

1. INTRODUCTION

Traditionally, flame retardant timber decking has long been a fundamental requirement when working in various sectors of the industry. Examples include, oil and gas, petrochemical, timber frame construction and the London Underground etc. However, in the light of the recent Grenfell disaster, there has been a large increase in the number of contracts where the use of flame retardant timber boards and battens has been specified.

The HSE document 'HSG 168 Fire Safety on Construction Sites' gives much guidance regarding risks and protective measures in such circumstances, with specific advice to the scaffolding industry relating to the provision of escape routes and stairways.

Prior to the tender stage of a contract, the client should assess the risk of fire, which could affect workers, property or members of the public on the site in question, or nearby premises. Where an appreciable risk exists, additional control measures should be specified within the tender documents. For scaffolding contractors this may include the provision of flame retardant boards or battens.

Several flame retardant treatments for timber are available and all add to the basic unit cost. It is therefore essential that the scaffold contractor understands these treatments and their associated limitations and makes the correct choice. Since scaffold boards and battens are always subject to surface wear, only flame retardants applied using a high pressure impregnation system are suitable for long term applications. Impregnated pre-treatment flame retardants are applied under controlled conditions within a sealed autoclave using a pre-determined vacuum/pressure cycle to force the chemicals into the structure of the wood.

In the UK, the Wood Protection Association (WPA) is the technical and advisory authority on flame retardants, recognised by BSI, BRE, NBS, NHBC and the major fire test laboratories. The WPA categorises flame retardants into three types depending on whether they are to be used in dry interiors (Type DI), in areas prone to humidity or condensation (Type HR – Humidity Resistant) and where leach resistance is an essential long term requirement (Type LR – Leach Resistant). Whilst Type LR treatments have distinct advantages over other treatments, they are very expensive and generally an over specification for most scaffolding applications. HR treatments are therefore usually the preferred choice. Treatments are water based and cause no significant loss of bending strength of the treated timber. They may also be considered as 'non-hazardous' minimising removal costs at end of life.

SPECIFICATION

Euroclass test methodologies are based on a measure of heat release, flame spread, fire growth rate, smoke, flaming droplets and provide a more comprehensive and robust approach than the British Standard (BS 476:Pt 7) in terms of evaluating fire performance.

Scaffold boards and battens should be treated and certified in accordance with:

BS EN 13501-1:2018 – Euro class B with additional classifications of

- **s1** smoke rating and
- **d0** flaming droplet production.

The scaffold boards selected for fire retardant treatment shall be graded in accordance with BS2482:2009. Prior to treatment they shall be free from mud, dirt and other debris. There shall be no signs of fungal attack or decay. (Used boards which meet these criteria can be treated subject to the treatment processor's agreement).

Care should be taken when ordering materials to ensure that the supplier is able to offer a certificate of treatment and/or conformity and that this can be substantiated by an original test certificate from a UK recognised and accredited fire testing laboratory. Only flame retardant chemicals manufactured in accordance with ISO9001 quality assured procedures should be specified.

RECOMMENDATIONS

The NASC recommends that all fire retardant impregnation treatments used for scaffold boards must demonstrate:

- Compliance – the treater must be able to evidence the relevant fire test report.
- Quality application processes – applied by an ISO 9001 approved treatment processor.
- Low Toxicity – The treated timber is no more hazardous than untreated material.
- No significant effect on the strength properties of the treated scaffold boards.
- Non- Corrosive – must be non-corrosive to all metals.
- Preservative protection – offer a level of biological resistance to the treated scaffold boards.
- WPA 'Approved and Listed status' – the manufacturer of the fire treatment must operate under ISO9001 certification and submit detailed performance information about the product including, durability, fire test and classification data. Details as to WPA 'Approved and Listed Products' can be obtained from the WPA.

CARE AND STORAGE

If flame retardant treated timber is handled and used in accordance with good construction practice, it should present no significant hazard in handling or installation.

Cross cutting of scaffold boards is permitted. All cut ends should be re-banded or nail-plated.

When scaffold boards are continually subjected to rain or offshore conditions the fire resistant properties may deteriorate over time. Since the degree of exposure will determine how long acceptable fire resistant properties will remain, the treatment processor should be contacted for guidance.

After treatment, flame retardant boards are usually difficult to distinguish with general (untreated) stock, so should be made easily distinguishable by colouring the end bands with a starkly contrasting colour to that of the normal security paint. They should then be stored separately in a separate or barriered off area of the yard or warehouse and covered to provide shelter, if at all possible.

REFERENCES, FURTHER READING AND GUIDANCE

BS EN 13501-1:2018 Fire classification of construction products and building elements.

HSG 168 Fire Safety on Construction Sites – Health and Safety Executive.

TG5 Timber scaffold boards BS2482:2009 – NASC.

TG6 Care and maintenance of scaffold boards – NASC.

TG7 Scaffold board nail plates – NASC.

Whilst every effort has been made to provide reliable and accurate information, we would welcome any corrections to information provided by the author which may not be entirely accurate, therefore and for this reason, the NASC or indeed the author cannot accept any responsibility for any misinformation posted.



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