Beech timber fire door industry task group open letter –

December 2016 - issue 1

Assessment for fire resistant timber door assemblies for ≥ 60 minute duration and the restriction of beech (fagus sylvatica) timber unless proven via test

To whom it may concern,

It has become apparent via the regular auditing testing practices of third party certification schemes in the UK that the use of beech timber (fagus sylvatica) requires restrictions to its use in 60 minute and over fire resisting door constructions.

Please find within this letter an agreed testing and assessment protocol which will be used in the future where beech is desired as a component material for ≥60 minute fire resisting door constructions. The national testing and assessment protocol outlined within this letter is for United Kingdom application only and does not replace the extended field of application approach given in BS EN 15269-3.

During 2015/2016 a UK Industry Task Group was set up to investigate the use of beech which included representatives from timber and fire door trade associations, testing and certification bodies, manufacturers and industry professionals. Research has been carried out and a number of tests have taken place to investigate beech char characteristics and behaviour during fire resistance tests.

Signed

Exova BM TRADA represented by Ross Newman (BSI FSH/22/-/5 committee Chairman - Fire resistance tests for doors)

IFC Group represented by Ian Woodhouse and David Cooper

Warrington Certification represented by Andy Kearns and Michelle Tolan

Masonite UK represented by Stephen Upton

Architectural and Specialist Door Manufacturers Association (ASDMA) represented by Ian Makins (Chairman)

Beech timber fire door industry task group open letter –

December 2016 - issue 1

SUBJECT OF NATIONAL PROTOCOL: Assessment for fire resistant timber doorsets for ≥ 60 minute duration and the restriction of beech (fagus sylvatica) timber unless proven via test

Date of publication: November 2016

Published by: Beech timber fire door industry task group. A UK Industry Task Group made up from timber and fire door trade associations, testing and certification bodies, manufacturers and industry representatives.

TITLE:

Assessment for fire resistance timber doorsets of 60 minute duration or more and the restriction of beech (fagus sylvatica) timber unless proven via test.

REASON :

The reason that a resolution is required is that beech timber has been found to produce inconsistent results around the 60 minute mark when fire tested. Furthermore, this has been witnessed when the timber density and moisture content are within the parameters of the door assembly assessment documentation. In addition to the empirical limitations of beech, as part of fire resisting door assemblies, Eurocode 5 (BS EN 1995) and the extended field of application for timber doorsets, BS EN 15269-3, indicate beech as having char rate characteristics similar to softwood and that it must be considered separate from other hardwood species.

PROTOCOL :

When undertaking national assessments for timber doors of ≥ 60 minutes fire resistance beech will be excluded from the scope of application as an alternative hardwood, irrespective of the density and species of hardwood that has been proven by test, unless where using steamed beech only (fagus sylvatica) directly supported by test evidence in accordance with the detailing shown below. Beech of any species may still be used as a decorative facing veneer without restriction.

Unsteamed beech has been shown to have the most variable char pattern with steamed beech having a more consistent char pattern. Colour No Defect (CND) beech is generally a mix of both steamed and unsteamed beech.

Due to the above if all grades of beech are required then fire resistance testing should be carried out using unsteamed beech. If only steamed beech is required then this may be tested. (As CND beech can be a mix between steamed and unsteamed beech then if it is used for testing it could be that steamed beech is tested. The testing of CND beech therefore only permits the use of steamed beech).

Methods of testing beech (fagus sylvatica) for inclusion in national assessment documents for 60 minutes or higher:

Beech used for glazing beads within door assemblies including vision panels within the door leaf, side screens and over panels

Beech glazing beads may be used in conjunction with fully insulating glass types via assessment where other lower density timber species may have been tested in the initial type test. (insulation performance of the glass for the full fire resistance duration is required, i.e. 60/60 glass types).

In order to permit beech for glazing beads for all other glass types, it will need to be tested at the glazed aperture required.
For alternative glass types the assessor will need to consider the likely effect alternative glass and glazing systems may have on the beech glazing beads. Beech glazing beads can be assessed for use with alternative glass and glazing systems providing the glass and/or glazing system being considered provides at least the same or a greater level of protection from heat transfer as the glass

and/or glazing system as originally tested. For example intumescing glazing systems and glass types will likely offer greater protection to the beech glazing beads whereas integrity only glass types are likely to be more onerous.

Beech used for door frames and lippings

In order to cover beech it will need to be tested following the testing hierarchy. The hierarchy of performance has been developed for the various common leaf configurations. The testing hierarchy is based upon beech frames and lippings being tested in the same specimen. Where the top is considered the least onerous in terms of fire performance. If you wish to cover any configuration lower down the list it will need to be tested. Configurations above the configuration tested are acceptable.

Note. The hierarchy is for general guidance and may be adapted. It may be adapted on a case by case basis for certain design details at the discretion of the assessor. For example the addition of unequal pair may be added to the hierarchy at a suitable location.

Single action doorset guidance hierarchy:

Abbreviation	Description
LSASD	Latched single acting single doorset
ULSASD	Unlatched single acting single doorset
LSASD+OP	Latched single acting single doorset with overpanel
ULSASD+OP	Unlatched single acting single doorset with overpanel
LSADD	Latched single acting double doorset
ULSADD	Unlatched single acting double doorset
LSADD+OP	Latched single acting double doorset with overpanel
ULSADD+OP	Unlatched single acting double doorset with overpanel

Double acting doors need their own hierarchy and should be considered separate from single acting doors.

Double action doorset guidance hierarchy:

Abbreviation	Description
LDASD	Latched double acting single doorset
ULDASD	Unlatched double acting single doorset
LDASD+OP	Latched double acting single doorset with overpanel
ULDASD+OP	Unlatched double acting single doorset with overpanel
LDADD	Latched double acting double doorset
ULDADD	Unlatched double acting double doorset
LDADD+OP	Latched double acting double doorset with overpanel
ULDADD+OP	Unlatched double acting double doorset with overpanel

In all the above the inclusion of a rebated/flush overpanel is considered more onerous than a leaf without an overpanel, or with a transomed overpanel. Similarly rebated meeting stiles are more onerous than flush meeting stiles. These will need to be tested following this hierarchy table below:

No overpanel/transomed overpanel	Least onerous	Flush meeting stiles
Flush overpanel	↓	
Rebated overpanel	Most onerous	Rebated meeting stiles

An illustration of testing and assessment hierarchy for beech can be found in the table overleaf. This should be used in conjunction with the information and tables above. The same table can be used for double acting doorsets where the 'S' for single is exchanged for a 'D' for double.

Beech timber fire door industry task group open letter –

December 2016 - issue 1

Door Configuration table (timber doors)

Test \ Assess	 ULSADD+OP	 LSADD+OP	 ULSADD	 LSADD	 ULSASD+OP	 LSASD+OP	 ULSASD	 LSASD
 ULSADD+OP	✓	✓	✓	✓	✓	✓	✓	✓
 LSADD+OP	×	✓	×	✓	×	✓	×	✓
 ULSADD	×	×	✓	✓	×	×	✓	✓
 LSADD	×	×	×	✓	×	×	×	✓
 ULSASD+OP	×	×	×	×	✓	✓	✓	✓
 LSASD+OP	×	×	×	×	×	✓	×	✓
 ULSASD	×	×	×	×	×	×	✓	✓
 LSASD	×	×	×	×	×	×	×	✓