

FIRE RESISTANCE OF STORAGE BUILDING

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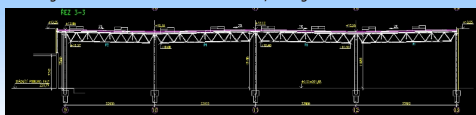
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GENERAL INFORMATION

Industrial building
Extension of existing building

Purpose
Production and storage of soft drinks

Structural system
Size approx. 120 x 90 m
Concrete columns, height 12 m
The roof: lattice girders spanning 18 m and 22 m
Cladding: cassette sections thermal insulation, corrugated sheets



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PLAN OF THE BUILDING

existing building | new building



- Requirements
- Concrete columns OK R15
 - Roof girders R15
Needs to be checked
 - Cladding on the roof REI15
Certified structure
 - Steel columns of the exterior walls R15
Needs to be checked
 - Cladding on the wall REI15
Certified structure



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FIRE SCENARIOS

Very small fire load density
Wooden pallets with bottles of soft drink
Empty wooden pallets can not accumulate

Standard fire curve is not appropriate

Model of localised fire adopted

1. Localised fire of empty pallets
30 kg of timber per m², fire duration 15 minutes
Fire diameter 3 m
2. Localised fire of a forklift
No data for forklift
RHR curve for car used



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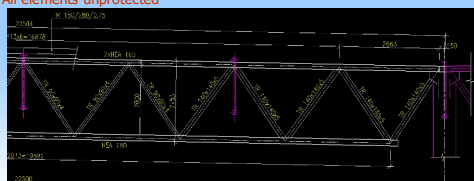
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ROOF GIRDERS

Chords HEA sections
Diagonals RHS sections

Required fire resistance R15
Maximum temperature approx. 150°C

All elements unprotected



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COLUMNS

- High compartment, flames do not reach the ceiling
- The column is heated by radiation from the flames, highest temperature in lower part
- Model for heat transfer from the localised fire to the column was developed



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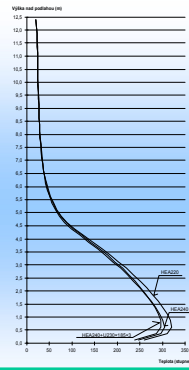
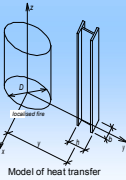
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COLUMNS

HEA sections

Required fire resistance R15
Maximum temperature approx. 350°C

All elements unprotected



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THANK YOU FOR YOUR ATTENTION



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