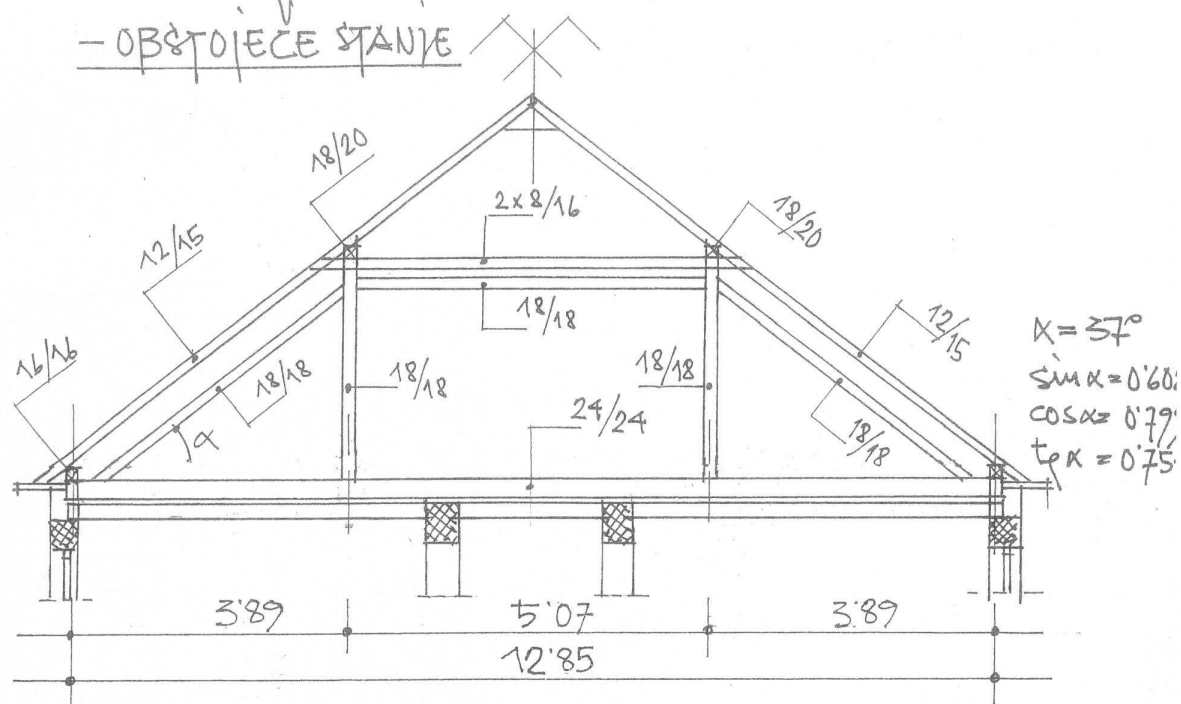


# STATIČNI RACUN

## - STREHA - ADAPTACIJA

### POVEZNIK

- OBSTOJEĆE STANJE



OBTEŽBA:

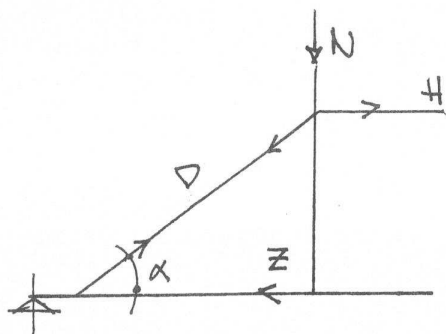
- STALNA	KRITINA / OPEČINA	—	0.55 kN/m <sup>2</sup>
	IZOLACIJA	—	0.10 —
	ŠPIROVCI	—	0.12 —
	SPODNJA ZAPORA	—	0.25 —

$$q = \frac{1.02}{0.799} = 1.28 \text{ kN/m}^2$$

- OBCASNA SNEG + VETER

$$p = 1.45 \text{ —}$$

$$q_h = 2.73 \text{ kN/m}^2$$



$$N = 2.39 \left( \frac{4.00 + 5.00}{2} \right) \times 4.00 = 42.66 \text{ kN}$$

$$H = - \frac{42.66}{0.754} = -56.58 \text{ kN}$$

$$D = \frac{42.66}{0.602} = 70.86 \text{ kN}$$

$$Z = 70.86 \times 0.799 = 56.62 \text{ kN}$$

RAZPORA;  $b/h = 18/18 \rightarrow A = 324 \text{ cm}^2$ ;  $i = 5.20 \text{ cm}$

$$L = 5.00 \text{ m}$$

$$H = 56'58 \text{ kN}$$

$$1 = \frac{500}{5 \cdot 20} = 96'15 \rightarrow \omega = 3'84$$

$$C = 3.04 \times \frac{56.58}{324} = 0.53 \text{ kN/cm}^2 < 0.85 \text{ kN/cm}^2$$

DIAGONALA;  $b/h = 18/18$

$$d = \frac{3.40}{0.799} = 4.26 \text{ M}$$

$$D = 70.86 \text{ kN}$$

$$1 = \frac{426}{5'20} = 81'92 \rightarrow \omega = 2'17$$

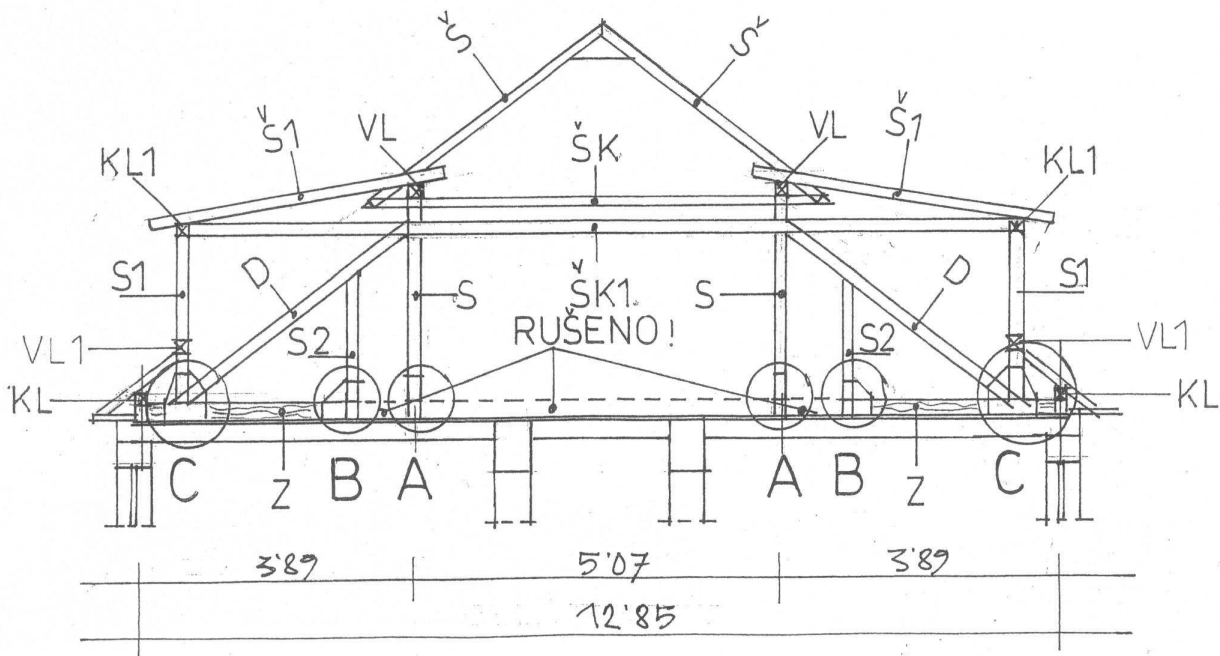
$$C = 2.17 \times \frac{70.86}{324} = 0.48 \text{ kN/cm}^2$$

ZATEGA ;  $b/h = 24/24 \rightarrow A = 576 \text{ cm}^2$

$$Z = 2 \times 56.62 = 113.24 \text{ kN}$$

$$G = \frac{113.24}{576} = 0.20 \text{ kN/cm}^2$$

P1 - ADAPTIRAN POVEZNIK



# FRČADA

S1 - ŠPIROVCI  $b/h = 12/44 \rightarrow W_x = 392 \text{ cm}^3; S_x = 2744 \text{ cm}^4$

$e = 0.80 \text{ m}; L = 3.40 \text{ m}$

OBTEŽBA: KRIVINA/POČEVINA/  $= 0.10 \text{ kN/m}^2$   
 HIDR. IZOLACIJA  $= 0.10 \text{ +}$   
 $0.20 \text{ kN/m}^2$

SNEG + VETER

$= 1.45 \text{ +}$

$q_h = 1.65 \text{ kN/m}^2$

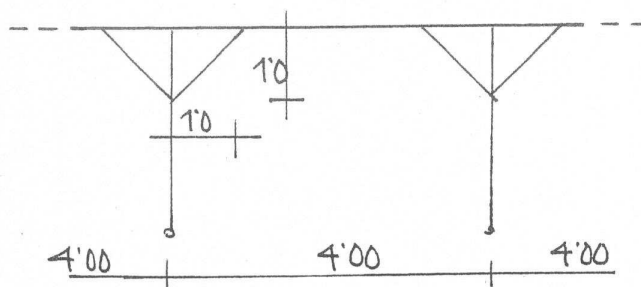
$q_h^1 = 0.80 \times 1.65 + 0.10 = 1.42 \text{ kN/m}^1$

$M = 1.42 \times 3.40^2 \times 0.125 = 2.05 \text{ kNm}$

$\sigma = \frac{2.05}{392} = 0.52 \text{ kN/cm}^2$

$f = \frac{2.05 \times 340^2}{96 \times 1000 \times 2744} = 0.90 \text{ cm} = \frac{L}{378}$

K11 - KAPNA LEŽA  $b/h = 18/18 \rightarrow W_x = 972 \text{ cm}^3$

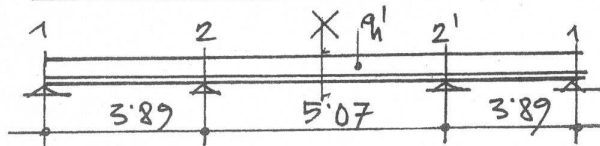


$q_h = \frac{1.42}{0.80} \times \left( \frac{3.39}{2} + 0.70 \right) + 0.16 = 4.41 \text{ kN/m}^1$

$M = 4.41 \times 4.00^2 \times 0.125 = 8.82 \text{ kNm}$

$\sigma = \frac{8.82}{972} = 0.91 \text{ kN/cm}^2$

SK1 - ŠKARJE / NOVE / ;  $2 \times 6/18 = 864 \text{ cm}^3$



OBTEŽBA

OD IZOLACIJE ;  $= 0.20 \text{ kN/m}^2$

OD OBEŠENEGA STROPA ;  $= 0.25 \text{ +}$

$q_h = 0.45 \text{ kN/m}^1$

$q_h^1 = 0.45 \times 4.00 + 0.14 = 1.94 \text{ kN/m}^1$

$$t_{21} = \frac{0.75}{3.40} = 0.221 \quad ; \quad \mu_{21} = -0.5 \times \frac{0.221}{0.320} = -0.345$$

$$t_{22} = \frac{1.00}{2 \times 5.07} = 0.099 \quad ; \quad \mu_{22} = -0.5 \times \frac{0.099}{0.320} = -0.155$$

$$\Sigma t_2 = 0.320 \quad -0.500$$

$$\overline{M}_{21} = 1.94 \times 3.40^2 \times 0.125 = -2.80 \text{ kNm}$$

$$\overline{M}_{22} = 1.94 \times 5.07^2 \times 0.080 = -4.16 \text{ kNm}$$

-2.80	+4.16
-0.47	-0.21
-0.47	-0.21
-3.74	+3.74

-M<sub>2</sub>

$$Q_1^D = \frac{1.94 \times 3.40}{2} - \frac{3.74}{3.40} = 3.30 - 1.10 = 2.20 \text{ kN} = N_1$$

$$+M_{1-2} = \frac{2.20^2}{2 \times 1.94} = +1.25 \text{ kNm}$$

$$Q_2^L = 3.30 + 1.10 = 4.40 \text{ kN}$$

$$Q_2^D = \frac{1.94 \times 5.07}{2} = 4.92 \text{ kN}$$

$$+M_{2-2} = \frac{4.92^2}{2 \times 1.94} - 3.74 = +2.50 \text{ kNm}$$

$$+ \frac{1.0 \times 5.07}{4} = +1.27 \text{ kNm}$$

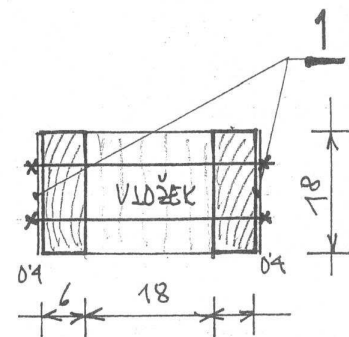
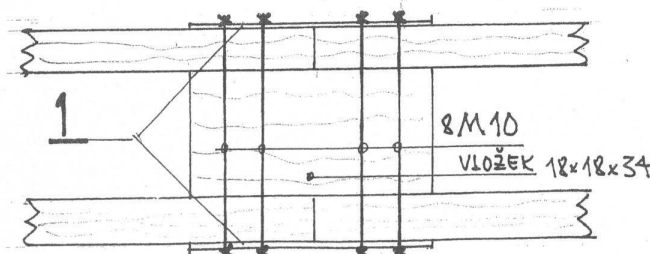
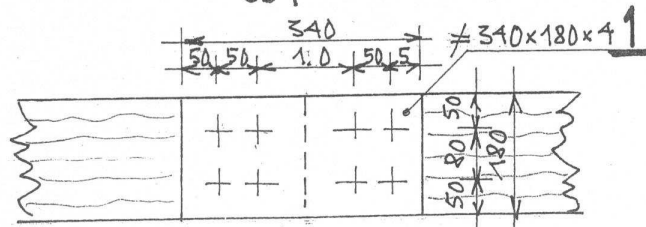
$$+3.77 \text{ kNm}$$

V ČASU MONTÁŽE !

$$- \sigma_{2,2} = \frac{3.74}{864} = 0.43 \text{ kN/cm}^2$$

$$+ \sigma_{1-2} = \frac{1.25}{864} = 0.15 \text{ kN/cm}^2$$

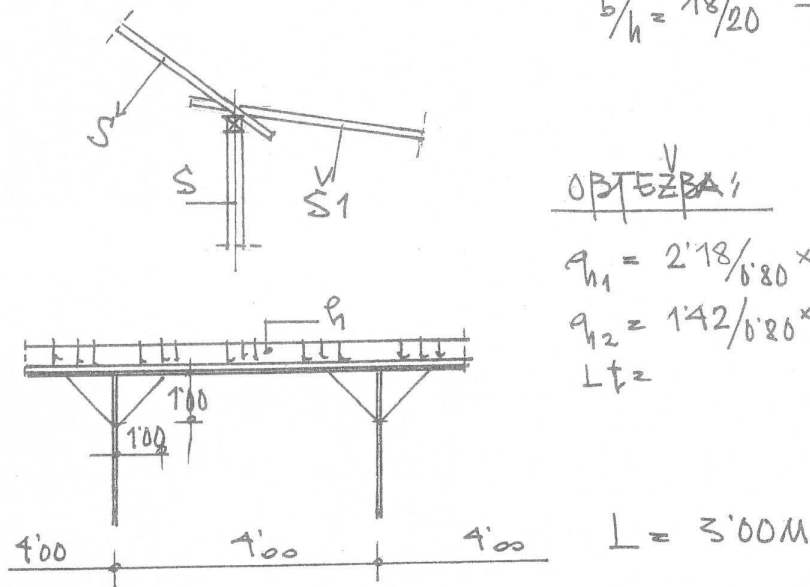
$$+ \sigma_{2-2} = \frac{3.77}{864} = 0.44 \text{ kN/cm}^2$$



MONTÁŽNÍ STŘÍK

# KONTROLA OBSTOJEČE VMESNE LEGE

$$b/h = 18/20 \rightarrow W = 1200 \text{ cm}^3$$



OPTEŽBA:

$$q_{h1} = 2.18 / 0.80 \times 2.54 = 6.92 \text{ kN/m}$$

$$q_{h2} = 1.42 / 0.80 \times \frac{3.40}{2} = 3.02 \text{ --}$$

$$L_{t2} = 0.18 \text{ --}$$

$$q_h = 10.12 \text{ kN/m}$$

$$M = 10.12 \times 3.00 \times 0.125 = 11.39 \text{ kNm}$$

$$\sigma = \frac{11.39}{1200} = 0.95 \text{ kN/cm}^2$$

## VL1 - VMESNA LEGA / FASADA /

$$b/h = 14/18 \rightarrow W = 756 \text{ cm}^3$$

KONSTRUKTIVNO!

$$L = 4.00 \text{ m}$$

OPTEŽBA:

$$\text{OD ZAŠTEKOVITVE: } 2 \times 0.005 \times 25.00 \times 1.40 = 0.35 \text{ kN/m}$$

$$\text{OD L. TEŽE: } 0.14 \times 0.18 \times 5.00 = 0.13 \text{ --}$$

$$q_h = 0.48 \text{ kN/m}$$

$$M = 0.48 \times 4.00 \times 0.125 = 0.96 \text{ kNm}$$

$$\sigma = \frac{0.96}{756} = 0.13 \text{ kN/cm}^2$$

$$\text{S1 - ŠTEBER; } b/h = 18/18 \rightarrow A = 324 \text{ cm}^2; i = 5.20 \text{ cm}$$

$$h = 2.72 \text{ m}$$

OPTEŽBA:

$$\text{OD KAPNE LEGE KL1: } 4.41 \times 4.00 = 17.64 \text{ kN}$$

$$\text{OD VMESNE LEGE VL1: } 0.48 \times 4.00 = 1.92 \text{ --}$$

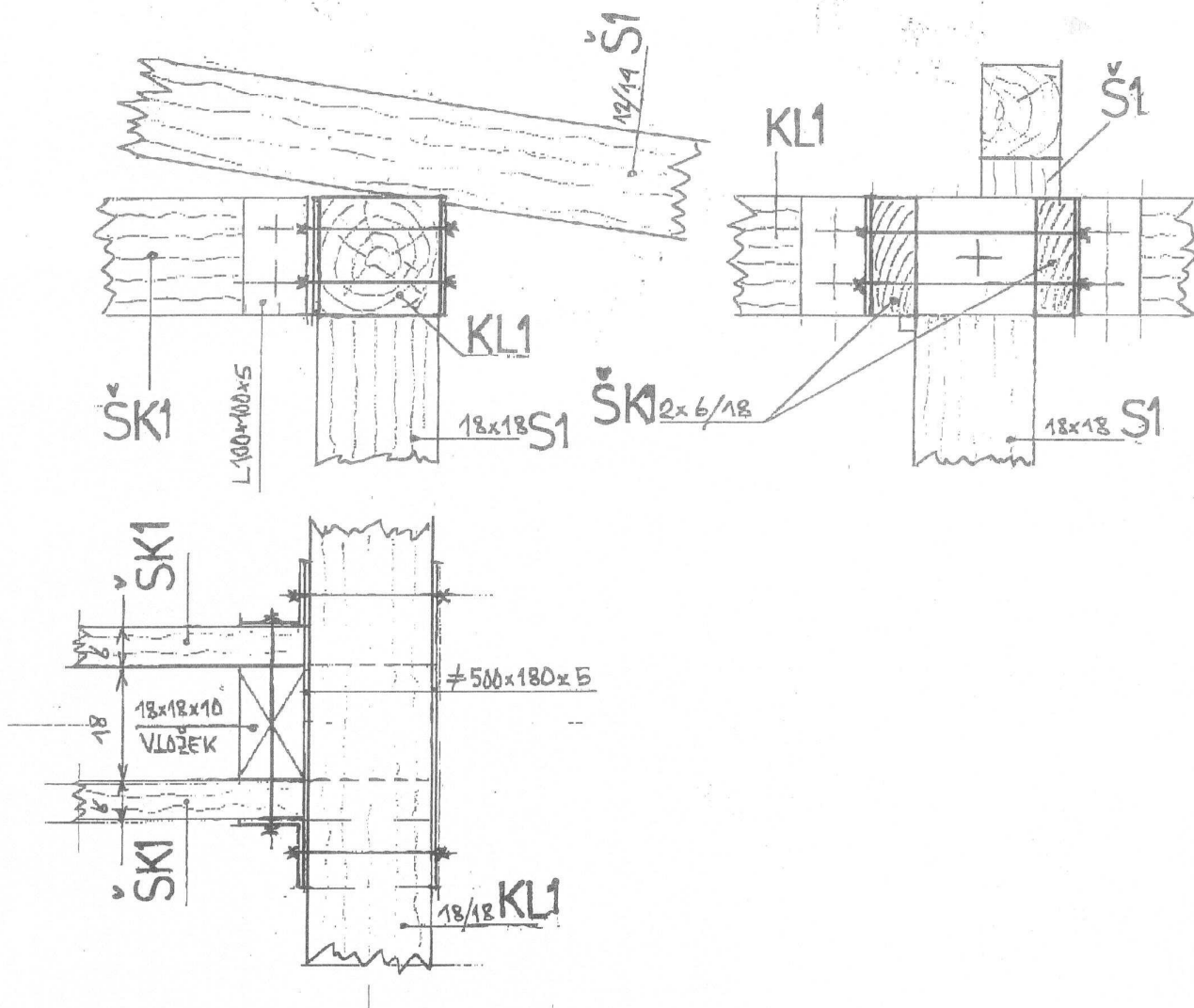
$$\text{OD ŠKARIJ ŠK1: } = 2.20 \text{ --}$$

$$\text{OD L. TEŽE: } 0.18 \times 2.72 = 0.49 \text{ --}$$

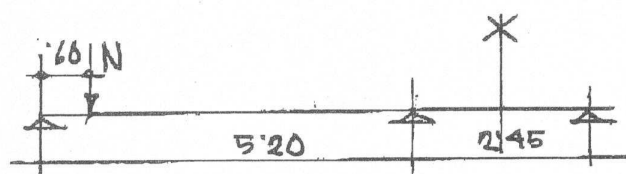
$$N = 22.25 \text{ kN}$$

$$\lambda = \frac{2.72}{5.20} = 52.31 \rightarrow w = 1.28$$

$$\sigma = 1.28 \times \frac{22.25}{324} = 0.09 \text{ kN/cm}^2$$



Z - ZATEGA;  $b/h = 24/24 \rightarrow A = 576 \text{ cm}^2; W_x = 2304 \text{ cm}^3$



$$N = 22.25 + 42.66 = 64.91 \text{ kN}$$

$$Z = 56.58 \text{ kN}$$

$$M_v = 64.91 \times \frac{0.60 \times 4.20}{5.20} = 34.45 \text{ kNm}$$

$$\sigma = \frac{56.58}{576} + \frac{34.45}{2304} \times 0.85 = 0.10 + 0.127 = 0.227 \text{ kN/cm}^2 > \sigma_d$$

POTREBUJE JE OJACITEV Z VEZNIMI  
PLOČEVINAMI! DETAIL STR. 7

$$M_z = 56.58 \left( \frac{0.24}{2} + 0.07 \right) = 9.62 \text{ kNm}$$

### KONZOLE

DETAL A :  $2 \times \#642 \times 180 \times 10$

$$W_1 = \frac{1.0 \times 18.0^2}{6} = 54 \text{ cm}^3$$

$$\sigma = \frac{9.62}{2 \times 54} = 8.91 \text{ kN/cm}^2$$

DETAL B :  $2 \times \#522 \times 380 \times 6$

$$W_1 = \frac{0.6 \times 38.0^2}{6} = 144 \text{ cm}^3$$

$$\sigma = \frac{9.62}{2 \times 144} = 3.34 \text{ kN/cm}^2$$

### VIJAKI

DETAL A :  $2 \text{ M20 } 5.8' - Z = 56.58 \text{ kN}$

$$N_{1S} = 59.7 \text{ kN} > \frac{56.58}{2} = 28.29 \text{ kN}$$

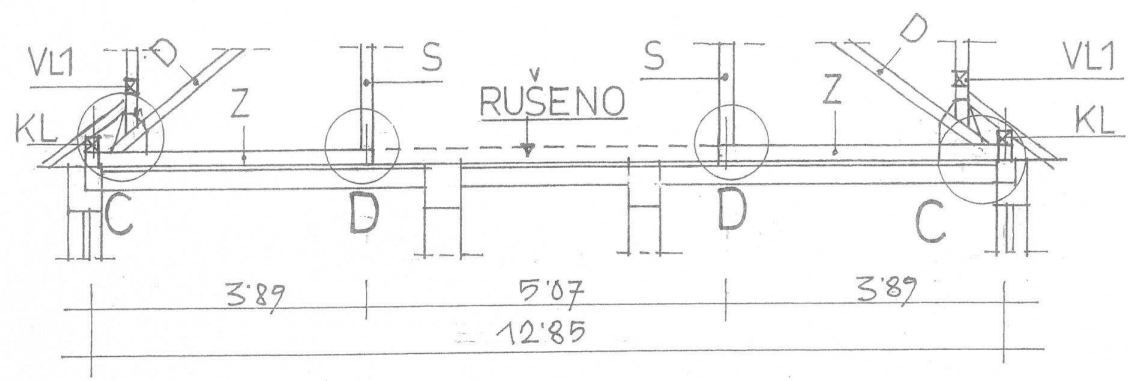
$$N_{1B} = 1.0 \times 54.0 = 54.0 \text{ kN} > \frac{56.58}{2} = 28.29 \text{ kN}$$

DETAL B :  $6 \times \text{M16 } 5.8'$

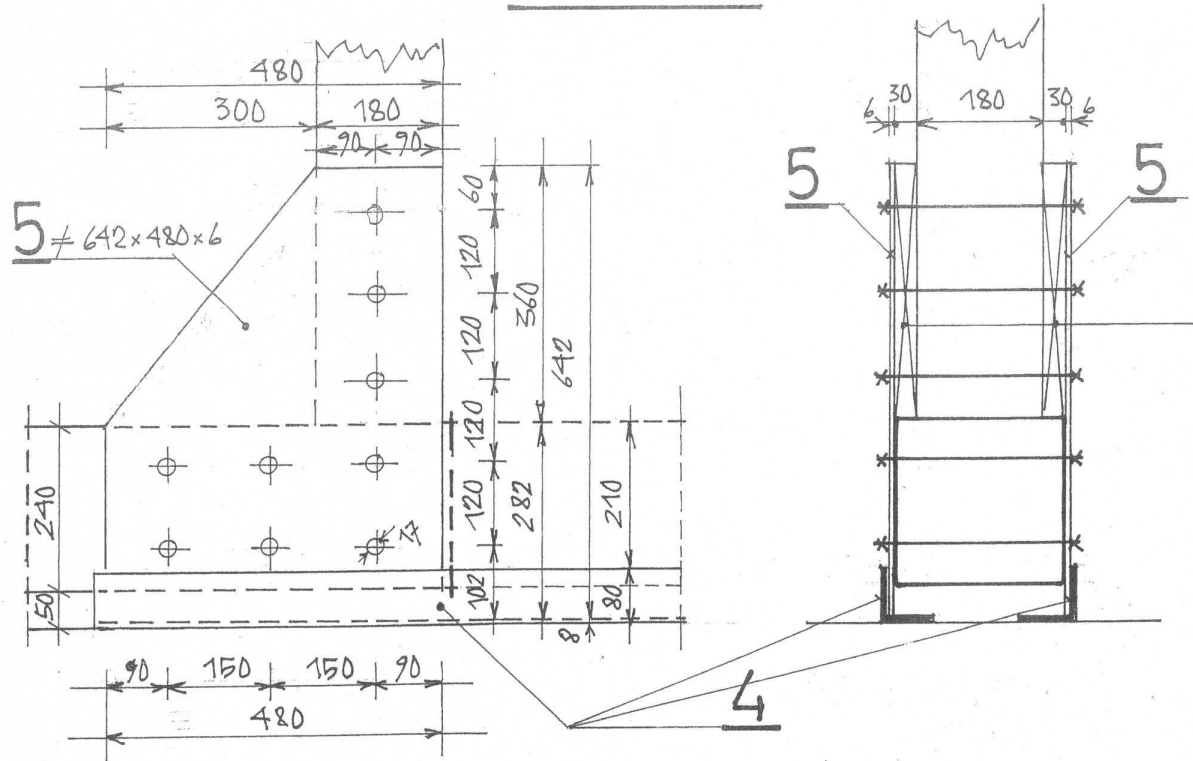
$$N_{1S} = 38.2 \text{ kN} > \frac{56.58}{6} = 9.43 \text{ kN}$$

$$N_{1B} = 0.6 \times 43.2 = 25.92 \text{ kN} > 9.43 \text{ kN}$$

# P2 - ADAPTIRAN POVEZNIK - KOM.2



## det. D



# P3 - ADAPTIRAN POVEZNIK - KOM.1

