2021 Fire Ratings

An Introduction

Until recently, different countries within the EU had different methods for testing and classifying the performance of timbers' reaction to fire. Therefore, for manufacturers to sell their products in particular countries, they would have to carry out multiple tests to fulfil the requirements of each country.

However, the introduction of a single classification system across EU member states, and embodied by the UK, means that manufacturers and the construction industry as a collective can use a common method for comparing the Reaction to Fire performance of construction products. This has been standardised through the use of EN 13501-1. Where testing is carried out to determine a fire classification level of A1, A2, B, C, D, E or F for insulation products (intended to be used in wall and ceiling construction).

Types of Fire Rating

The British Standard (BS) EN 13501-1 classification comprises three ratings, a euro class rating, a classification relating to smoke emission during combustion and a classification surrounding the level of production of flaming droplets during combustion. These classifications are always ranked from highest to lowest performance.

Euroclass Rating

Classification	Definition	Description
A1	Non-combustible	No contribution to fire
A2	Limited combustibility	Very limited contribution to fire
B	Combustible	Limited contribution to fire
C	Combustible	Minor contribution to fire
D	Combustible	Medium contribution to fire
E	Combustible	High contribution to fire
F	Combustible	Easily flammable

Smoke Emission and Flaming Droplets

Classification	Level	Description
Smoke emission during combustion	S1	Quantity and speed are weak or absent
Smoke emission during combustion	S2	Quantity and speed are of average intensity
Smoke emission during combustion	S3	Quantity and speed are of a high intensity
Production of flaming droplets during combustion	D0	No dripping
Production of flaming droplets during combustion	D1	Low dripping
Production of flaming droplets during combustion	D2	High dripping

Please note: E rated products receive a D2 flaming droplet classification. F rated products receive none. A1 related products are not given smoke emission or flaming droplet ratings on the assumption that they do not contribute to fire growth or spread since they are non-combustible.

Class 0 and Class 1

Class 0 and Class 1 fire ratings do not indicate the combustibility of the product and refer only to the surface fire performance characteristics.

Class 0 is a rating defined in Approved Document B (LINK) of the Building Regulations 1991 which combines two tests in the British Standard BS476. The first assesses the contribution of a surface to fire propagation (BS476-6) and the second assesses the spread of flames across a surface, including distance and time (BS476-7). Class 1 is a limited classification based on the test in BS476-7 only.

Combustible Construction Materials and Grenfell

Since the tragedy of the Grenfell Tower fire, building standards have been under constant review and scrutiny. Although the Grenfell Tower was not clad with timber, and no timber was involved in the fire, the Government has a very strong desire to be seen to take action against unregulated materials. The regulations and guidance in England's Approved Document B seek to address and control the risks of combustible building materials, including timber.

Amended Regulation 7(2) states that building work shall be carried out so that materials that become part of an external wall, or specified attachment, of a relevant building, are of European Classification A2-s1 d0, or Class A1 (non-combustible).

Where a relevant building means a building with a storey at least 18m above ground level and which:

- Contains 1 or more dwellings

- Contains an institution

- Contains a room for residential purposes (excluding any room in a hotel or boarding house)

- This requirement does not apply to doors, door frames or window frames.

Buildings, where the upper floor level exceeds 18m above external ground level, must only use non-combustible external cladding. This tends to be commercial properties and high-rise dwellings where timber cladding is very rarely used. Timber cladding tends to be a more popular choice for residential dwellings or low-rise buildings.

Fire Retardants

The Government's Approved Document B (LINK) also stipulates that timber cladding is to be protected with a suitable fire-retardant when a boundary falls within one metre of the edge of the building or where cladding is used on a multi-level building.

Flame retardant treatments enhance the reaction of fire properties of wood and wood-based materials. This reduces ignitability and the spread of flame, in turn slowing down the development of the fire and giving occupants time to escape and for the fire to be extinguished.

Factory application of a flame-retardant treatment before installation ensures all faces of the timber or board product can be protected, offering a safer, low maintenance solution. It is therefore important to treat and seal all board ends cut on site.

You can visit the Government website to get a copy of Approved Document B on fire safety and any relevant amendments which are updated frequently here: https://www.gov.uk/government/publications/fire-safety-approved-document-b.

At QTD Ltd

At QTD Ltd, safety is always at the top of our priority list! We can offer a fire protective finish that will achieve Class 1, Class O, EN Class B ratings. This finish can also accomplish 30 minutes and 60 minutes fire resistance and provides low smoke emission. With this finish you will obtain a project specific certificate signed and dated to confirm.

Tested to:

- BS 476 Parts 7; Class 1 surface spread of flame.

- BS 476 Part 6; Achieved – Fire propagation.

- System is designated Class O in accordance with UK Building Regulations

- European EN Class B

- This requirement does not apply to doors, door frames or window frames.