

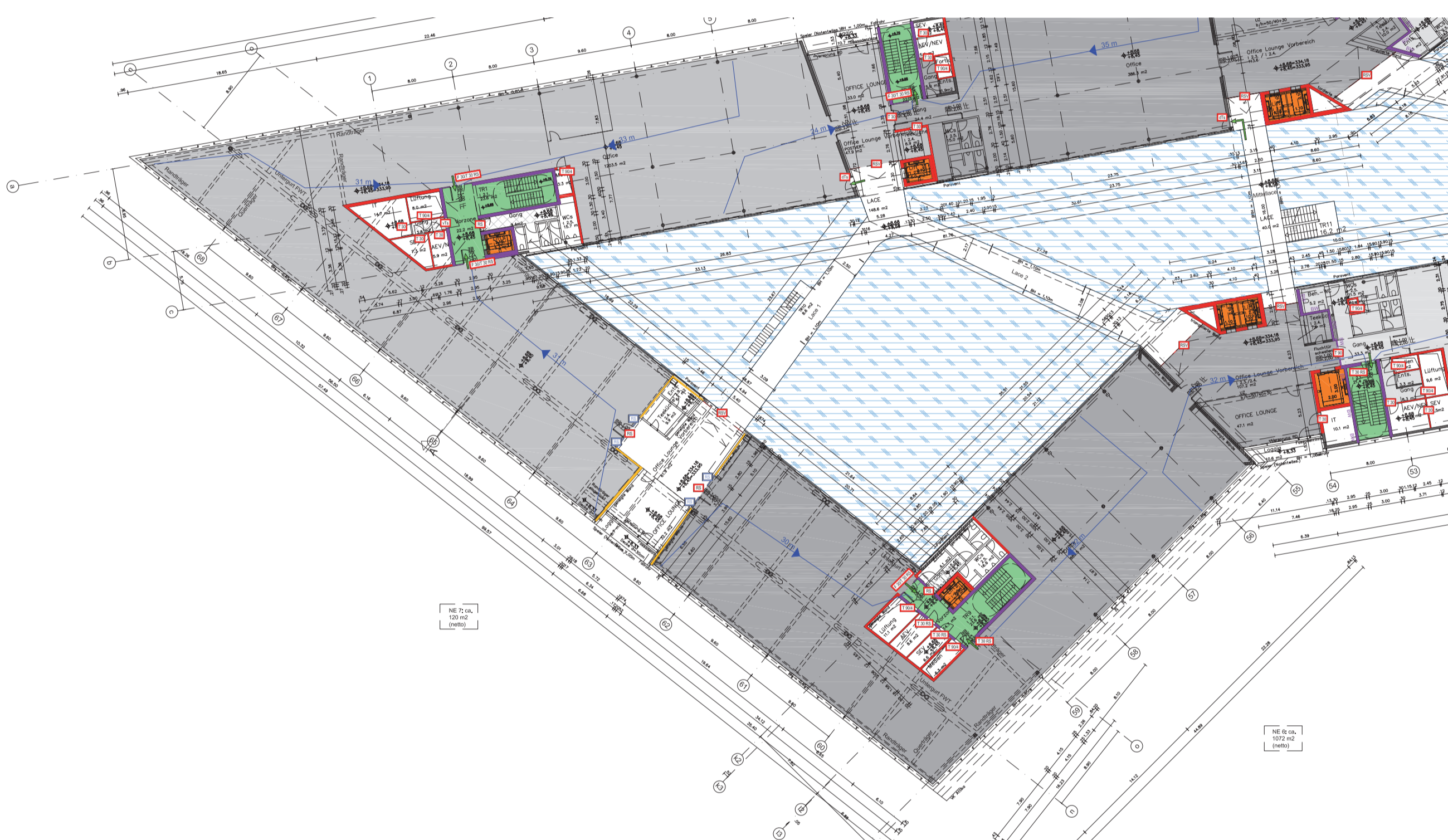
# Performance-based design of a wide-span steel girder for the headquarter of adidas

## Example administration building „LACES“ adidas in Herzogenaurach

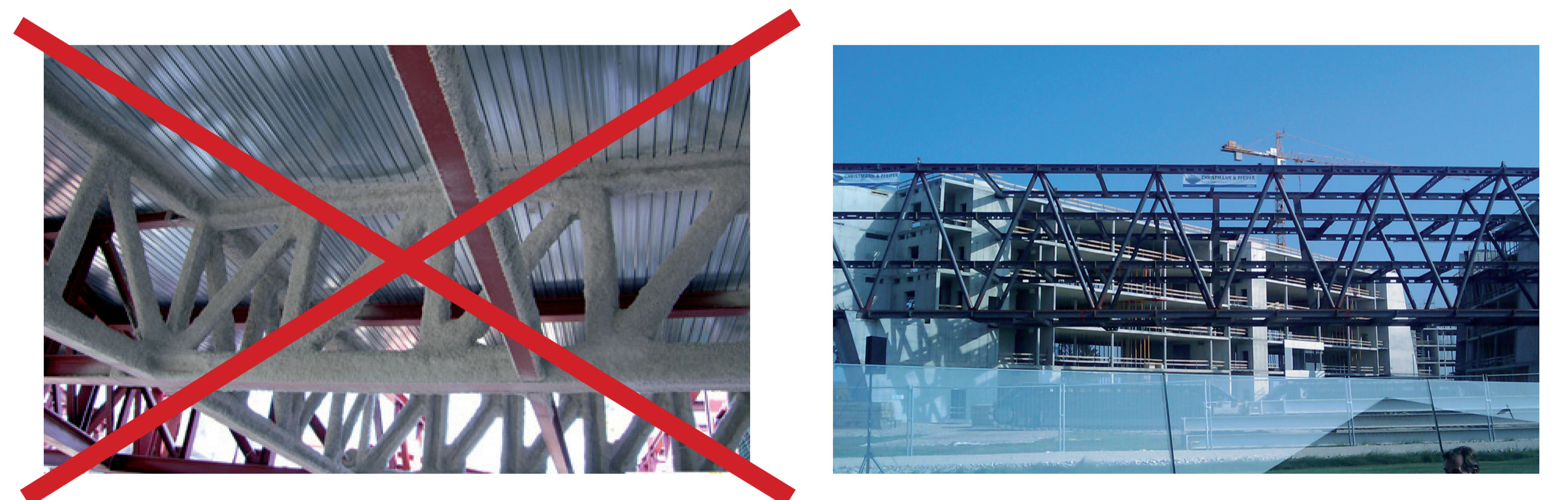
- Offices, work shops, laboratories, archive
- Open-plan office, open lounges
- Compartments > 400 m<sup>2</sup>, no fire walls, open vertical connection of the storeys
- Fire loads: office supplies, patterns, textiles, prototypes



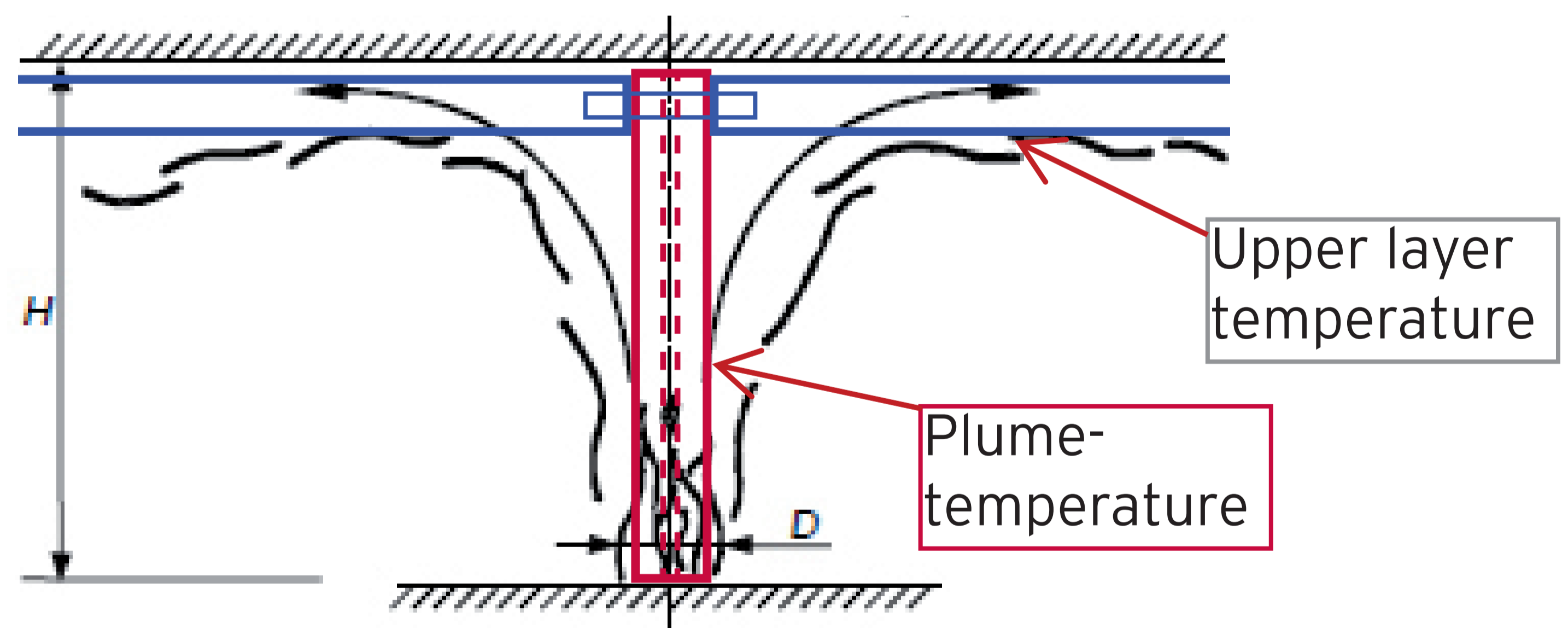
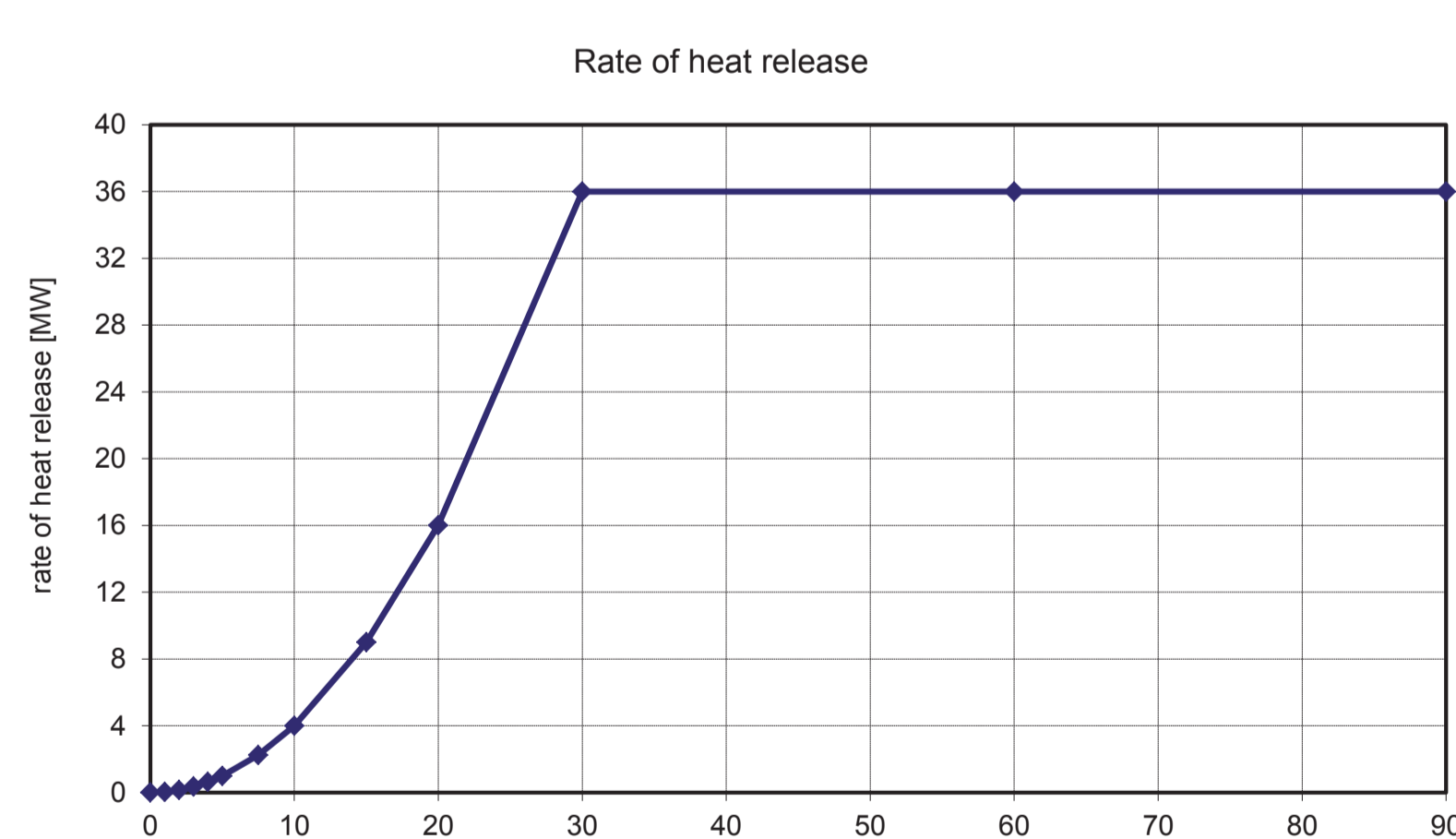
## Fire compartment



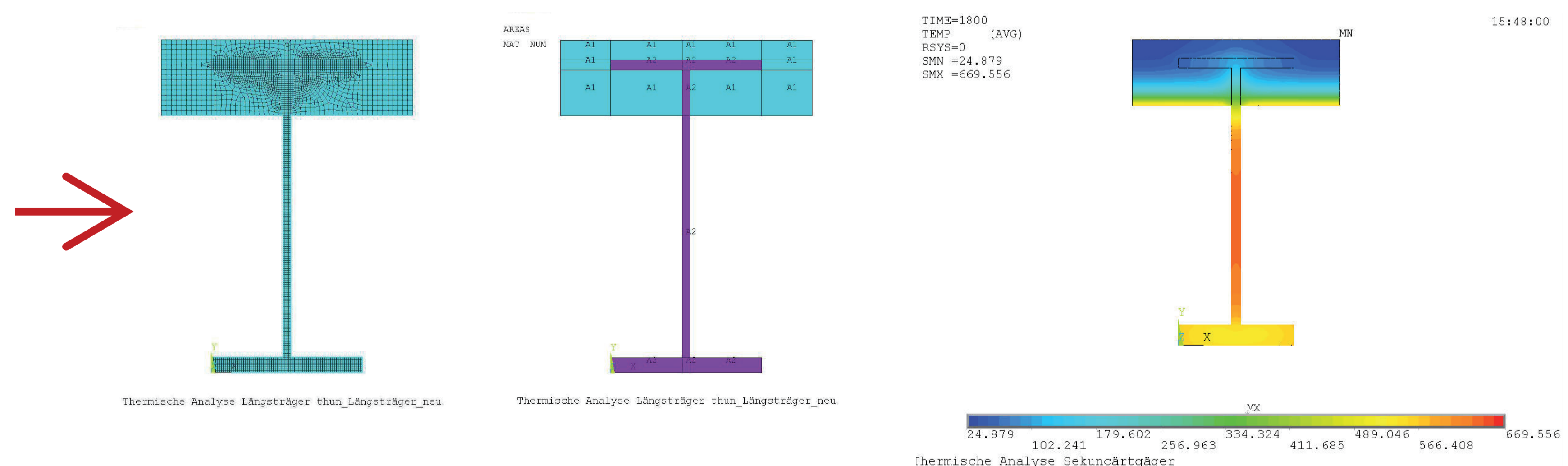
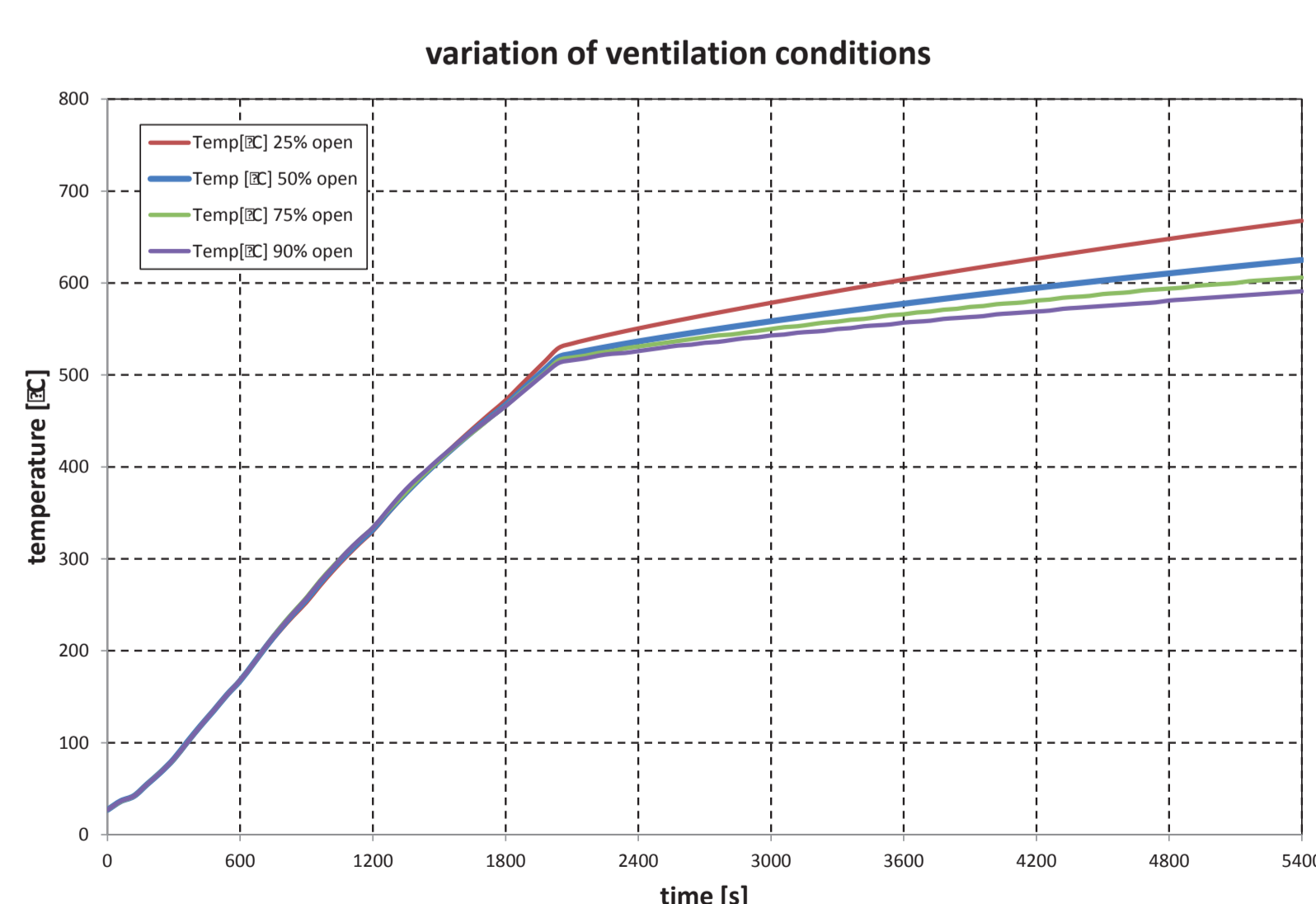
- Steel should be visible due to aesthetical reasons
- Saving costs by reducing fire protection
- Authorities require 90 minutes fire resistance for natural fire



## Natural fire simulation



## Structural fire design



## Results

- Degree of utilization web  $\mu_0 = 0,18 \Rightarrow \Theta_{crit} = 741 \text{ °C} \Rightarrow$  unprotected feasible
- Degree of utilization l.f.  $\mu_0 \approx 0,59 \Rightarrow \Theta_{crit} = 557 \text{ °C} \Rightarrow$  R 30 intumescent coating