

Estimation & Costing (DI04006021)

Lecture 23: BBS for Slabs and Chajjas

Reinforcement in Slabs

- **One-way Slab:** Main reinforcement is placed along the shorter span. Distribution steel is along the longer span.
- **Two-way Slab:** Main reinforcement is provided in both directions.

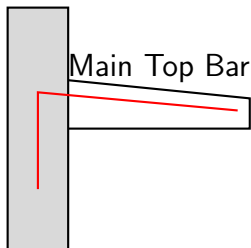
Alternate Cranking

Main bars are often cranked alternately near the supports.

$$\text{Number of bars} = \left(\frac{\text{Span}}{\text{Spacing}} \right) + 1.$$

BBS for Chajja (Sunshade)

- Chajjas act as cantilever slabs.
- The main reinforcement is provided at the **top** to resist negative bending moment.
- Distribution bars are provided in the transverse direction.



Summary of BBS

- Accurate calculation of H (depth for crank) is vital.
 $H = \text{Slab Thickness} - 2(\text{Cover}) - \text{Bar dia.}$
- Distribution bars are straight bars without cranks.
- After calculating all lengths, they are categorized by diameter.
- Total weight is calculated using $\frac{D^2}{162}$ formula to order steel in kg or tonnes.