

INTRODUCTION

There is an increase in the number of contracts which require the use of timber scaffold boards or battens with flame retardant properties. This demand is mostly in the North Sea Oil Industry, although treatment is also required by London Underground Ltd, the Power Industry, the UK Timber frame sector and is becoming widely recognised by insurance companies.

Prior to erection, the client should assess the risk of fire and arrange additional control measures where required (such as the provision of fire retardant boards).

HSG 168 Fire Safety on Construction Sites gives guidance. Additional documentary guidance is available from the UK Timber Frame Association (UKTFA) under its FRBuild scheme which aims to enhance the fire performance of buildings under construction from fire and reduce the potential for fire to spread to neighbouring properties. There is need to assess the effects of radiated heat on adjoining premises or structures (this could include the scaffolding) and the possibility of fire spreading from the source building HSG 168 also gives specific advice to the scaffolding industry relating to the provision of escape routes and stairways.

Several flame retardant systems are available and all add to the basic cost of the timber. It is therefore essential that the scaffold contractor understands these systems 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 systems 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, it is the Wood Protection Association(WPA) that 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) and external applications where leach resistance is an essential long term requirement: (Type LR).

For the treatment of scaffold boards and battens WPA Type HR and Type LR are the most appropriate. All formulations are water based.

Humidity resistant – WPA Type: HR

Type 'HR' Humidity resistant products – This timber treatment can be used in most interior, semi protected or short term exterior situations. (For periods in excess of three years please consult the processor). Type HR treated timber is far less sensitive to high or fluctuating humidity due to the lower solubility in water of the chemicals and degree of chemical interaction. Tests carried out on the corrosion of metals in contact with the treated timber show there is no more corrosion than with untreated timber. If this type of treated timber is handled and use in accordance with good construction practice, it presents no significant hazard in handling or installation. This treatment causes no significant loss of bending strength of the treated timber.

Leach resistant – WPA Type: LR

Type 'LR' Leach resistant products – based on a polymeric resin system. The treated timber can be used in all interior and exterior situations exposed to humidity and direct wetting. Leach resistance is brought about by high temperature curing of the complex chemical system in the treated timber following impregnation and re-drying. However these treatments are expensive and are effectively an 'over specification' in this instance. Although technically suitable these treatments are impractical for the treatment of scaffold boards.

STANDARDS

The WPA publication "Flame Retardant Specification Manual – Industrial Flame Retardant Treatment of Solid Timber and Panel Products is regarded as the best practice guide to the specification and use of industrial flame retardants in the UK and includes detailed product data and a simplified system of specification by a commodity code.

Scaffold Boards should be treated to WPA Commodity Specification FR4. The specifier should specify in accordance to BS EN 13501-1:2002. Euroclass test methodologies are based on a measure of heat release, flame spread, fire growth rate, smoke, flaming droplets and are a more comprehensive, robust approach than the old British Standards in terms of evaluating fire performance. However BS476:Pt 7 is still valid.

There are two classifications:

Euroclass 'C' – (equivalent to Class 1)

Or

Euroclass 'B' – (equivalent to Class 0)

Most applications generally require Euroclass C or Class 1 surface spread of flame to BS476:pt7. In high risk areas treatment may be needed to Euroclass 'B' or Class 'O') as defined in building regulations.

The scaffold boards for treatment should comply to 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. (if used boards meet these criteria they can be treated subject to the treater's agreement).

Cross cutting and notching: Cross cutting is permitted and notching according to TG5.

SPECIFICATION

Scaffold Boards shall be graded in accordance with BS2482:2009, treated in accordance with WPA FR4 commodity specification FR4 to Euroclass C (or B, as appropriate) using a WPA 'HR' Approved & Listed Product and applied by an ISO 9001 approved processor.

QUALITY ASSURANCE

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 manufactured in accordance with ISO9001 quality assured procedures should be specified.

WPA Benchmark FR Build is the quality assurance scheme for which the UKTFA requires compliance under its FR Build scheme.

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 treater.
- 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 either from the WPA or from the NASC web site.

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