CODE

Table 8.4.2.2.3—Dimensional limits for effective slab width

	Distance on each side of column or capital	
Without drop panel or shear cap	Lesser	1.5*h* of slab
		Distance to edge of slab
With drop panel or shear cap	Lesser	1.5*h* of drop or cap
		Distance to edge of the drop or cap plus 1.5*h* of slab

8.4.2.2.4 For nonprestressed slabs, where the limitations on v_{uv} and ε_t in Table 8.4.2.2.4 are satisfied, γ_f shall be permitted to be increased to the maximum modified values provided in Table 8.4.2.2.4, where v_c is calculated in accordance with 22.6.5.

COMMENTARY

be placed between lines that are one and one-half the slab or drop panel thickness, **1.5*h***, on each side of the column.

R8.4.2.2.4 Some flexibility in distribution of M_{sc} transferred by shear and flexure at both exterior and interior columns is possible. Interior, exterior, and corner columns refer to slab-column connections for which the critical perimeter for rectangular columns has four, three, and two sides, respectively.

At exterior columns, for M_{sc} resisted about an axis parallel to the edge, the portion of moment transferred by eccentricity of shear $\gamma_v M_{sc}$ may be reduced, provided that the factored shear at the column (excluding the shear produced by moment transfer) does not exceed 75 percent of the shear strength ϕv_c as defined in 22.6.5.1 for edge columns, or 50 percent for corner columns. Tests (Moehle 1988; ACI 352.1R) indicate that there is no significant interaction between shear and M_{sc} at the exterior column in such cases. Note that as $\gamma_v M_{sc}$ is decreased, $\gamma_f M_{sc}$ is increased.

At interior columns, some flexibility in distributing M_{sc} transferred by shear and flexure is possible, but with more severe limitations than for exterior columns. For interior columns, M_{sc} transferred by flexure is permitted to be increased up to 25 percent, provided that the factored shear (excluding the shear caused by the moment transfer) at the interior columns does not exceed 40 percent of the shear strength ϕv_c as defined in 22.6.5.1.

If the factored shear for a slab-column connection is large, the slab-column joint cannot always develop all of the reinforcement provided in the effective width. The modifications for interior slab-column connections in this provision are permitted only where the reinforcement required to develop $\gamma_f M_{sc}$ within the effective width has a net tensile strain ε_t not less than $\varepsilon_{ty} + \mathbf{0.008}$, where the value of ε_{ty} is determined in 21.2.2. The use of Eq. (8.4.2.2.2) without the modification permitted in this provision will generally indicate overstress conditions on the joint. This provision is intended to improve ductile behavior of the slab-column joint. If reversal of moments occurs at opposite faces of an interior column, both top and bottom reinforcement should be concentrated within the effective width. A ratio of top-to-bottom reinforcement of approximately 2 has been observed to be appropriate.

Before the 2019 Code, the strain limits on ε_t in Table 8.4.2.2.4 were constants of 0.004 and 0.010. Beginning with the 2019 Code, to accommodate nonprestressed reinforcement