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REGULATORY INFORMATION REPORT

The fire-resistance level (FRL), Resistance to the Incipient Spread of Fire (RISF) and Modified Resistance to the Incipient Spread of Fire (MRISF) performance of various timber-framed and massive timber panel systems

Client: Forest and Wood Products Australia

Report number: 37401400 Revision: RIR2.0 Project reference number: FAS190171

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Amendment schedule

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			Prepared by	Reviewed by	Approved by
	Expiry: 30/11/2024	Name	Imran Ahamed	Mahmoud Akl	Imran Ahamed
		Signature	Imran.		Imran.

Contact Information

Warringtonfire Australia Pty Ltd - ABN 81 050 241 524

Melbourne – NATA registered laboratory
Unit 2, 409-411 Hammond Road
Dandenong South, VIC 3175
Australia

T: +61 3 9767 1000

Sydney
Suite 802, Level 8
383 Kent Street
Sydney, NSW 2000
Australia

T: +61 2 9211 4333

Brisbane
Suite 6, Level 12
133 Mary Street
Brisbane, QLD 4000
Australia

T: +61 7 3238 1700

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1. Introduction

This report contains the minimum information sufficient for regulatory compliance in accordance with AS 1530.4-2014[1] Clause 2.16.3 and refers to the Assessment Report 37401400 R2.0.

The referenced assessment report presents an assessment on the fire-resistance level (FRL), Resistance to the Incipient Spread of Fire (RISF) and Modified Resistance to the Incipient Spread of Fire (MRISF) performance of various timber-framed and massive timber panel systems.

The National Construction Code (NCC) 2019[2] permits the use of timber structural elements in mid-rise buildings and introduces the concept of fire-protected timber. The referenced assessment report assesses the performance of variations to basic wall and floor systems that otherwise comply with the requirements for fire-protected timber when elements interface with other forms of construction, have additional coverings applied or are penetrated by services or fire doors.

Where evidence of performance has not been specifically referenced in this document, the required testing evidence is specified as a requirement.

The referenced assessment report expresses the FRL, RISF and MRISF performances of the proposed construction based on the NCC Specification C1.13a - Fire protected timber. MRISF is measured in a similar way to RISF though has a 300°C criteria in Specification C1.13a in contrast to the 250°C criteria as in AS 1530.4:2014.

The validity of this report is conditional on compliance with Sections 6, 7, 8 and 9 of this report.

2. Tested prototypes

The referenced assessment report is based on reference to the following tests and assessments

- FSH 204
- FSH 205
- FSV 188
- FSV 187
- Data Referenced in Assessment Report EWFA 22567a
- Data Referenced in Assessment Report EWFA22221a
- 36474400
- 37600400 R2.0
- TST180021
- FAS190034 R1.0
- 55945800.2A
- 55945800.1B

Permission has been obtained from Forest and Wood Products Australia Limited, the sponsor of the above reports, or their agent to reference the data.

[1] Standards Australia (2014) Methods for fire tests on building materials, components and structures Part 4: Fire resistance tests for elements of construction, AS 1530.4:2014.
[2] NCC Volume One 2019 – Building Code of Australia, Australian Building Codes Board, Australia.

3. Variation to tested prototypes

3.1 General

The proposed constructions for the primary building elements are shown in Section 3.2 and 3.3. Refer to Sections 3.4 when additional linings and claddings are present. The construction of various junctions, service penetrations and fire doors are shown in Section 3.5 to Section 3.16.

3.2 Basic fire protected timber wall and floor elements

Table 1 Schedule of components

<table>
<tr><th>ID</th><th colspan="2">Description</th></tr>
<tr><td rowspan="2">1</td><td>Name</td><td>Wall or floor framing</td></tr>
<tr><td>Material</td><td>Timber framed wall construction including solid timber or engineered timber that has been demonstrated by test to achieve the required FRL when protected with fire-protective grade plasterboard (item 2)
Timber floor construction including solid timber, timber trusses with metal plates, timber trusses with metal webs, engineered joists with metal and OSB webs, that has been tested or assessed by others to achieve the required FRL. If cavity insulation is present, it shall be as specified in Item 4.</td></tr>
<tr><td rowspan="4">2</td><td>Name</td><td>Fire protective grade plasterboard for fire protected timber</td></tr>
<tr><td>Material</td><td>Fire-protective grade plasterboard</td></tr>
<tr><td>Size</td><td>At least the following lining thicknesses depending on the required FRL:
• 2, 3 or 4 layers of 13mm or 16mm thickness, or
• 1 x 13mm plus 1 x 16mm in any order</td></tr>
<tr><td>Installation</td><td>Linings shall be installed in accordance with the test or assessed system of the product</td></tr>
<tr><td rowspan="4">3</td><td>Name</td><td>Fire-protective Grade Plasterboard for massive Timber</td></tr>
<tr><td>Material</td><td>Fire-resistant grade plasterboard</td></tr>
<tr><td>Size</td><td>
<table>
<tr><th>Application</th><th>Lining thicknesses depending on the required FRL</th></tr>
<tr><td>Inside a fire-isolated stairway or lift shaft</td><td>1x13mm or greater</td></tr>
<tr><td>External walls within 1 m of an allotment boundary or 2 m of a building on the same allotment</td><td>2x13mm or greater</td></tr>
<tr><td>All other applications</td><td>1x16mm or greater</td></tr>
</table>
</td></tr>
<tr><td>Installation</td><td>Linings shall be installed in accordance with the test or assessed system of the product</td></tr>
<tr><td rowspan="2">4</td><td>Name</td><td>Non-combustible cavity insulation</td></tr>
<tr><td>Material</td><td>Insulation that meets the NCC 2019 requirements for non-combustibility.</td></tr>
<tr><td rowspan="2">5</td><td>Name</td><td>Massive timber</td></tr>
<tr><td>Size</td><td>A timber panel not less than 75 mm thickness and formed from chemically bonded laminated timber. This includes:
• (a) Cross laminated timber (CLT)
• (b) Laminated veneer lumber (LVL)
• (c) Glued laminated timber (Glulam)</td></tr>
</table>

6	Name	Masonry wall
	Size	Masonry wall tested or assessed by others to achieve the required FRL
7	Name	External cladding. All components of the external cladding system shall be non-combustible.
8	Name	Additional wall and ceiling lining systems that are not required to contribute to the fire resistance of the element of construction (e.g. decorative linings which conceals services)
	Material	Materials for the additional wall and ceiling linings must comply with applicable NCC 2019 requirements (e.g. requirements for wall and ceiling lining systems must be satisfied)
9	Name	Flooring
	Material	Flooring shall be installed in accordance with the test or assessment report for the required FRL

Requirements

Note 1 - Fire-protected timber element having the required FRL and RISF or MRISF as appropriate. Any cavity Insulation must be non-combustible.

Note 2 - Shaftwall constructions having the required FRL.

Note 3 - Interface protected with the same fire-protective coverings that are applied to the fire-protected timber element.

Note 4 - Fire door assembly with the required FRL determined in accordance with AS 1530.4:2014 and AS 1905.1:2015 as appropriate.

Note 5 - Minimum of 45mm thick non-loadbearing solid timber cavity barrier framing protecting the cavity opening around the door.

Note 6 - Lift landing door assembly having the required FRL and installed in accordance with the lift door and shaft wall supplier instructions.

Note 7 - Service penetration protected to achieve the required FRL. Evidence of performance to be in the form of a report from an accredited test laboratory in accordance with AS 1530.4 and AS 4072.1 as appropriate.

Note 8 - Non-combustible mineral fibre packing may be used for fire damper penetration seal or proprietary fire damper penetration seals that achieve the required FRL with evidence of performance in the form of a report from an accredited test laboratory in accordance with AS 1530.4 and AS 4072.1 as appropriate.

Note 9 - Mechanical fire damper having the required FRL when tested in accordance with AS 1530.4 and complying with AS 1682 Parts 1 and 2 as appropriate.

Note 10 - Aperture lined with a minimum of 1 layer of 16mm plasterboard. Greater thicknesses / number of layers may be required for the faces of the wall as it may form part of the wall system.

Note 11 - Linings must be sealed for full depth where penetrated by a service with a “fire-resistant mastic”. The fire-resistant mastic protecting pipe or cable service penetrations through plasterboard elements should have evidence of performance demonstrating it can achieve an FRL of -/60/- in the form of a test report from an accredited test laboratory.

Note 12 - Cavity will be filled for full depth using mineral fibre of minimum density 60kg/m^3 for at least 100mm to the sides, above and below the centre line of the GPO.

Note 13 - Proprietary access panel system with the required FRL. For access panels providing access to ceiling cavities an RISF rating of 45minutes or a MRISF rating of 30 minutes as appropriate is required.

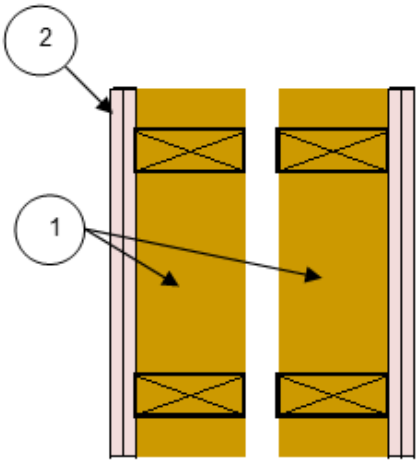


Figure 1 Timber framed double stud

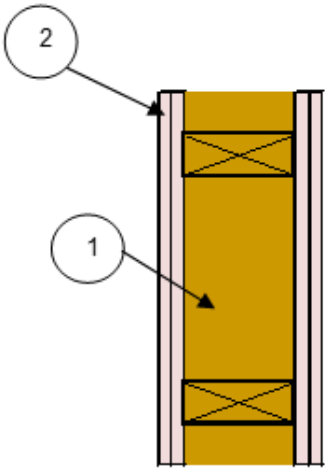


Figure 2 Timber framed single stud

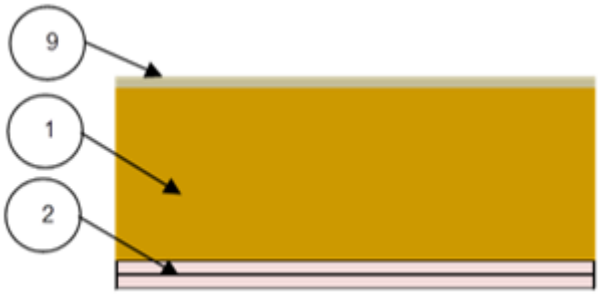


Figure 3 Timber framed floor system with ceiling fixed directly to the framing

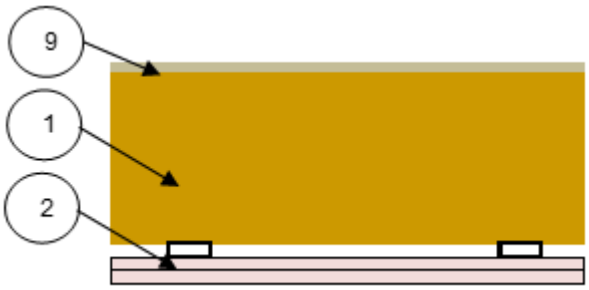


Figure 4 Timber framed floor system with ceiling fixed to furring channels that are suspended or clip fixed to the framing

3.3 Basic fire protected massive timber wall and floor elements

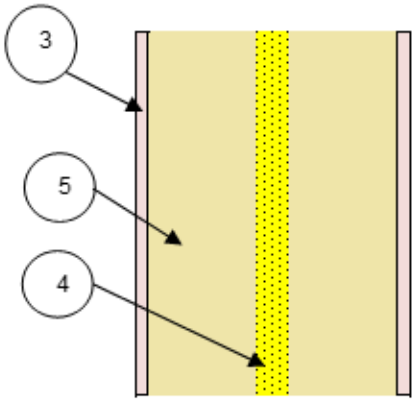


Figure 5 Massive timber panel with double skin

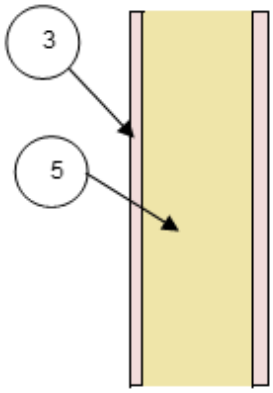


Figure 6 Massive timber panel with single skin

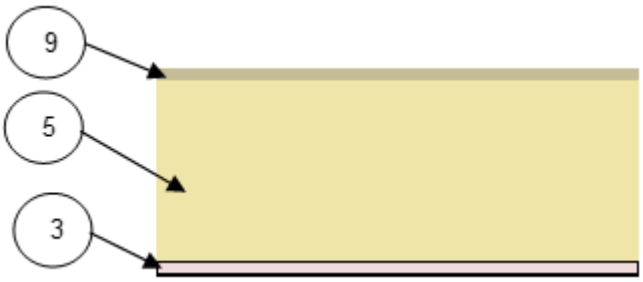


Figure 7 Massive timber floor panel system with ceiling fixed directly to the panel

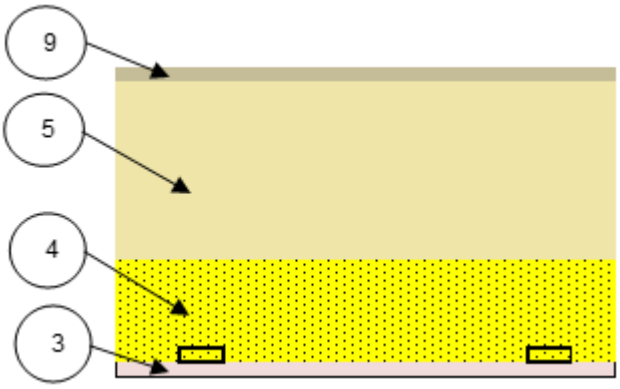


Figure 8 Massive timber floor panel system with ceiling fixed to furring channels that are suspended or clip fixed to the panel

3.4 Basic wall and floor systems with additional non-fire resistant internal linings attached

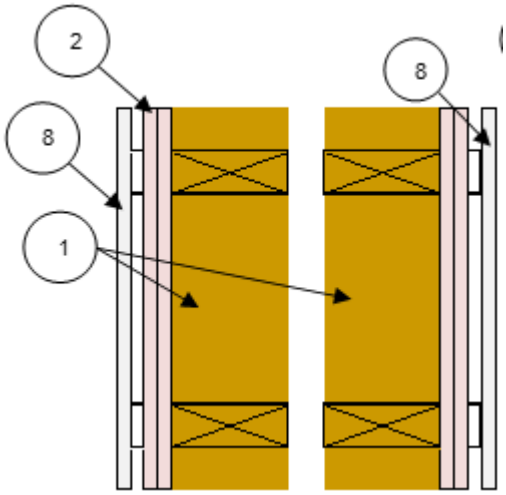


Figure 9 Timber framed double stud wall with non-fire resistant linings

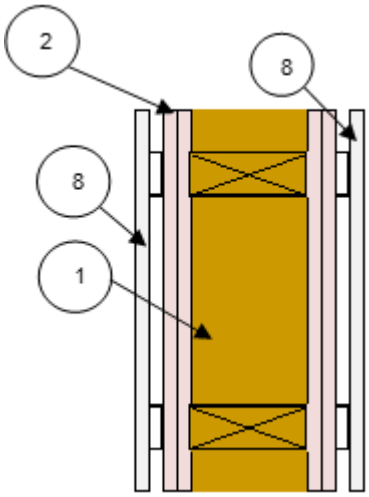


Figure 10 Timber framed single stud wall with non-fire resistant linings

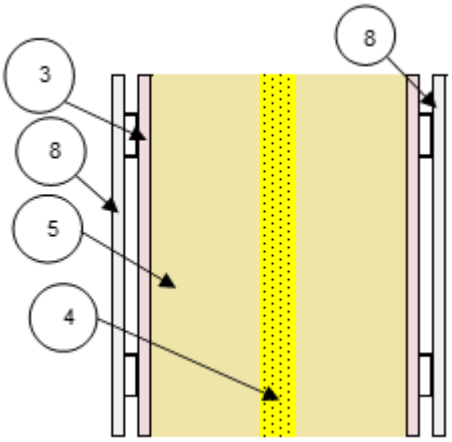


Figure 11 Massive timber panel with double skin incorporating non-fire resistant linings

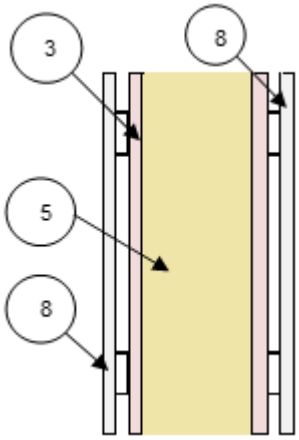


Figure 12 Massive timber panel with single skin incorporating non-fire resistant linings

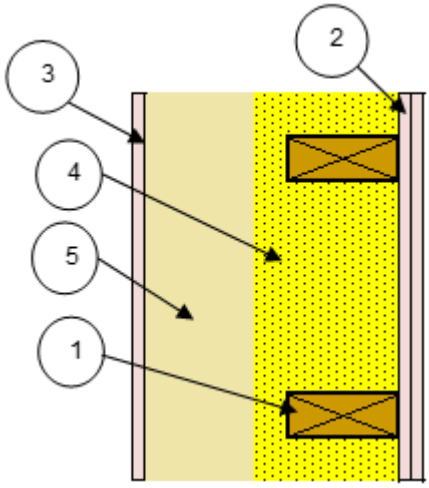


Figure 13 Combination of massive timber panel and timber framed wall

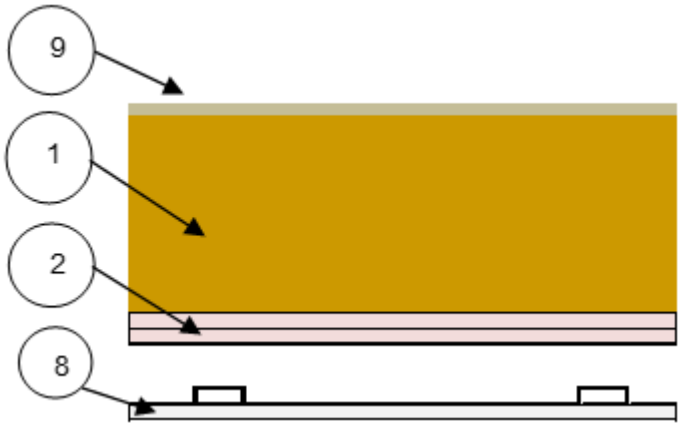


Figure 14 Timber framed floor system with ceilings directly fixed to the framing. Includes a suspended decorative ceiling

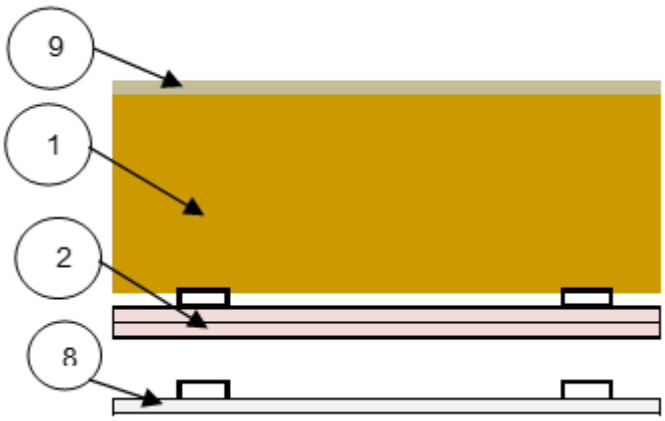


Figure 15 Timber framed floor system with ceilings fixed to furring channels that are suspended or clip fixed to the framing. Includes a suspended decorative ceiling

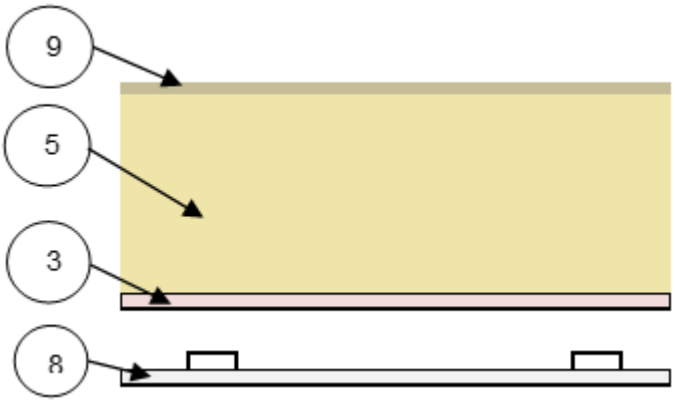


Figure 16 Massive timber floor panel with ceilings directly fixed to the panel. Includes a suspended decorative ceiling

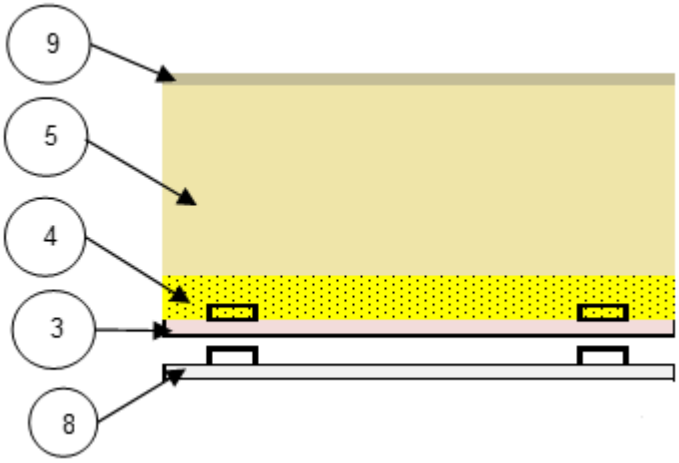


Figure 17 Massive timber framed floor system with ceilings fixed to furring channels that are suspended or clip fixed to the framing. Includes a suspended decorative ceiling

3.5 Basic wall systems with additional non-fire resistant external cladding attached

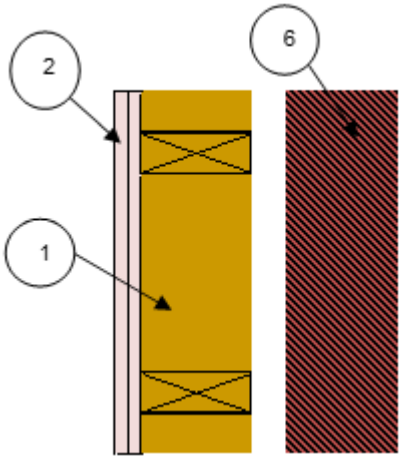


Figure 18 External brick wall (or equivalent) with timber framed wall

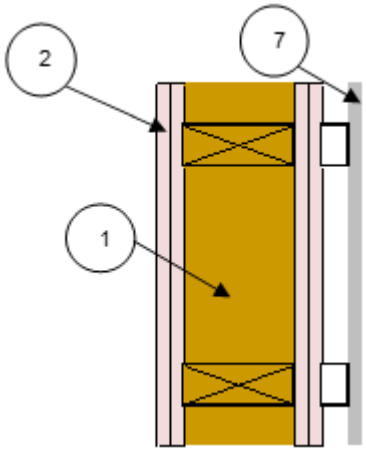


Figure 19 External timber framed wall with non-fire resistant cladding

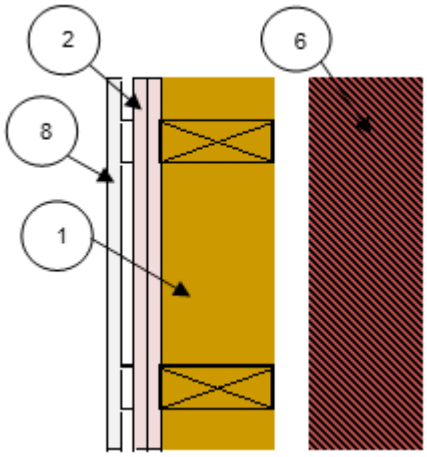


Figure 20 External brick wall (or equivalent) with timber framed wall incorporating non-fire resistant lining and cladding

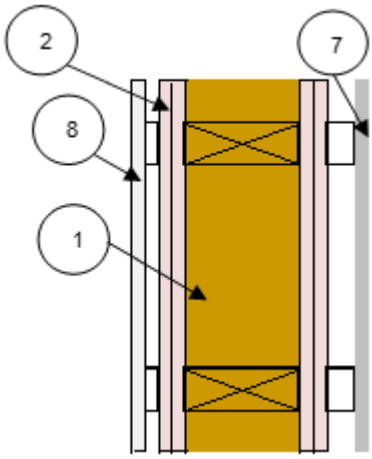


Figure 21 External timber framed wall with non-fire resistant lining and cladding

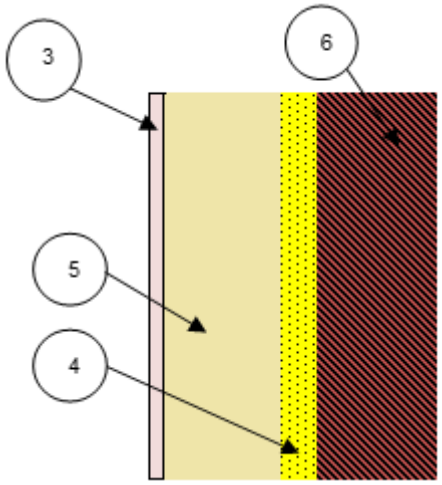


Figure 22 External brick wall (or equivalent) with massive timber panel

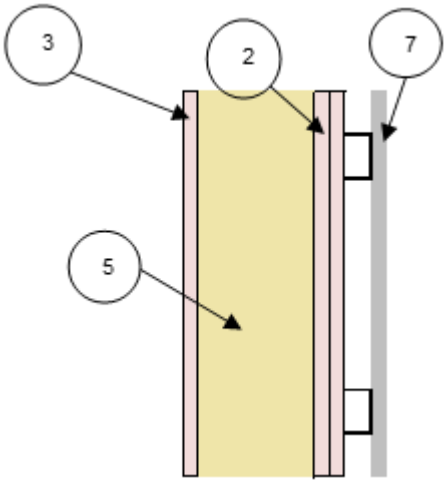


Figure 23 Massive timber panel with non-fire resistant cladding

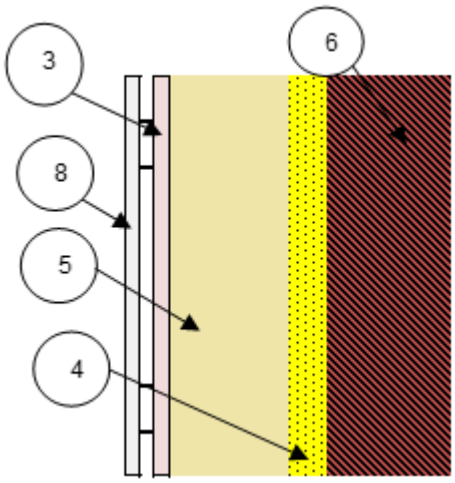


Figure 24 External brick wall (or equivalent) with massive timber panel incorporating non-fire resistant lining and cladding

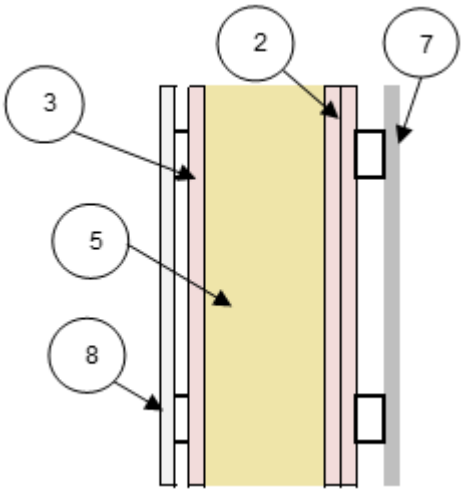


Figure 25 Massive timber panel with non-fire resistant lining and cladding

3.6 Timber construction in a shaftwall

In many instances, it may be more practical to construct shafts from either solid laminated board systems or steel board shaft construction to save space and simplify the fitting of service penetrations and doors. Where these systems are utilized, interfaces are detailed to maintain protective coverings to timber elements and consequently the FRLs.

The construction details together with the requirements for the test evidence to support the construction are listed below.

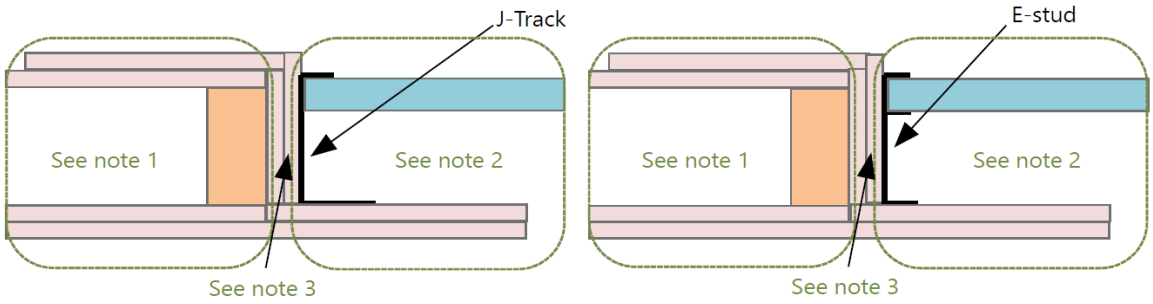


Figure 26 Steel stud shaft wall parallel interface with single stud timber partition

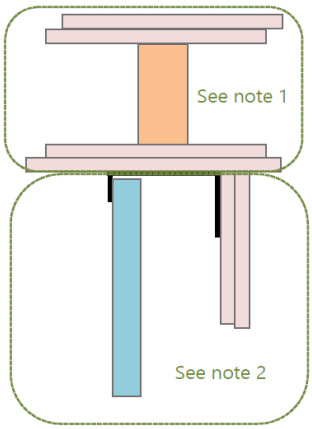


Figure 27 Steel stud shaft wall perpendicular interface with single stud timber partition

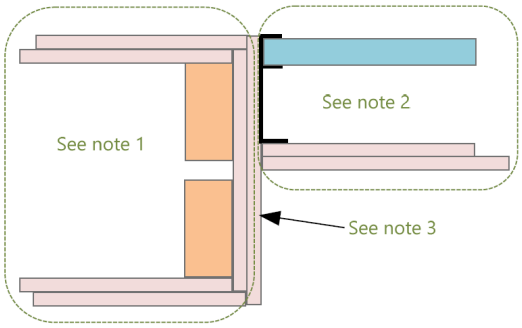


Figure 28 Steel stud shaft wall parallel interface with double stud timber partition

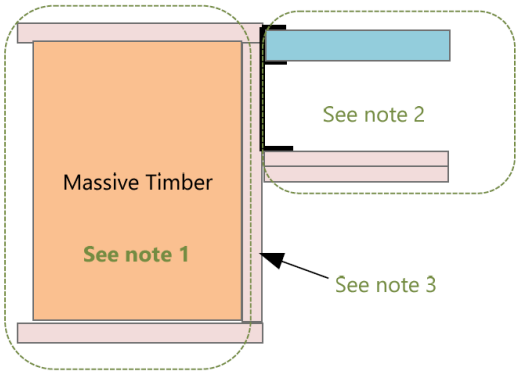
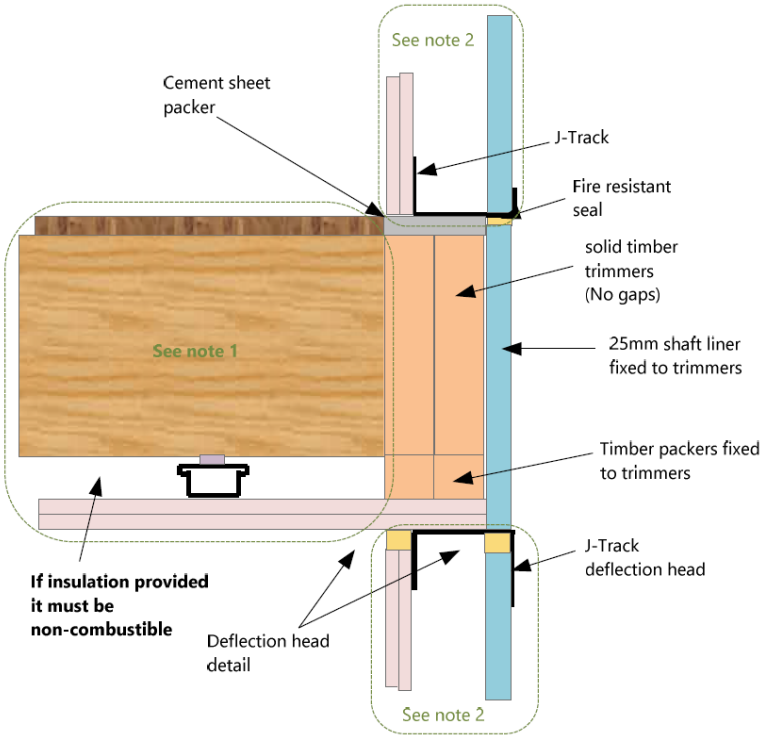


Figure 29 Steel stud shaft wall parallel interface with massive timber wall



Solid timber trimmers and packers can be combined as a deeper solid timber trimmer

Figure 30 Steel stud shaft wall interface with timber floors maintaining shaft continuity

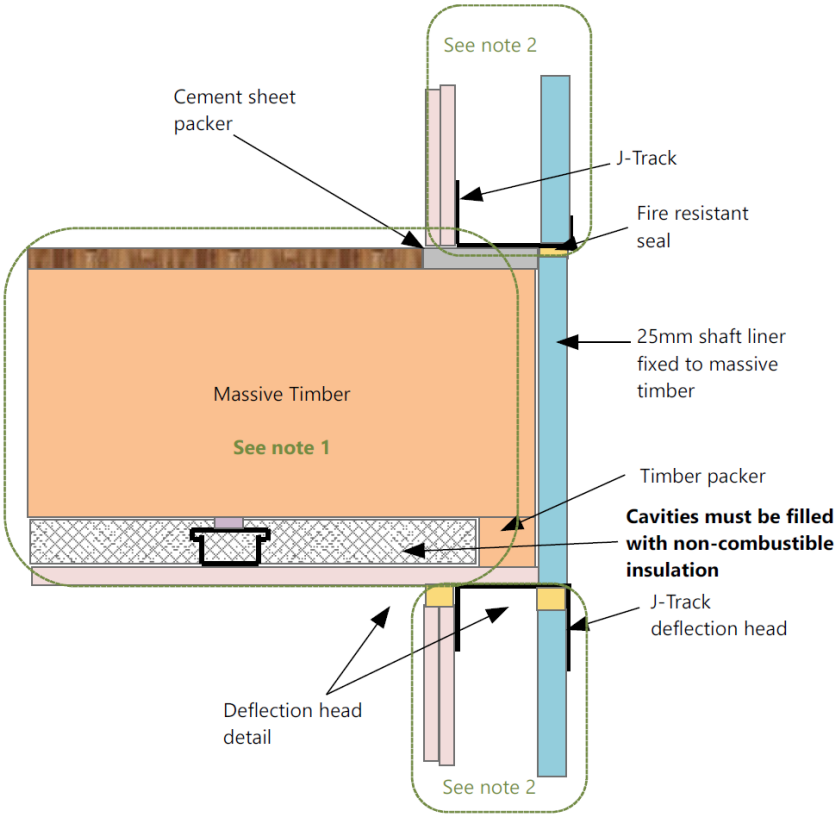


Figure 31 Steel stud shaft wall interface with massive timber floors maintaining shaft continuity

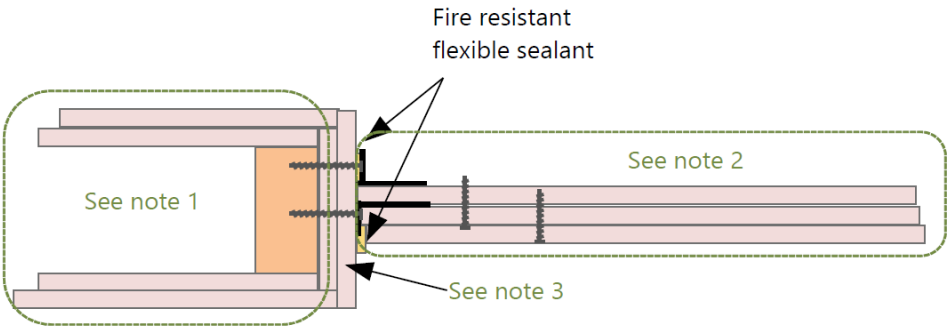
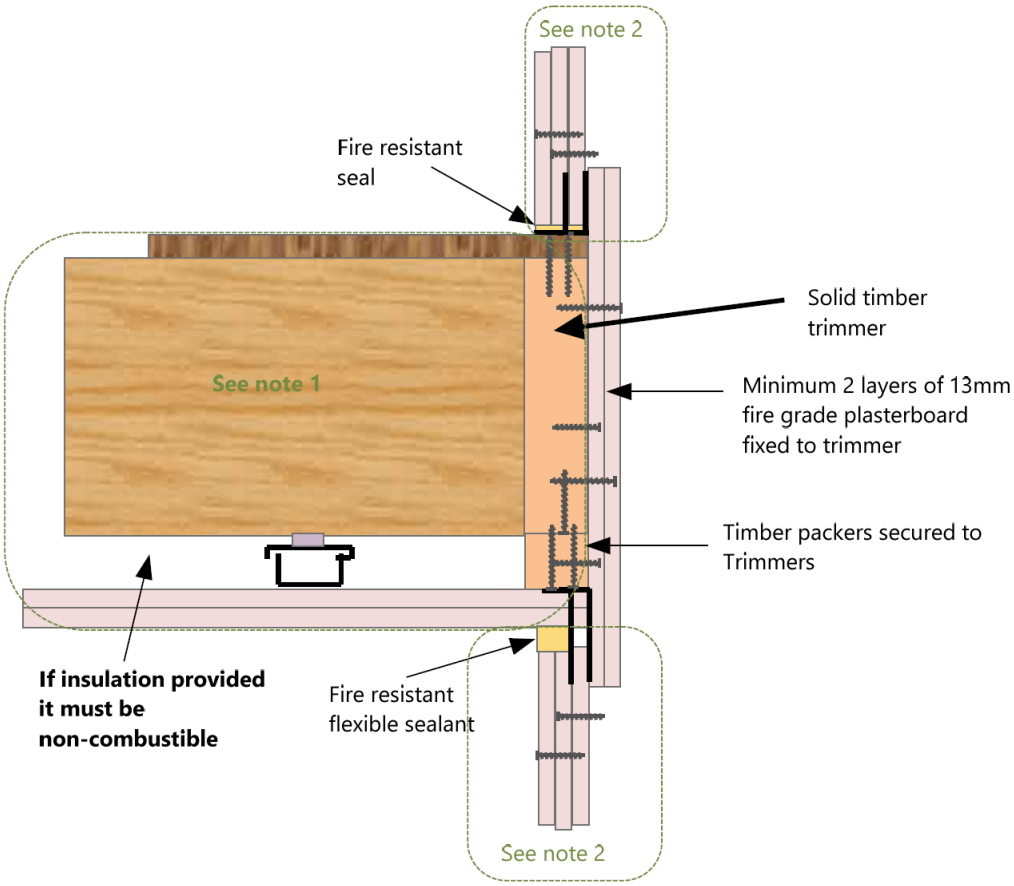


Figure 32 Laminated shaft wall parallel interface with single stud timber partition



Solid timber trimmers and packers can be combined as a deeper solid timber trimmer

Figure 33 Solid laminated shaft wall interface with timber floors maintaining shaft continuity

3.7 Timber construction with hinged fire doors

Hinged fire doorset shall be made from construction that is in accordance with AS 1905.1 as appropriate for timber-framed wall construction. The principle of the proposed details is to protect the cavity by using a at least 45mm thick timber stud or fire protective grade plasterboard of the same thickness as the partition facings. The construction details together with the requirements for the test evidence to support the construction are listed below.

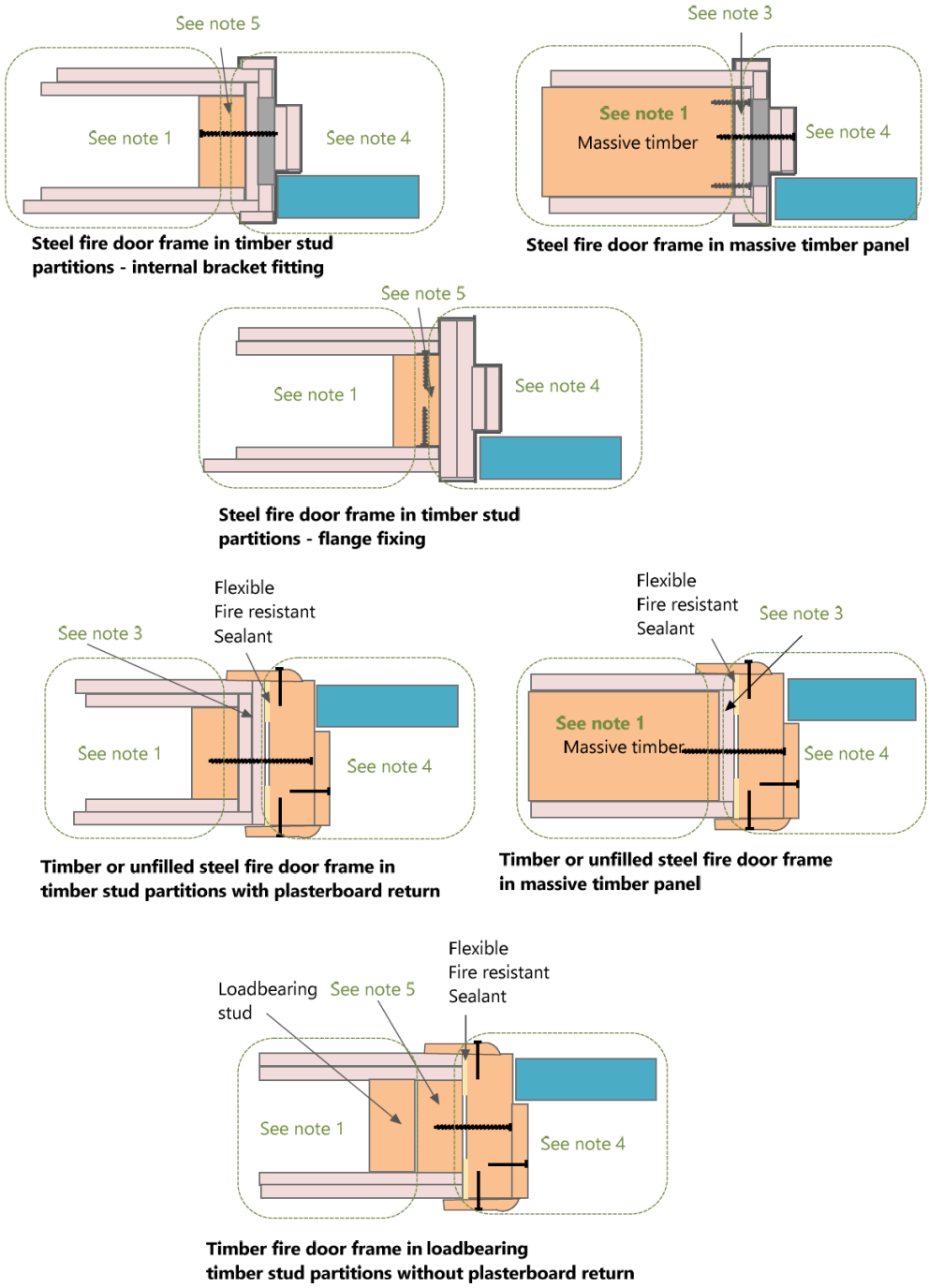


Figure 34 Hinged fire door installation details

3.8 Timber construction with lift landing doors

Generally, most of the lift landing door assemblies will have been fire tested in masonry, concrete or steel stud shaft wall systems. The following details provide an interface between fire-protected timber and a pre-cast concrete sill and steel shaft wall systems together with the specific requirements.

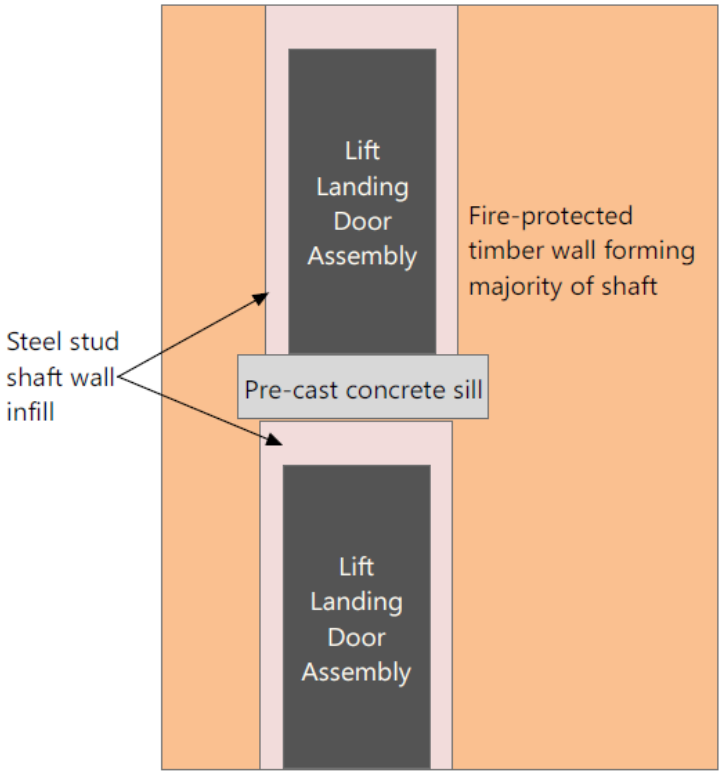


Figure 35 Schematic elevation of lift landing door

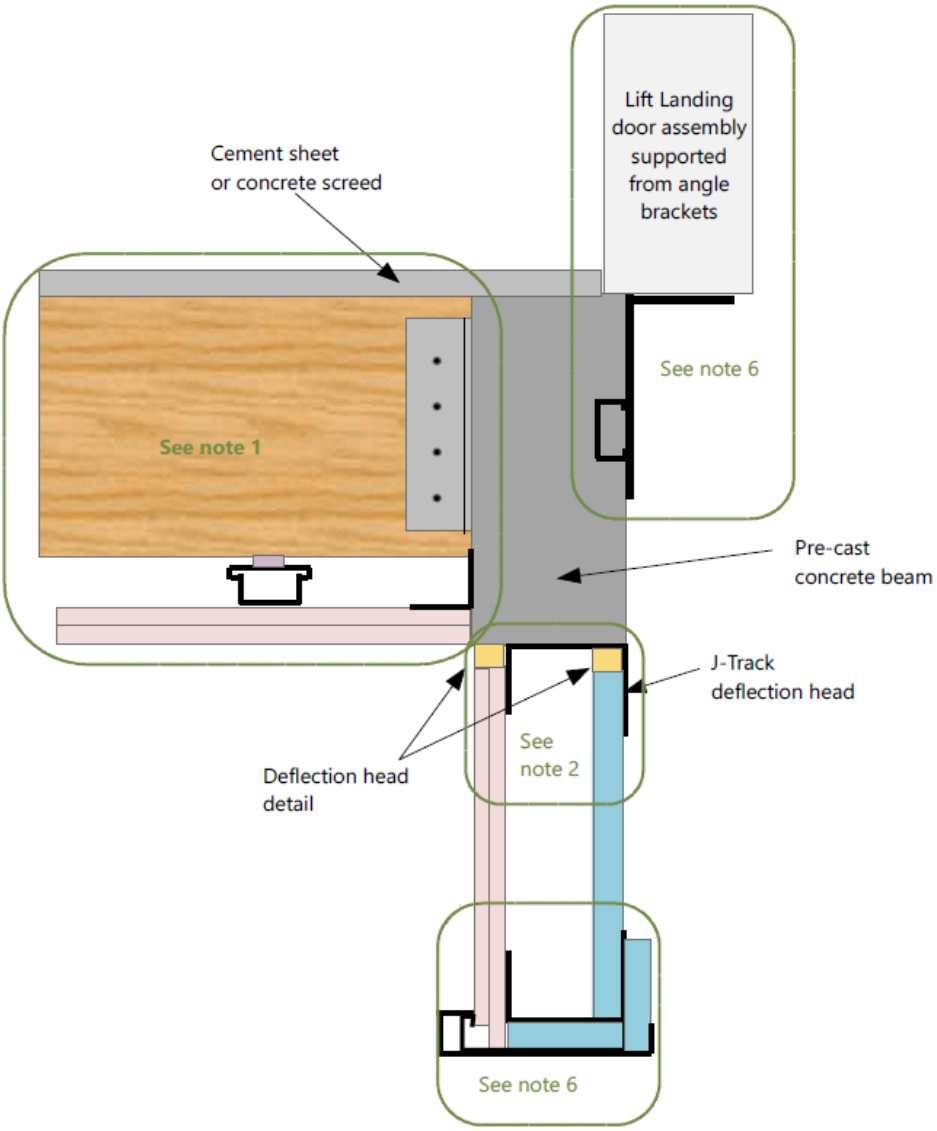


Figure 36 Section showing head and sill detail for pre-cast concrete and shaft wall interface

3.9 Timber construction with large openings

In case of large openings, the service penetrations in the aperture shall be protected by an infill system with the same FRL as that required for the element. Typical options include fire rated board, pillow and mineral fibre batt systems. The proposed infill systems are considered to have been tested and achieved the required FRL while protecting a variety of service penetrations in timber-frame construction.

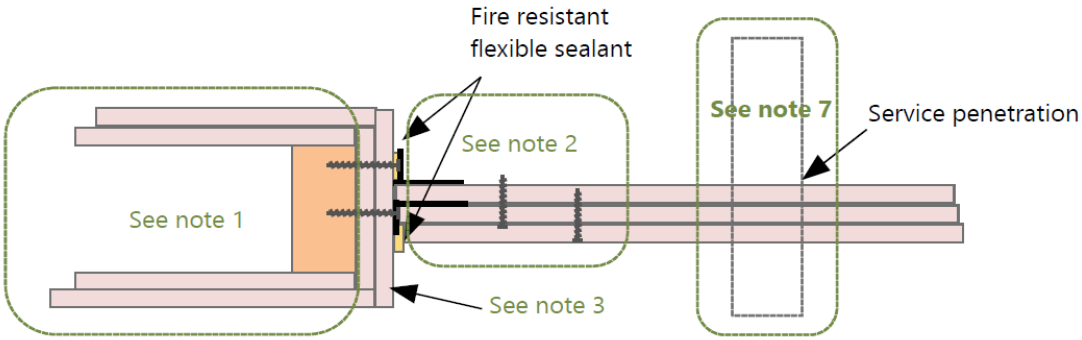


Figure 37 Fire rated board infill system

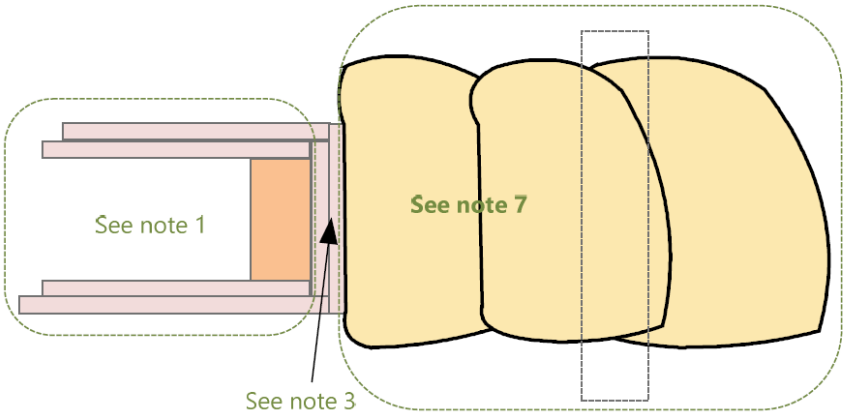
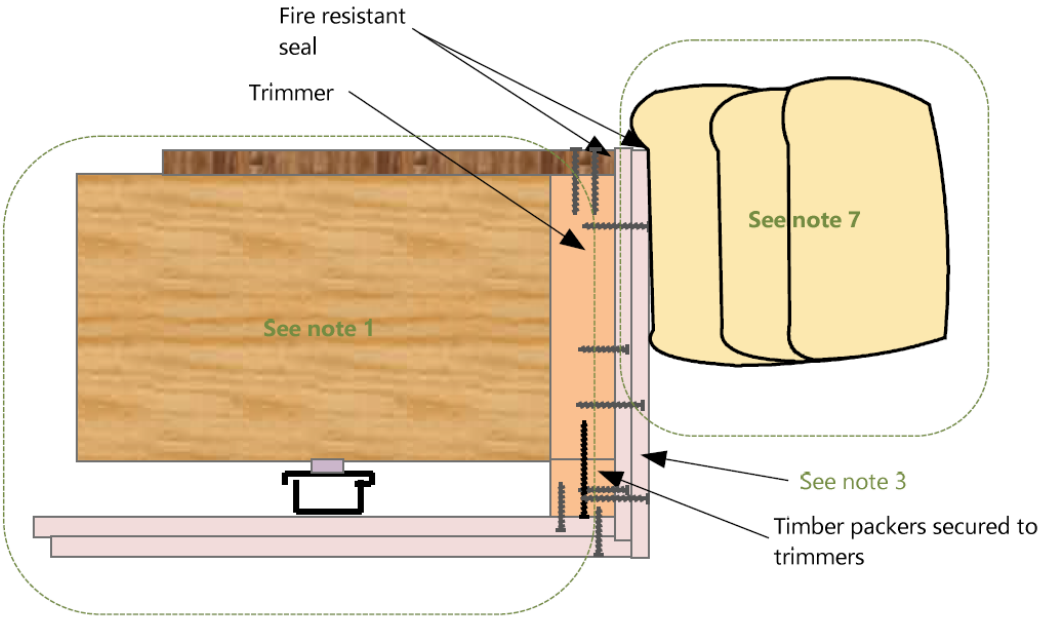


Figure 38 Pillow system fitted in wall



Solid timber trimmers and packers can be combined as a deeper solid timber trimmer

Figure 39 Pillow system fitted in floor

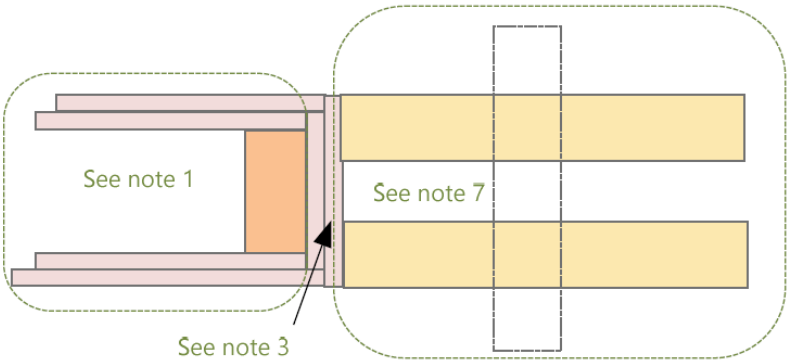
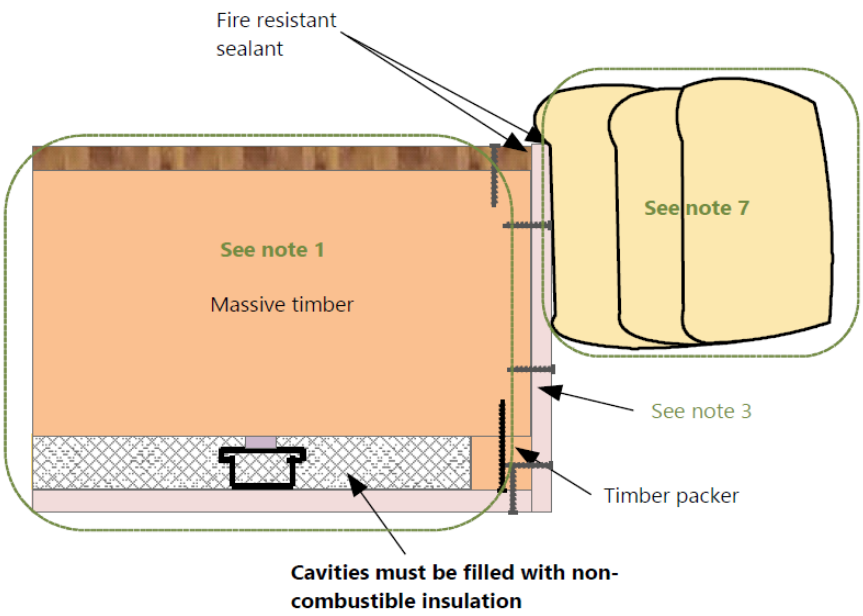


Figure 40 Batt system fitted in wall



Solid timber trimmers and packers can be combined as a deeper solid timber trimmer

Figure 41 Pillows fitted in massive timber floor

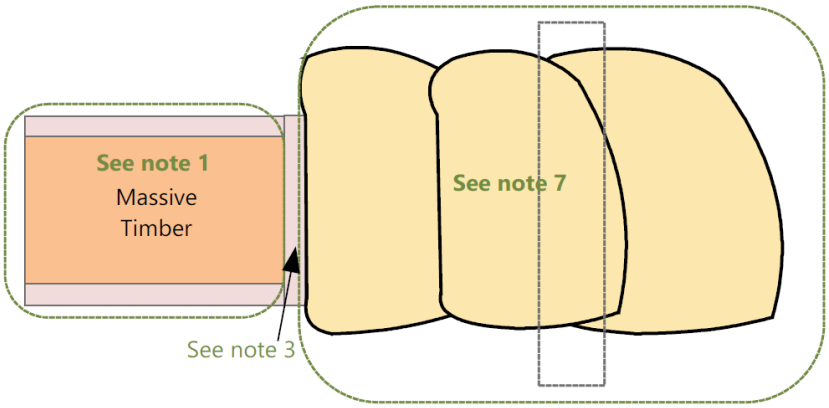


Figure 42 Pillows fitted in massive timber walls

3.10 Timber construction with fire dampers

Fire damper installations are required to comply with the requirements of the AS 1682 series of standards. Dampers shall be fitted to the aperture in the wall as shown below.

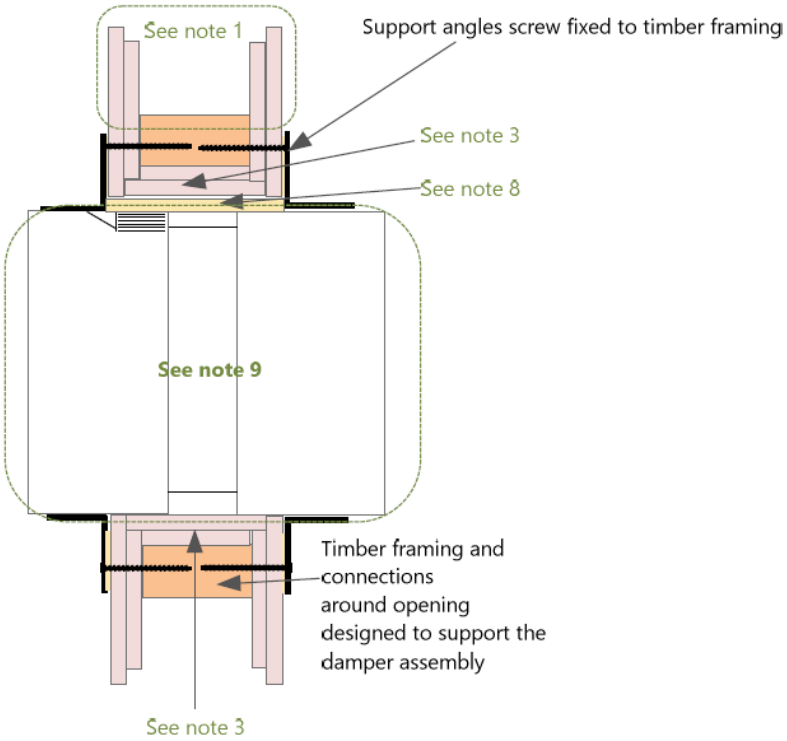


Figure 43 Typical damper installation detail for timber-framed wall

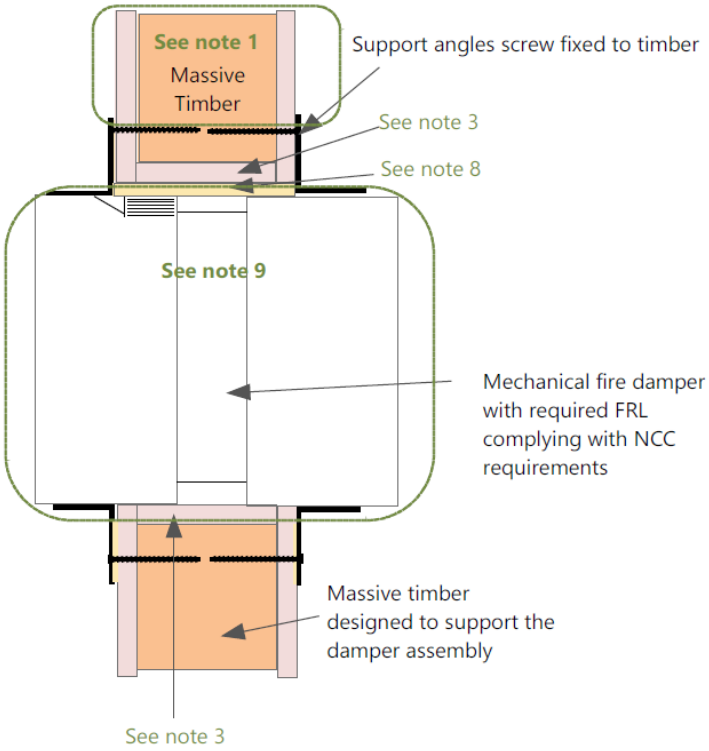


Figure 44 Typical damper installation detail for massive timber wall

3.11 Timber construction with GPO outlets

The timber construction shall be protected within the element of construction to take account of the impact of GPO outlets. This shall be achieved by framing out openings, filling the area around the GPO or entire cavity with non-combustible insulation or the use of proprietary systems.

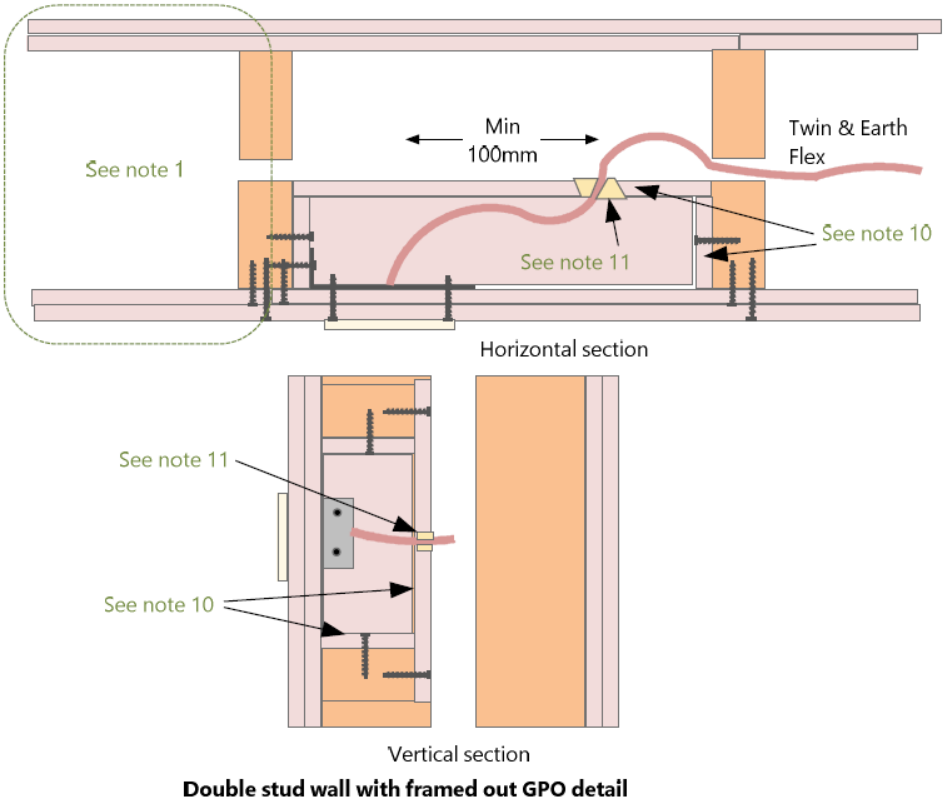


Figure 45 Framing out of GPOs in double stud timber-framed construction

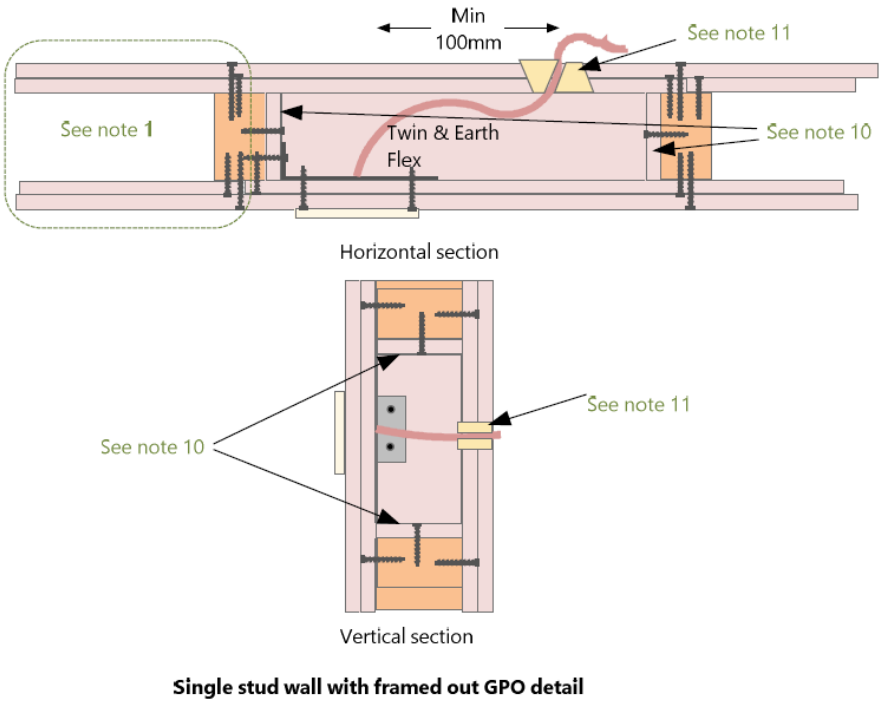


Figure 46 Framing out of GPOs in single stud timber-framed construction

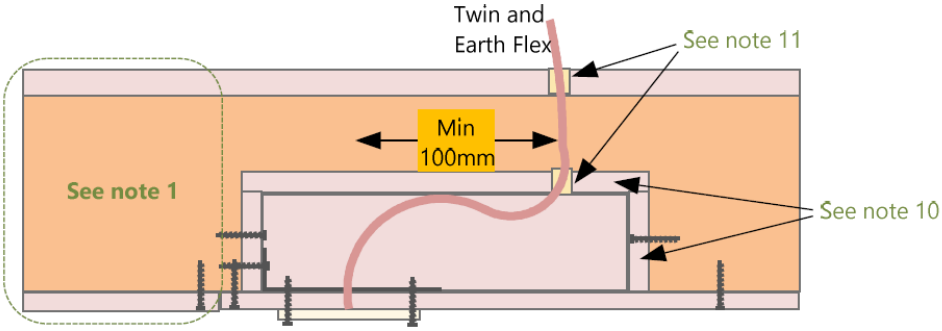


Figure 47 Framing out of GPOs in massive timber construction

The separation distances from timber elements and the required cable length within the insulation and method of securing the insulation shall be as shown in Figure 48 for the case where the area around the GPO penetration is packed with non-combustible insulation.

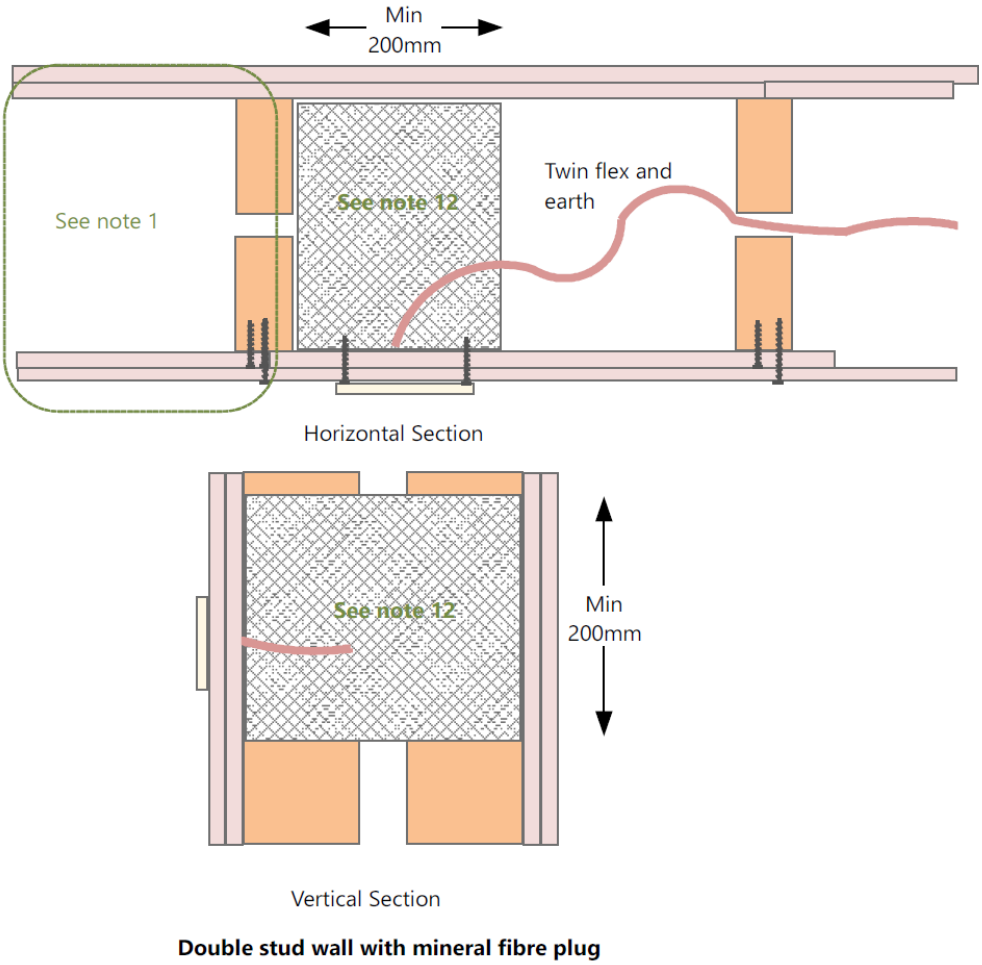


Figure 48 Protection of GPOs with non-combustible insulation

3.12 Timber construction with metal pipe and cable penetrations – protected cavity method

In order to satisfy the resistance to the incipient spread of fire criteria or the interface temperature criteria for massive timber construction, services need protection within the element of construction. This can be achieved by framing out openings, filling the area around the penetration or entire cavity with non-combustible insulation or the use of proprietary systems that have had their performance determined against the criteria of RISF and /or interface temperatures.

The area around the service penetration is framed out with timber and plasterboard coverings applied as shown in Figure 49. The insulation performance may be applicable to the cable or pipe on the non-fire side depending on the application.

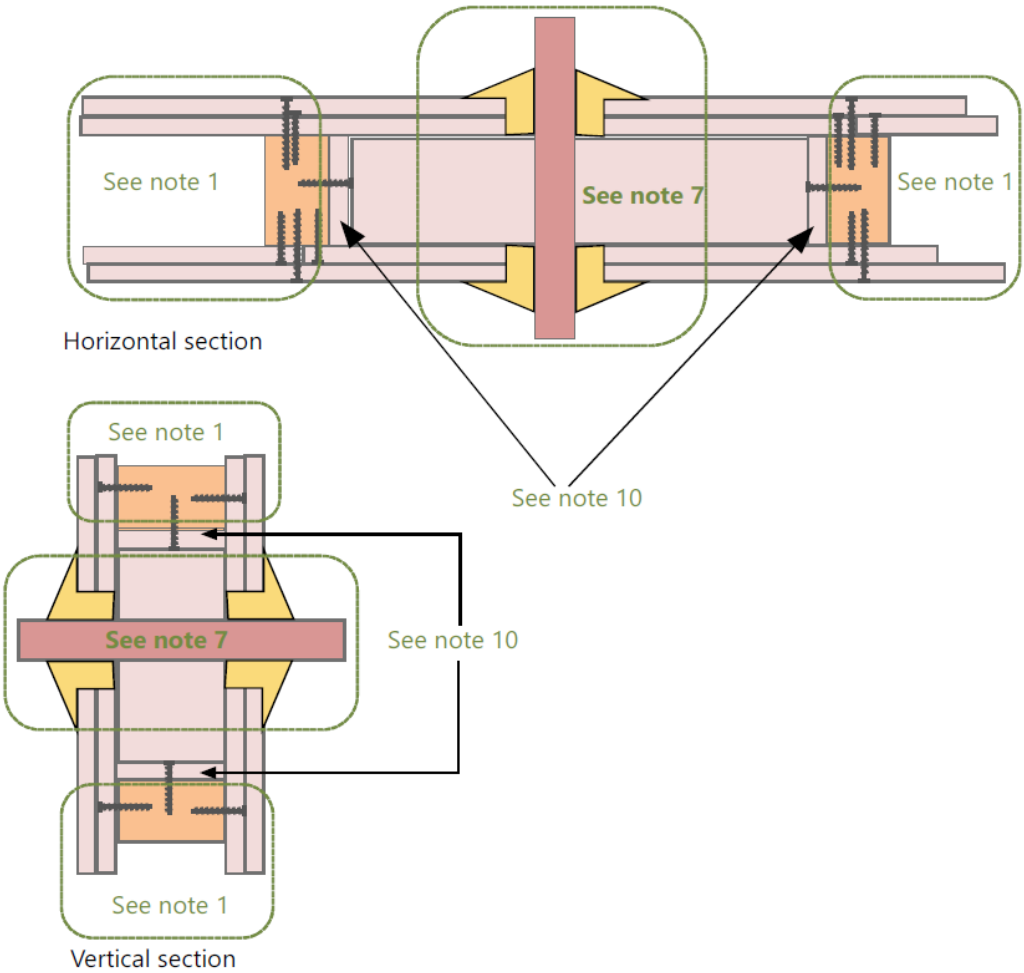


Figure 49 Framed out service penetration for pipes and cables

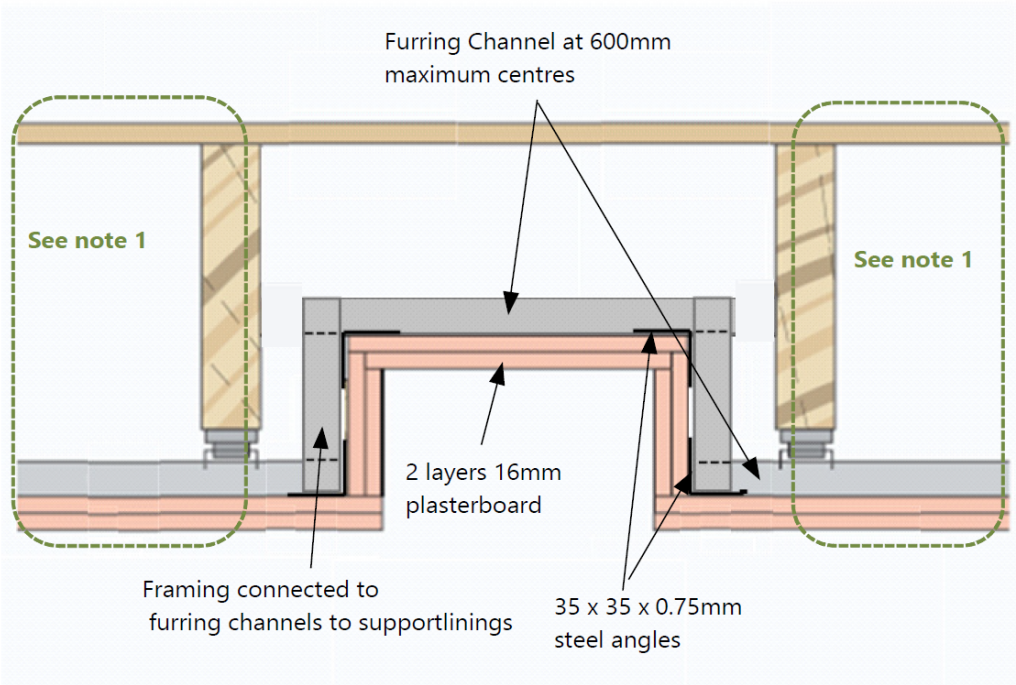


Figure 50 Framing out detail for large rebated ceiling opening

3.13 Timber construction with metal pipe and cable penetrations – cavity insulation method

Where cavities are not protected with linings as for Section 3.9, the area around the service penetration shall be packed with non-combustible insulation to prevent cavity / interface temperatures from exceeding the prescribed limits for fire-protected timber. The separation distances from timber elements are considered critical and a 100mm minimum distance shall be maintained.

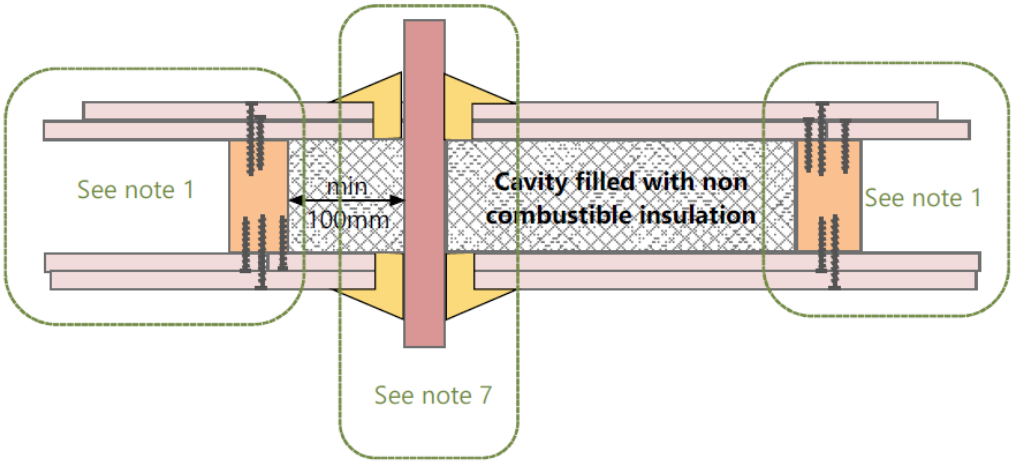


Figure 51 Insulated cavity service penetration through timber-framed construction

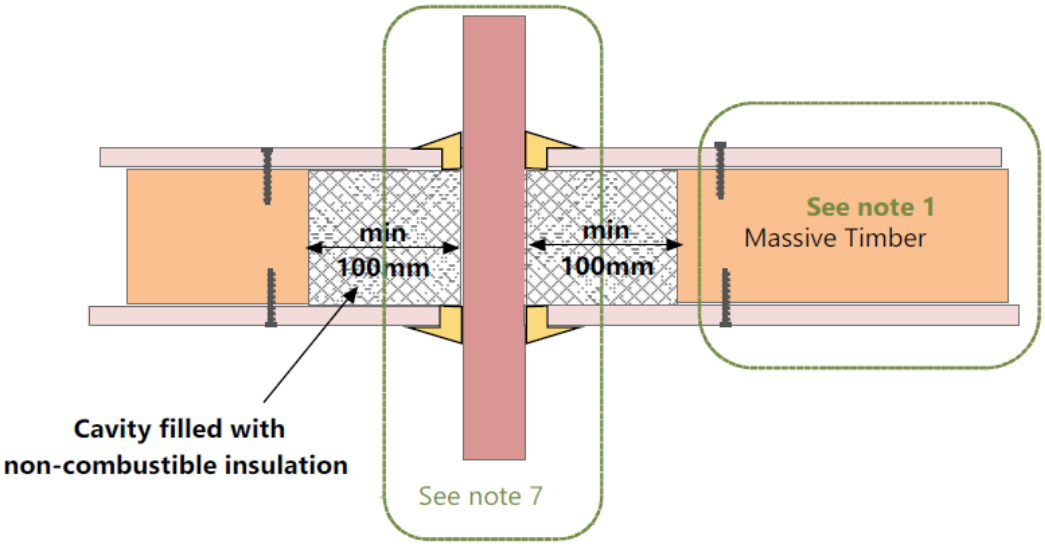


Figure 52 Insulated cavity service penetration through massive timber construction

3.14 Back blocking of electrical service penetrations through ceilings

For small cable penetrations through ceiling systems, it is required that they are back blocked with at least two layers of the ceiling lining material.

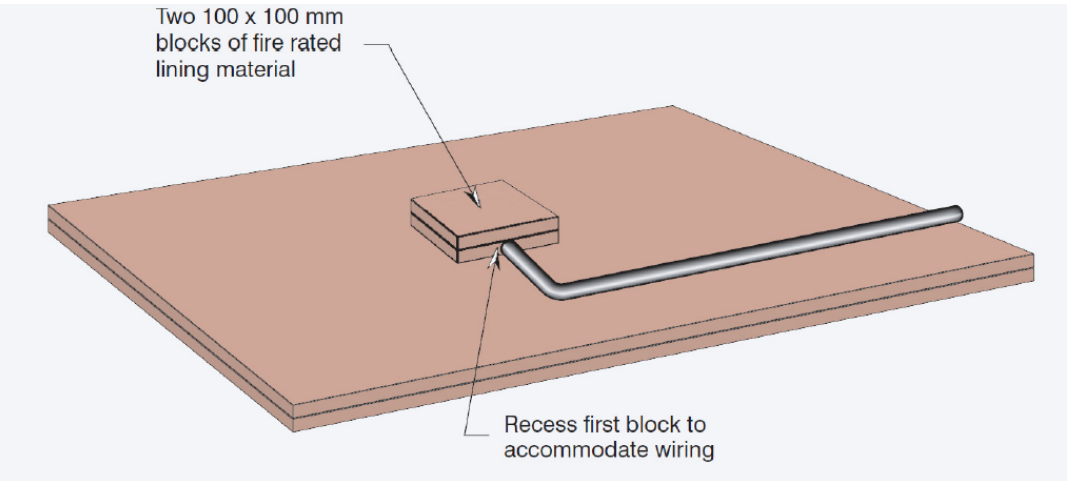


Figure 53 Back blocking of cable penetration through a ceiling system

3.15 Plastic pipe penetrations

The following construction details shall be considered if there is no test evidence to verify the plastic pipe penetrations against the RISF criteria or interface temperature criteria applicable to fire-protected timber.

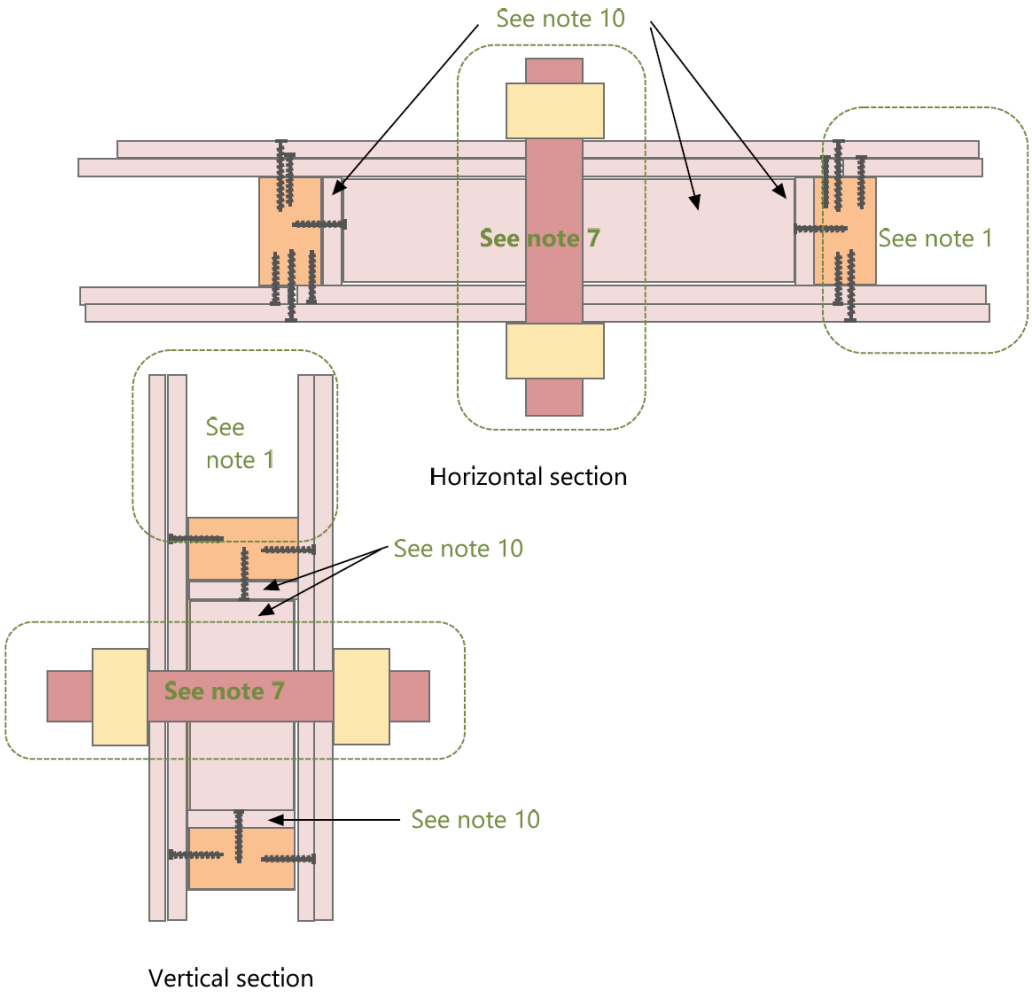


Figure 54 Proprietary plastic pipe protection systems used with frame out detail

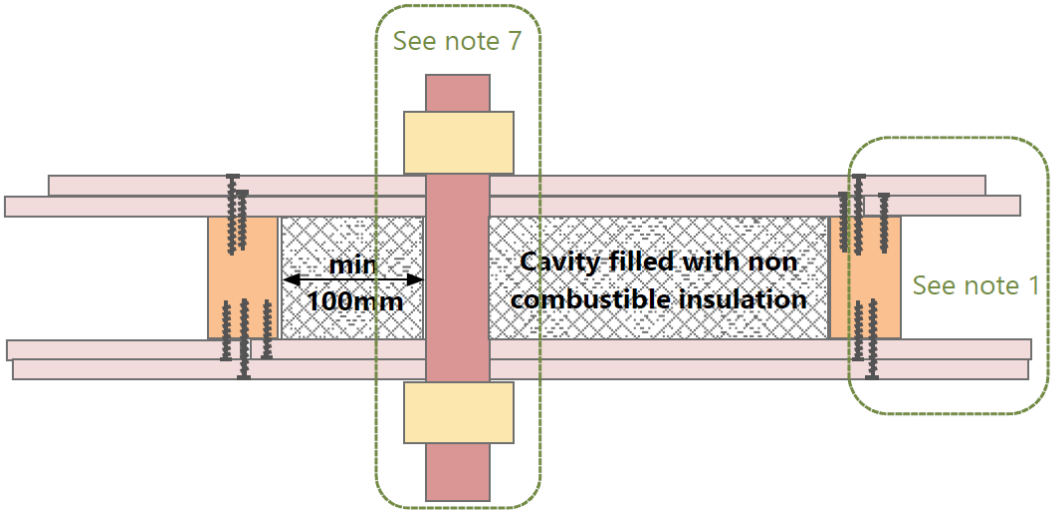


Figure 55 Proprietary plastic pipe protection systems used with cavity insulation

3.16 Access panels and hatches

Access panels and hatches are required to be tested within the element they are used to ensure they do not detrimentally affect the structural adequacy, integrity and insulation of the element they are installed within.

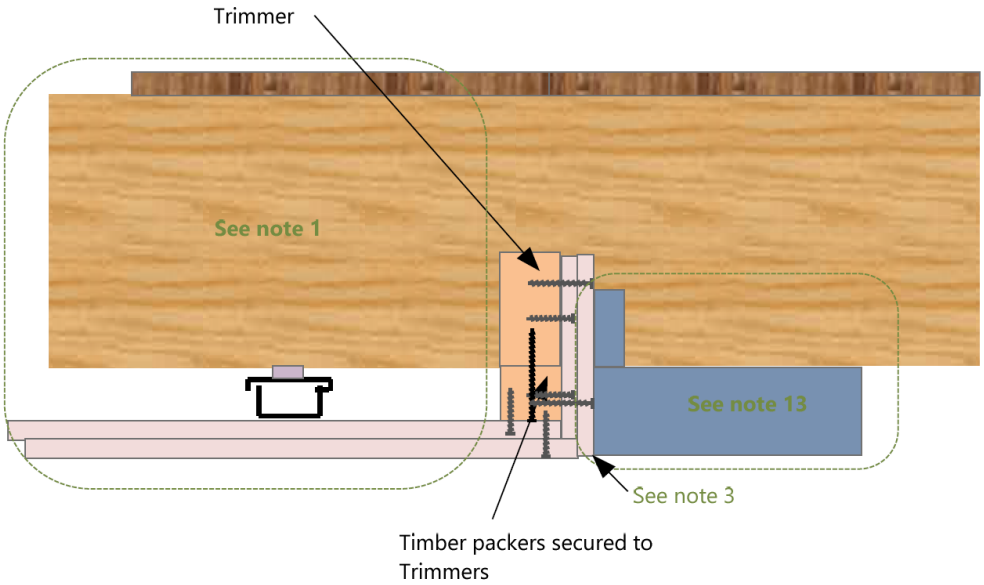


Figure 56 Framing out opening for access panels in a timber floor assembly

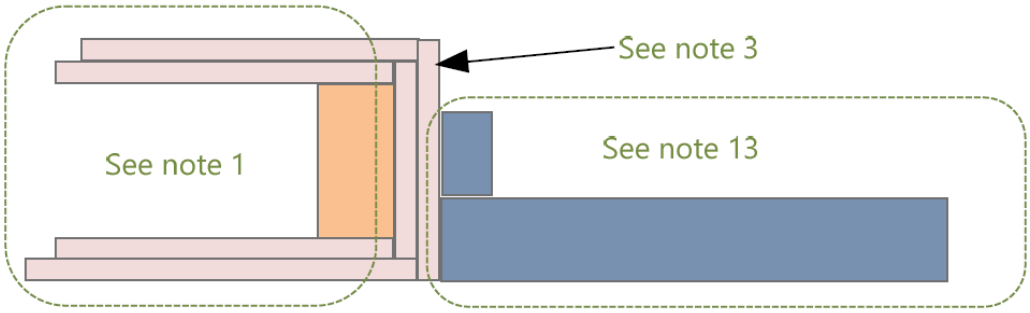


Figure 57 Framing out opening for access panels in a timber-framed wall assembly

4. Referenced test standard

The referenced assessment report is prepared with reference to the requirements of AS 1530.4:2014.

Reference is also made to NCC Specification C1.13a - Fire protected timber.

5. Formal assessment summary

5.1 Fire-protected timber systems

Evidence of the FRLs for the systems listed in Table 2 must be based on tests performed in accordance with AS 1530.4 or an equivalent / more severe test. The performance shall be confirmed in a report from an accredited test laboratory. Typically, the required FRLs for mid-rise timber buildings vary between 90/90/90 to 240/240/240 depending on the building class.

It is the opinion of this laboratory that all the systems listed in Table 2 will likely achieve a Resistance to the Incipient Spread of Fire (RISF) of at least 45 minutes if protected with a minimum of two layers of fire-protective grade plasterboard (each layer at least 13mm thick) if tested in accordance with the test method referenced in Section 4 and subject to the requirements of Section 6.

Table 2 Fire protected timber

Figure	Description
Figure 1	Timber framed double stud
Figure 2	Timber framed single stud
Figure 3	Timber framed floor system with ceiling fixed directly to the framing
Figure 4	Timber framed floor system with ceiling fixed to furring channels that are suspended or clip fixed to the framing

5.2 Fire-protected massive timber systems

It is the opinion of this laboratory that all the systems listed in Table 3 will achieve the following Modified Resistance to the Incipient Spread of Fire (MRISF) performance if protected with a minimum of the following fire-protective grade plasterboard.

MRISF 20 mins – 1 layer of 13mm fire-protective grade plasterboard

MRISF 30 mins – 1 layer of 16mm fire-protective grade plasterboard

MRISF 45 mins – 2 layers of 13mm fire-protective grade plasterboard

Table 3 Fire protected massive timber

Figure	Description	Notes
Figure 5	Massive timber panel with double skin	Cavity fully filled with non-combustible insulation
Figure 6	Massive timber panel with single skin	-
Figure 7	Massive timber floor panel system with ceiling fixed directly to the panel	-
Figure 8	Massive timber floor panel system with ceiling fixed to furring channels that are suspended or clip fixed to the panel	Cavity fully filled with non-combustible insulation

5.3 Fire protected wall and floor systems with additional non-fire resistant internal linings attached

It is the opinion of this laboratory that non-fire resistant additional linings may be fitted to the systems listed in Table 4 without reducing the FRL, RISF or MRISF of the base system.

Table 4 Fire protected timber floor and wall systems with additional non-fire resistant linings

Figure	Basic System Figure	Description	Notes
Figure 9	Figure 1	Timber framed double stud wall with non-fire resistant linings	-
Figure 10	Figure 2	Timber framed single stud wall with non-fire resistant linings	-
Figure 11	Figure 5	Massive timber panel with double skin incorporating non-fire resistant linings	Cavity fully filled with non-combustible insulation
Figure 12	Figure 6	Massive timber panel with single skin incorporating non-fire resistant linings	-
Figure 13	Figure 1 and Figure 5	Combination of massive timber panel and timber framed wall	Cavity fully filled with non-combustible insulation
Figure 15	Figure 4	Timber framed floor system with ceilings fixed to furring channels that are suspended or clip fixed to the framing. Includes a suspended decorative ceiling	-
Figure 14	Figure 3	Timber framed floor system with ceilings directly fixed to the framing. Includes a suspended decorative ceiling	-
Figure 16	Figure 7	Massive timber floor panel with ceilings directly fixed to the panel. Includes a suspended decorative ceiling	-
Figure 17	Figure 8	Massive timber framed floor system with ceilings fixed to furring channels that are suspended or clip fixed to the framing. Includes a suspended decorative ceiling	Cavity fully filled with non-combustible insulation

5.4 Fire protected timber external wall systems with additional non-fire resistant external cladding

It is the opinion of this laboratory that the interface details listed in Table 5 will not reduce the FRL, RISF or MRISF of the base timber wall system nor the FRL performance of the external wall systems for FRLs up to the lesser of the FRLs of the walls or 120/120/120.

Table 5 Timber external wall systems with additional non-fire resistant external cladding

Figure	Basic System Figure	Description	Notes
Figure 18	Figure 1	External brick wall (or equivalent) with timber framed wall	-
Figure 19	Figure 2	External timber framed wall with non-fire resistant cladding	-
Figure 20	Figure 1	External brick wall (or equivalent) with timber framed wall incorporating non-fire resistant lining and cladding	-
Figure 21	Figure 2	External timber framed wall with non-fire resistant lining and cladding	-
Figure 22	Figure 5	External brick wall (or equivalent) with massive timber panel	Cavity fully filled with non-combustible insulation
Figure 23	Figure 6	Massive timber panel with non-fire resistant cladding	-
Figure 24	Figure 5	External brick wall (or equivalent) with massive timber panel incorporating non-fire resistant lining and cladding	Cavity fully filled with non-combustible insulation
Figure 25	Figure 6	Massive timber panel with non-fire resistant lining and cladding	-

5.5 Fire protected wall system interface with steel stud shaft wall construction

It is the opinion of this laboratory that the interface details listed in Table 6 will not reduce the FRL, RISF or MRISF of the base timber wall system nor the FRL performance of the steel stud Shaftwall construction for FRLs up to the lesser of the FRLs of the wall/ceiling or 120/120/120.

Table 6 Interface with steel stud shaft wall construction

Figure	Description
Figure 26	Steel stud shaft wall parallel interface with single stud timber partition
Figure 27	Steel stud shaft wall perpendicular interface with single stud timber partition
Figure 28	Steel stud shaft wall parallel interface with double stud timber partition
Figure 29	Steel stud shaft wall parallel interface with massive timber wall
Figure 30	Steel stud shaft wall interface with timber floors maintaining shaft continuity
Figure 31	Steel stud shaft wall interface with massive timber floors maintaining shaft continuity

5.6 Fire protected wall system interface with solid laminated shaft wall construction

It is the opinion of this laboratory that the interface details listed in Table 7 will not reduce the FRL, RISF or MRISF of the base timber wall system nor the FRL performance of the solid laminated Shaftwall construction for FRLs up to the lesser of the FRLs of the walls or 120/120/120.

Table 7 Interface with solid laminated shaft wall construction

Figure	Description
Figure 32	Laminated shaft wall parallel interface with single stud timber partition
Figure 33	Solid laminated shaft wall interface with timber floors maintaining shaft continuity

5.7 Fire protected wall system interface with hinged fire doors and lift landing doors

It is the opinion of this laboratory that the interface details listed in Table 8 will not reduce the FRL, RISF or MRISF of the base timber wall system nor the FRL performance of the hinged fire doors and lift landing doors for FRLs up to the lesser of the FRLs of the walls or 120/120/120.

Table 8 Hinged fire doors and lift landing doors

Figure	Description
Figure 34	Hinged fire door installation details
Figure 35 and Figure 36	Head and sill detail for pre-cast concrete and shaft wall interface

5.8 Fire protected wall system interface with large openings

It is the opinion of this laboratory that the interface details listed in Table 9 will not reduce the FRL, RISF or MRISF of the base timber wall system nor the FRL performance of the penetration seals in large openings for FRLs up to the lesser of the FRLs of the walls/ceiling or 120/120/120.

Table 9 Interface with penetration seals in large openings

Figure	Description
Figure 37	Fire rated board infill system
Figure 38	Pillow system fitted in wall
Figure 39	Pillow system fitted in floor
Figure 40	Batt system fitted in wall
Figure 41	Pillows fitted in massive timber floor
Figure 42	Pillows fitted in massive timber walls

5.9 Fire protected wall system interface with fire dampers

It is the opinion of this laboratory that the interface details listed in Table 10 will not reduce the FRL, RISF or MRISF of the base timber wall system nor the FRL performance of the fire damper for FRLs up to the lesser of the FRLs of the walls or 120/120/120.

Table 10 Interface with fire dampers

Figure	Description
Figure 43	Typical damper installation detail for timber-framed wall
Figure 44	Typical damper installation detail for massive timber wall

5.10 Fire protected wall systems with GPO outlets

It is the opinion of this laboratory that the interface details listed in Table 11 will not reduce the FRL, RISF or MRISF of the base timber wall system nor the FRL performance of the wall system for FRLs up to the lesser of the FRLs of the walls or 120/120/120.

Table 11 Interface with GPO outlets

Figure	Description
Figure 45	Framing out of GPOs in double stud timber-framed construction
Figure 46	Framing out of GPOs in single stud timber-framed construction
Figure 47	Framing out of GPOs in massive timber construction
Figure 48	Protection of GPOs with non-combustible insulation

5.11 Fire protected wall systems with metal pipe and cable penetrations with protected cavity

It is the opinion of this laboratory that the interface details listed in Table 12 will not reduce the FRL, RISF or MRISF of the base timber wall system nor the FRL performance of the metal pipe and cable systems and rebated ceilings for FRLs up to the lesser of the FRLs of the walls/ceiling or 120/120/120.

Table 12 Interface with metal pipe and cable penetrations with protected cavity

Figure	Description
Figure 49	Framed out service penetration for pipes and cables
Figure 50	Framing out detail for large rebated ceiling opening

5.12 Fire protected wall systems with metal pipe and cable penetrations with cavity insulation

It is the opinion of this laboratory that the interface details listed in Table 13 will not reduce the FRL, RISF or MRISF of the base timber wall system nor the FRL performance of the metal pipe and cable systems for FRLs up to the lesser of the FRLs of the walls or 120/120/120.

Table 13 Interface with metal pipe and cable penetrations with cavity insulation

Figure	Description
Figure 51	Insulated cavity service penetration through timber-framed construction
Figure 52	Insulated cavity service penetration through massive timber construction

5.13 Back blocking of electrical service penetrations through ceilings

It is the opinion of this laboratory that the details listed in Table 14 will not reduce the FRL, RISF or MRISF of the base timber ceiling system up to the lesser of the FRLs of the ceiling or 120/120/120.

Table 14 Back blocking of electrical service penetrations through ceilings

Figure	Description
Figure 53	Back blocking of cable penetration through a ceiling system

5.14 Fire protected wall systems with plastic pipe penetrations

It is the opinion of this laboratory that the interface details listed in Table 15 will not reduce the FRL, RISF or MRISF of the base timber wall system nor the FRL performance of the plastic pipe system for FRLs up to the lesser of the FRLs of the walls or 120/120/120.

Table 15 Interface with steel stud shaft wall construction

Figure	Description
Figure 54	Proprietary plastic pipe protection systems used with frame out detail
Figure 55	Proprietary plastic pipe protection systems used with cavity insulation

5.15 Fire protected wall and floor systems with access panels and hatches

It is the opinion of this laboratory that the interface details listed in Table 16 will not reduce the FRL, RISF and MRISF of the base timber wall system. In addition, the proposed detail will not reduce the FRL performance of the access panel or hatch system for FRLs up to the lesser of the FRLs of the wall\ceiling or 120/120/120.

Table 16 Interface with access panels and hatches

Figure	Description
Figure 56	Framing out opening for access panels in a timber floor assembly
Figure 57	Framing out opening for access panels in a timber-framed wall assembly

6. Direct field of application

The application of the results of the referenced assessment report is to walls exposed to fire from either side or floor exposed to fire from below. The results of the referenced assessment report are applicable to structures that support an independent structure above and require support from each timber frame for the duration of the FRL period.

7. Requirements

The referenced assessment report details the methods of construction, test conditions and assessed results that would have been expected had the specific elements of construction described herein been tested in accordance with AS 1530.4:2014.

The surrounding wall and floor structure shall be capable of providing effective vertical support to the base of the proposed construction and lateral support to the top of the proposed construction for the required fire-resistance period (FRL).

Any further variations with respect to size, constructional details, loads, stresses, edge or end conditions, other than those identified in the referenced assessment report, may invalidate the conclusions drawn in the referenced assessment report.

The data, methodologies, calculations and conclusions documented in this report specifically relate to the assessed system/s and must not be used for any other purpose.

The referenced assessment report has been prepared based on information provided by others. Warringtonfire has not verified the accuracy and/or completeness of that information and will not be responsible for any errors or omissions that may be incorporated into this report as a result.

8. Validity

Warringtonfire Australia does not endorse the tested or assessed product in any way. The conclusions of this assessment may be used to directly assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.

Due to the nature of fire testing and the consequent difficulty in quantifying the uncertainty of measurement, it is not possible to provide a stated degree of accuracy. The inherent variability in test procedures, materials and methods of construction, and installation may lead to variations in performance between elements of similar construction.

The referenced assessment report is based on information and experience available at the time of preparation. The published procedures for the conduct of tests and the assessment of test results are subject to constant review and improvement. It is therefore recommended that this report be reviewed on or, before, the stated expiry date.

The referenced assessment report represents our opinion about the performance likely to be demonstrated on a test in accordance with AS 1530.4:2014, based on the evidence referred to in this report.

The referenced assessment report is provided to the Forest and Wood Products Australia for its own purposes and we cannot express an opinion on whether it will be accepted by building certifiers or any other third parties for any purpose.

9. Authority

9.1 Applicant undertakings and conditions of use

By using this report as evidence of compliance or performance, the applicant(s) confirms that:

- To their knowledge the component or element of structure, which is the subject of this assessment, has not been subjected to a fire test to the standard against which this assessment is being made.
- They agree to withdraw this assessment from circulation if the component or element of structure is the subject of a fire test by a test authority in accordance with the standard against which this assessment is being made and the results are not in agreement with this assessment.
- They are not aware of any information that could adversely affect the conclusions of this assessment and – if they subsequently become aware of any such information, they agree to ask the assessing authority to withdraw the assessment.

9.2 General conditions of use

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