STRUKTUR KAYU

DIMENSI LENTUR MURNI

(pertemuan ke 5)

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Mu = 275,208 Kgm (kombinasi 3)

Fb = 66 x 0,85 x 0,8 x 1,0 = 44,88 MPa

(kode mutu kayu E_{26})

$$Mu \leq \lambda \Phi b \, M'$$

$$275{,}208 \leq 0{,}8 \times 0{,}85 \, M'$$

$$M' \geq \frac{275{,}208}{0{,}8 \times 0{,}85}$$

$$M' \geq 404{,}718 \text{ Kgm}$$

$$M' \geq 4047180 \text{ Nmm}$$

$$M' = Fb \times S$$

dimana : Fb = tegangan lentur

S = section modulus = $\frac{1}{6} bh^2$

$$Fb \times S \geq 4047180$$

$$S \geq \frac{4047180}{44{,}88} = 90178 \text{ mm}^3$$

$$\frac{1}{6} bh^2 \geq 90178$$

Ambil b = 3" = 76,2 mm

$$h^2 \geq \frac{90178 \times 6}{76{,}2} = 7100{,}6$$

$$h = \sqrt{7100{,}6} = 84{,}3 \text{ mm}$$

ambil h = 4" = 101,6 mm

maka dimensi batang lentur 3" x 4" (76,2 mm x 101,6 mm)