

8.6 Wall and Ceiling Cladding with Fire Protection Effect

The CETRIS® cement bonded particleboard can be used to protect flammable materials against ignition. In the testing and classification standards the application is described as wall and ceiling cladding with fire protection effect – cladding of flammable parts of buildings. This requirement mainly applies to timber constructions in Western Europe. The cladding in this case means the outermost part of a vertical element (such as a wall, a partition, a peripheral wall) or the bottommost part of a horizontal or inclined element (such as a ceiling, a roof or a ceiling

panel) and the purpose of this type of cladding is to protect flammable material against ignition. Cladding of K class protects flammable material against fire for a specified period of time, including carbonisation and other damage, and also prevents the protected elements from catching fire on both sides at the same time. Apart from this, the requirements for reaction to fire may be applied to the cladding products.

8.6.1 Test Procedure for Fire Protective Cladding

The test procedure for determination of the capability of the cladding to protect the flammable materials under it from ignition during specified exposure to fire is defined in EN 14 135 Coverings. Determination of fire protection ability. The cladding is fixed to the bottom side of a horizontally oriented flammable base and exposed from the bottom to predefined standard thermal and pressure conditions in the kiln.

The (flammable) materials covered by the cladding with a density of at least 300 kg/m³ are represented in the tests by 19 mm thick chipboard not treated with any flame retarder (not impregnated) whose density is at least 680 kg/m³.

The tested cladding is applied to a standard horizontal construction – with top wooden prisms 45 x 95 mm (spacing 600 mm) and chipboard with a thickness of 19 (±2 mm) – in the form of a plain ceiling panel.

The cladding itself may be assembled directly on the chipboard (without cavity), or on auxiliary laths (with cavity).

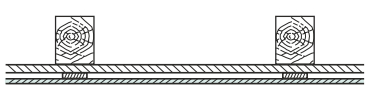

The temperature increase on the bottom side of the flammable base is

recorded. The cladding is monitored and time to damage is recorded. After the test, the damage to the cladding and defects of the flammable base are recorded. Cladding is expected to provide for fire protection of materials under them and prevent fire in cavities unless the cladding collapses in the course of the test pursuant to EN 14 135 within the given test time (for example 10 minutes, 30 minutes or 60 minutes) and unless the fire gets into any cavity in the cladding and the following requirements are fulfilled for the specified period of time:

- The average temperature measured on the bottom side of the chipboard and average temperature measured on the non-exposed side of the cladding must not exceed the baseline value by more than 250 °C and the maximum temperature measured in any place on these elements must not exceed the initial temperature by more than 270 °C,
- No ignition or carbonisation of any part of the bottom side of the chipboard or non-exposed side of the cladding may occur. Melting and shrinkage are considered as damage while discolouration is not.

8.6.2 Cladding with CETRIS® Cement Bonded Particleboard with Fire Protection Effects

CETRIS® cement bonded particleboard is tested as cladding for flammable parts of buildings in the following composition:

Cladding schematic drawing	Cladding composition	Cavity	Auxiliary structure	Fire resistance	Classification
	CETRIS® 10 mm	10 mm	Wooden laths 70x10 mm	10 minutes	K _{1,0} / K _{2,10}
	CETRIS® 2x12 mm	cavity not required (air gap)	not required	30 minutes	K _{2,30}

8.6.3 General Principles of Assembly of Cladding of CETRIS® Cement Bonded Particleboard with Fire Protection Effects

- the CETRIS® board fire cladding can be used as cladding for vertical and horizontal constructions
- CETRIS® boards must be laid without cross joints
- CETRIS® boards are laid with a minimum joint width of 4-5 mm, which is filled with fire resistant filler. In the case of multilayer cladding, the inner joints of the bottom CETRIS® board layers must also be filled with filler
- The maximum spacing of the screws used to anchor the CETRIS® board of thickness 10, or 12 mm must not exceed 200 mm (at the edges), or 400 mm (in the middle)
- for cladding of fire resistance K_{1,0} / K_{2,10}, all the contact joints between the CETRIS® boards must be supported with a wooden lath. Maximum distance of support wooden laths is 625 mm, the minimum lath width is 70 mm and the minimum cavity height is 10 mm.
- when using multi-layer CETRIS® board cladding, it is necessary to lay the boards in the next layer in such a manner that they are displaced in relation to the preceding layer by at least 400 mm

