

GUIDANCE NOTE

Ref: WPA **FR 3**

Issue 5: June 2024

Understanding Fire Protection Terms

How to Specify the **Service Environment**

The essentials of good specification

It is vital that any flame retardant treatment incorporated into a building provides long-term, predictable performance backed by independent verification. Before specifying enhancement using a flame retardant, two specification fundamentals must be established:

1. What reaction to fire performance is required?

Euroclass B or C in accordance with BS EN 13501. These are the two most demanding classes achievable with an organic substrate. See Guidance Notes **WPA FR 2** and **4** for more information.

2. What is the service environment?

Service classes define the environmental conditions in service. Three service classes are defined in the structural design code BS EN 1995-1-1.

WPA categorises flame retardant formulations into **Type INT1, INT2** and **EXT**. Each type is distinguished by properties that make them suitable for particular service classes. The variation in these properties is largely due to the nature of the chemicals used in the formulations and the complexity of chemical reaction required in formulating them. The WPA FR Types align with those defined in BS EN16755 'Durability of reaction to fire performance'.

WPA FR TYPE BS EN 16755	SERVICE CLASS BS EN 1995	CONDITIONS	EXAMPLES	CONDITIONS
INT 1	1	Moisture content in materials corresponding to 20°C and rh <65 % for most of the year.	Timber in buildings with heating and protected from damp: Internal walls, internal floors and warm roofs	The common feature is that the FR wood-based product is sensitive to high humidity; prolonged exposure may result in salt efflorescence and/or migration.
INT 2	2	Moisture content in materials corresponding to 20°C and a rh <85 % most of the year	Ground floor structures where no free moisture is present, cold roofs, swimming pools and fully protected external uses.	Treated wood or wood-based panel is far less sensitive to high or fluctuating humidity and can therefore be used in practically all interior and fully protected external situations.
EXT	3	Conditions leading to higher moisture content in materials than in SC 2	Cedar shingles and unprotected exterior cladding.	The treated wood product can be used in all interior and above ground exterior situations.

Treatment Type examples



INT 1

Interior, low humidity



INT 2

Interior, prone to high humidity



INT 2

Protected with coating for exterior application



EXT

Exterior, exposed to the elements

Service Life

For guidance on the expected service life performance of flame retardant treatments in wood based products, please consult the appropriate product manufacturer.

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For further information or advice, please contact either :

The Wood Protection Association | www.thewpa.org.uk | Tel: 01977 558 274 | contact@thewpa.org.uk

Timber Development UK | www.timberdevelopment.uk | Tel: 0203 198 9606 | info@timberdevelopment.uk

The Wood Protection Association is affiliated to Timber Development UK