STRUKTUR KAYU

SAMBUNGAN DENGAN PAKU

(pertemuan ke 10)

Ir. BESMAN SURBAKTI. MT

Semester B – 2011/2012

$Tu = Zu = 55830{,}07$ N (kombinasi 3)

$D = 5{,}2$ mm panjang 4,5" (114mm)

$\emptyset z = 0{,}65$

$\lambda = 0{,}80$

$Fyb = 2400$ kg/cm$_{\cdot}$ $= 244{,}648$ Mpa

$Fm = Fs = 46$ Mpa

$Re = Fem/Fes = 1$

$KD = 0{,}38\ D + 0{,}56$ Untuk $4{,}3 < D < 6{,}4$ mm

$= 0.38\ (5{,}2) + 0{,}56$

$= 2{,}536$

$\rho = 114 - 101{,}6 = 12{,}4$

Moda Kelelehan

$$\text{Is}: Z = \frac{3{,}3\ Dts\ Fes}{KD} = \frac{3{,}3\ X\ 5{,}2\ X\ 25{,}4\ X\ 46}{2{,}536} = 7906{,}05\ N$$

$$\text{III m}: K1 = (-1) + \sqrt{2(1+Re) + \frac{2Fyb(1+2Re)D}{3\ Femp}}^{2} = (-1) + \sqrt{2(1+1) + \frac{2\ x244{,}648\ (1+2)5{,}2}{3\ x46\ x\ 12\ ,4}}^{2}$$

$$Z = \frac{3{,}3\ k1\ D\ \rho\ Fem}{KD\ (1+2Re)} = \frac{3{,}3\ x\ 1{,}423\ x\ 5{,}2\ x12{,}4\ x46}{2{,}536\ (1+2\ x1)} = 1830{,}759\ N$$

$$\text{IIIs}: K2 = (-1) + \sqrt{\frac{2(1+Re)}{Re} + \frac{2\ Fyb\ (1+2\ Re)D}{3Fem\ ts}}^{2} = (-1) + \sqrt{\frac{2\ (1+1)}{1} + \frac{2\ X\ 244{,}648\ (1+2.1)5{,}2}{3\ X\ 46\ X\ 25{,}4}}^{2} = 1{,}107$$

$$Z = \frac{3{,}3\ k2\ D\ ts\ Fes}{KD(2+Re)} = \frac{3{,}3\ x1{,}107x5{,}2x25{,}4x4{,}6}{2{,}536} = 2917{,}3\ N$$

$$\text{IV}: Z = \frac{3{,}3D}{KD}^{2} \sqrt{\frac{2Fem\ Fyb}{3(1+Re)}} = \frac{3{,}3x5{,}2}{2{,}536}^{2} \sqrt{\frac{2x46x244{,}648}{3(1+1)}} = 2155{,}066$$

Sambungan tampang 2 , nilai Zmin dikali2

$Z' = 2 \text{ x Zmin x cm x cr x cs} = 2\text{x}1830{,}759\text{x}0.8 \text{ x } 1{,}0 \text{ x}1{,}0 = 2929{,}204 \text{ N}$

$$Zu \leq \lambda \emptyset z\ Z' nf$$

$$Nf \geq \frac{Zu}{\lambda \emptyset z\ Z'} = \frac{55830{,}07}{0.8x0.65x2929{,}204} = 38\ buah \sim 40\ buah$$