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Shortreport

Safety examinations for wooden stair cases in old residetial buildings with more then one floor

Stairs in residential buildings are often the first rescue ways. In the building regulations are high demands on the fire protection of rescue ways. Wooden stairs does not meet this demands and have to replace by solide stairs.
A compromise is often the cladding of the unprotected underside of wooden stairs with non-combustible panel constructions. These alteration is complicated and connect with high costs, but the stability of the stairs will be better at the same time.
But the questions is: How changes the quality of fire protection for rescue ways in reality?
In the year 1986 two large scale tests was performed on cladding and uncladding wooden stairs.
The destination of the test was the registration of effectiveness of non-combustible panels in the case of a fire in a flat.
This would realised through an experiment of comparison on non-protected wooden stairs. The fire load was wooden cribs and the concentration 300 kWh/m². The fire room area was 4,3 m². The fire room was direct behind the open front door. The flames leapted up the flat after 6. minutes and ignited the doorstile and the floor boarding of landing.
The stair case was in the follow course of fire a chimney. All unprotected wood surfaces burned, in special the stair upper side.
In two cases appened the flash-over in the stair case. The flash over in the stair case with cladding underside was 5 minutes later.
In each case the stair case is not usable to a rescue way.

Results:

- The underside cladding of wooden stairs with non-combustible panels retard the flash-over in the stair case only for a short time. The fire spreaded on the stair uppersides.
- If the fire propagat from the flat to the stair case an evacuation is not possible.
- An effectual step for retarding of the fire propagation are at least front doors with dense joints and automatic door closers.