

Fire Design for Reconstruction of Vinohrady Brewery



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Motivation

- Structural design based on fire design of elements
- Reuse of the cast iron columns in Vinohrady Brewery



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Damaged building

- after fire of top floors in 2000

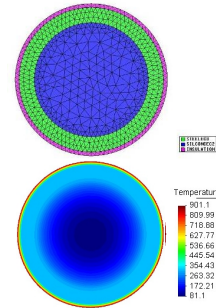


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Fire protection

- Fire design Eurocode model Wald et al., 2008
- Concrete infill and intumescent painted exposed to standard temperature curve for 60 min



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Fire protection

| R60 | Temperatures | Fire resistance | Reduction |
|---------------------------|--------------|-----------------|-----------|
| Fire unprotected column | 864 °C | 395 kN | 8 % |
| Concrete filled column | 769 °C | 687 kN | 15 % |
| Intumescent coated column | 411 °C | 4530 kN | 99 % |
| Coated + Concrete filled | 314 °C | 4547 kN | 99 % |

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Integration of column






Summary

- Fire design of the cast iron column based on European procedure
- The structural arrangement to reduce the loading of columns
- For R60 concrete infilling small improvement only

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Thank you
for your attention

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