Slab Type	Definition	Behavior	Characteristics	Advantages	Limitations	Additional Notes
One-Way Slab	A plate with uniform thickness supported by parallel beams or walls.	Load is transferred in one direction to the supports.	Suitable for spans **2–5.5 m** under light to moderate loads.	Simple construction; economical for short spans.	Limited to short spans and light loads.	Requires beam or wall support for effective load transfer.
Two-Way Slab	A solid slab supported on beams or walls on all four sides.	Load is transferred in both orthogonal directions.	Most efficient for **square or nearly square bays** with spans **4.5–9 m**.	Better load distribution, suitable for heavier loads.	Not as economical as other two-way systems; requires strong seismic force resistance in some cases.	More reinforcement required in both directions.
Flat Plate	Two-way slab supported directly on columns without beams.	Load is transferred directly to columns.	Economical for spans **4.5–8 m** under moderate loads; slab thickness **15–25 cm**.	Simple construction, flat ceiling, reduced story height.	Not suitable for high seismic areas; limited span capacity.	Requires careful design for punching shear resistance.
Flat Slab	Similar to flat plate but with thickened areas around columns.	Divided into column strips (beams) and middle strips (slabs).	Economical for spans **6–9 m**; requires column capitals or drop panels.	Better resistance to punching shear, supports heavier loads.	Higher initial cost due to additional formwork.	Suitable for seismic zones with modifications.
Waffle Slab	Two-way ribbed slab with thin concrete plates over ribs in two directions.	Light structure with effective load transfer; ribs act like beams.	Spans **8–13 m**, up to **20 m** for longer spans.	Longer spans, aesthetic flexibility, reduced dead weight.	Complex formwork, high initial cost, not efficient for cantilevers.	Often used for decorative purposes due to its ribbed pattern.
Voided Slab	Slab with hollow voids created by rigid formers to reduce dead weight.	Efficient load transfer in both directions.	Suitable for medium to long spans **7–12 m** with moderate live loads.	Larger open areas, lower floor-to-floor height, better earthquake performance.	Complex production and installation.	Reduces concrete usage by up to **35%**.
Post-Tensioned Slab	Combination of conventional reinforcement and high-strength steel tendons tensioned after curing.	Achieves thinner slabs with longer spans.	Suitable for long spans and column-free spaces; requires high expertise.	Thinner slabs, reduced material usage, column-free interiors.	High cost, complex construction, cannot be modified after casting.	Effective for modern architectural designs needing open spaces.
Ribbed Slab	One-way joist system with evenly spaced ribs and thin top slab.	Ribs act as beams; slabs transfer load in one direction.	Commonly spans **6–9 m**; uses lightweight or normal concrete blocks between ribs.	Reduced weight, thermal and acoustic insulation, simple construction.	Questionable integrity under lateral loads.	Widely used in local construction for flexibility.
Folded Plate	Series of thin, deep plates joined along their edges for structural rigidity.	Combines transverse and longitudinal beam action for load transfer.	Suitable for long spans; rigid, load-efficient structure.	High load-carrying capacity, economical for long spans.	Requires more material compared to curved shells.	Requires stiffeners to prevent transverse splaying.