CODE

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 $f_r = 0.41\sqrt{f'_c}$.

COMMENTARY

R8.3.1.1 The minimum thicknesses in Table 8.3.1.1 are those that have been developed through the years. Use of longitudinal reinforcement with $f_y > 550$ MPa may result in larger long-term deflections than in the case of $f_y < 550$ MPa unless associated service stresses calculated for cracked sections are smaller than 280 MPa. Careful calculation of deflections should be performed.

Table 8.3.1.1—Minimum thickness of nonprestressed two-way slabs without interior beams (mm)[1]

	Without drop panels[3]			With drop panels[3]		
	Exterior panels			Exterior panels		
f_y, MPa[2]	Without edge beams	With edge beams[4]	Interior panels	Without edge beams	With edge beams[4]	Interior panels
280	$\ell_n/33$	$\ell_n/36$	$\ell_n/36$	$\ell_n/36$	$\ell_n/40$	$\ell_n/40$
420	$\ell_n/30$	$\ell_n/33$	$\ell_n/33$	$\ell_n/33$	$\ell_n/36$	$\ell_n/36$
550	$\ell_n/27$	$\ell_n/30$	$\ell_n/30$	$\ell_n/30$	$\ell_n/33$	$\ell_n/33$

[1]ℓ_n is the clear span in the long direction, measured face-to-face of supports (mm).
[2]For f_y between the values given in the table, minimum thickness shall be calculated by linear interpolation.
[3]Drop panels as given in 8.2.4.
[4]Slabs with beams between columns along exterior edges. Exterior panels shall be considered to be without edge beams if α_f is less than 0.8.

8.3.1.2 For nonprestressed slabs with beams spanning between supports on all sides, overall slab thickness h shall satisfy the limits in Table 8.3.1.2, unless the calculated deflection limits of 8.3.2 are satisfied.

Table 8.3.1.2—Minimum thickness of nonprestressed two-way slabs with beams spanning between supports on all sides

α_{fm}[1]	Minimum h, mm		
$\alpha_{fm} \le 0.2$	8.3.1.1 applies		(a)
$0.2 < \alpha_{fm} \le 2.0$	Greater of:	$\dfrac{\ell_n\left(0.8+\dfrac{f_y}{1400}\right)}{36+5\beta(\alpha_{fm}-0.2)}$	(b)[1],[2]
		125	(c)
$\alpha_{fm} > 2.0$	Greater of:	$\dfrac{\ell_n\left(0.8+\dfrac{f_y}{1400}\right)}{36+9\beta}$	(d)
		90	(e)

[1]α_{fm} is the average value of α_f for all beams on edges of a panel.
[2]ℓ_n is the clear span in the long direction, measured face-to-face of beams (mm).
[3]β is the ratio of clear spans in long to short directions of slab.

R8.3.1.2 For panels having a ratio of long-to-short span greater than 2, the use of expressions (b) and (d) of Table 8.3.1.2, which give the minimum thickness as a fraction of the long span, may give unreasonable results. For such panels, the rules applying to one-way construction in 7.3.1 should be used.