***IS 456 BEAM CODE PROVISIONS .***

Long-term deflection  **Span/250**  **[23.2 a]**

Short-term Deflection Factor **Span/350** **[23.2 b ]**

crack moment of section

**[6.2.2]**

**[C-2.1]**

* + - * **+**  **[C-2.1]**

Minimum ratio of reinforcement (flexural)  **[26.5.1.1]**

Check ratio of tensile reinforcement

Calculate Neutral axis  **[ANNEX G]**

Calculate Moment Capacity  **[ANNEX G]**

Concrete Shear Capacity   **[40.4 c] [T table 19]**

Reinforce Shear Capacity

Shear strength by stirrup  **[40.4 c]**

Max area of Compression Reinforcement **0.04 b d**  **[26.5.1.2]**

Max compression + Tensile steel **0.08 b d**

Calculate Moment Capacity compression steel  **[ANNEX G 1-2]**

xu.max the limiting value of xU **xu.max**  **[38.1]**

***Stress in Compression Steel fsc*  [Annex G 1.2]**

Minimum shear reinforcement **[26.5.1.6]**

Design Shear Strength of Concrete ***Tc [Table 19]***

***Shear Strength of Concrete Tc [sp 24 39.2.1]***

*Shear Strength of Concrete Tcmax*  *[Table 20 , sp 16 pno124]*

Design of Shear Reinforcement **[40.4]**

***Xu / d Limit [Table 20 , sp 16 pno124]***

***Effective Width of Flange [*23.1.2*]***

**lo = 0.7 Effective length**

***Beam limiting Moments [Annex G]***

***Beam***  ***[Annex G 1.1]***

**T beam**

***Case 1* xu ≤ Df**

***T-Beam***  ***[Annex G 2.1]***

***Case 2* xu > Df &Df/ d ≤ 0.2**

***T-Beam***  ***[Annex G 2.2.1]***

***Case 3* xu > Df &Df/ d > 0.2**

**Yf = (0.15 xu + 0.65 Df)**

***Use if xu > xumax use xu = max in case 2 and 3 [Annex G 2.3]***

Torsion **[41.3]**

**Ve = Vu + 1.6 Tu /b**

Shear equivalent

Equivalent Bending Moment

**Me = Mu Tu(1 + D/b)/1.7**

Splicing **[26.5.5.1]**

Lap splices

Ø ≤ 36 mm

If ø ≥ 36 mm provide spirals around lapped bar

++

Maximum Allowable Spacing of shear steel **[26.5.1.5]**

**Min of below**

**0.75 d**

**300**

***Minimum Distance between Individual Bars [*26.3.2]**

**Not greater than this :**

**Dia of Large Bar**

**5mm + 20aggregate size**

SPACING OF STIRRUPS IN DOUBLY REINFORCED BEAMS  **[26.5.3.2 c1]**

Min of below 3

**Min (b,d)**

**16 Dia(longitutional)**

**300**

Dia tie must be grater that 0.25 of Dia main bar **[26.5.3.2 c2]**

Check space of skin bar  **[26.5.1.3] d >= 750**

**Area of As>= 0.001 d\* bw (0.001)% web Area**

**Steel Must be at tensile part below the neutral axis ?**