} \right) d_b$                                                  | $\left( \frac{f_y \Psi_t \Psi_e \Psi_g}{3.5 \lambda \sqrt{f'_c}} \right) d_b$                                                  | $\left( \frac{3 f_y \Psi_t \Psi_e \Psi_g}{40 \lambda \sqrt{f'_c}} \right) d_b$                                                  |
| 25.4.2.4a              | $\ell_d = \frac{f_y}{1.1 \lambda \sqrt{f'_c}} \frac{\Psi_t \Psi_e \Psi_s \Psi_g}{\left( \frac{c_b + K_{tr}}{d_b} \right)} d_b$ | $\ell_d = \frac{f_y}{3.5 \lambda \sqrt{f'_c}} \frac{\Psi_t \Psi_e \Psi_s \Psi_g}{\left( \frac{c_b + K_{tr}}{d_b} \right)} d_b$ | $\ell_d = \frac{3 f_y}{40 \lambda \sqrt{f'_c}} \frac{\Psi_t \Psi_e \Psi_s \Psi_g}{\left( \frac{c_b + K_{tr}}{d_b} \right)} d_b$ |
| 25.4.3.1(a)            | $\left( \frac{f_y \Psi_e \Psi_s \Psi_{cc} \Psi_r}{21 \lambda \sqrt{f'_c}} \right) d_b$                                         | $\left( \frac{f_y \Psi_e \Psi_s \Psi_{cc} \Psi_r}{21 \lambda \sqrt{f'_c}} \right) d_b$                                         | $\left( \frac{f_y \Psi_e \Psi_s \Psi_{cc} \Psi_r}{50 \lambda \sqrt{f'_c}} \right) d_b$                                          |
| 25.4.4.2(a)            | $\left( \frac{\lambda_y \Psi_e \Psi_p \Psi_o \Psi_c}{37 \sqrt{f'_c}} \right) d_b^{1.5}$                                        | $\left( \frac{\lambda_y \Psi_e \Psi_p \Psi_o \Psi_c}{38 \sqrt{f'_c}} \right) d_b^{1.5}$                                        | $\left( \frac{\lambda_y \Psi_e \Psi_p \Psi_o \Psi_c}{90 \sqrt{f'_c}} \right) d_b^{1.5}$                                         |
| 25.4.4.3               | $0.01 f'_c + 0.6$                                                                                                              | $\frac{f'_c}{1055} + 0.6$                                                                                                      | $\frac{f'_c}{15,000} + 0.6$                                                                                                     |
| 25.4.6.3(a)            | $\left( \frac{f_y - 240}{f_y} \right)$                                                                                         | $\left( \frac{f_y - 2460}{f_y} \right)$                                                                                        | $\left( \frac{f_y - 35,000}{f_y} \right)$                                                                                       |
| 25.4.7.2(b)            | $3.3 \left( \frac{f_y}{\lambda \sqrt{f'_c}} \right) \left( \frac{A_b}{s} \right)$                                              | $\left( \frac{f_y}{\lambda \sqrt{f'_c}} \right) \left( \frac{A_b}{s} \right)$                                                  | $0.27 \left( \frac{f_y}{\lambda \sqrt{f'_c}} \right) \left( \frac{A_b}{s} \right)$                                              |
| 25.4.8.1(a)            | $\left( \frac{f_{se}}{21} \right) d_b + \left( \frac{f_{ps} - f_{se}}{7} \right) d_b$                                          | $\left( \frac{f_{se}}{210} \right) d_b + \left( \frac{f_{ps} - f_{se}}{70} \right) d_b$                                        | $\left( \frac{f_{se}}{3000} \right) d_b + \left( \frac{f_{ps} - f_{se}}{1000} \right) d_b$                                      |
| 25.4.9.2(a)            | $\left( \frac{0.24 \Psi_r f_y}{\lambda \sqrt{f'_c}} \right) d_b$                                                               | $\left( \frac{0.075 \Psi_r f_y}{\lambda \sqrt{f'_c}} \right) d_b$                                                              | $\left( \frac{\Psi_r f_y}{50 \lambda \sqrt{f'_c}} \right) d_b$                                                                  |
| 25.4.9.2(b)            | $(0.043 \Psi_r f_y) d_b$                                                                                                       | $(0.0044 \Psi_r f_y) d_b$                                                                                                      | $(0.0003 \Psi_r f_y) d_b$                                                                                                       |
| 25.4.11.4              | $k_c = 15 \text{ or } 17$                                                                                                      | $k_c = 15 \text{ or } 17$                                                                                                      | $k_c = 35 \text{ or } 40$                                                                                                       |

| Provision number         | SI-metric stress in MPa                                           | mks-metric stress in kgf/cm <sup>2</sup>                          | U.S. Customary units stress in pounds per square inch (psi)    |
|--------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------|
| 25.5.5.1(a), (b) and (c) | $0.071f_y d_b$<br>$(0.13f_y - 24)d_b$                             | $0.0073f_y d_b$<br>$(0.013f_y - 24)d_b$                           | $0.0005f_y d_b$<br>$(0.0009f_y - 24)d_b$                       |
| 25.7.1.3(b)              | $0.17 \frac{d_b f_{yt}}{\lambda \sqrt{f'_c}}$                     | $0.053 \frac{d_b f_{yt}}{\lambda \sqrt{f'_c}}$                    | $0.014 \frac{d_b f_{yt}}{\lambda \sqrt{f'_c}}$                 |
| 25.7.1.8.3               | $\frac{0.17 d_b f_{yt}}{\sqrt{f'_c}}$                             | $\frac{0.053 d_b f_{yt}}{\sqrt{f'_c}}$                            | $\frac{0.014 d_b f_{yt}}{\sqrt{f'_c}}$                         |
| 25.9.4.5.1               | $f_{ps} = f_{se} + 70$                                            | $f_{ps} = f_{se} + 700$                                           | $f_{ps} = f_{se} + 10,000$                                     |
| 26.12.8.1                | $0.62 \sqrt{f'_c}$                                                | $2 \sqrt{f'_c}$                                                   | $7.5 \sqrt{f'_c}$                                              |
| A.10.2b(ii)              | $\ell_p = 0.08h_w + 0.022f_y d_b$                                 | $\ell_p = 0.08h_w + 0.0021f_y d_b$                                | $\ell_p = 0.08h_w + 0.00015f_y d_b$                            |
| A.11.3.2.1.1             | $V_{ne} = 1.5A_{cv}(0.17 \lambda \sqrt{f'_{ce}} + \rho_t f_{ye})$ | $V_{ne} = 1.5A_{cv}(0.53 \lambda \sqrt{f'_{ce}} + \rho_t f_{ye})$ | $V_{ne} = 1.5A_{cv}(2 \lambda \sqrt{f'_{ce}} + \rho_t f_{ye})$ |
| A.11.3.2.1.2             | $1.0A_{cv} \sqrt{f'_{ce}}$<br>$1.25A_{cv} \sqrt{f'_c}$            | $3.2A_{cv} \sqrt{f'_{ce}}$<br>$4.0A_{cv} \sqrt{f'_c}$             | $12A_{cv} \sqrt{f'_{ce}}$<br>$15A_{cv} \sqrt{f'_c}$            |
| A.11.3.2.2               | $2.1A_{cv} \sqrt{f'_{ce}}$                                        | $6.6A_{cv} \sqrt{f'_{ce}}$                                        | $25A_{cv} \sqrt{f'_{ce}}$                                      |
| A.12.3.4                 | $0.33A_{cv} \lambda \sqrt{f'_c}$                                  | $1.1A_{cv} \lambda \sqrt{f'_c}$                                   | $4A_{cv} \lambda \sqrt{f'_c}$                                  |
| B.13.2.2                 | $\frac{0.5 \sqrt{f'_c}}{f_y}$                                     | $\frac{1.6 \sqrt{f'_c}}{f_y}$                                     | $\frac{6 \sqrt{f'_c}}{f_y}$                                    |
| B.13.9.2.2               | $0.29 \sqrt{f'_c}$                                                | $0.93 \sqrt{f'_c}$                                                | $3.5 \sqrt{f'_c}$                                              |