

## 1. Input parameters

### 1.1. notch at the support bottom perpendicular acc. to EC5-1-1, 6.5, NA Germany

### 1.2. beam

beam of glue laminated timber EC, GL24h 200/500 mm,  $\rho_k = 385 \text{ kg/m}^3$ , NKL 1

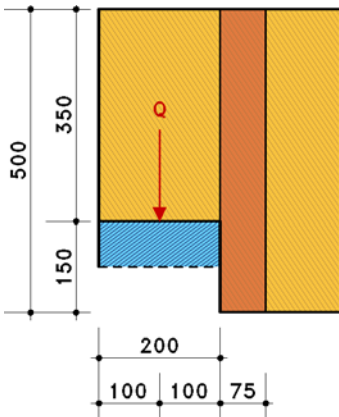
$h_{ef} = 350 \text{ mm}$ ,  $x = 100 \text{ mm}$  (expressions acc. to EC 5, 6.5 figure 6.11)

$f_{m,k} = 24.00 \text{ N/mm}^2$ ,  $f_{t,k} = 19.55 \text{ N/mm}^2$ ,  $f_{c,k} = 24.00 \text{ N/mm}^2$ ,  $f_{v,k} = 3.50 \text{ N/mm}^2$ ,  $f_{t90,k} = 0.50 \text{ N/mm}^2$

### 1.3. reinforcement by glued lugs

plywood F50/25  $l_r = 75 \text{ mm}$ ,  $t_r = 12 \text{ mm}$ ,  $f_{t,k} = 36.00 \text{ N/mm}^2$  parallel to the grain direction of the face grain

elevation scale 1:125, unit of length [mm]



### 1.4. support reactions

Nr.	name	$V_d$ kN	KLED	$k_{mod}$ -	$\gamma$ -
1	V	37.00	med.-term	0.800	1.30

## 2. results

### 2.1. shear stresses

$k_{cr} = 0.714 \Rightarrow b_{eff} = 142.857 \text{ mm}$

$h_{min} = 150 \text{ mm}$ ,  $f_{k2,k} = 0.75 \text{ N/mm}^2$  (table NA.12),  $k_n = 6.5$ ,  $\alpha = 0.700 \Rightarrow k_v = 0.474$

Nr	$V_d$ kN	$f_{k2,d}$ N/mm <sup>2</sup>	$F_{t90,d}$ kN	$f_{t,d}$ N/mm <sup>2</sup>	$\tau_{ef,d}$ N/mm <sup>2</sup>	$\sigma_{t,d}$ N/mm <sup>2</sup>	$u_{\tau_{ef,d}}$ -	$u_{\sigma_{t,d}}$ -	u -
1	37.00	0.462	10.390	22.15	0.462	5.77	1.000	0.521	1.000

$u_{max} = 1.000 \leq 1 \Rightarrow \text{ok.}$

## 3. Summary

total utilization all verifications  $u_{max,Ges} = 1.000 \leq 1 \Rightarrow \text{ok.}$