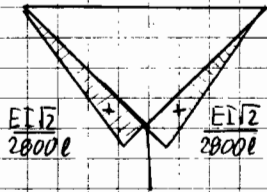


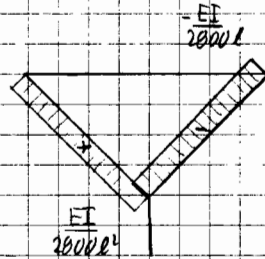
Baustrahl I-II Lösung der Fertigungsprüfung

Frühjahr 04

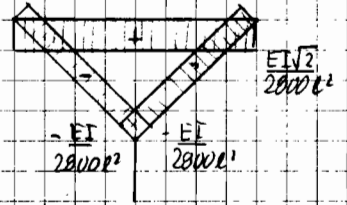
1a1) M:



V:



N:



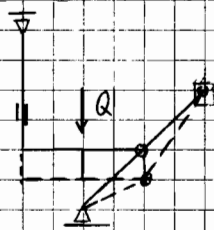
a2) $\delta_A = \delta_B = l/2800$

$\sigma_{Stab} = 100 \text{ N/mm}^2$

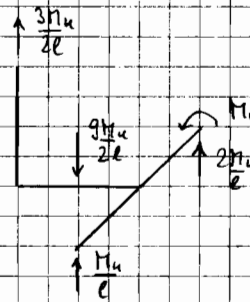
b1) $D = \frac{EI/2}{2400l^2}$

b2) $N_{AG} = \frac{EI/2}{2400l^2}$

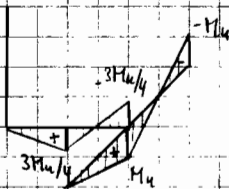
2) $Q_k = \frac{9M_k}{2l}$



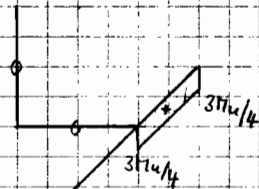
SKD:



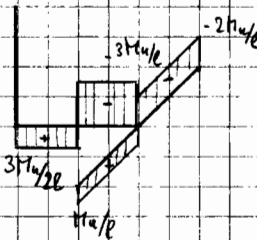
M:



T:



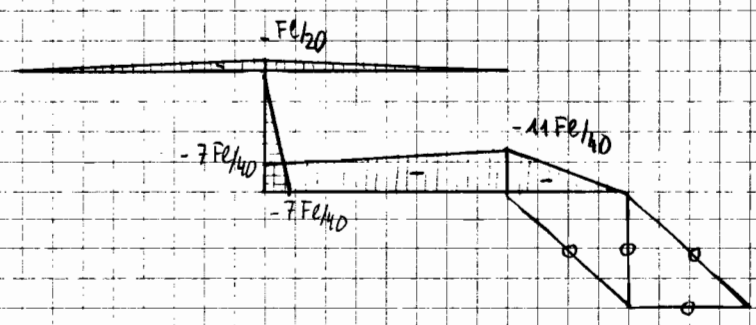
V:



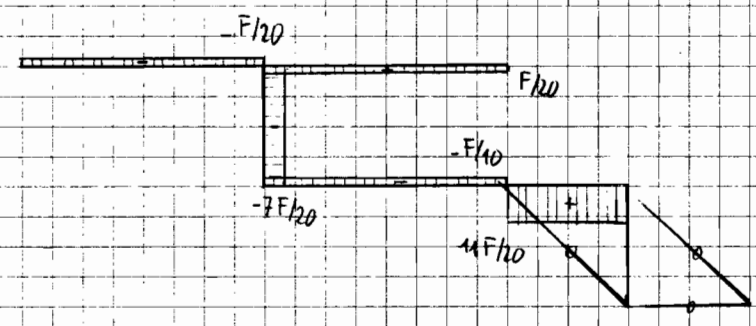
N:



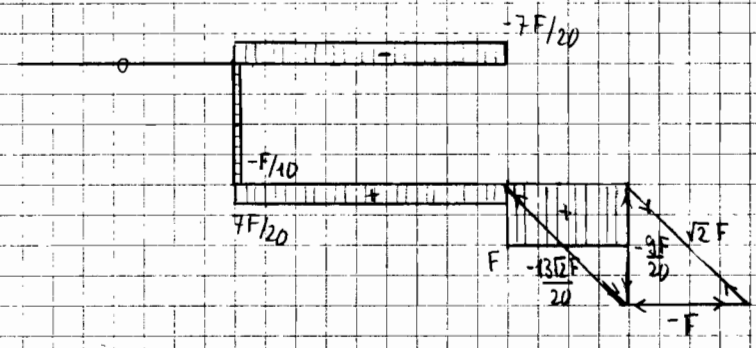
3a) M:



V:

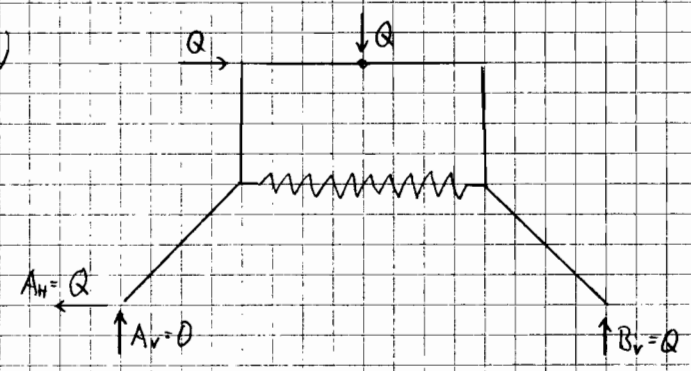


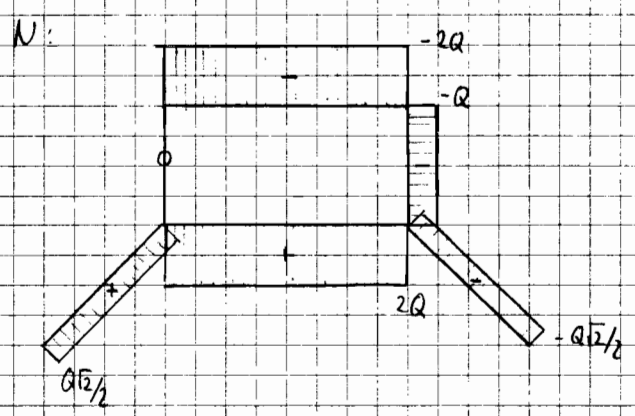
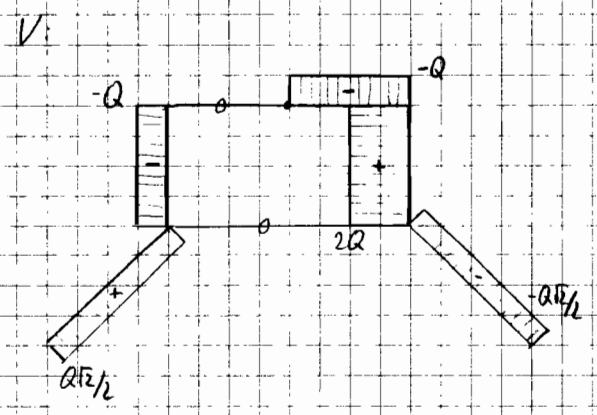
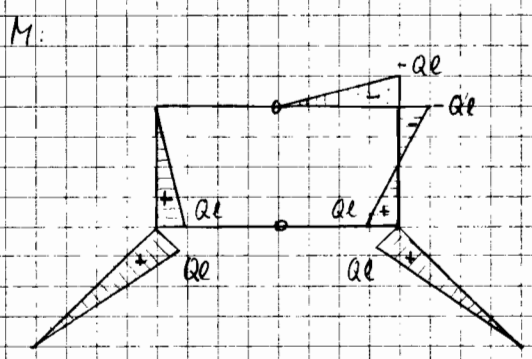
N:



b) $\varphi_B = -\frac{F \ell^2}{15EI}$

4a)



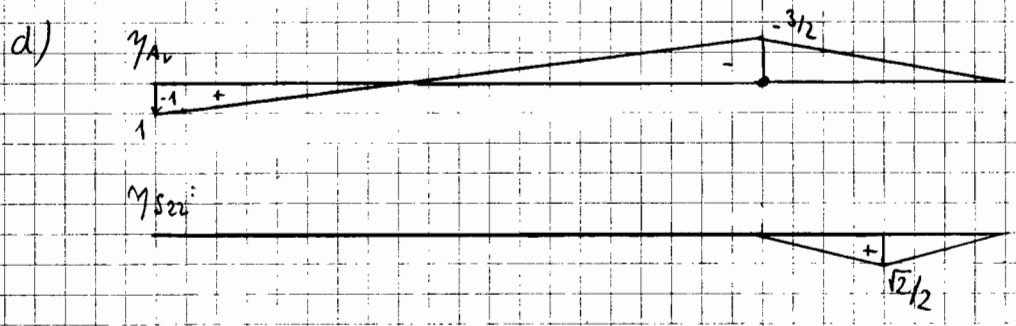
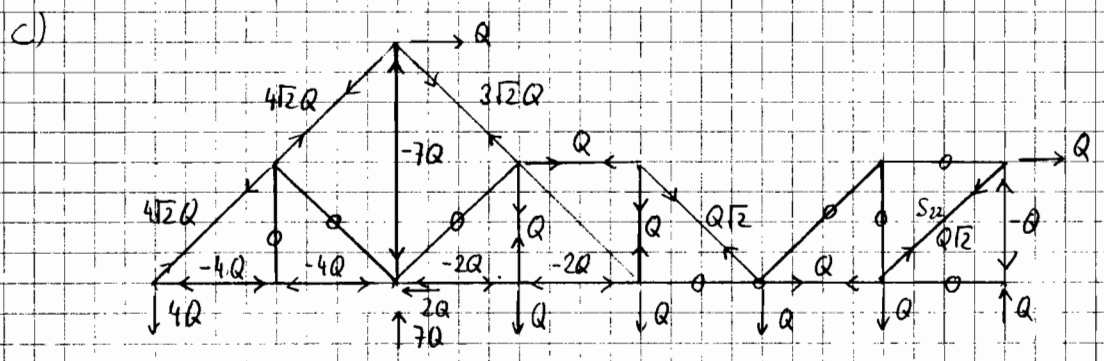


b) $\sigma_{bH} = 94.84 \text{ mm}$

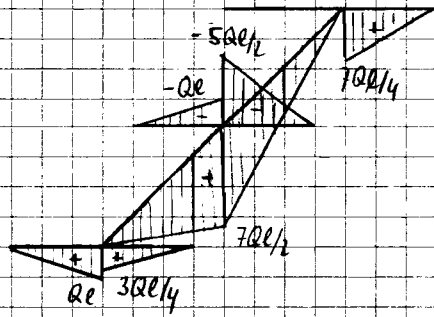
c) $c_f \leq 0.879 \text{ mm/kN}$

5a) $S_{13} = 2\sqrt{2}Q$

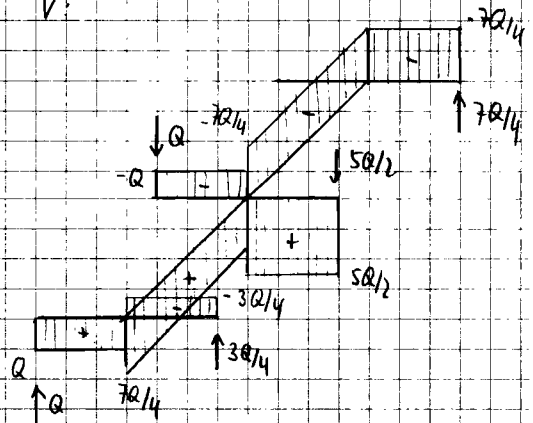
b) Nullstäbe: $S_3, S_5, S_{18}, S_{20}, S_{21}, S_{23}$



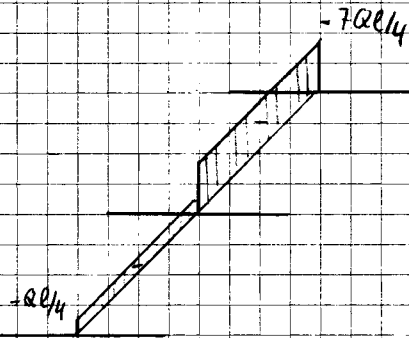
6a) M:



V:



T:



$N = 0$

Im Schnitt 1-1:

$$M_{1-1} = 7Ql/4 = 175 \text{ kNm}$$

$$V_{1-1} = 7Q/4 = 35 \text{ kN}$$

$$N_{1-1} = 0$$

$$T_{1-1} = -Ql/4 = -25 \text{ kN}$$

b) Punkt 1: $\sigma_x(M_1) = +90.6 \text{ N/mm}^2$

$$\bar{\tau}_{12}(T) = +8.7 \text{ N/mm}^2$$

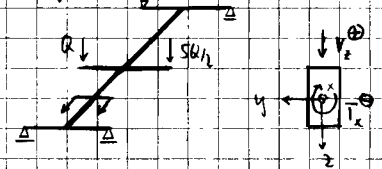
$$\bar{\tau}_{12}(V) = 0$$

Punkt 2: $\sigma_x(M_2) = -47.7 \text{ N/mm}^2$

$$\bar{\tau}_{23}(T) = -17.3 \text{ N/mm}^2$$

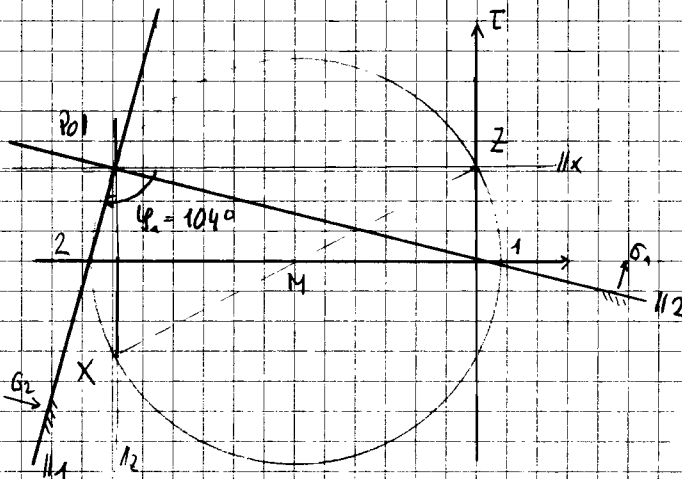
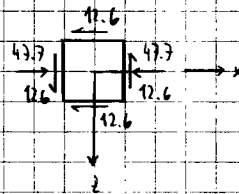
$$\bar{\tau}_{23}(V) = 4.7 \text{ N/mm}^2$$

Achtung: Änderung der Blickrichtung



c) Punkt 2: $\sigma_x = -47.7 \text{ N/mm}^2$

$$\tau_{23} = -12.6 \text{ N/mm}^2$$



$$\sigma_1 = 3.1 \text{ N/mm}^2$$

$$\sigma_2 = -50.8 \text{ N/mm}^2$$

$$\varphi_1 = 104^\circ$$

