

④ $b_f = 60 \text{ cm}$ $f_c K = 20 \text{ MPa}$
 $b_w = 20 \text{ cm}$ $A_{cp} = \text{CASSA}$
 $h = 50 \text{ cm}$ $M_K = 200 \text{ KN.m}$
 $d = 46 \text{ cm}$ $h_f = 10 \text{ cm}$

$$\mu_c = \frac{1,4 \cdot 20000}{\frac{2}{14} \cdot 60 \cdot 46^2} \Rightarrow \mu_c = 0,154 //$$

$$K_f = \frac{10}{46} \Rightarrow K_f = 0,217$$

$$\mu_{c \lim} = 0,05 \cdot K_f (1 - 0,5 K_f) \Rightarrow \mu_{c \lim} = 0,165$$

$\mu_c < \mu_{c \lim} \Rightarrow$ sesuai ketentuan

$$\mu_{c \lim} = 0,32 \Rightarrow \mu_c < \mu_{c \lim} \Rightarrow \sigma_{sc} = f_{yd}$$

$$\omega = 0,85 - \sqrt{0,7225 - 1,7 \cdot 0,154} \Rightarrow \omega = 0,171$$

$$A_s = \frac{0,171 \cdot 60 \cdot 46 \cdot 1429}{43,478} \Rightarrow A_s = 15,57 \text{ cm}^2$$

⑤ $b_f = 60 \text{ cm}$ $f_c K = 20 \text{ MPa}$
 $b_w = 20 \text{ cm}$ $A_{cp} = \text{CASSA}$
 $h = 50 \text{ cm}$ $M_K = 250 \text{ KN.m}$
 $d = 46 \text{ cm}$ $h_f = 10 \text{ cm}$

$$\mu_c = \frac{1,4 \cdot 25000}{\frac{2}{14} \cdot 60 \cdot 46^2} \Rightarrow \mu_c = 0,193$$

$$K_f = \frac{10}{46} \Rightarrow K_f = 0,217$$

$$\mu_{c \lim} = 0,05 \cdot 0,217 \cdot (1 - 0,5 \cdot 0,217) \Rightarrow \mu_{c \lim} = 0,164$$

$\mu_c > \mu_{c \lim} \Rightarrow$ sesuai T/

$$\beta_f = \frac{b_f}{b_w} \Rightarrow \beta_f = \frac{60}{20} \Rightarrow \boxed{\beta_f = 3}$$

$$\mu_{cf} = 0,05 (\beta_f - 1) K_f (1 - 0,5 K_f) \Rightarrow \mu_{cf} = 0,05 (3 - 1) \cdot 0,217 (1 - 0,5 \cdot 0,217)$$

$$\mu_{cf} = 0,329$$