

## DEVELOPMENT OF FIRE IN A VENTILATED CLADDING CONSTRUCTION -PART 1-

The requirements for material application in exterior facades only relate to the limitation of the development of fire (smoke development on the outside of a building is not applicable).



*Some pictures of a cladding fire in 2006. As a result of a fault of a roofer, a hpl cladding on a wooden frame, which was completed in 2004, went on fire. The cladding partially went up in flames. The bonded fixture on the wooden battens maintained.*

A distinction is made between fire classes, depending on the height of the relevant part of a façade in relation to the ground level. The standard applies to façade cladding fire class D. However:

- In case of fire, or a fire in the surrounding of the structure, façade sections lower than 2.5 meters must be able to withstand a fire.
- Burning façade sections above the height of 13 meters are difficult to combat with standard firefighting equipment; therefore they must be constructed in such a way that a fire cannot easily spread through these higher-lying façade sections.
- When determining the resistance against fire transfer and/or fire penetration through the façade, the condition in this is that the cladding must comply with fire class B. This prevents that, although theoretically is shown that there will be no fire to expect, in an unforeseen case a fire can still spread quickly over the wall cladding and still be able to penetrate somewhere.  
Furthermore, fire class B is also required as a requirement in a number of special cases.

- This applies, for example, to facades adjacent to an extra protected escape route and for façade surfaces where there is a risk of fire transfer. Here too, the applied materials must comply with the heavier fire class B.
- Specifically for outdoor ceilings, there is often discussion about the requirements regarding the materials used. An outside ceiling is just like a façade, a construction adjacent to the outside air. For both construction components, the same required fire classes must be used for the materials to be used.
- Special attention should be paid to open structures, in which underlying materials such as foils and insulation material can be reached for flames and thereby contribute to the fire spread over and in the façade construction. With the choice of high-quality, durable insulation materials, the fire class of the material must be carefully considered.

Fire resistance is in fact a property of a complete construction. According to this (strict) definition, a fire-resistant façade panel does not actually exist. The façade panel is part of a construction, fixed in/on a frame or battens. Improper installation, detailing or execution will completely nullify the (complete) fire resistance. The interaction between the various structural parts, including dimensions and mutual fixings, must ensure that the entire construction achieves the required fire resistance.

TWEHA, 2020