IS 456 rules for slab reinforcement

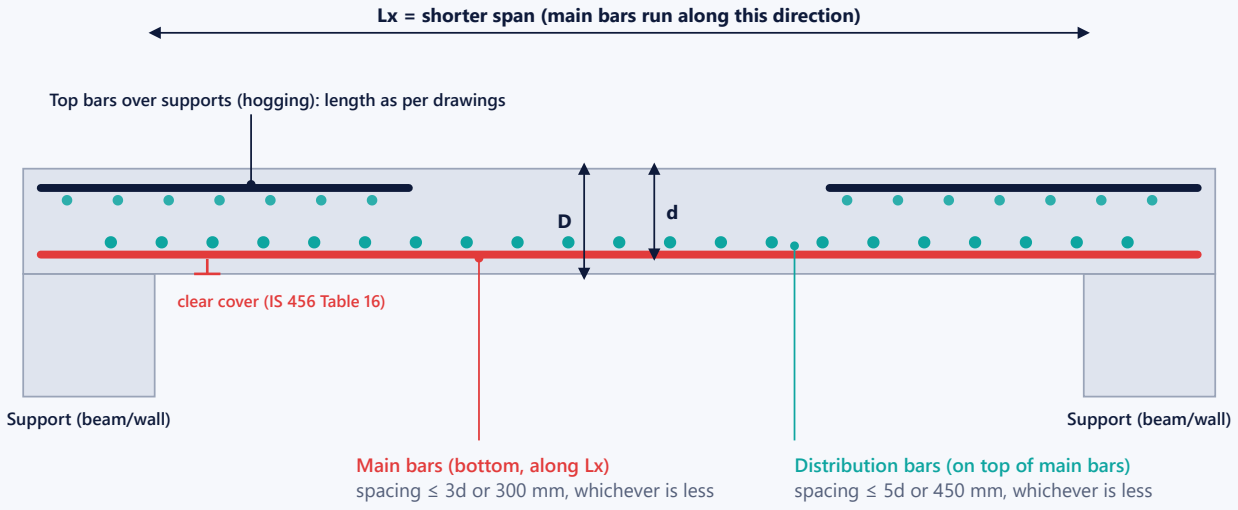
Requirement	Value	Reference
Minimum reinforcement (each direction)	0.12% of b·D for HYSD / TMT bars; 0.15% for mild steel bars	Cl. 26.5.2.1
Maximum bar diameter	D / 8 (one-eighth of total slab thickness)	Cl. 26.5.2.2
Maximum spacing, main bars	3d or 300 mm, whichever is less	Cl. 26.3.3(b)
Maximum spacing, distribution bars	5d or 450 mm, whichever is less	Cl. 26.3.3(b)
Nominal cover	Mild 20 mm (15 mm allowed for bars up to 12 mm) · Moderate 30 · Severe 45 · Very severe 50 · Extreme 75 mm	Cl. 26.4.2, Table 16
Span / effective depth (basic)	Cantilever 7 · Simply supported 20 · Continuous 26 (apply the modification factors for steel %)	Cl. 23.2.1
Two-way slabs, Lx ≤ 3.5 m, LL ≤ 3 kN/m²	Span / overall depth ≤ 35 SS, 40 continuous (mild steel); × 0.8 for Fe415 → 28 and 32	Cl. 24.1
Corner torsion steel (two-way)	4 layers (2 top + 2 bottom), each 3/4 of max. mid-span steel, over Lx/5 each way; half where one edge is discontinuous	Annex D-1.8, D-1.9
Edge strips (two-way)	At least the minimum reinforcement of Cl. 26.5.2.1	Annex D-1.7

d = effective depth, D = overall slab thickness, Lx = shorter span. Exposure class as per IS 456 Table 3. Values are code limits: the structural drawings govern bar sizes, spacing and bar lengths.

One-Way Slab: Reinforcement Details (Section)

Section across the shorter span Lx · as per IS 456:2000

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IS 456 limits

Min. steel each way: 0.12% of b·D (HYSD/TMT), 0.15% (mild) · Cl. 26.5.2.1
Max. bar diameter: D / 8 · Cl. 26.5.2.2
Main ≤ 3d or 300 mm; distribution ≤ 5d or 450 mm · Cl. 26.3.3
Basic span/d: 20 simply supported, 26 continuous · Cl. 23.2.1

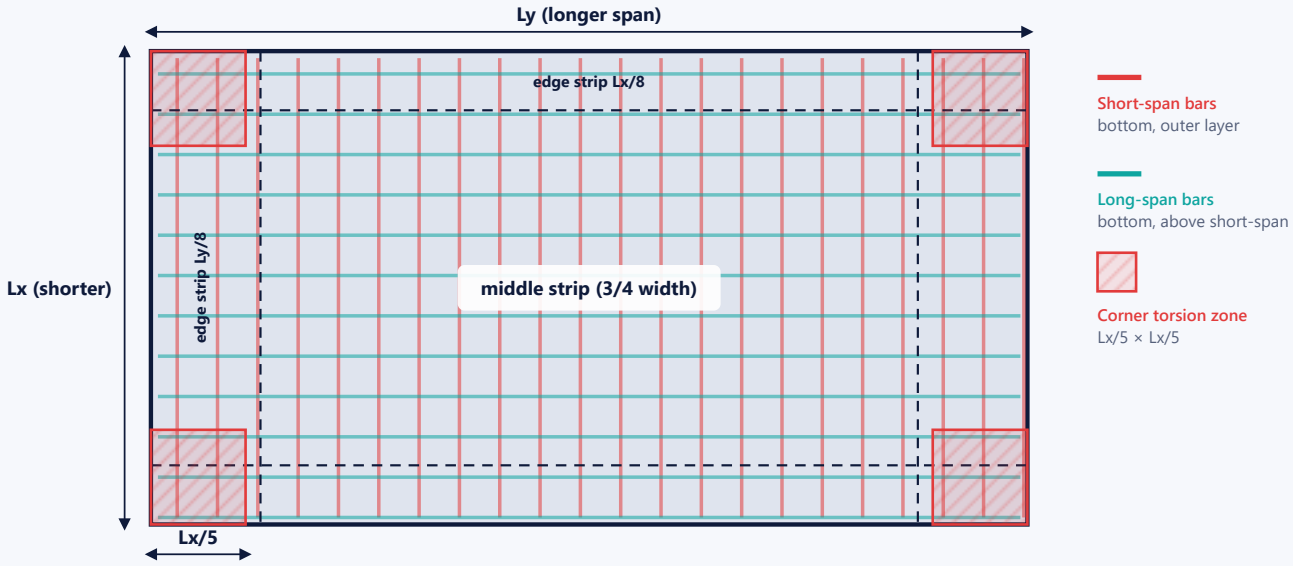
Placing on site

Main bars in the outer (bottom) layer for maximum d
Distribution bars tied on top of the main bars
Cover blocks to the exposure-class cover (Table 16)
Chairs to hold top bars at level before concreting

Two-Way Slab: Reinforcement Details (Plan)

Slab simply supported on all four edges · IS 456 Annex D

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Corner torsion steel (Annex D-1.8 to D-1.10)

Both edges discontinuous: 4 layers (2 top + 2 bottom),
each = 3/4 of the max. mid-span steel, over Lx/5 each way
One edge discontinuous: half of that (D-1.9)
Both edges continuous: none required (D-1.10)

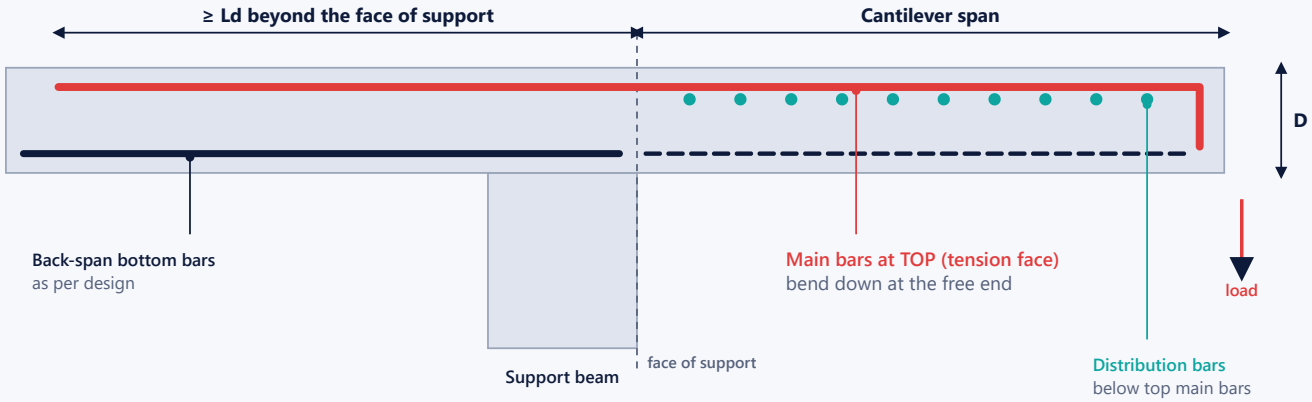
Strips and limits

Middle strips carry the design moments (Annex D-1.3)
Edge strips: at least minimum steel (D-1.7, Cl. 26.5.2.1)
Spacing ≤ 3d or 300 mm; bar dia ≤ D/8
Lx ≤ 3.5 m, LL ≤ 3 kN/m^2: Lx/D ≤ 28 SS, 32 cont. (Fe415) · Cl. 24.1

Cantilever Slab: Reinforcement Details (Section)

Main bars at the TOP · anchored into the back span / support · IS 456:2000

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IS 456 checks

Basic span / effective depth = 7 for cantilevers · Cl. 23.2.1
Anchor top bars at least Ld past the support face
Min. steel 0.12% (HYSD); spacing ≤ 3d or 300 mm
Bottom bars in the cantilever: nominal, as per drawings

Most common site mistake

Main bars placed at the bottom of a cantilever slab
→ no steel on the tension face: sudden cracking or collapse
Support top bars on chairs so they stay at the top
Do not remove props before the specified time

For guidance only. Follow the structural drawings and your structural engineer's specification. Prepared by TheCivilStudies, November 2026.