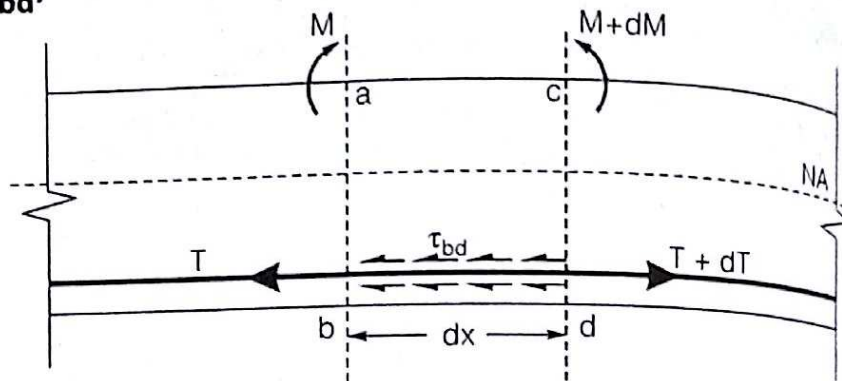


Bond, Anchorage and Development Length

5

Bond stress (τ_{bd})

$$\tau_{bd} = \frac{V}{\Sigma p j d}$$



where V = Shear force at any section
 d = Effective depth of the section
 Σp = Sum of all perimeter of reinforcement
 $= n \cdot \pi (\phi)$
 n = Number of reinforcement
 ϕ = diameter of reinforcement

Permissible bond stress

As per IS 456 : 2000

	M15	M20	M25	M30	M35	M40
WSM	0.6	0.8	0.9	1.0	1.1	1.2
LSM	—	1.2	1.4	1.5	1.7	1.9

These value of bond stress is for plain bar in tension.

For deformed bar the above value should be increased by 60%.

For bar in compression the above value should be increased by 25%

Development length (L_d)

$$L_d = \frac{\phi \sigma_{st}}{4 \cdot \tau_{bd}} \quad \text{For WSM}$$

