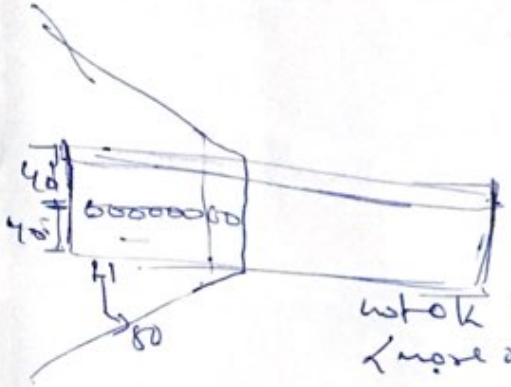
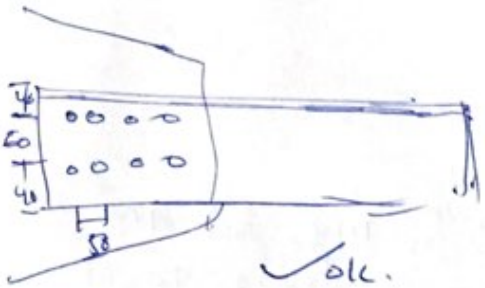
$= \frac{2.5 \times 0.67 \times 16 \times 10 \times 450 \times 10^{-3}}{1.25}$

$= 85.76 \text{ kN}$



not ok.
(more overlap)



ok.

$T_{ns} = 0.9 \frac{f_u}{\gamma_{mb}} (p - n d_h) t = 81.4$

$p = 49.73 \text{ mm} \leq 50 \text{ mm}$
$2.5d.$

$\therefore p = 50 \text{ mm}$

$V_{ds} = \frac{2.5 \times .5 \times 20 \times 10 \times 450}{1.25}$

$= 80.60 \text{ kN} < 81.47$

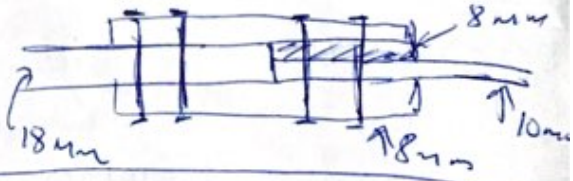
$\therefore$ increase e to 35 mm

$k_b = 0.53$

$V_{ds} = \frac{2.5 \times .53 \times 20 \times 10 \times 450}{1.25}$

$= 84.81 \text{ kN} > 81.47$

OK



(25) a) $f_u = 410$

$\gamma_{mw} = 1.25$

$S = 6 \text{ mm}$

$t_e = 0.7 \times 6 = 4.2 \text{ mm}$

perm strength $= \frac{1 \times t_e \times f_u}{\sqrt{3} \gamma_{mw}}$

$= \frac{1 \times 42 \times 410}{\sqrt{3} \times 1.25} \times$

$= 795.36 \text{ kN/m}$

$L.O.d = 471.24 \text{ mm}$

moment $= S \times L \times r$

$= 795.36 \times 471.24 \times 10^{-6} \times 150/2$

$= 28.11 \text{ kN/m}$

(b) Defects in weld

a) Incomplete fusion

b) Incomplete penetration

c) Porosity

d) Slag inclusion

e) Cracks

f) undercutting