2. BALLAST, FORMATION AND SLEEPERS

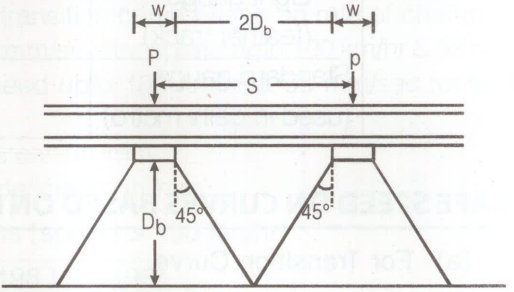
BALLAST AND BALLAST CUSHION

Ballast: It is high quality crushed stone with desired specifications placed immediately beneath the sleeper.

Ballast Cushion: The depth of ballast below the bottom of the sleeper, normally measured under the rail seat.

MINIMUM DEPTH OF BALLAST CUSHION

$$D_b = \frac{S - W}{2}$$



where,

D_b = Min. depth of ballast cushion.

S = Centre to centre distance between two sleepers or sleeper spacing.

W = Width of sleeper.

COMPOSITE SLEEPER INDEX

It is the hardness index of a timber to determine the suitability of a particularly timber to use as a sleeper.

$$C \cdot S \cdot I = \frac{S + 10H}{20}$$

where,

CSI = Composite sleeper index.

S = Strength index of timber at 12% moisture content.

H = Hardness index of timber at 12% moisture content.

	CSI Values
Track sleepers →	783
Crossing sleepers →	1352
Bridge sleepers →	1455

SLEEPER DENSITY

No. of sleepers to be used for one rail length.

Denoted by $(n + x)$

vary from $(n + 3)$ to $(n + 6)$