



Fire safety

Solutions for construction and interior

Table of contents

1. The 4 phases of a fire	<i>page 4</i>
2. Fire safety classification	<i>page 5</i>
3. Fire-retardant products	
Fire-retardant interior and furniture panel	<i>page 6</i>
Fire-retardant construction board	<i>page 7</i>
High-quality bearing floor for industrial floors	<i>page 8</i>
Fire-retardant decorative wall finishing	<i>page 9</i>
4. Fire-retardant constructions	
REI60 fire system	<i>page 10</i>
RE30 fire system	<i>page 10</i>
EI30 fire system	<i>page 11</i>
EI60 fire system	<i>page 11</i>

Fire safety is essential



No day passes without a fire breaking out somewhere, and all it takes is seconds. The slower the fire spreads and the less the smoke develops, the more time there is to limit damage and to evacuate. As such, architects, interior decorators and government authorities deliberately choose fire-retardant materials.

UNILIN, division panels offers a wide range of fire-retardant boards and panels.

1. The 4 phases of a fire

How does a fire develop?

Phase I: Development

A fire develops where there is fuel, oxygen and a heat source in adequate proportions.

We often have little control over the presence of oxygen and heat sources. Choosing the correct (fire-retardant) materials are therefore the only way in which we can considerably improve overall fire safety.

Following ignition, the temperature rises gradually. In this phase, the materials' reaction to fire is decisive.

Phase II: Flashover

The temperature and scope of the flashpoint increase very rapidly to yield a spreading fire. Flashover occurs in locations where hot, flammable gases accumulate and combust.

Phase III: Stationary period

The fire rages fiercely. The fire resistance of the construction element is crucial to limiting the spread of the fire to adjoining buildings or rooms and to ensuring the stability of the building.

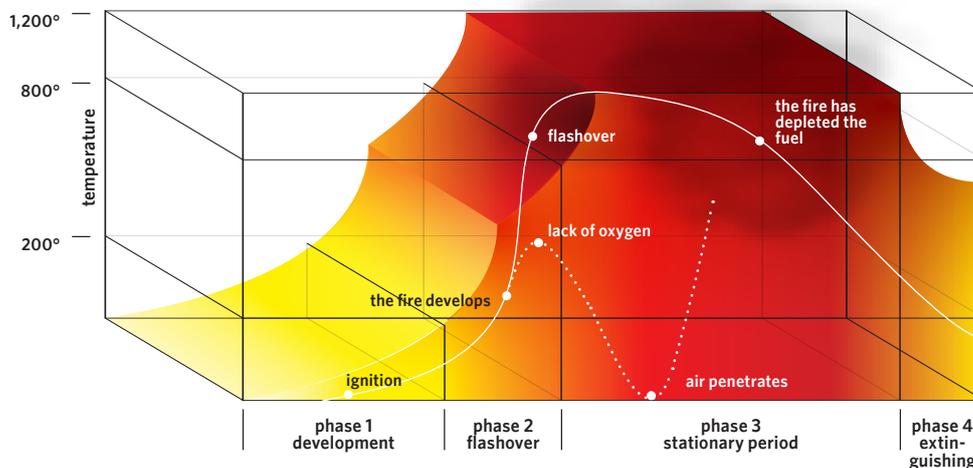
This fire phase can be limited at the design phase:

- By dividing spaces into separate compartments
- By using fire-retardant structures

Phase IV: Extinguishing

The fire loses intensity as the fuel is depleted, causing the temperature to fall.

Development of a fire



2. Fire safety classification

There are two important pillars to fire safety: **reaction to fire and fire resistance.**

Construction materials' reaction to fire in accordance with EN13501-1

The reaction to fire determines the contribution a product has to the spread of flame. Category A materials are not flammable, category F materials are very flammable.

Many people who perish in a fire do so because of suffocation. Limiting smoke is therefore a very important aspect of fire safety. In addition to contribution to the spread of flame, smoke production is also assessed.

7 main classes according to European classification:

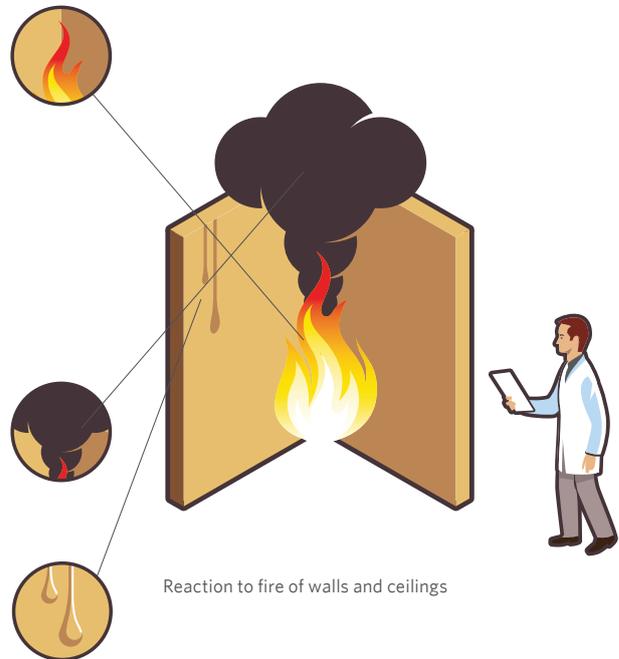
- A1** No contribution to fire
- A2** Virtually no contribution to fire
- B** Flammable with very limited contribution to fire
- C** Flammable with limited contribution to fire
- D** Flammable with average contribution to fire
- E** Flammable with high/very high contribution to fire
- F** Easily flammable, no performance requirements

Smoke intensity

- s1** No or low smoke production
- s2** Average smoke production
- s3** Heavy, uncontrolled smoke production

Flammable droplets/parts

- d0** No droplet formation
- d1** No flammable droplet formation longer than specified time
- d2** Flammable droplet formation



Reaction to fire of walls and ceilings

The fire resistance of construction systems in accordance with EN13501-2

Fire resistance refers to the capacity of a construction element to retain its function, integrity and/or thermal insulation over a certain period of time.

The higher the fire resistance, the better the construction element's capability of limiting the spread of fire to other areas.

Fire resistance is determined by fire resistance tests - EN1363.



Fire resistance of construction elements

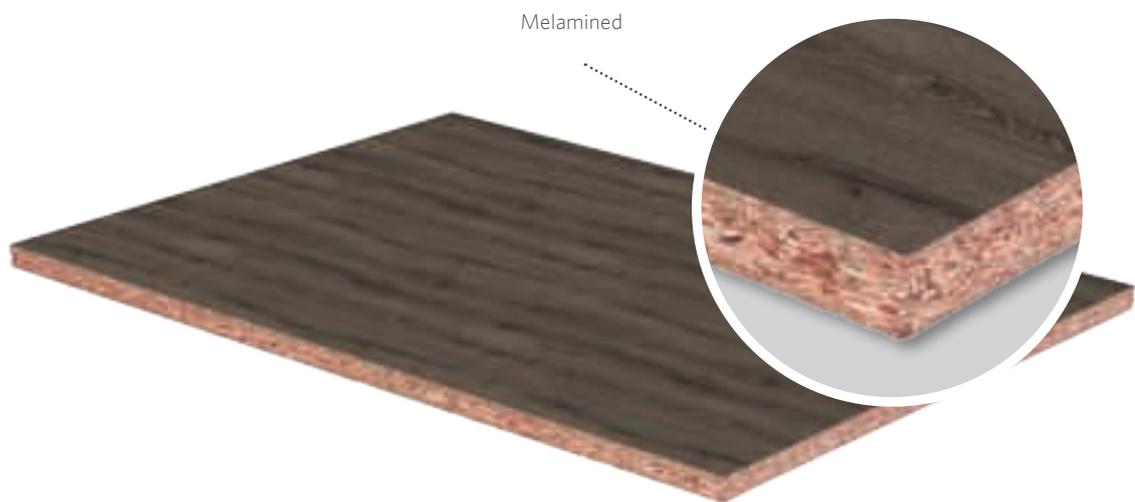
There are three criteria:

- **R - Load-bearing capacity:** the load-bearing stability of the construction is assured for the period of time and load specified in the event of fire.
- **E - Integrity:** the construction protects against spread and the penetration of gas on the fire side for the period of time specified.
- **I - Insulation:** the construction ensures that the temperature on the non-fire side remains under a specified value for the period of time specified.

3. Fire-retardant products

Antivlam

Fire-retardant interior and furniture panel



Standard features



Fire-retardant interior panel
Chipboard P2



Reaction to fire class B-s1, d0



EI60 certified fire construction

Possible finishes



Sanded



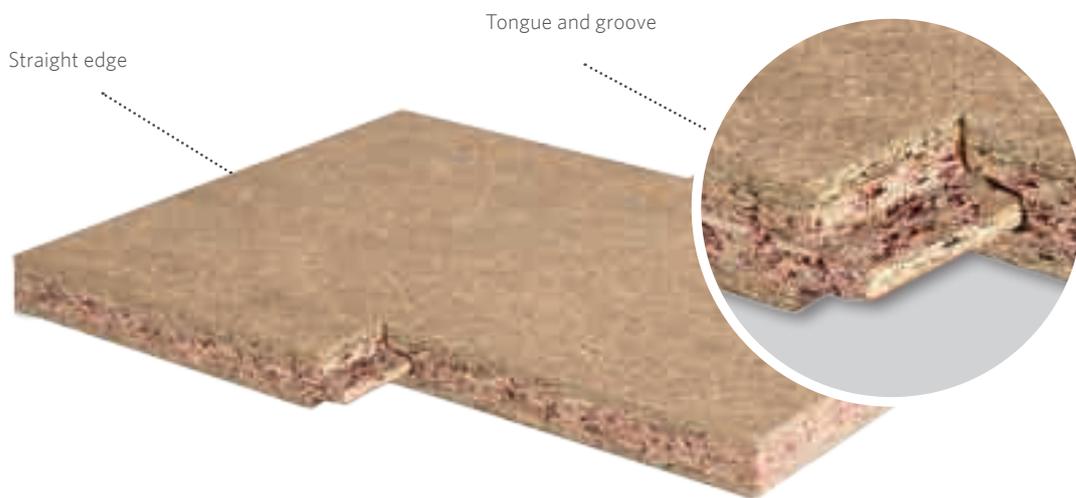
Tongue & groove



Melaminated

HydroFlam

Fire-retardant construction board



Standard features



Fire-retardant construction board
Fire-retardant and moisture resistant P5



Reaction to fire class B-s2, d0



REI60 certified fire construction



Increased airtightness

Possible finishes



Extremely airtight and water vapour resistant
HydroFlam VapourBlock



Sanded



Tongue & groove



Antislip

Mezzanine Antislip

High-quality bearing floor for industrial floors



Standard features



Increased strength
U7 (P6+) quality



Reaction to fire class Bfl-s1



RE30 certified fire construction

Possible finishes



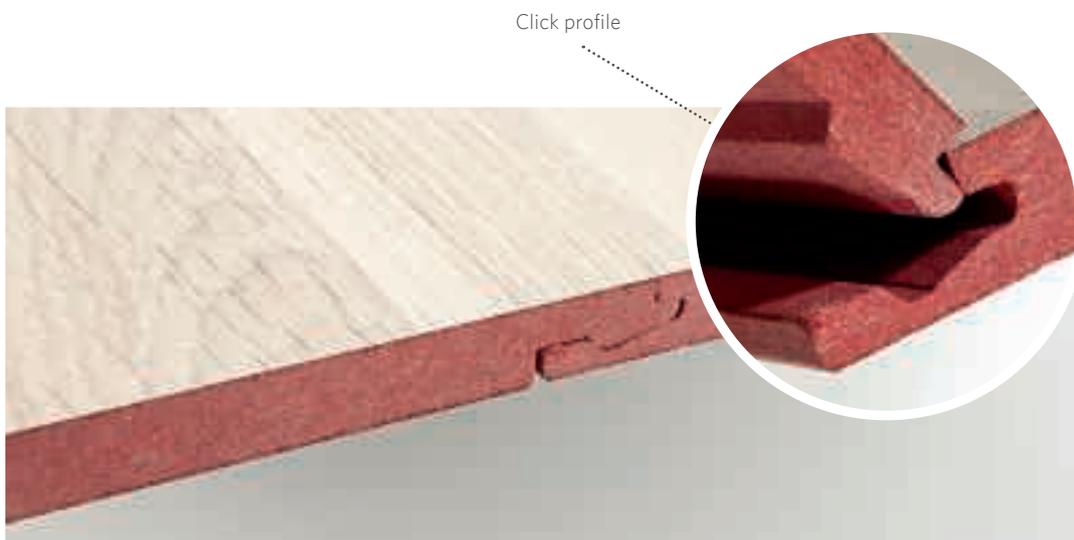
Tongue and groove F profile



Moisture-resistant

ClicWall FR

Fire-retardant decorative wall finishing



Standard features



Fire-retardant ClicWall
Melaminated fire-retardant MDF
with tongue and groove



Reaction to fire class B-s2, d0
No contribution to spread



**EI60 and EI30 certified
fire constructions**

Possible finishes



Choice of more than 100 decors

4. Fire-retardant constructions

REI60 fire system

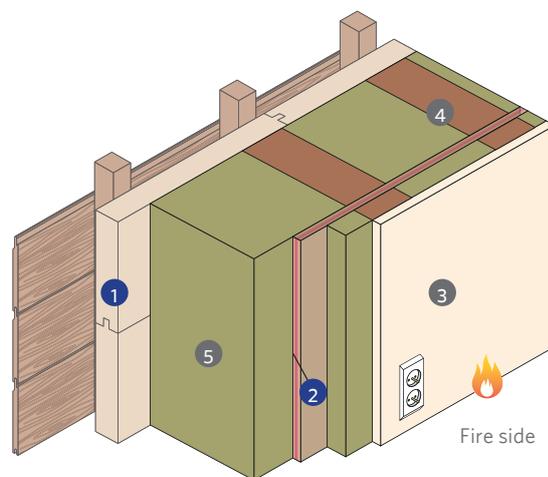
For bearing wall in timber frame construction

Construction

- 1 FiberTech Top - 18 mm
- 2 HydroFlam - 12 mm (B-s2, d0)
- 3 Fermacell panel - 12.5 mm
- 4 Timber beams - 45 mm x 140 mm
- 5 Rockwool insulation

Features

- 60 minutes structural fire retardant
- Insulating - U value 0.22 to 0.24 W/m²K
- Very compact - 21 cm
- High load - 3 to 5 construction levels
- Optional external facing and façade cladding



RE30 fire system

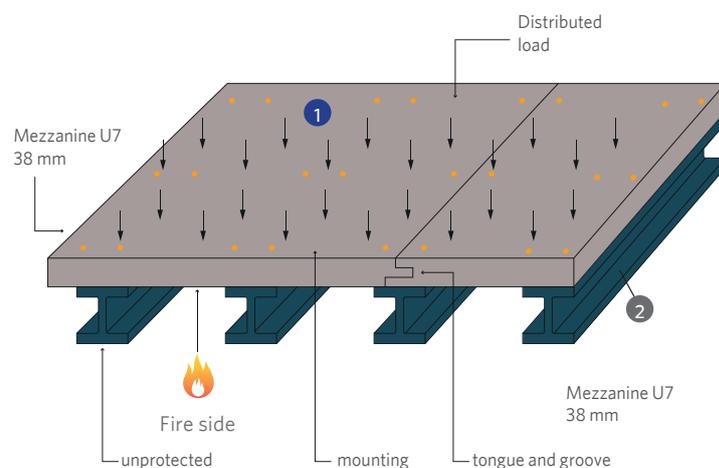
For bearing floor construction

Construction

- 1 Mezzanine U7 38 mm
- 2 Unprotected steel beams

Features

- 30 minute bearing stability
- 30 minute protection against spread
- 30 minute protection against penetration of gases



All references to fire-retardant constructions and results for UNILIN products incorporated into corresponding fire configurations are valid only to the extent that the product has been installed in accordance with the specifications of UNILIN and accredited fire laboratory and as in the fire-retardant test for which the result applies.

The fire-retardant results do not apply to the individual products but to the full tested construction. Deviations in installation from the tested construction and/or boundary conditions outside of the permissible EXAP guarantees may influence the result, for which UNILIN shall accept no liability.

EI30 fire system

For non-bearing separating wall

Construction

- ① ClicWall 10 mm (Euro class D-s2, d0)
- ② Rockwool insulation (RockSono Solid 211):
60 mm - 45 kg/m³
- ③ Substructure: timber beams

Features

- 30 minute fire retardant
- Neat and quick finish
- Wide selection of high-quality designs
- Splash proof, scratch resistant and hygienic



EI60 fire system

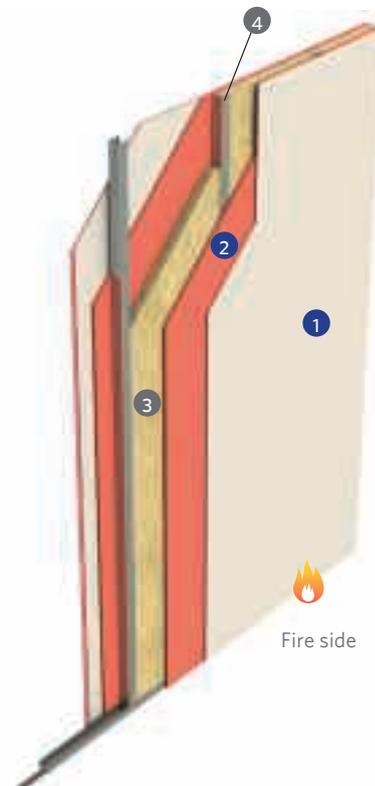
For non-bearing separating wall

Construction

- ① ClicWall FR 10 mm (Euro class B-s2, d0)
- ② Antivlam 12 mm
- ③ Rockwool insulation (RockSono Base 210):
40 mm - 35 kg/m³
- ④ Substructure: metal stud

Features

- 60 minute fire retardant
- Airborne sound insulation $R_w(C;C_t) = 52 (-4;-11)$ dB
- Neat and quick finish
- Wide selection of high-quality designs
- Splash proof, scratch resistant and hygienic



When installing fire-retardant constructions certified by UNILIN or when using UNILIN products in fire-retardant applications, the responsible party in the construction project, such as the architect and/or fire service, must request the installation and boundary conditions

of the tested fire construction from UNILIN in order to achieve the desired result. Further information on fire solutions from UNILIN can be requested from your sales representative or via info.panels@unilin.com. All figures are for illustration only.

UNILIN, division panels

UNILIN, division panels, part of the UNILIN group, has been supplying innovative wood solutions for construction and interior projects since 1960. Our chipboard, MDF, HDF, HPL and melamine boards find their way into commercial outlets in wood and building materials, industrial processors and DIY chains worldwide.

We develop solutions tailored to your needs with creativity as our engine and innovation as our driving force. In addition, we continuously invest in product design and new technologies. That makes us today a leading international player and a lasting partner in our industry.

Our 1,300 employees give their best every day in our production facilities in Belgium and France. Together we produce 2.1 million m³ of panel material every year.