STRUKTUR KAYU

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(pertemuan ke 9)

Ir. BESMAN SURBAKTI. MT

Semester B – 2011/2012

Tu $= \bar{Z}u = 55830{,}07$ N (kombinasi 3)

D $= 15$ mm

$\emptyset z = 0{,}65$

$\lambda = 0{,}80$

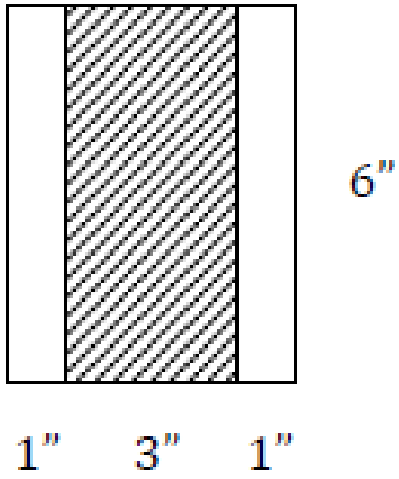
Fyb $= 2400$ kg/cm^2 $= 244.648$ N /mm

Fm $= 46$Mpa

Fs $= 46$Mpa

Re $= \frac{Fem}{Fes} = 1{,}0$

$K\emptyset = 1 + 0.25\left(\frac{\theta}{90}°\right) = 1$



Metode kelelehan

$$\text{Im : Z} = \frac{0.83\ Dtm\ Fem}{1+0.25\frac{\theta}{90}} = \frac{0.83\ x\ 15\ x76{,}2\ x46}{1+0{,}25\frac{0}{90°}} = \frac{43639{,}74}{1} = 43639.74\ N$$

$$\text{Is : Z} = \frac{1{,}66D\ ts\ Fes}{1+0{,}25\frac{\theta}{90°}} = \frac{1{,}66x15x25{,}4x46}{1+0.25\frac{0}{90°}} = \frac{29093{,}16}{1} = 29093{,}16\ N$$

$$\text{IIIs :} K_3 = (-1) + \sqrt{\frac{2(1+Re)}{Re} + \frac{2Fyb(2+Re)D^2}{3\ Fem\ ts^2}} = (-1)+ \sqrt{\frac{2(1+1)}{1} + \frac{2x244{,}648(1+2)15^2}{3\ x46\ x25{,}4^2}} = 1{,}77$$

$$\text{Z} = \frac{2{,}08\ K_3 Dts\ Fes}{K\theta(2+Re)} = \frac{2{,}08\ x\ 1{,}77\ x15\ x\ 25{,}4\ x\ 46}{1\ (\ 2+1\ )} = \frac{64523{,}72}{3} = 21507{,}9$$

$$\text{IV : Z}\ \frac{2{,}08\ D^2}{K\ \theta}\ \sqrt{\frac{2\ Fem\ Fyb}{3\ (\ 1+Re)}} = \frac{2{,}08\ x\ 15^2}{1}\ \sqrt{\frac{2\ x\ 46\ x\ 244{,}648}{3\ (\ 1+1)}} = 28663{,}8\ \text{N}$$

Z' = Zmm x cm x cr x cd = 21507,9 x1,0 x 0,8 x 1,0 = 17206,32 N

$$\text{Zu} \leq \lambda \emptyset Z\ Z' nf$$

$$\text{Nf} \geq \frac{Zu}{\lambda \emptyset_z z'} = \frac{55830{,}07}{0.80\ x\ 0{,}65\ x\ 17206\ ,32} = 6{,}23 \sim 7\ baut$$