MEDITE® SMARTPLY®
INNOVATIVE TIMBER PRODUCTS

A SPECIFICATION GUIDE TO
Flame Retardant Wood Panels

Part 2: Regulatory Controls

UK Building Regulations.

The Building Regulations set standards for the design and construction of buildings to ensure the safety and health of people in or about those buildings.

Across Europe, each state has its own Building Regulations relating to fire. In the UK, the section of the Building Regulations that deal with Fire is different in each of the various UK jurisdictions: In England it is Approved Document B, similarly in Wales; in Scotland it is the Building Standards Technical Handbook Part 2; in Northern Ireland – Technical Booklet E Fire; and in Ireland it is Technical Guidance Document B Fire Safety.

While the title of each document is different, the regulations are similar in that that they all require products to achieve a defined level of fire performance in specific areas of buildings.

In all cases the fire performance of wood-based panels is assessed on European test evidence (EN). The European Standard BS EN 13501 defines seven levels (Euroclasses) of fire performance with products classified A1, A2, B, C, D, E and F – *see Chapter 1 – Terminology and the fundamentals of fire.* In particular, wood-based products with flame retardant properties always need to be classified according to BS EN 13501-1, which provides the reaction to fire classification test procedures for all construction products and building elements.

The Building Regulations for the various UK jurisdictions require materials with Euroclass C reaction to fire performance for walls and ceilings in rooms with internal floor area >4m^2 and Euroclass B in higher risk areas such as escape routes and staircases.

MEDITE SMARTPLY flame retardant MDF and OSB both have a reaction to fire classification (Euroclass) B. As such, these wood-based panel products will satisfy all the requirements for Euroclass B and the lower reaction to fire Euroclass C applications. This simplifies specification and installation on site.

There are many other building applications, such as the construction of furniture, joinery and other non-structural uses, where materials with increased fire performance are required, either by building regulations or other local requirements, or personal design preferences and **MEDITE SMARTPLY** flame retardant MDF and OSB are suitable for many of these applications.

In addition to the Euroclasses, some country regulations also accept National Standards for older pre-2013 products still in production – *see Chapter 1*

The use of wood-based panel products in external wall constructions

In England, changes to Regulation 7(2) of the Building Regulations following the fire at Grenfell Tower, now explicitly states that for certain new high rise buildings (and those with a material change of use) only non-combustible materials can be used in the construction of an external wall or specified attachment to that wall, including balconies, if that building contains a room for residential purposes at least 18m above ground level.

The amended Regulation 7(2) states:

'...building work shall be carried out so that materials which become part of an external wall, or specified attachment of a relevant building are of European Classification A2-s1,d0 or Class A1 standard (non-combustible)...where a 'relevant building with a storey (not including roof-top plant areas or any storey consisting exclusively of plant rooms) at least 18m above ground level and which –

i) contains one or more dwellings;

ii) contains an institution; or

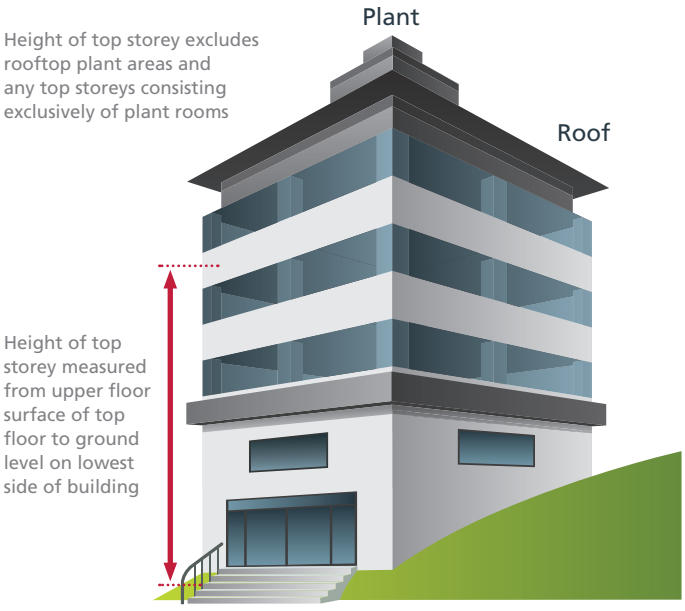
iii) contains a room for residential purposes (excluding any room in a hotel or boarding house)'.

Relevant buildings (where there is a storey at least 18m above ground level) are defined as: Residential flats/rooms (excluding any room in a hostel, hotel or boarding house), hospitals, care homes, sheltered housing and schools which are built as part of the government's centrally delivered build programmes. A specified attachment includes balconies.

For such relevant buildings the use of non-combustible materials in the external wall apply to all faces, above and below 18m down to ground level. In other words, combustible materials including wood-based panel products cannot be used in the external wall construction of such residential buildings. However, for buildings that are not classed as 'relevant', either because they are non-residential or because the residential rooms are below the 18m threshold, there is currently no significant change to the requirements, so timber and wood-based panel products can be used in the external wall construction.

What is meant by a storey at least 18m above ground level?

The height of the building is to be measured from the lowest ground level adjoining the outside of an external wall to the finished floor surface of the top occupied space.



Note: As of December 2020, the above section on The use of timber panel products in external wall constructions applies to England only and currently not to Wales, Northern Ireland or to the Republic of Ireland.

Readers should also note that: In England, the use of combustible materials in and on the external walls of specific types of high-rise buildings and attachments, such as balconies and solar shading, is (as of December 2020) currently under review. Readers are advised to refer to the latest version of the consultation review from the Ministry of Housing, Communities & Local Government for the current requirements.

In Scotland, rules are different. As of December 2020, restrictions on the use of combustible products in external wall construction apply only to the wall cladding and attachments, such as balconies and solar shading, and not to construction of the internal structural wall. Again, readers are advised to refer to the latest version of the Building Standards Technical Handbooks for the current situation.

Construction Products Regulations and CE Marking

The Construction Products Regulation 2011 (CPR) is a European Union regulation harmonising performance information on construction products across the EU. Not all products are currently regulated but for those that are it is mandatory for them to carry a CE mark; this is done in conjunction with a Notified Body and involves testing in accordance with European fire test methods.

Wood-based panels are covered by harmonised European standard, *EN 13986:2004+A1:2015 Wood-based Panels for use in Construction - Characteristics, evaluation of conformity and marking* and are therefore required to be CE marked by the manufacturer as a declaration that the product complies with the essential requirements of the relevant European Health & Safety and Environmental legislation.

Before a CE mark can be placed on a wood-based panel and the panel placed on the market the manufacturer must draw up a Declaration of Performance (DoP) for the product.

Declaration of Performance

The Declaration of Performance provides specifiers with verified information on the performance of a product. Where a reaction to fire performance is claimed this must be declared on the DoP. A fire classification report will provide details of actual performance in tests and must be from a third-party test laboratory. The purchaser of a Euroclass rated product should have a copy of the Declaration of Performance (DoP) produced and provided by the manufacturer.

The DoP should include:

- third-party laboratory's name and address and Notified Body number
- product name
- product description
- references to any test reports and extended application documents that it is based on
- the product's Euroclass rating
- field of application (including applicable product variations, limitations and end use applications)

Routes to CPR Compliance

The straightforward route:

Where flame retardant is added to wood-based panels in the factory during the manufacturing process, such as for **SMARTPLY MAX FR Euroclass B OSB** and **MEDITE PREMIER FR MDF**, the manufacturing process will be subject to factory production control (accredited by a notified body). This ensures that the product will carry a CE mark accompanied by a DoP which will include the improved reaction to fire class when it leaves the factory. In this case, the responsibility for the performance of the product is borne by the manufacturer and is therefore the simplest and clearest route to compliance for the specifier, reseller or end user.

The complicated route:

Increasing a wood-based panel's reaction to fire performance after manufacture is permitted under the CPR, however it is a very complex process and requires a thorough understanding of the supply chain and technical and legislative requirements.

Where distributors of non-flame retardant wood-based panels choose to send the material to a third party treater for post-manufacture flame retardant treatment before selling that treated stock on the open market, the distributor takes on the responsibilities of the manufacturer (because the product has been altered since leaving the factory, and the distributor becomes the party placing the FR product on the market). Unfortunately, in this case, the treater bears no legal responsibility for the product performance in use, despite having altered the products original performance – both fire and structural related properties).

Specifiers should be aware that the pressure impregnation of CE marked structural-use wood panels with a flame retardant post-manufacture will almost inevitably alter the structural integrity of the panels and invalidate the original DoP and associated CE mark. If the treated panels are not subsequently retested and a new DoP issued, then that material must be reclassified as non-structural and the DoP amended accordingly. Alarmingly, this is a very misunderstood and common occurrence which presents very serious legal and moral consequences, and therefore the 'straightforward' route is highly recommended.

Because the distributor is placing the post-manufacture treated product on the market for the first time, the distributor must take responsibility for the DoP. Both distributor and third-party treater must operate factory production controls accredited by a notified body in order the maintain the traceability that underpins the DoP an CE mark.

Caution: Site-applied flame retardants

The surface application of flame retardants on site depends on the correct application and film thicknesses being achieved. When coatings are applied by brush or spray on site, it is rarely possible to guarantee application quality and confidence in the application's effective performance. For this reason, the Wood Protection Association will only approve such systems when applied under factory controlled conditions.

Fire Performance During Construction

The Construction (Design and Management) Regulations require the designer to consider safety in their choice of materials and how they are assembled in the building process to ensure that inherent risks are designed out wherever possible.

In a completed building, the timber components are protected from the effects of fire by internal linings and external claddings. During construction however, the temporary exposed timber frame structure may present a risk of fire spread across the site, creating a safety risk to site operatives and property beyond the site boundaries.

For buildings under construction there are no building regulations that provide technical guidance to determine what the safe fire space separation should be to existing buildings outside of the site boundary. Within the site, the contractor has the ability to control works and escape routes for the site labour, for which there are training and guidance available. Despite the lack of regulation in this area, the Structural Timber Association has implemented its own set of comprehensive design guidance, testing criteria and product approval scheme for its members and suppliers, thereby improving the fire safety of medium-rise timber frame buildings during construction (see link below for more information).

Advice on minimising the impact of fires during construction includes:

- The Structural Timber Association's *16 Steps to Fire Safety* **www.structuraltimber.co.uk**
- The Health and Safety Executive's *HSG168 Fire safety in construction* **www.hse.gov.uk/pubns/books/hsg168**
- The Structural Timber Association's Design *guide to separating distances during construction* **www.structuraltimber.co.uk**
- TRADA's *Fire safety on timber frame construction sites* **www.trada.co.uk**

SMARTPLY MAX FR Euroclass B OSB is suitable for use either entirely or supplementarily in Category A, B or C builds as outlined in Structural Timber Association's "Design guide to separation distances during construction construction – Product Paper 4". The categorisation level depends on wall and floor/ceiling construction details.

FSC® Certification

Wood stores carbon safely and easily facilitates energy efficient designs in comparison to many other building materials. By using Forest Stewardship Council® (FSC®) certified materials, businesses can meet their project needs and satisfy their customers' desire for sustainability.

FSC® certification is an internationally-recognised standard that assures buyers of wood-based products, including those with flame retardant properties, that the timber used is a result of environmentally and socially responsible forestry management.

All **MEDITE SMARTPLY** MDF and OSB products have received the FSC®'s chain of custody certification, covering not only the supply of raw materials but also its manufacturing and distribution processes. Chain of custody certification provides a guarantee to consumers that the product not only comes from a well-managed forest but has passed through a secure environmentally friendly channel from its origin in the forest right through to the time it is installed by the end-user. Only products from FSC®-certified forests can be labelled with the 'tick and tree' logo.

For more information on **MEDITE SMARTPLY**
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