Fire protection guide for buildings (guidance for internal use)

Degree programme : Dipl. Techniker/in HF Holztechnik
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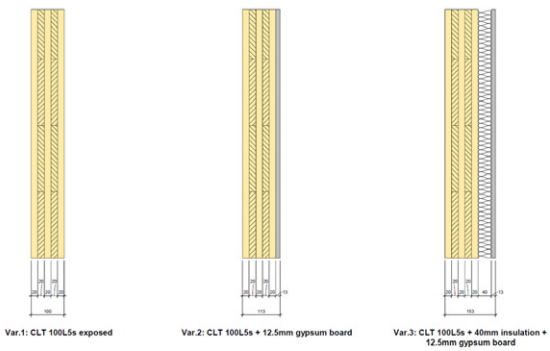
Since 2017, the UK fire safety regulations have undergone fundamental changes, which are affecting timber construction in England and EURBAN. In contrast to Switzerland‘s progress in timber fire safety, the UK regulations lack clarity and mature documents.

Initial Situation

In the UK, following the Grenfell Tower fire in 2017, significant changes have been made to fire safety regulations . These changes have had a profound impact on timber construction and EURBAN‘s activities. The use of timber in medium and tall buildings is now considerably more difficult, as combustible materials are no longer permitted in external walls of buildings above 18 metres. Switzerland is taking a progressive approach by aiming to build a 100 metre high wooden skyscraper by 2026. During an internship, I noticed differences between the UK and Swiss fire safety regulations. The Swiss regulations are more detailed and specific than their UK counterparts. The UK regulations, particularly the building regulations, are less comprehensive. Whilst Approved Document B is comprehensive, it lacks bespoke specific guidance for timber construction, making it difficult to understand.

Objective

My goal is to use the Lignum documentations and the UK fire safety regulations to develop an internal guide that adheres to UK regulations. This guide with various tables should be in an easy-to-use format similar to the Lignum documentations.
A detail catalogue with the most common CLT build-ups will be created company specific. The detail catalogue contains the calculation and description of the superstructures for the specific requirements.



Build-up Variations

One of my main goals is also to give the company a solid approach and guideline to work with. So that people with different backgrounds can use it.

Methodology

The first steps involve researching Building Regulations and Lignum Documentations to define the topic. Company-specific fire resistance tables are then developed based on Building Regulation: Approved Document B and Lignum documentation, with continuous documentation throughout. Build-ups are created using existing tables and mathematically verified, with supplier discussions for comparison.

Results

As a result of this diploma thesis, it can be noted that the tables specified in Approved Document B of the UK fire safety regulations can be simplified on a company-specific basis and that further factors can be easily incorporated into these newly developed tables. Furthermore, a significant difference in fire resistance between variant 1 and variant 2 can be identified for the compared build-ups.

Fire safety

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