

CODE

COMMENTARY

7.5.2.2 For prestressed slabs, external tendons shall be considered as unbonded tendons in calculating flexural strength, unless the external tendons are effectively bonded to the concrete section along the entire length.

7.5.2.3 If primary flexural reinforcement in a slab that is considered to be a T-beam flange is parallel to the longitudinal axis of the beam, reinforcement perpendicular to the longitudinal axis of the beam shall be provided in the top of the slab in accordance with (a) and (b). This provision does not apply to joist construction.

(a) Slab reinforcement perpendicular to the beam shall be designed to resist the factored load on the overhanging slab width assumed to act as a cantilever.

(b) Only the effective overhanging slab width in accordance with 6.3.2 need be considered.

7.5.3 Shear

7.5.3.1 V_n shall be calculated in accordance with 22.5.

7.5.3.2 For composite concrete slabs, horizontal shear strength V_{nh} shall be calculated in accordance with 16.4.

7.6—Reinforcement limits

7.6.1 Minimum flexural reinforcement in nonprestressed slabs

7.6.1.1 A minimum area of flexural reinforcement, $A_{s,min}$, of $0.0018A_g$ shall be provided.

7.6.2 Minimum flexural reinforcement in prestressed slabs

7.6.2.1 For slabs with bonded prestressed reinforcement, total quantity of A_s and A_{ps} shall be adequate to develop a factored load at least 1.2 times the cracking load calculated on the basis of f_r as given in 19.2.3.

7.6.2.2 For slabs with both flexural and shear design strength at least twice the required strength, 7.6.2.1 need not be satisfied.

7.6.2.3 For slabs with unbonded tendons, the minimum area of bonded deformed longitudinal reinforcement, $A_{s,min}$, shall be:

$$A_{s,min} \geq 0.004A_{ct} \quad (7.6.2.3)$$

R7.5.2.3 This provision applies only where a T-beam is parallel to the span of a one-way slab. For example, this beam might be used to support a wall or concentrated load that the slab alone cannot support. In that case, the primary slab reinforcement is parallel to the beam and the perpendicular reinforcement is usually sized for temperature and shrinkage. The reinforcement required by this provision is intended to consider “unintended” negative moments that may develop over the beam that exceed the requirements for temperature and shrinkage reinforcement alone.

R7.6—Reinforcement limits

R7.6.1 Minimum flexural reinforcement in nonprestressed slabs

R7.6.1.1 The required area of deformed or welded wire reinforcement used as minimum flexural reinforcement is the same as provided for shrinkage and temperature in 24.4.3.2. However, whereas shrinkage and temperature reinforcement is permitted to be distributed between the two faces of the slab as deemed appropriate for specific conditions, minimum flexural reinforcement should be placed as close as practicable to the face of the concrete in tension due to applied loads.

R7.6.2 Minimum flexural reinforcement in prestressed slabs

The requirements for minimum flexural reinforcement for prestressed one-way slabs are the same as those for prestressed beams. Refer to R9.6.2 for additional information.