



Regulatory information report

MRTFC roof, wall and floor junctions to AS 1530.4:2014

Sponsor: Forest and Wood Products Australia Limited

Report number: 22221A Revision: RIR6.0 Reference number: FAS180337

Issued date: 24 November 2023 Expiry date: 30 September 2028

Quality management

Version	Date	Information about the report	
RIR 22221A-01	Issue: 12 Mar 2015	Reason for issue	Initial issue.
		Prepared by Name	Reviewed by K. Nicholls D. Nicholson
RIR 22221A-02	Issue: 09 Apr 2015	Reason for issue	Amended report sponsor details.
		Prepared by Name	Reviewed by K. Nicholls D. Nicholson
RIR 22221A-03	Issue: 21 Dec 2015	Reason for issue	Typographical amendment.
		Prepared by Name	Reviewed by K. Nicholls S. Hu
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		Prepared by Name	Reviewed by K. Nicholls D. Nicholson
22221A RIR5.0	NA	Reason for issue	Did not issue.
22221 RIR5.1	Issue: 05 May 2020	Reason for issue	Revised to include client's comments. Charring rate table for various timber species.
		Prepared by Name	Reviewed by Sukhi Sendanayake Mahmoud Akl
22221 RIR5.2	NA	Reason for issue	Did not issue.
22221 RIR5.3	NA	Reason for issue	Did not issue.
22221 RIR5.4	Issue: 25 Aug 2021	Reason for issue	Report updated to address client's comments which include: - Replacement of Figures 2, 7, 8 and 20 - Inclusion of Figures 3, 4B, 5A, 6A, 9A, 19A and lowest floor and subfloor details
		Prepared by Name	Reviewed by Namrata Moharana Mahmoud Akl
RIR6.0	Issue: 24 Nov 2023	Reason for issue	Report issued in conjunction with FAS180337 R6.0.
	Expiry: 30 Nov 2028	Prepared by Name	Reviewed by Edward Kwok Omar Saad
		Signature	 

Executive summary

This report contains the minimum information required for regulatory compliance and refers to the referenced assessment report FAS180337 R6.0.

The analysis conducted in the referenced assessment report documents the findings of the assessment undertaken to determine the expected fire resistance level (FRL) of Multi-Residential Timber Frame Construction (MRTFC) roof and wall junctions in fire resisting wall constructions in accordance with AS 1530.4:2014.

The analysis in sections 5 and 6 of the referenced assessment report found that the proposed systems, together with the described variations, are expected to achieve the outcomes summarised in section 5 – in accordance with AS 1530.4:2014.

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1. Introduction

This report contains the minimum information sufficient for regulatory compliance and refers to the assessment report FAS180337 R6.0.

The analysis conducted in the referenced assessment report documents the findings of the assessment undertaken to determine the expected fire resistance level (FRL) of Multi-Residential Timber Frame Construction (MRTFC) roof and wall junctions in fire resisting wall constructions in accordance with AS 1530.4:2014.

This report may be used as evidence of suitability in accordance with the requirements of the relevant National Construction Code (NCC) to support the use of the material, product, form of construction or design as given within the scope of the referenced assessment report. It also references test evidence for meeting deemed-to-satisfy (DTS) provisions of the NCC that apply to the assessed systems.

The sponsor details are included in Table 1. The documentation that forms the basis for the referenced assessment report is listed in Appendix A of the referenced report.

Table 1 Sponsor details

Sponsor	Address
Forest and Wood Products Australia Limited	Level 11, 10-16 Queen Street, Melbourne VIC 3000 Australia

2. Framework for the assessment

2.1 Assessment approach

An assessment is a professional opinion about the expected performance of a component or element of structure subjected to a fire test.

No specific framework, methodology, standard or guidance documents exists in Australia for undertaking these assessments. We have therefore followed the 'Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence' prepared by the Passive Fire Protection Forum (PFPF) in the UK in 2021¹.

This guide provides a framework for undertaking assessments in the absence of specific fire test results. Some areas where assessments may be offered are:

- Where a modification is made to a construction which has already been tested
- The interpolation or extrapolation of results of a series of fire resistance tests, or utilisation of a series of fire test results to evaluate a range of variables in a construction design or a product
- Where, for various reasons – eg size or configuration – it is not possible to subject a construction or a product to a fire test.

Assessments can vary from relatively simple judgements on small changes to a product or construction through to detailed and often complex engineering assessments of large or sophisticated constructions.

The assessment presented in the referenced assessment report uses established empirical methods and our experience of fire testing similar products to extend the scope of application by determining the limits for the design and performance based on the tested constructions and performances obtained. The assessment is an evaluation of the potential fire resistance performance of the elements in accordance with AS 1530.4:2014.

¹ Passive Fire Protection Forum (PFPF), 2021, Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence, Passive Fire Protection Forum (PFPF), UK.

This report and the referenced assessment report has been written in accordance with the general principles outlined in EN 15725:2023² for extended application reports on the fire performance of construction products and building elements.

This report and the referenced assessment report has been written using appropriate test evidence generated at accredited laboratories to the relevant test standard. The supporting test evidence has been deemed appropriate to support the manufacturer's stated design.

2.2 Compliance with the National Construction Code

This report has been prepared to meet the evidence of suitability requirements of the NCC 2022³ under A5G3 (1) (d). It references test evidence for meeting deemed-to-satisfy (DTS) provisions of the NCC under A5G5 for fire resistance level that apply to the assessed systems based on Specifications 1 and 2 for fire resistance for building elements.

This report may also be used to demonstrate compliance with the requirements for evidence of suitability under the relevant sections of previous versions of the NCC.

2.3 Declaration

The 'Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence' prepared by the PFPF in the UK requires a declaration from the client. By accepting our fee proposal on 2 February 2023, Forest and Wood Products Australia Limited confirmed that:

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

3. Requirements and limitations of the assessment

- The scope of this report is limited to an assessment of the variations to the tested systems described in section 4.4.
- The referenced assessment report details the methods of construction, test conditions and assessed results expected in accordance with AS 1530.4:2014.
- Throughout the report, the charring depth of the exposed side wall framing has been established not to exceed nominally 10 mm for -/60/60 and -/90/90 FRL categories. The appropriateness of the wall lining provided for each of these FRL categories to limit the stud charring to nominally 10 mm and the ability of the residual stud section to maintain structural adequacy for the relevant FRL durations with that degree of charring must have been established separately considering factors including, but not limited to, wall height, load, support conditions, stud geometry etc. To this end, this report must be read in conjunction with the latest version of the Warringtonfire assessment report 22567A, titled 'The fire resistance performance of timber framed walls lined with plasterboard if tested in accordance with AS 1530.4:2014' prepared for Forest and Wood Products Australia Limited.
- This report is only valid for the assessed systems and must not be used for any other purpose. Any changes with respect to size, construction details, loads, stresses, edge or end conditions – other than those identified in this report – may invalidate the findings of the

² European Committee for Standardization, 2023, Extended application reports on the fire performance of construction products and building elements, EN 15725:2010, European Committee for Standardization, Brussels, Belgium

³ National Construction Code Volumes One and Two - Building Code of Australia 2022, Australian Building Codes Board, Australia

assessment. If there are changes to the system, a reassessment will need to be done by an Accredited Testing Laboratory (ATL) that is accredited to the same nominated standards of this report.

- This report has been prepared using 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 have been incorporated into the assessment report as a result.
- The fire resistance performance of the external wall together with its combustibility requirements are not addressed as they do not form part of this report. It is to be noted that the requirement for treatment of gaps between the internal and external walls is interpretive in NCC 2022 and previous versions. Therefore, the fire and smoke performance – including combustibility – and the treatment of any gap between the internal and external wall elements must be confirmed by the appropriate Authorities Having Jurisdiction (AHJ).
- This report is based on the proposed systems being constructed under comprehensive quality control practices and following appropriate industry regulations and Australian Standards on quality of materials, design of structures, guidance on workmanship and expert handling, placing and finishing of the products on site. These variables are beyond the control and consideration of the assessment report.

4. Description of the specimen and variations

4.1 Description of assessed systems

The typical MRTFC wall construction is as shown in Figure 1. Table 3 provides identification of the individual components.

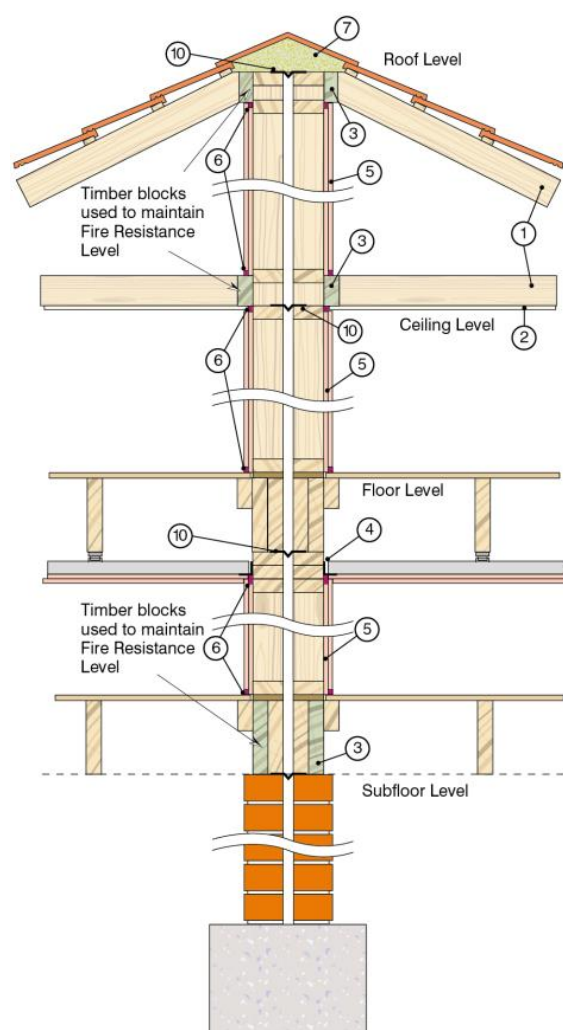


Figure 1 Typical MRTFC wall construction

4.2 Referenced test data

The assessment of variations to the tested systems and the determination of the expected performance are based on the results of the fire tests documented in the reports summarised in Table 2. Further details of the tested systems are included in Appendix A of the referenced report.

Table 2 Referenced test data

Report number	Test sponsor	Test date	Testing authority
BWA 2256701	Forest and Wood Products Australia Limited	15 August 2008	Warringtonfire (formerly Bodycote Warringtonfire)
BWA 2256702		25 August 2008	
EWFA 2365300		21 May 2009	
EWFA 2365400		27 May 2009	
EWFA 2365500		28 May 2009	
FT149-04	CSR Gyprock	20 May 2004	CSR Gyprock Research Centre
IF 00031	MiTek Industries Ltd	30 June 2000	Chiltern
IF 01038	MiTek Industries Ltd	9 May 2001	British Gypsum Limited
BTC 15312F	MiTek Industries Ltd	3 July 2007	British Gypsum Limited
BGSI 5013	Hydro-Air International (U.K.) Limited	26 June 1987	British Gypsum Limited

4.3 Schedule of components

Table 3 outlines the schedule of components for the assessed systems.

Table 3 Schedule of components of assessed systems

Item	Reference test	Description
1.	Name	Timber truss
	Material	Typically, solid timber with steel connecting plates
	Size	Width 35 mm to 90 mm
2.	Name	Ceiling lining, minimum one-layer of standard plasterboard.
	Size	10 mm thick
	Installation	Lining may be screwed, nailed and or adhesive fixed in accordance with manufacturer's recommendation
3.	Name	Additional studs, blocks, header beams and plates (shown in green)
	Material	Solid timber density of minimum 470 kg/m ³
4.	Name	Steel angle
	Material	35 × 35 × 0.70 mm galvanised steel angle
5.	Name	Wall and ceiling linings
	Size	Thickness as required to achieve required FRL of element (refer to the latest version of the Warringtonfire assessment report 22567A titled 'The fire resistance performance of timber framed walls lined with plasterboard if tested in accordance with AS 1530.4:2014' prepared for Forest and Wood Products Australia Limited)
6.	Name	Fire grade sealant
	Material	Required depth is 16 mm. Sealant must have been tested or assessed in a plasterboard control joint in plasterboard systems and achieved a minimum performance of -/90/90 in accordance with AS 1530.4:2014.
7.	Name	Mineral wool at perimeter of walls
	Material	Mineral wool with a fusion temperature in excess of 1120°C.
8.	Name	Mineral wool around steel beams.
	Material	Mineral wool with a fusion temperature in excess of 1120°C and density greater than 80 kg/m ³
9.	Name	Structural steel
	Material	Beams must be 150UB14 or larger deeper sections. Columns must be 65 × 65 × 3 mm SHS or larger
10.	Name	Resilient framing tie
	Material	Galvanised steel framing tie
	Installation	The framing ties must be positioned at a minimum of 1200 mm centres and fixed with at least two 12 g × 30 mm self-drilling screws.

4.4 Proposed junction details

4.4.1 Wall to roof junctions

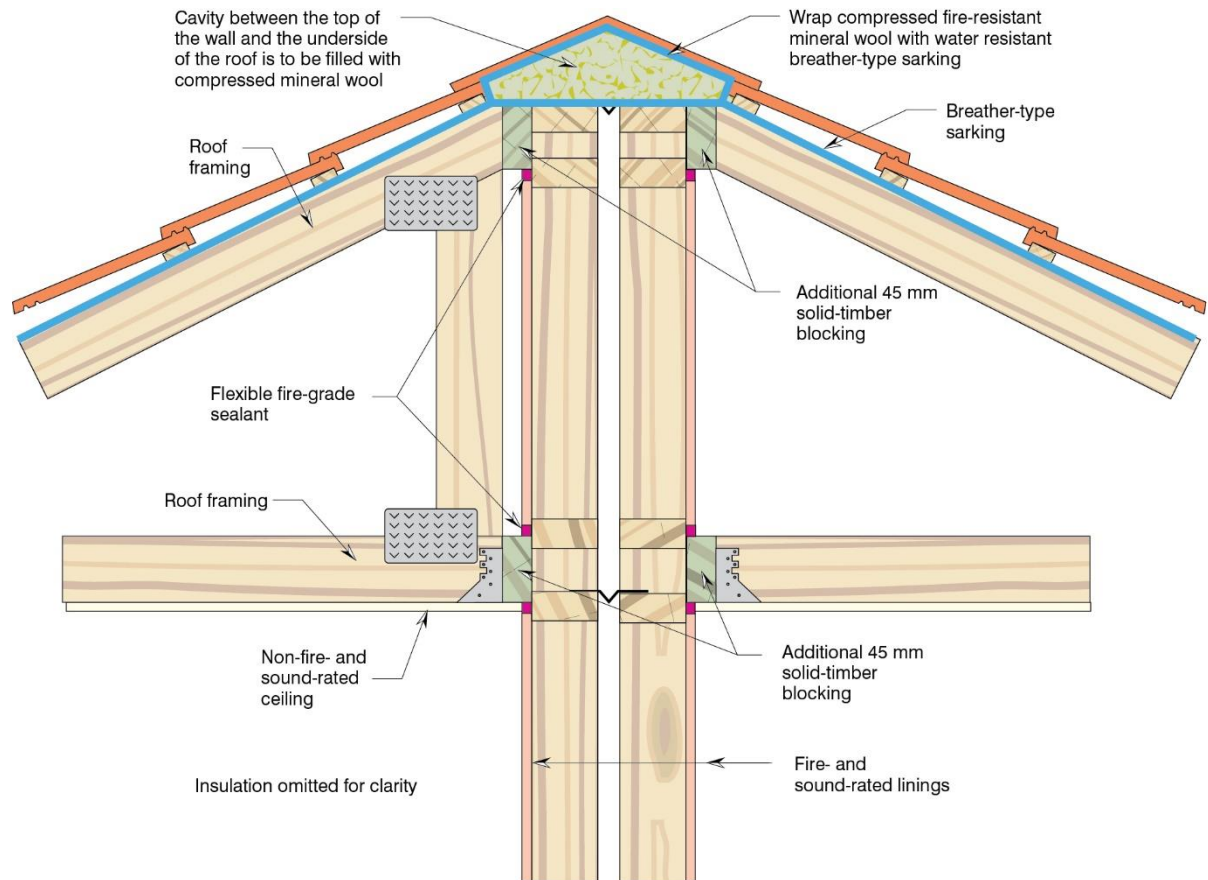


Figure 2 Roof framing elements supported on timber blocks and a roof truss protected with 1×45 mm solid timber block



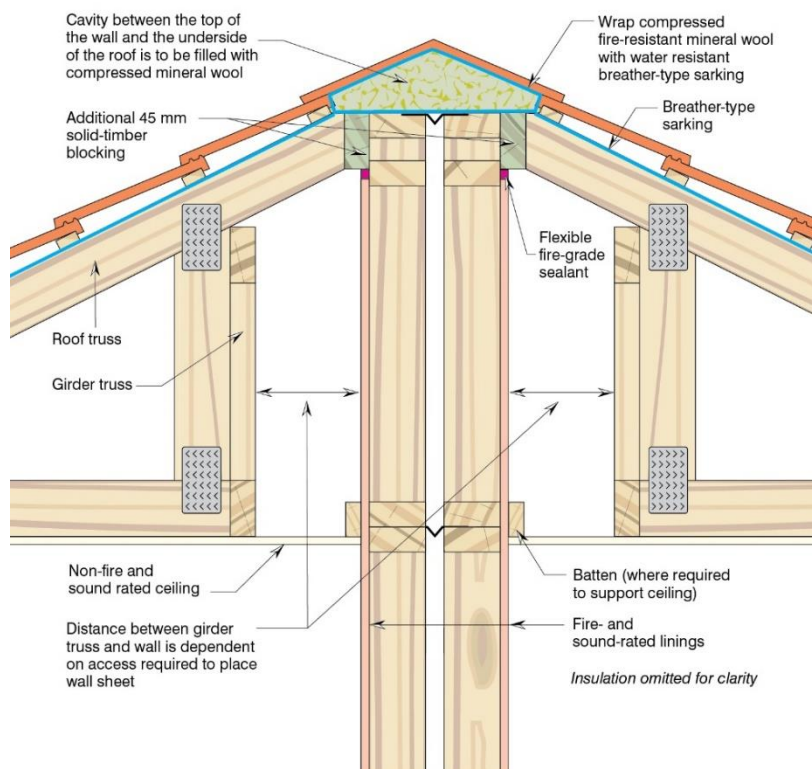


Figure 4 Girder truss running parallel to the wall protected with 1 × 45 mm solid timber block

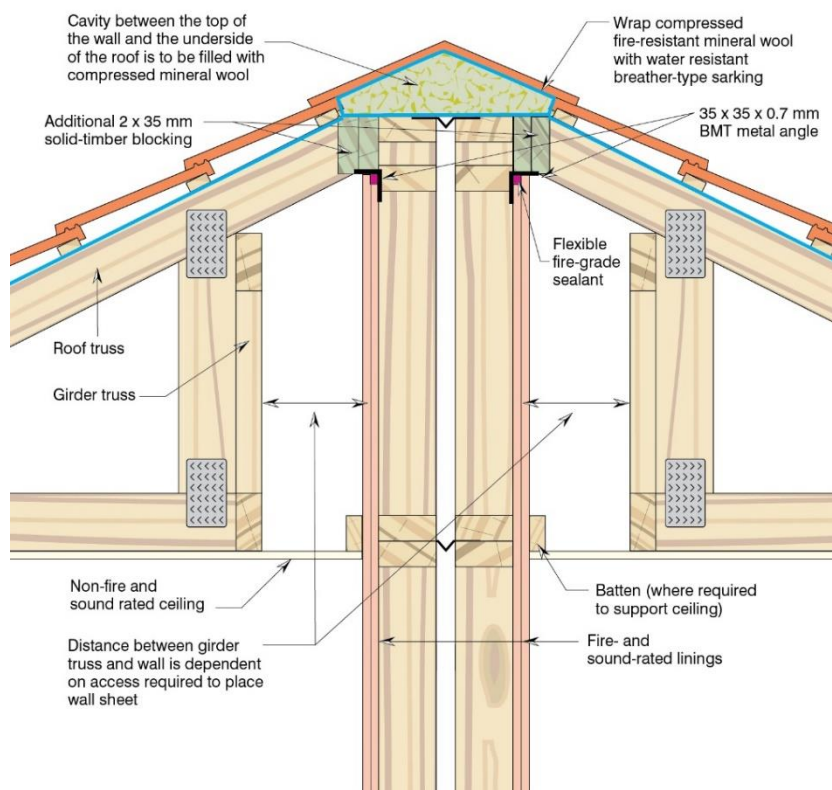


Figure 5 Girder truss running parallel to the wall protected with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle

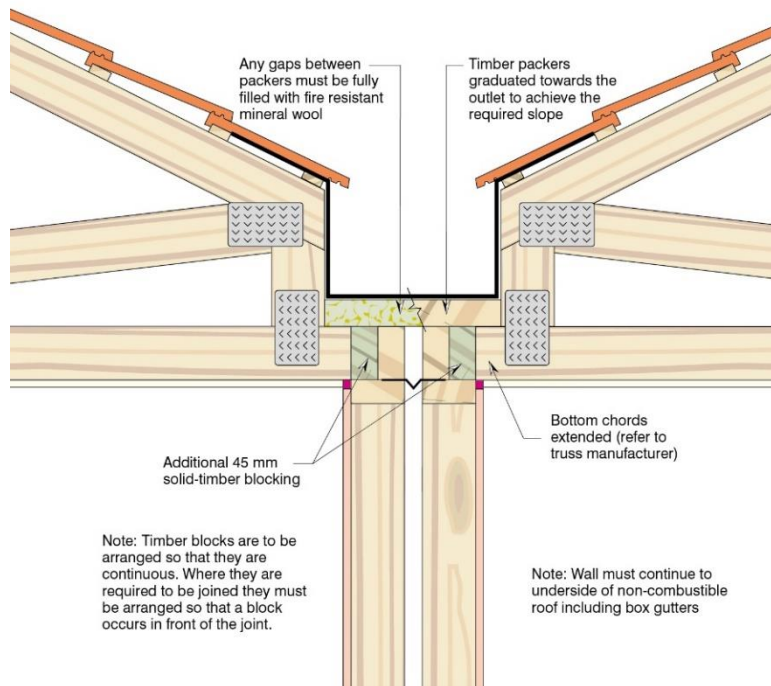


Figure 6 Roof framing elements supported on timber blocks at box gutter protected with 1 × 45 mm solid timber block

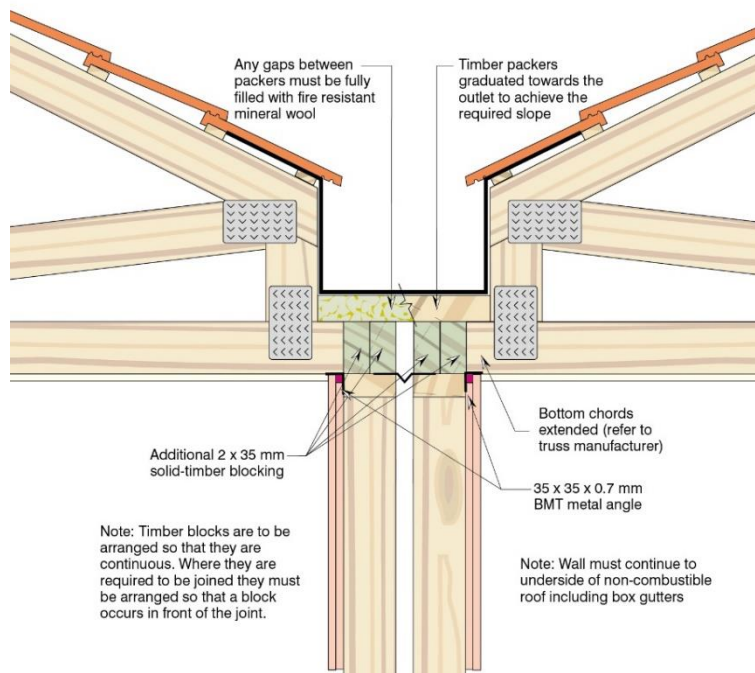


Figure 7 Roof framing elements supported on timber blocks at box gutter protected with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle

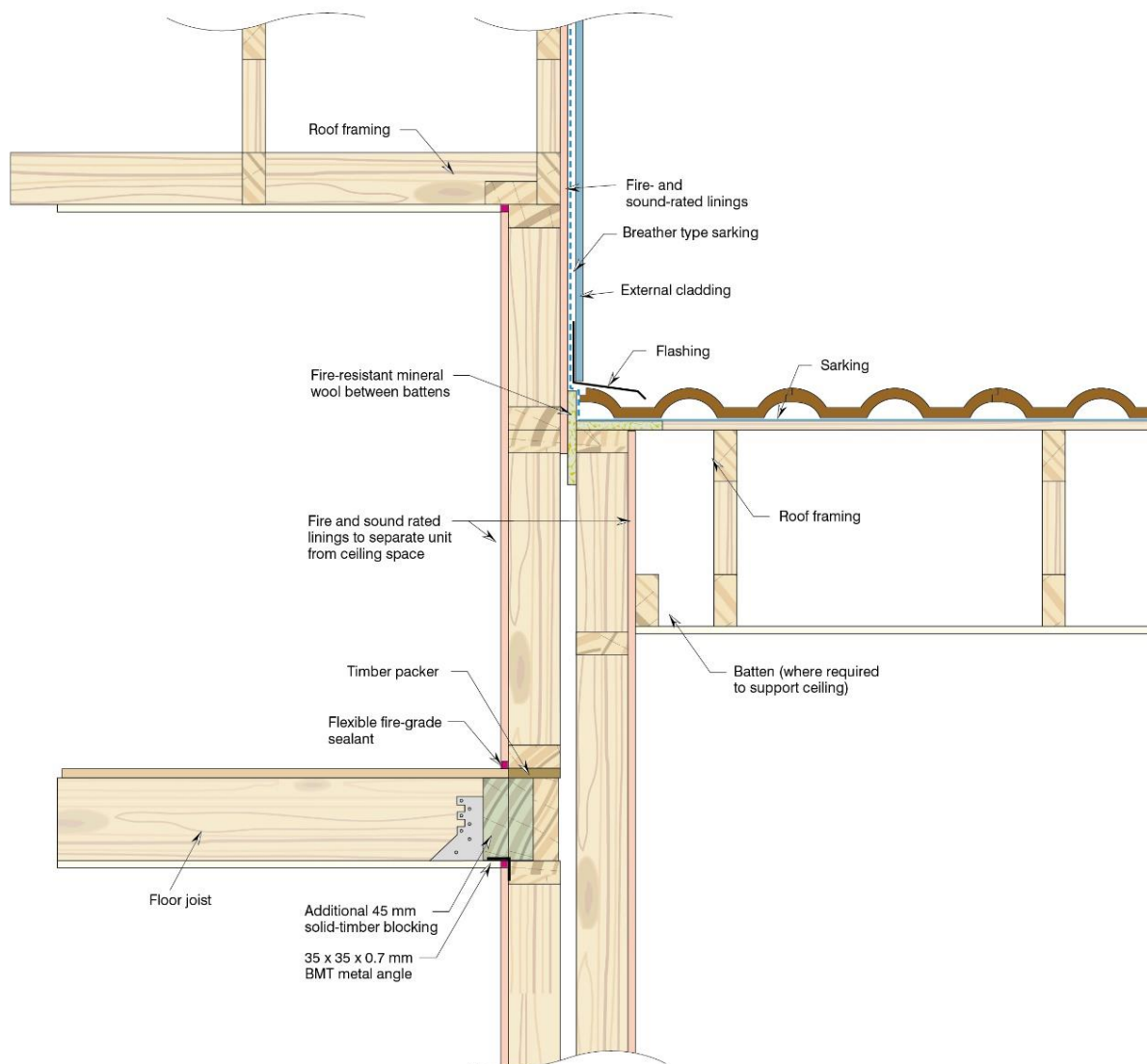


Figure 8 Staggered roof lines meeting at a separating element protected with 1 × 45 mm solid timber block

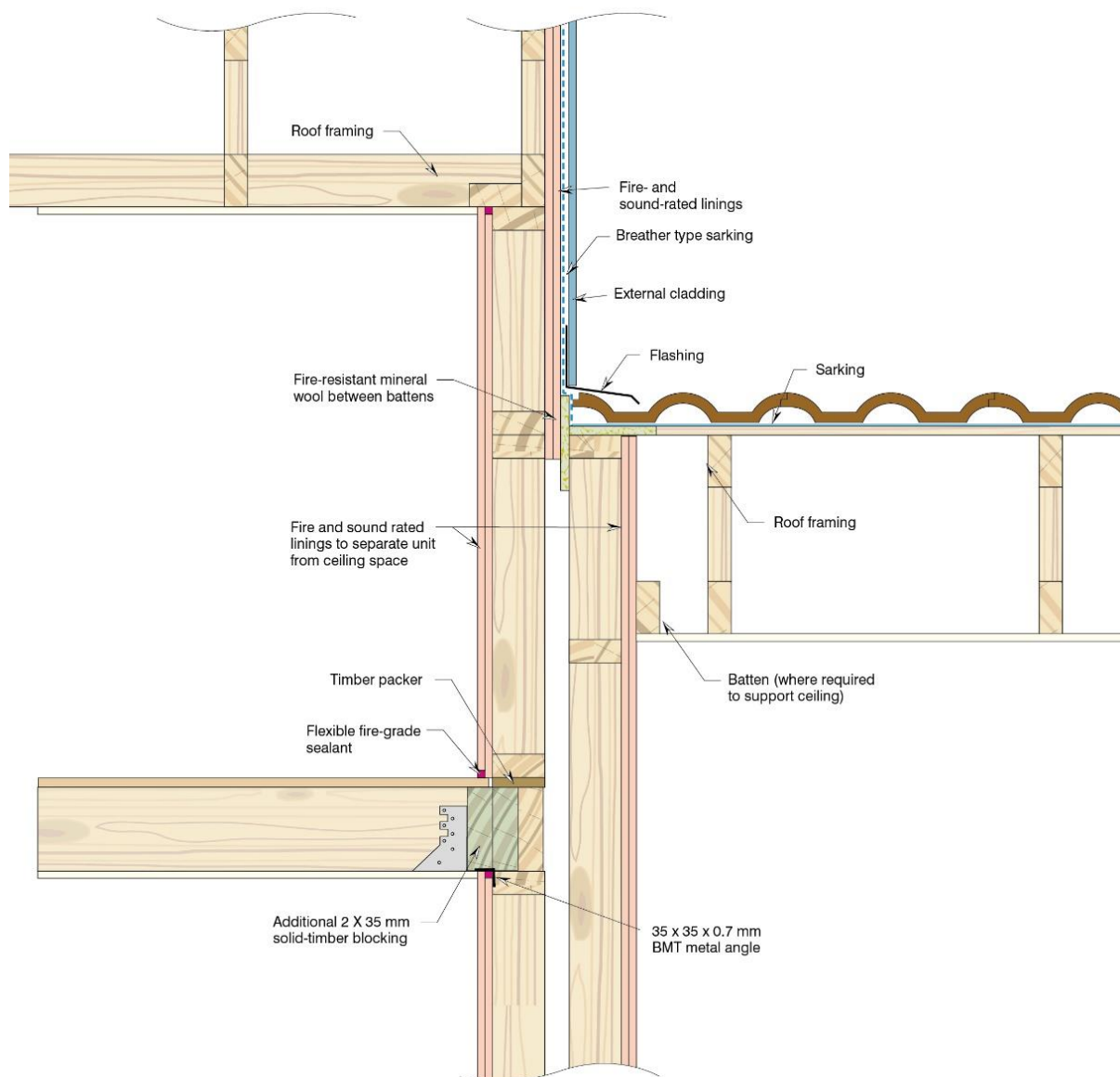


Figure 9 Staggered roof lines meeting at a separating element with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle

4.4.2 Wall to wall junctions

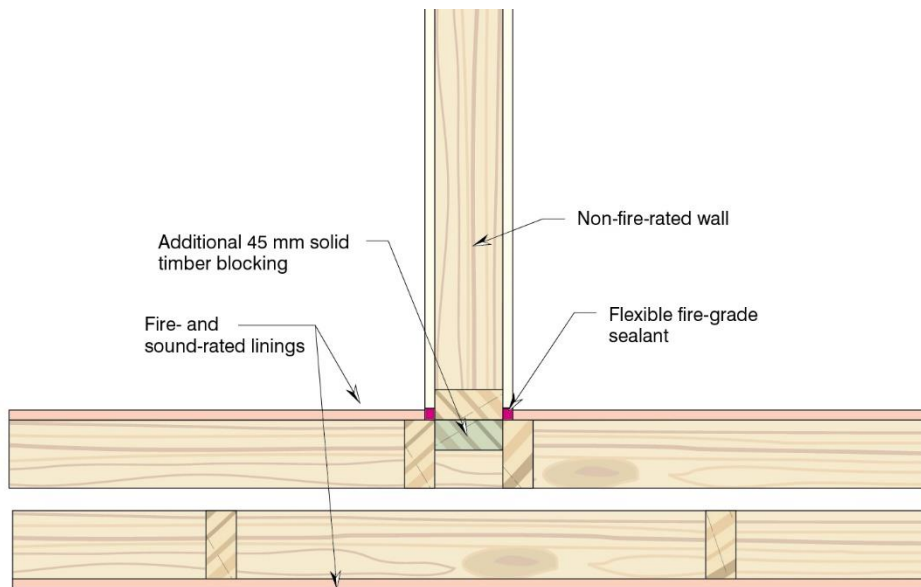


Figure 10 Double stud fire rated wall meeting a non-fire rated wall protected with 1 × 45 mm timber block

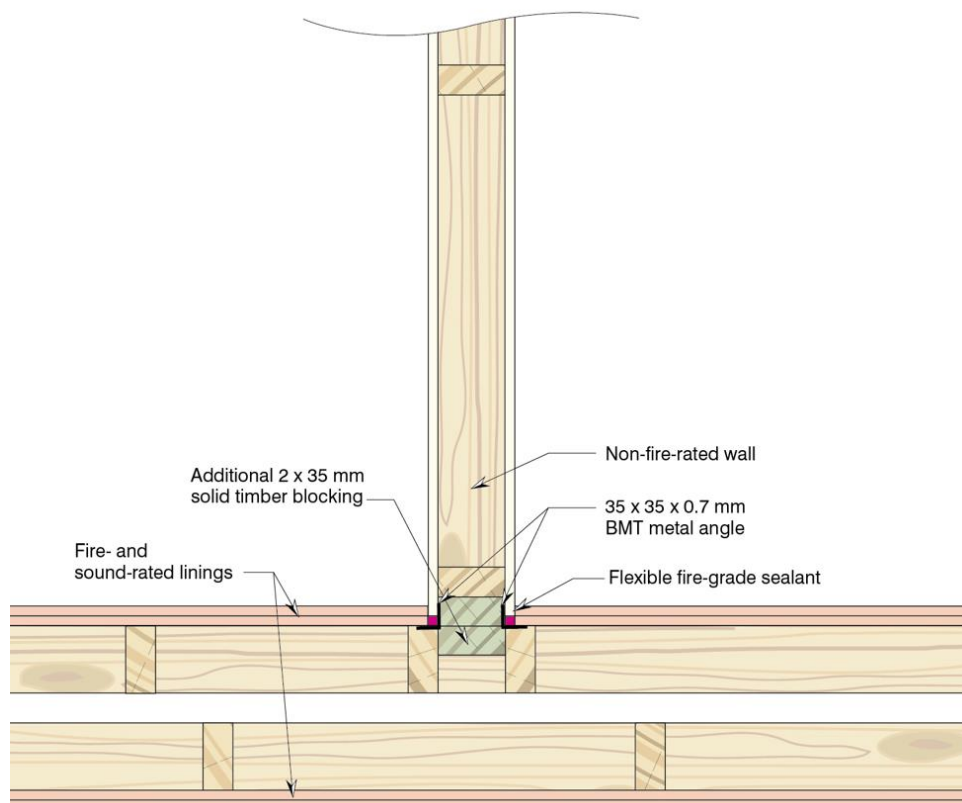


Figure 11 Double stud fire rated wall meeting a non-fire rated wall protected with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle

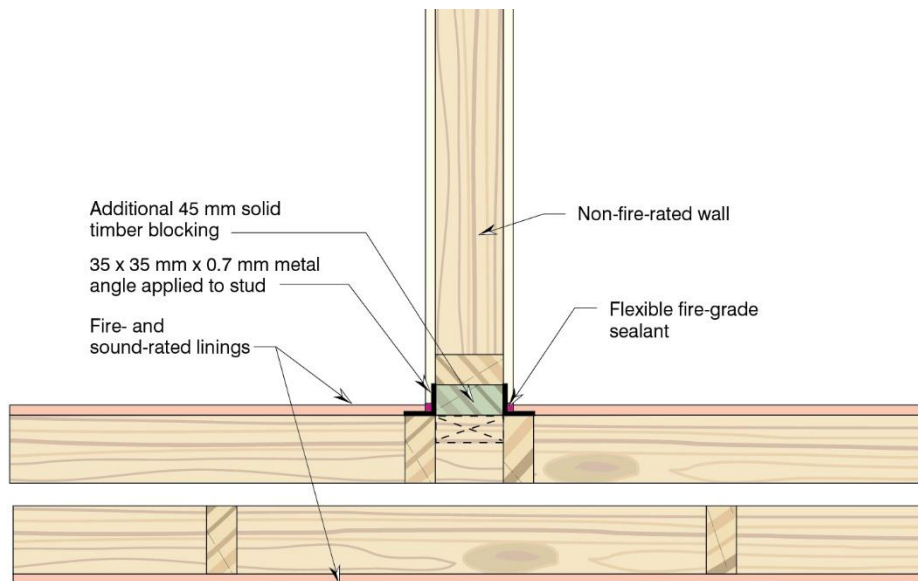


Figure 12 Double stud fire rated wall meeting a non-fire rated wall with an alternative method using metal angles and protected with 1 × 45 mm timber block

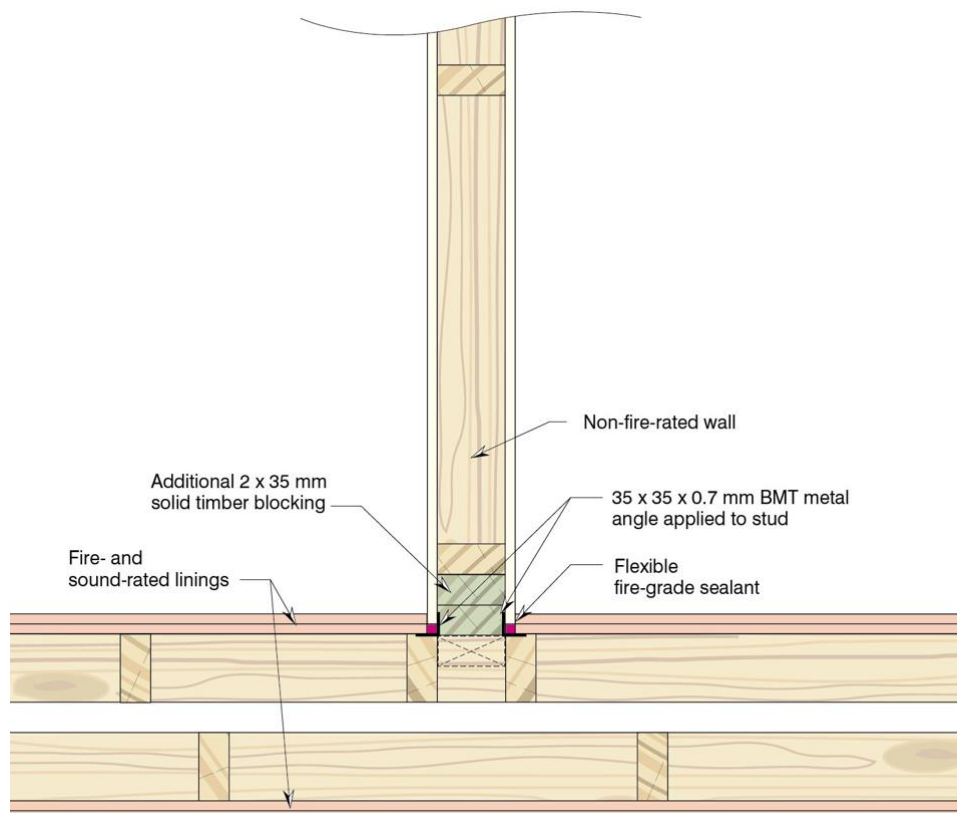


Figure 13 Double stud fire rated wall meeting a non-fire rated wall with an alternative method using metal angles and protected with an additional 35 mm or 2 × 35 mm timber blocks and metal angle

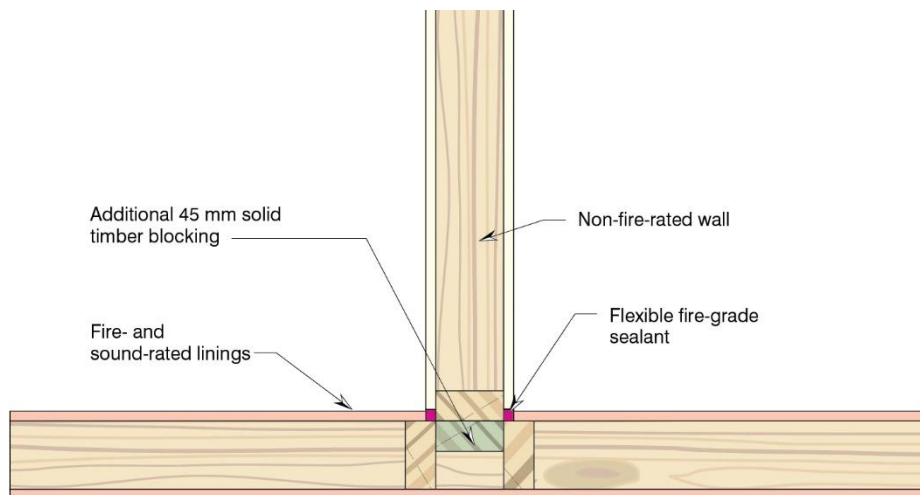


Figure 14 Single stud fire rated wall meeting a non-fire rated wall using 1 × 45 mm timber block (6)

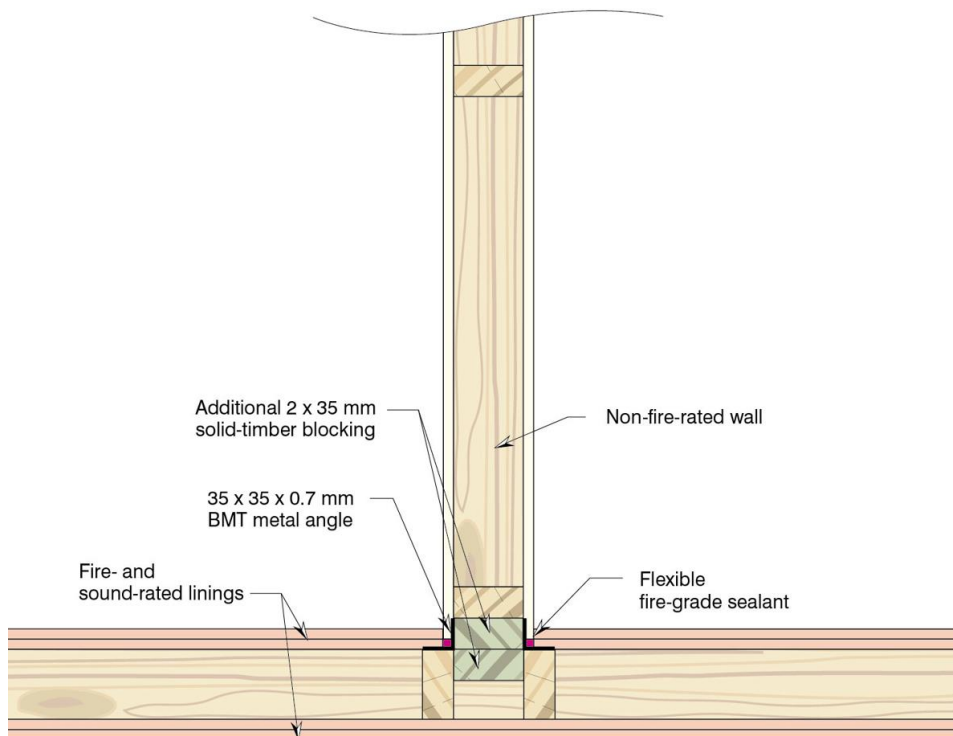


Figure 15 Single stud fire rated wall meeting a non-fire rated wall using an additional 35 mm block or 2 × 35 mm timber blocks and metal angle

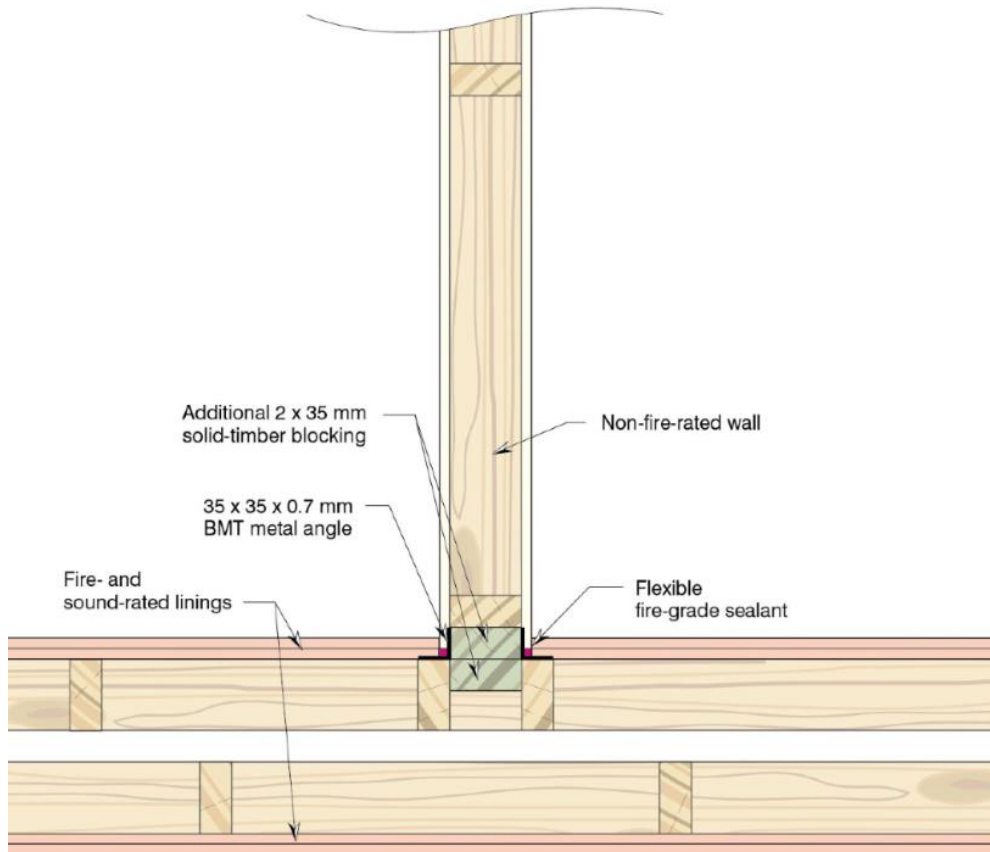


Figure 16 Double stud fire rated wall meeting a non-fire rated wall using 2 × 35 mm timber blocks and metal angle

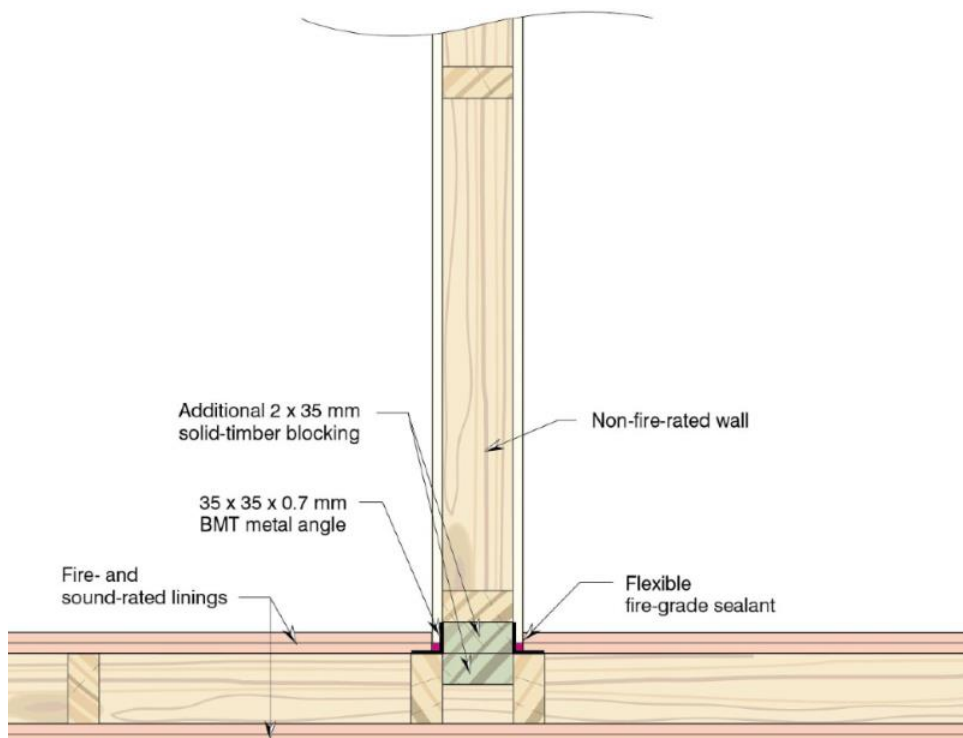


Figure 17 Single stud fire rated wall meeting a non-fire rated wall using 2 × 35 mm timber blocks and metal angle

4.4.3 Wall perimeter junctions

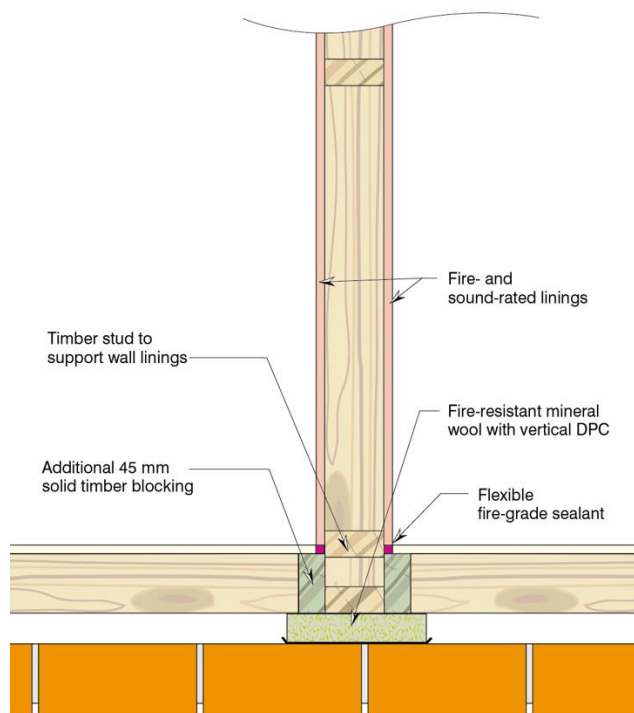


Figure 18 Single stud fire rated wall meeting an external cavity brick wall protected with 1 × 45 mm timber block

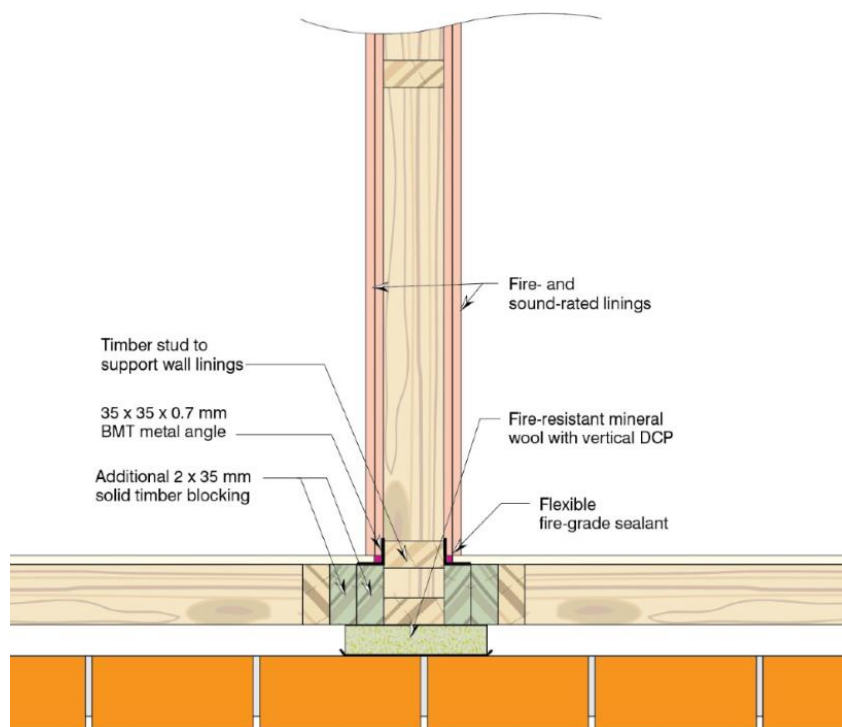


Figure 19 Single stud fire rated wall meeting an external cavity brick wall protected with an additional 35 mm block or 2 × 35 mm timber blocks and metal angle – option 1

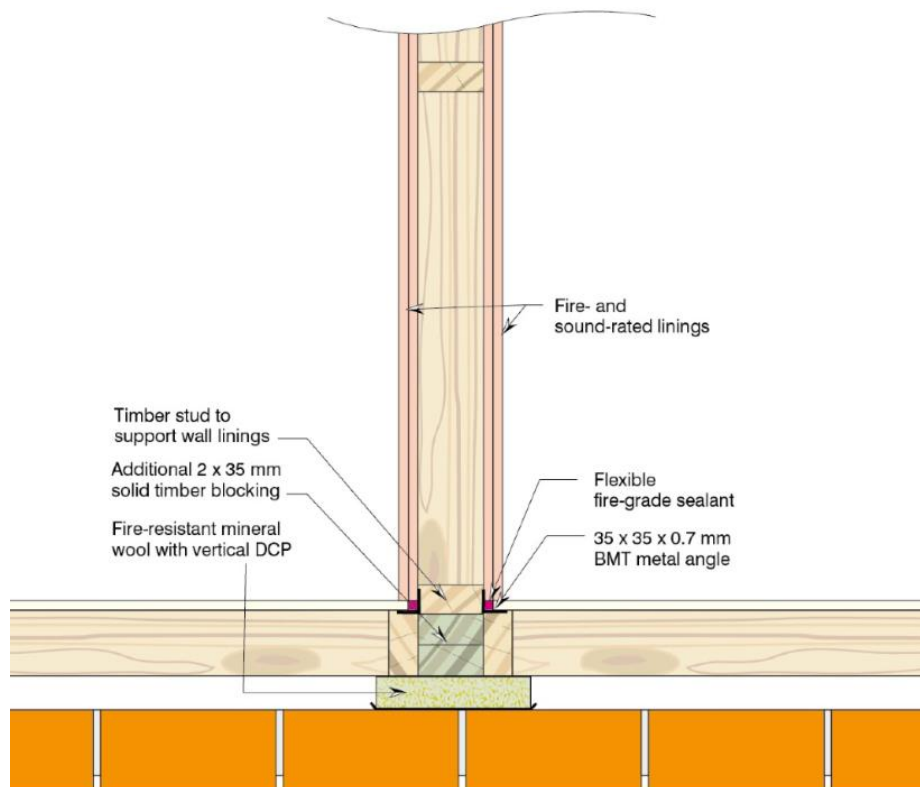


Figure 20 Single stud fire rated wall meeting an external cavity brick wall protected with an additional 35 mm block or 2 x 35 mm timber blocks and metal angle – option 2

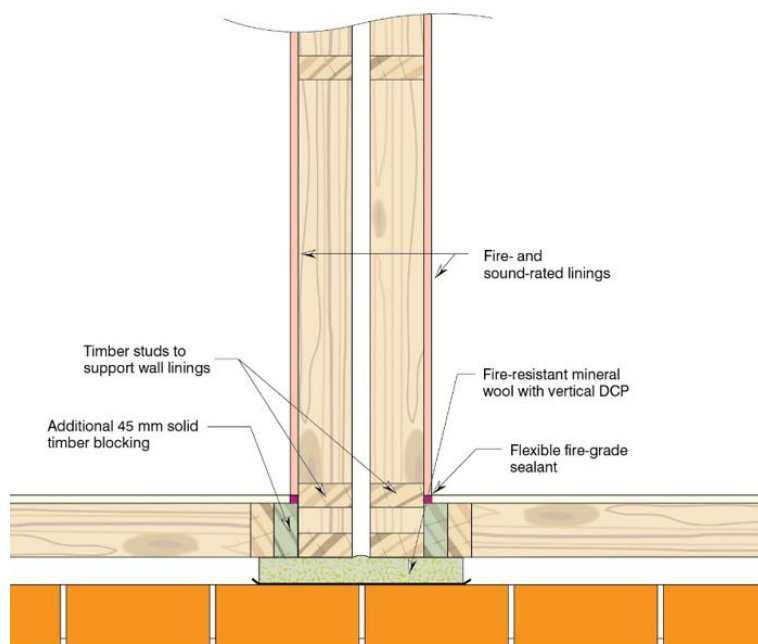


Figure 21 Double stud fire rated wall meeting an external cavity brick wall protected with 1 x 45 mm timber block

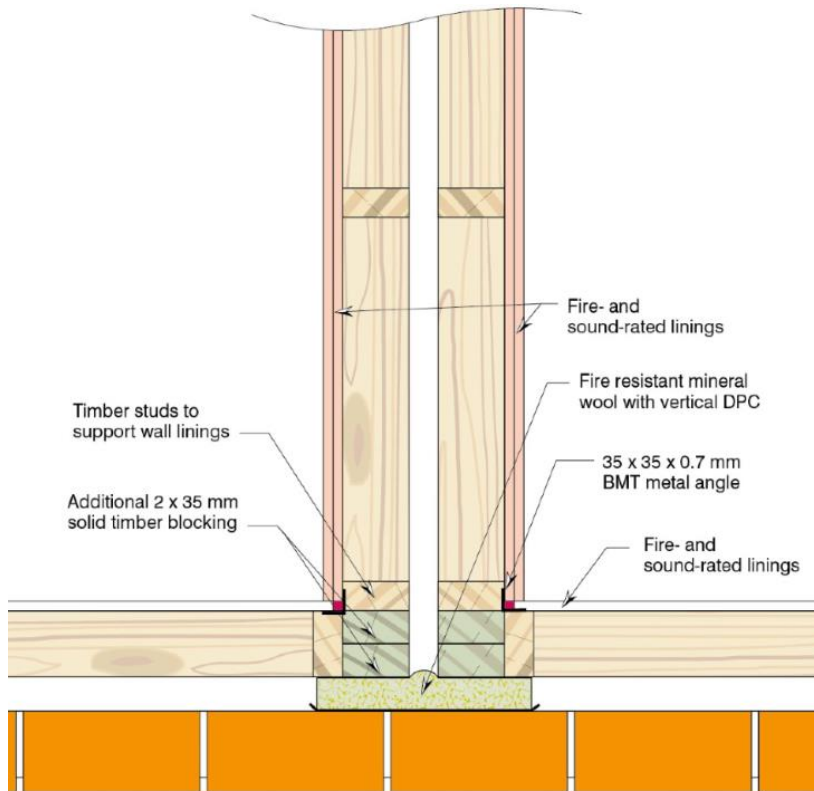


Figure 22 Double stud fire rated wall meeting an external cavity brick wall protected with an additional 35 mm block or 2 × 35 mm timber blocks and metal angle

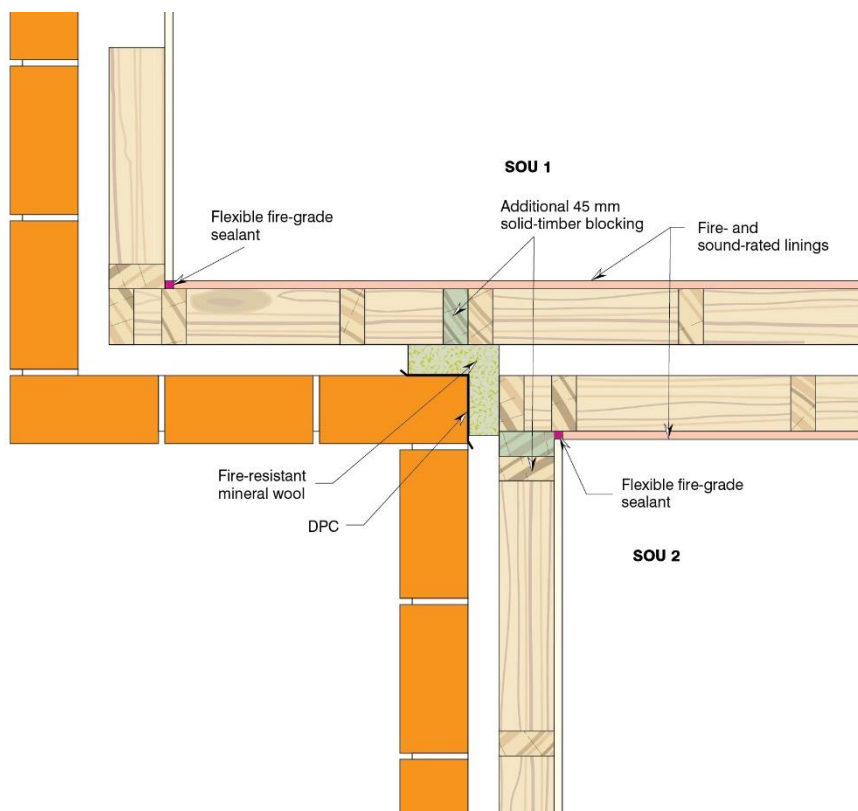


Figure 23 Double stud fire rated wall meeting an external cavity brick wall at a step in the plan of the building protected with 1 × 45 mm timber block

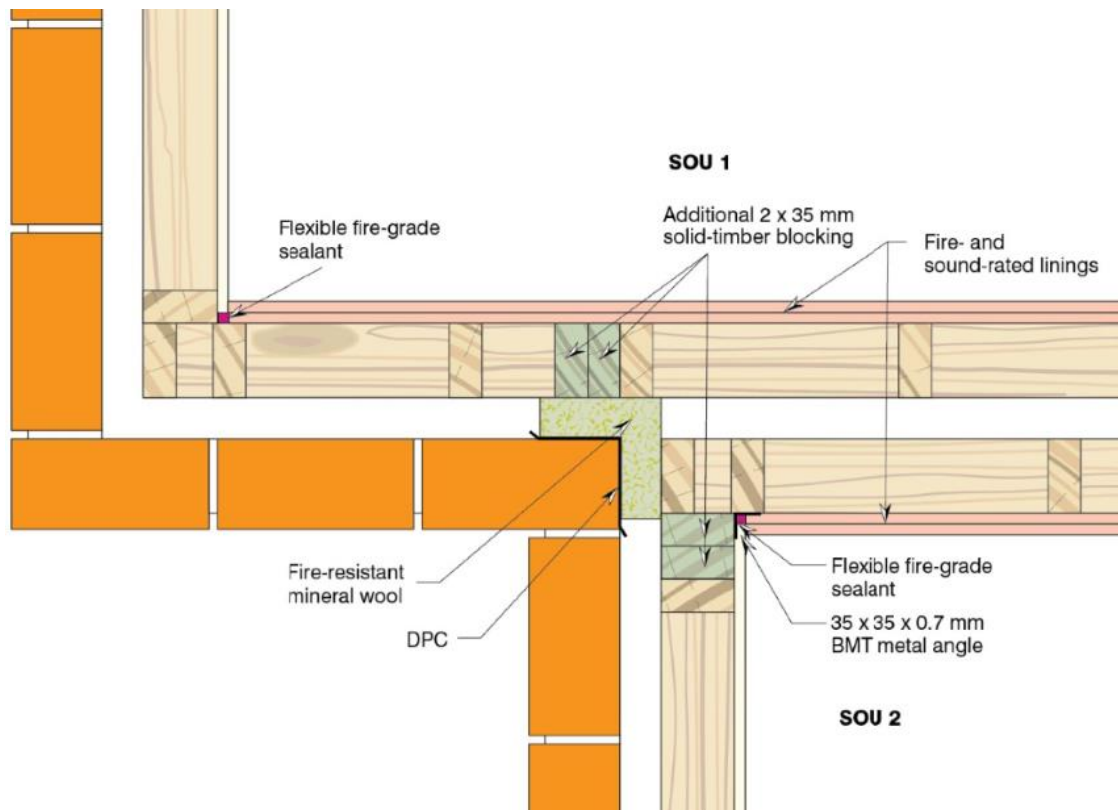


Figure 24 Double stud fire rated wall meeting an external cavity brick wall at a step in the plan of the building protected with an additional 35 mm block or 2 × 35 mm timber blocks and metal angle

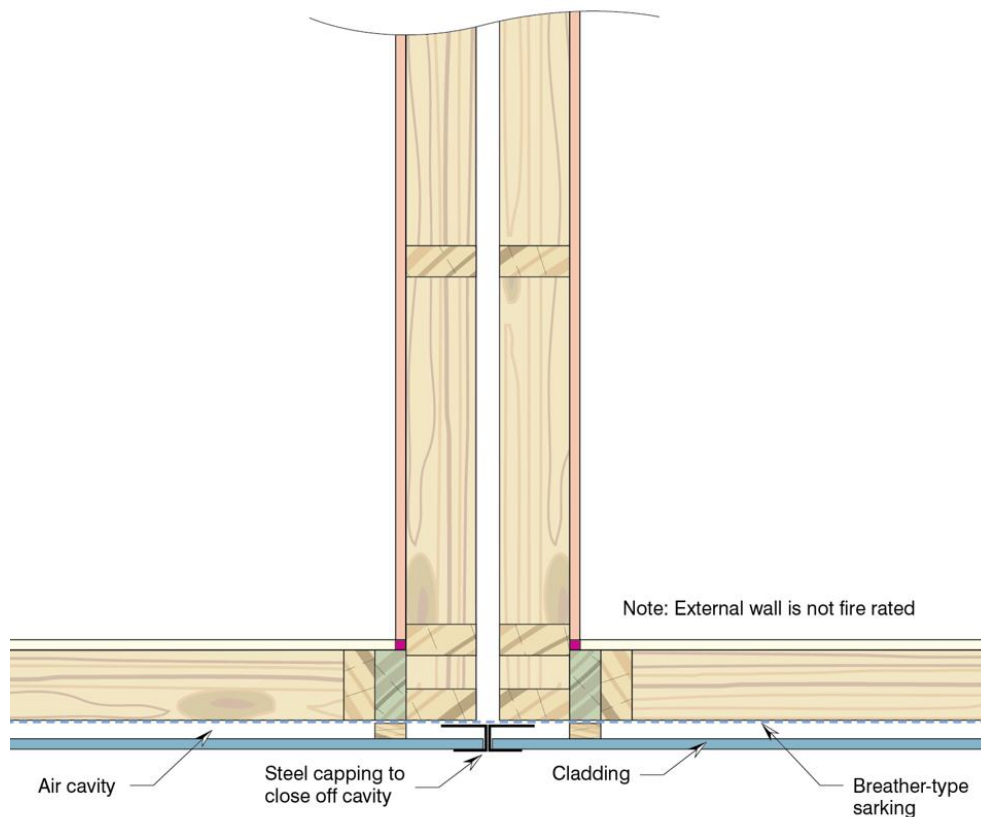


Figure 25 Double stud fire rated wall meeting a light external cladding

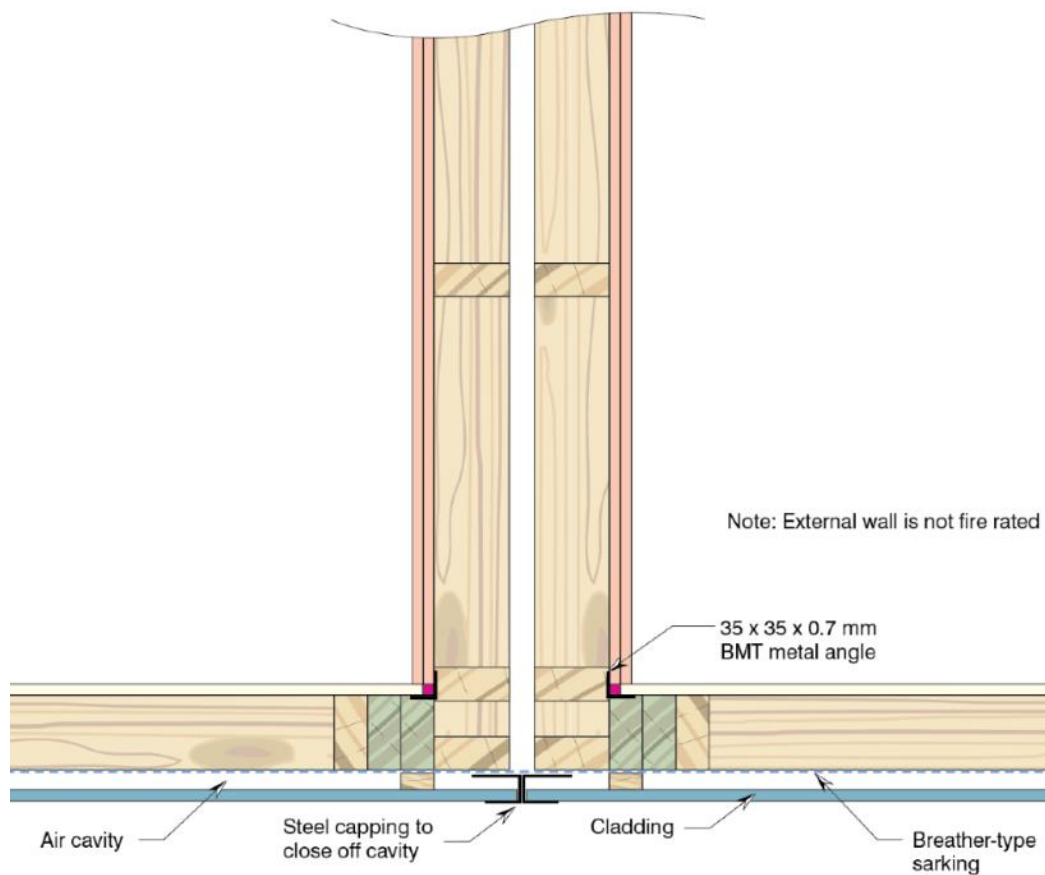


Figure 26 Double stud fire rated wall meeting a light external cladding

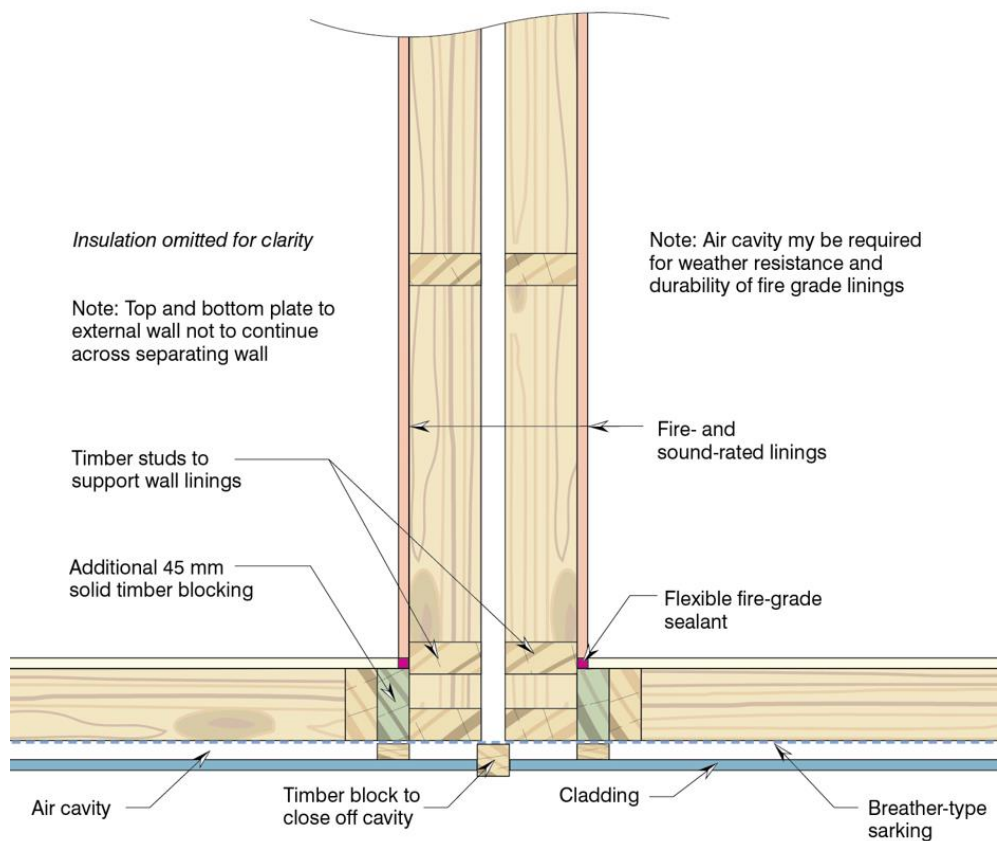


Figure 27 Double stud fire rated wall meeting a light external cladding – option 1

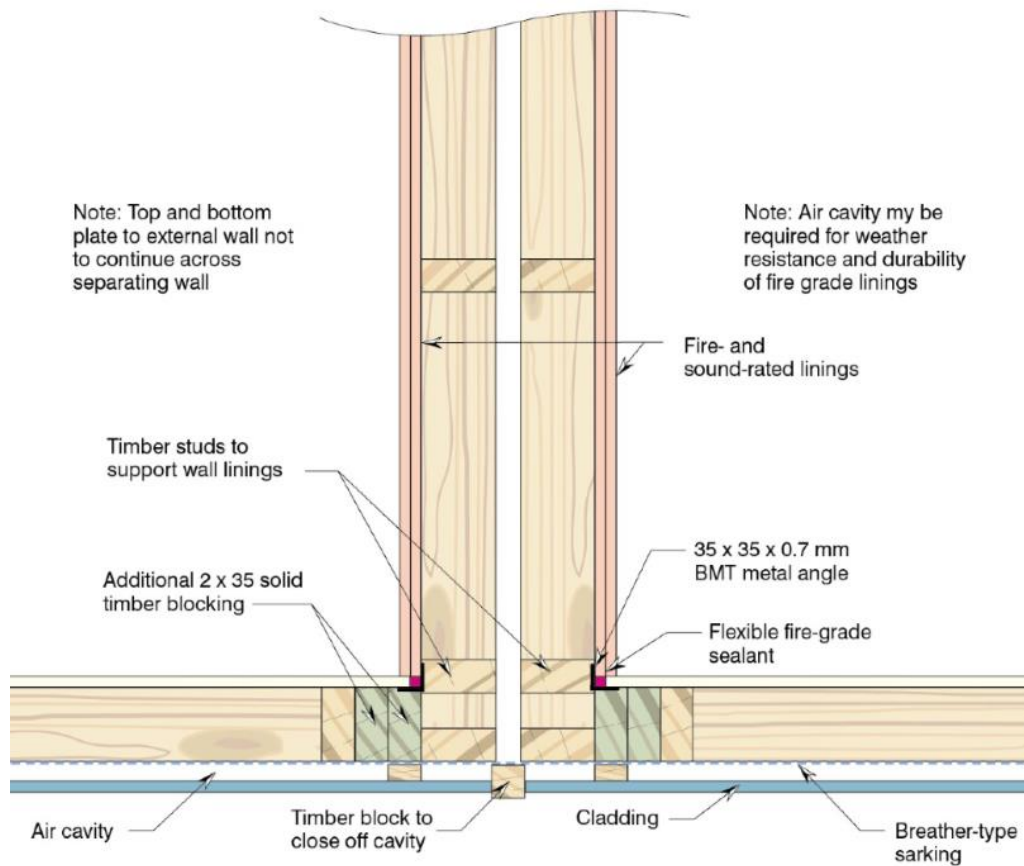


Figure 28 Double stud fire rated wall meeting a light external cladding – option 2

4.4.4 Wall to floor junctions

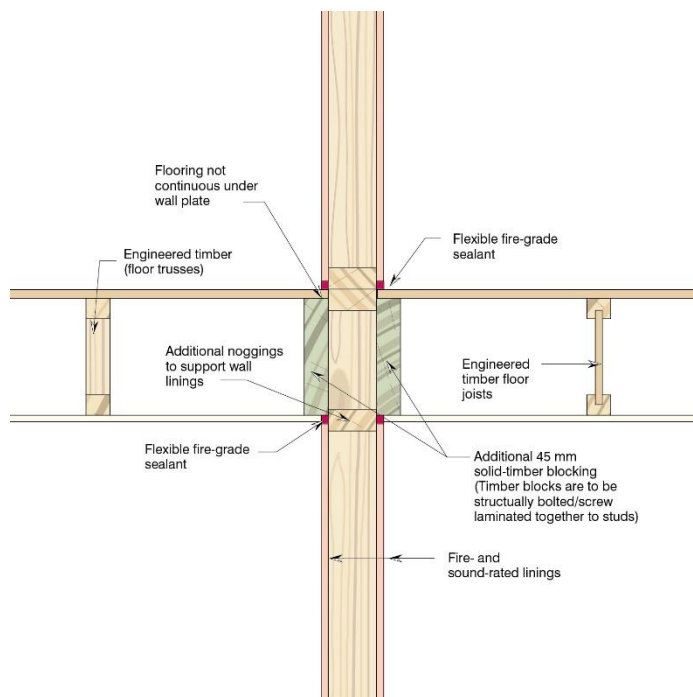


Figure 29 Single stud fire rated wall meeting floor joist parallel to wall stud through junction protected with 1 x 45 mm timber block

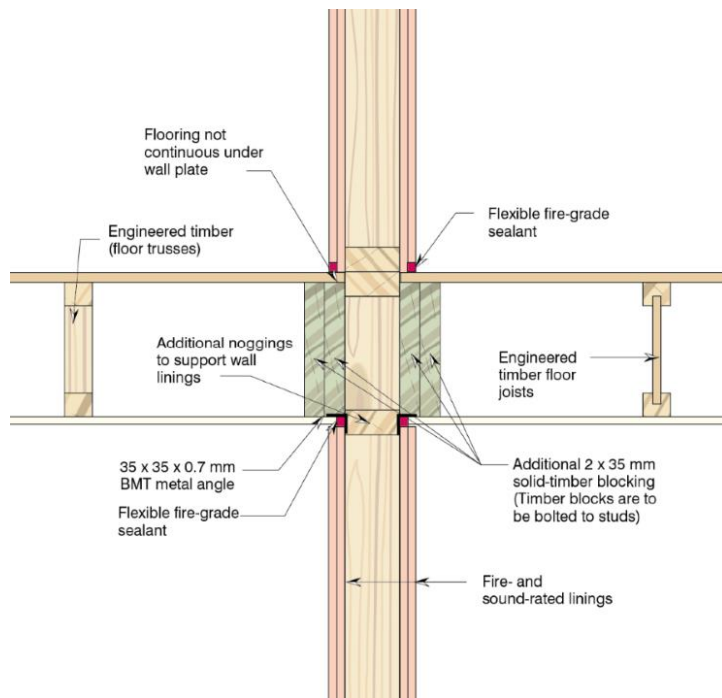


Figure 30 Single stud fire rated wall meeting floor joist parallel to wall stud through junction with an additional 35 mm or 2 x 35 mm solid timber blocks and metal angle

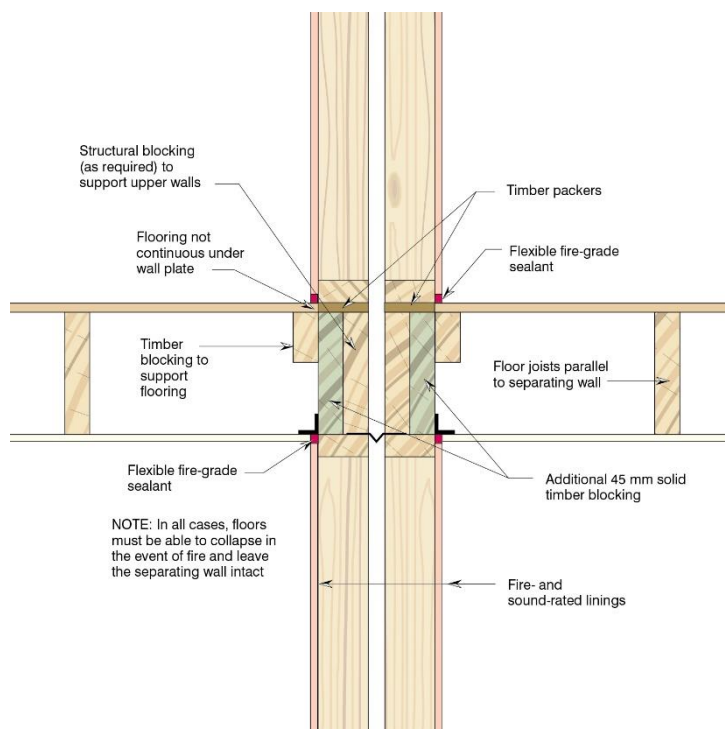


Figure 31 Double stud fire rated wall meeting floor joist parallel to wall protected with 1 x 45 mm timber block

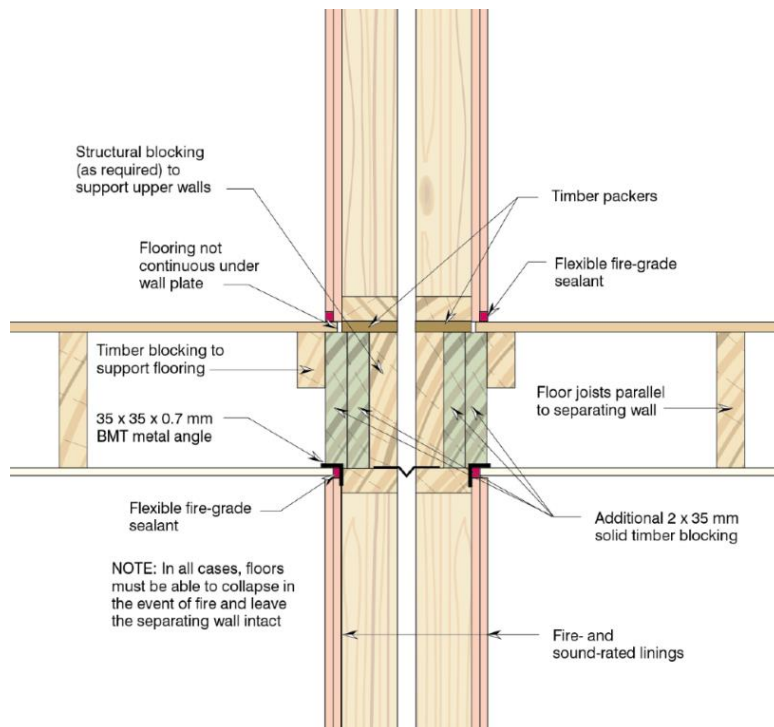


Figure 32 Double stud fire rated wall meeting floor joist parallel to wall with an additional 35 mm or 2 x 35 mm solid timber blocks and metal angle

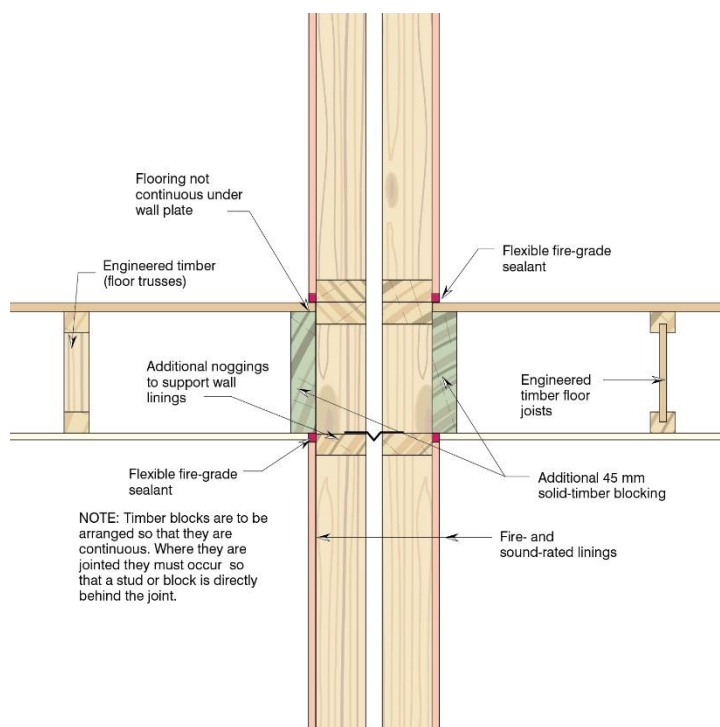


Figure 33 Double stud fire rated wall meeting floor joist parallel to wall stud through junction protected with 1 x 45 mm timber block

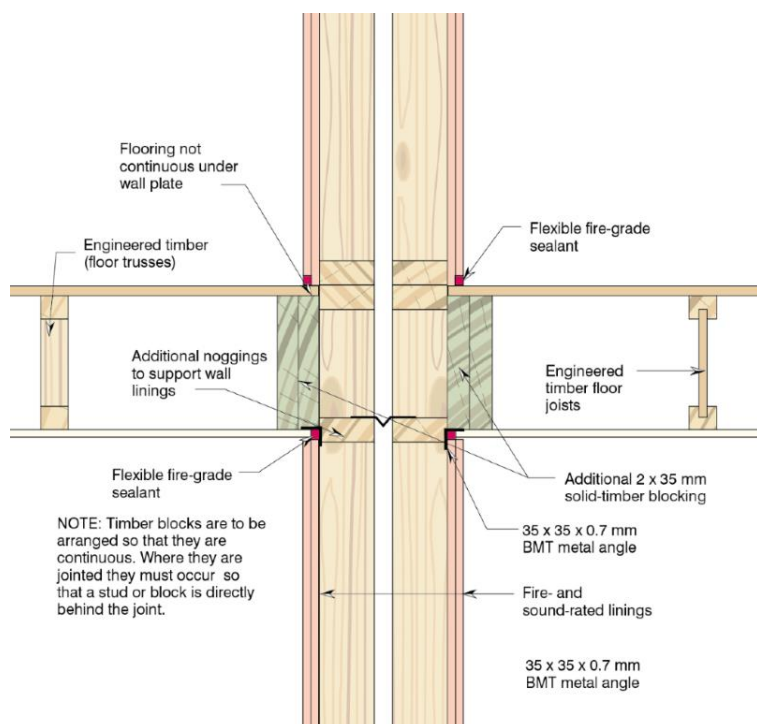


Figure 34 Double stud fire rated wall meeting floor joist parallel to wall stud through junction with an additional 35 mm or 2 x 35 mm solid timber blocks and metal angle

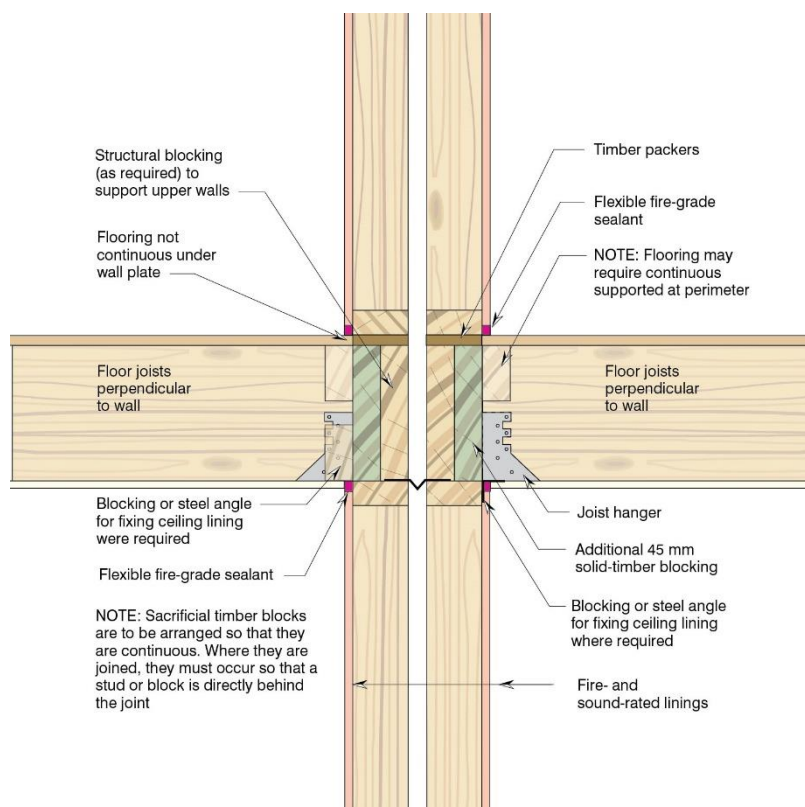


Figure 35 Double stud fire rated wall meeting floor joist perpendicular to wall

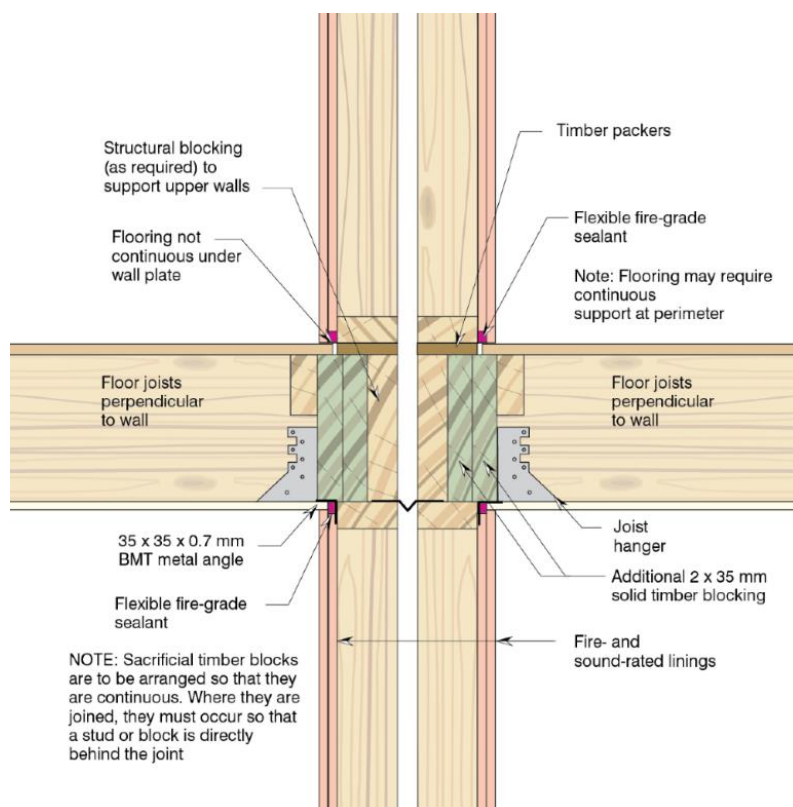


Figure 36 Double stud fire rated wall meeting floor joist perpendicular to wall with an additional 35 mm or 2 x 35 mm solid timber blocks and metal angle

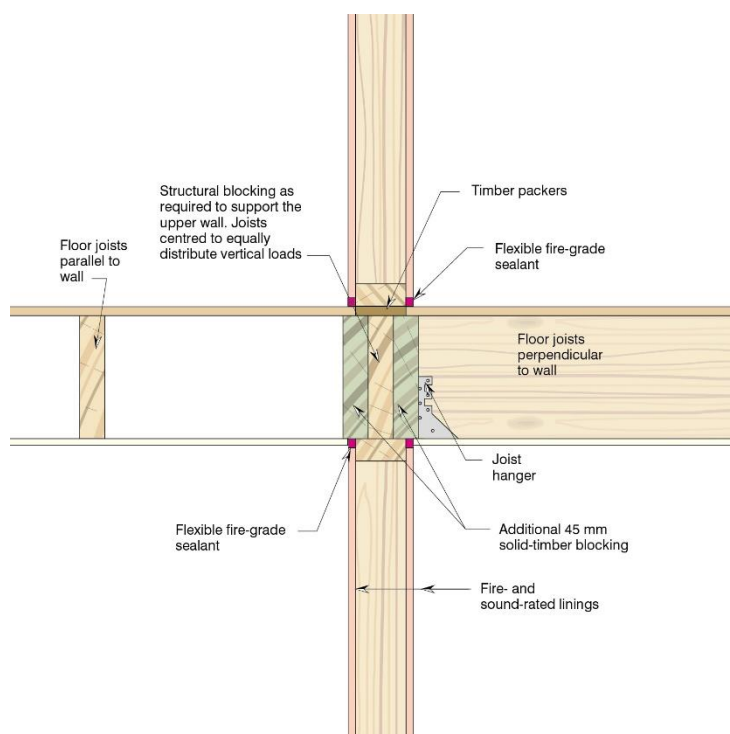


Figure 37 Single stud fire rated wall meeting floor joist protected with 1 x 45 mm timber block

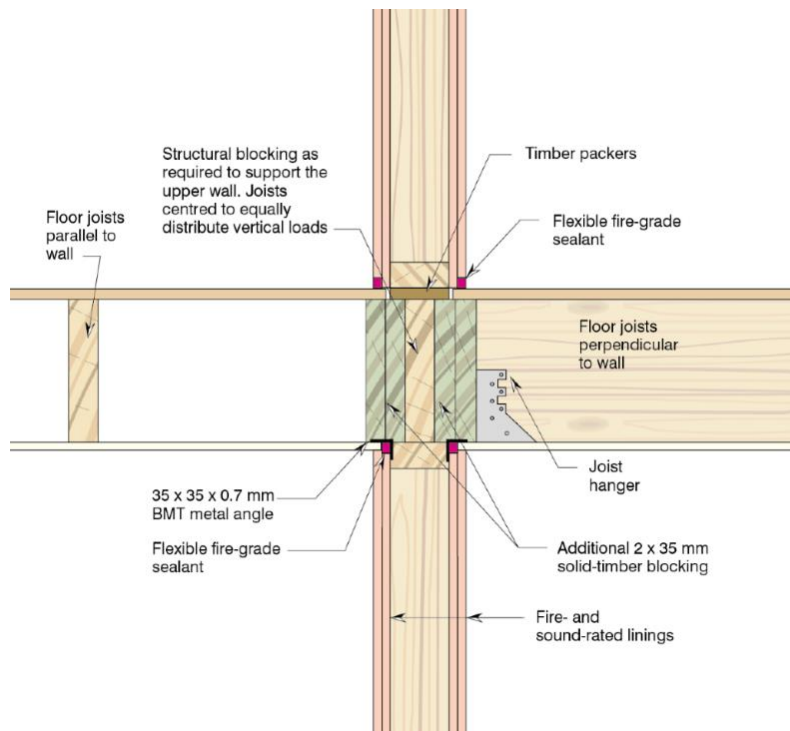


Figure 38 Single stud fire rated wall meeting floor joist with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle

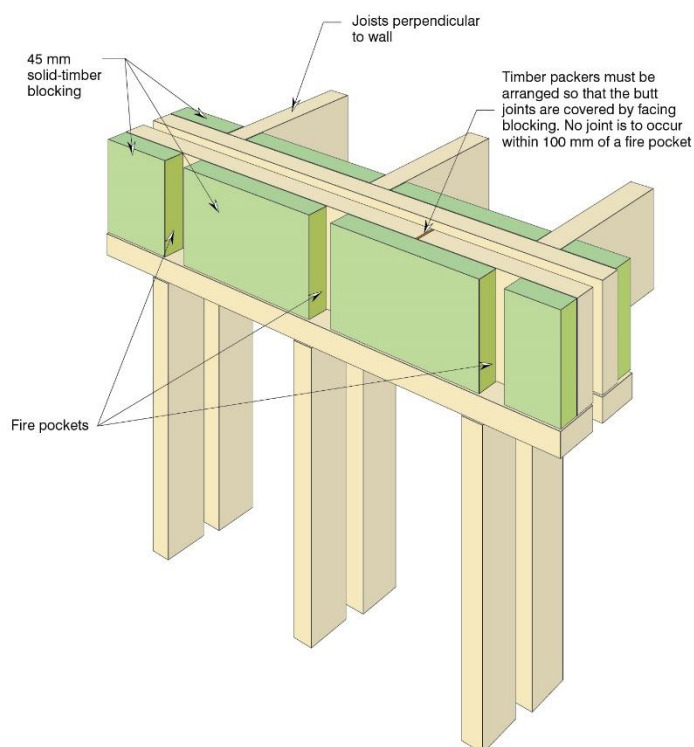


Figure 39 Arrangement of fire pockets for joists for double stud walls protected with 1 × 45 mm timber block

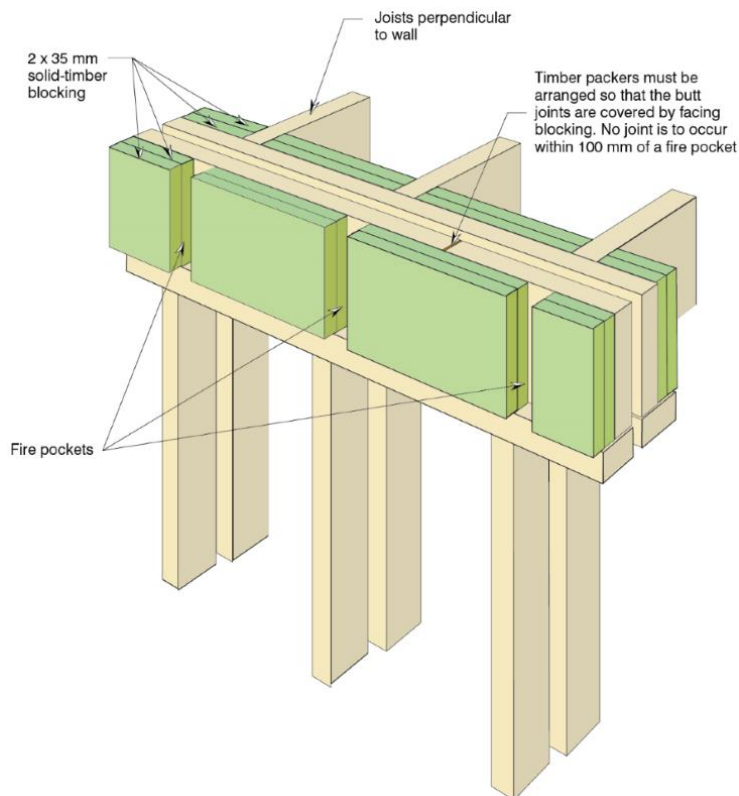


Figure 40 Arrangement of fire pockets for joists for double stud walls with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle

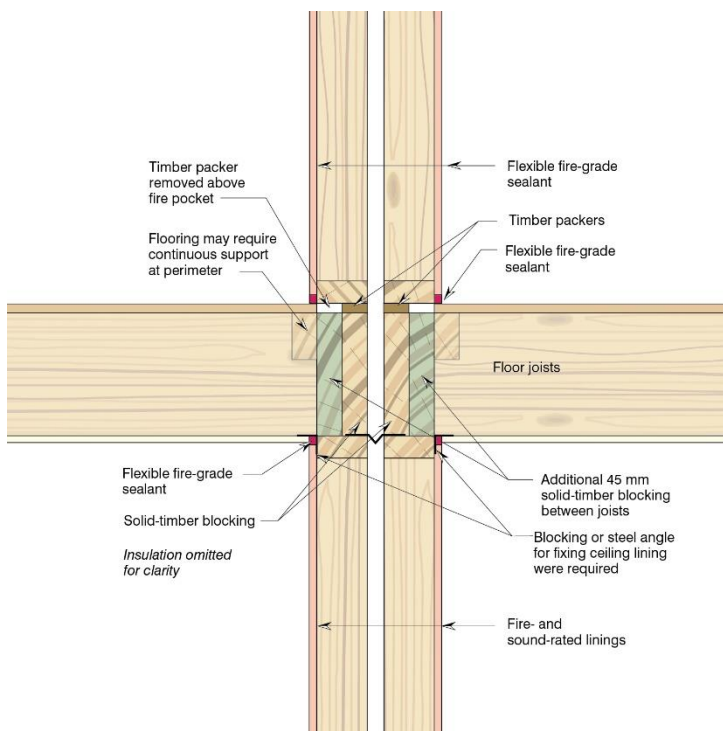


Figure 41 Double stud fire rated wall meeting floor joist, joists housed in fire pockets in framing protected with 1 × 45 mm timber block

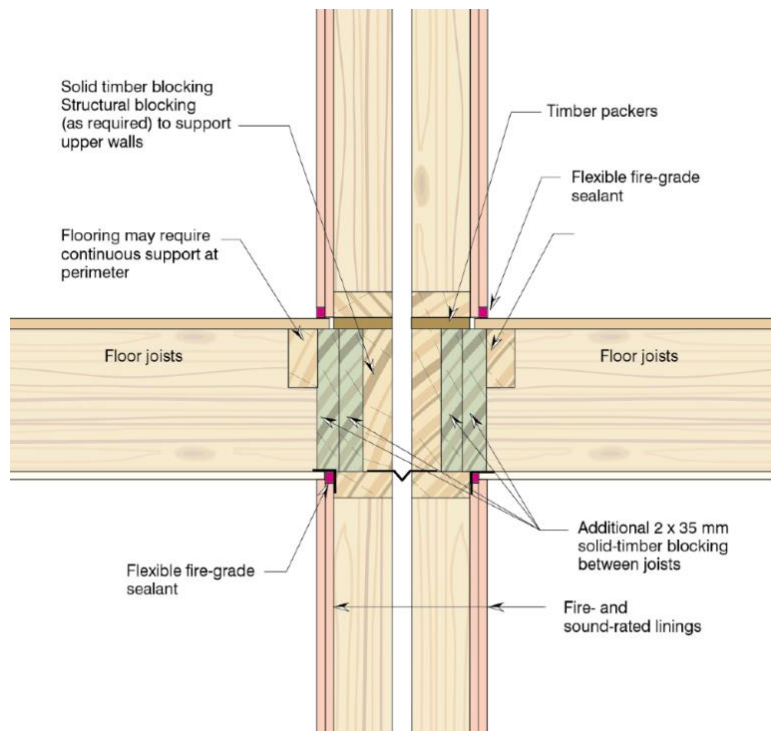


Figure 42 Double stud fire rated wall meeting floor joist, joists housed in fire pockets in framing with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle

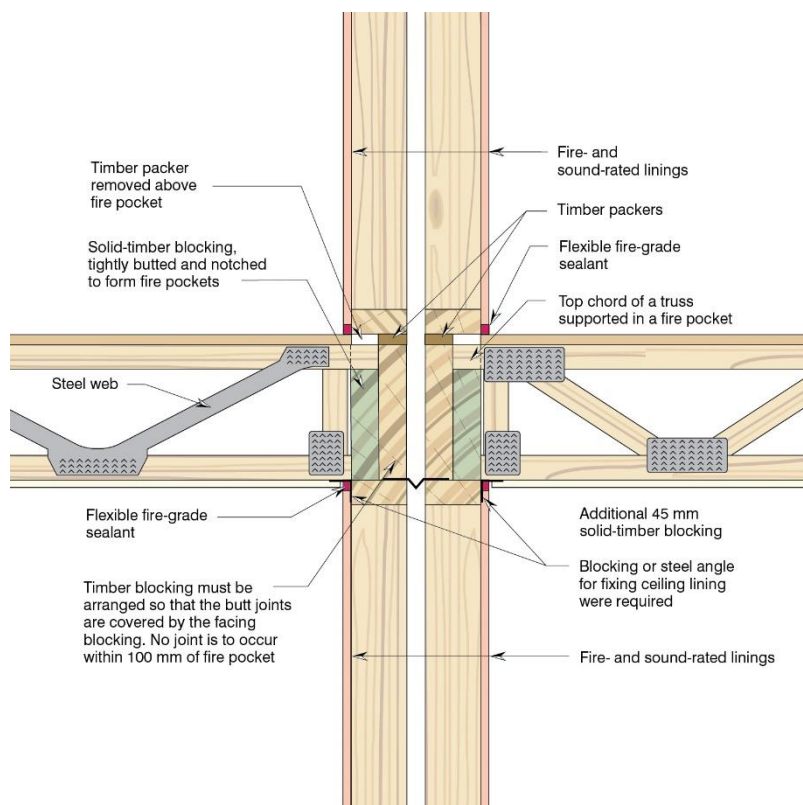


Figure 43 Double stud wall with floor truss supported by fire pockets protected with 1 × 45 mm timber block

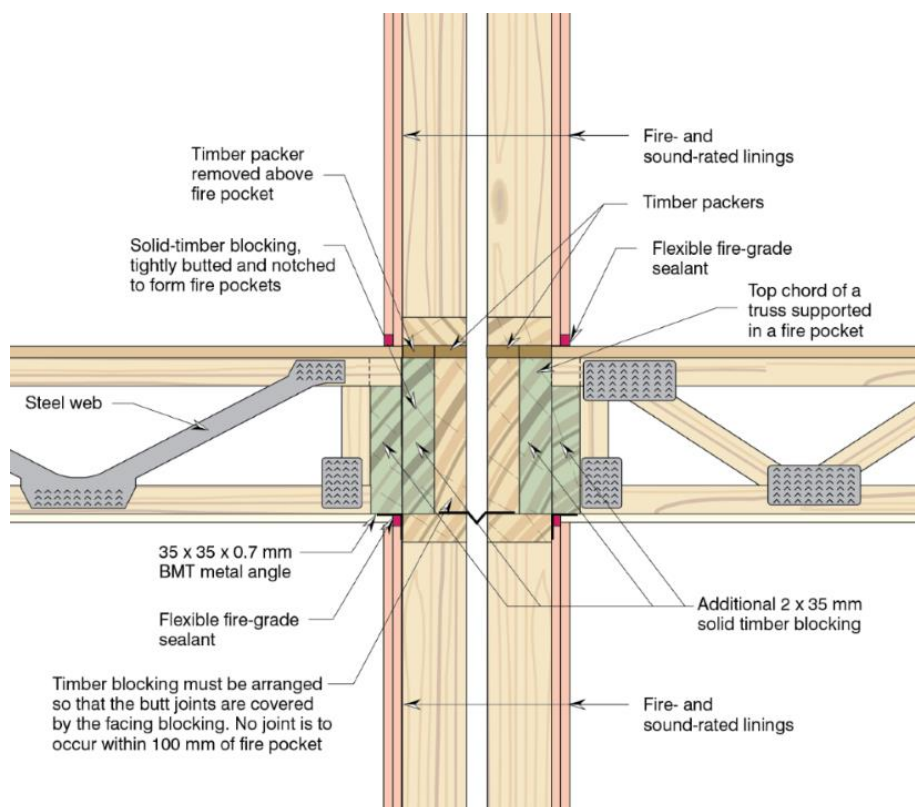


Figure 44 Double stud wall with floor truss supported by fire pockets with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle

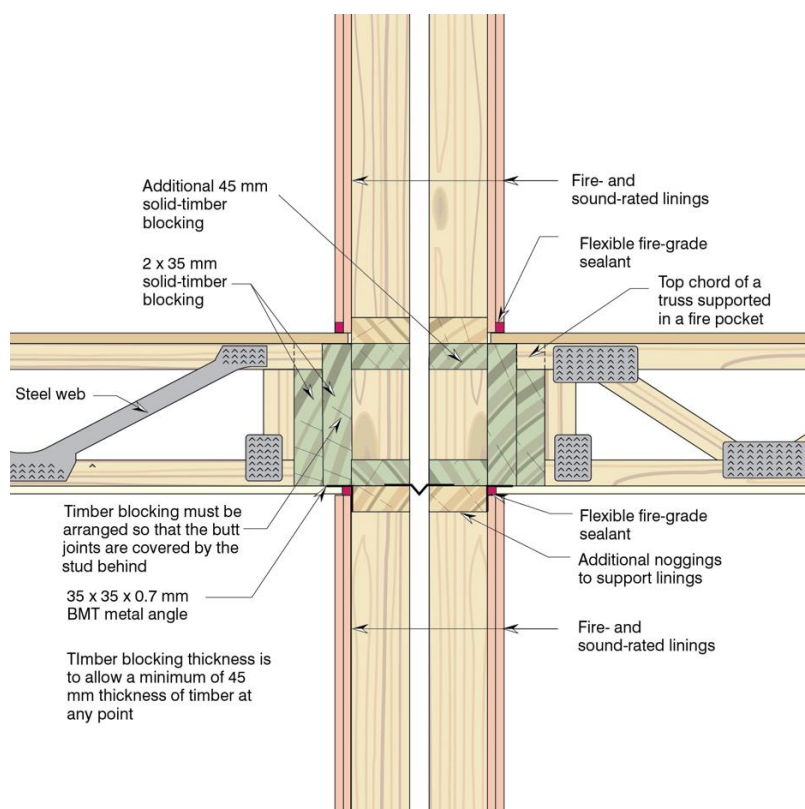


Figure 45 Double stud wall with floor truss top chord supported in fire pockets with an additional 35 mm or minimum 2 × 35 mm timber blocks and metal angles

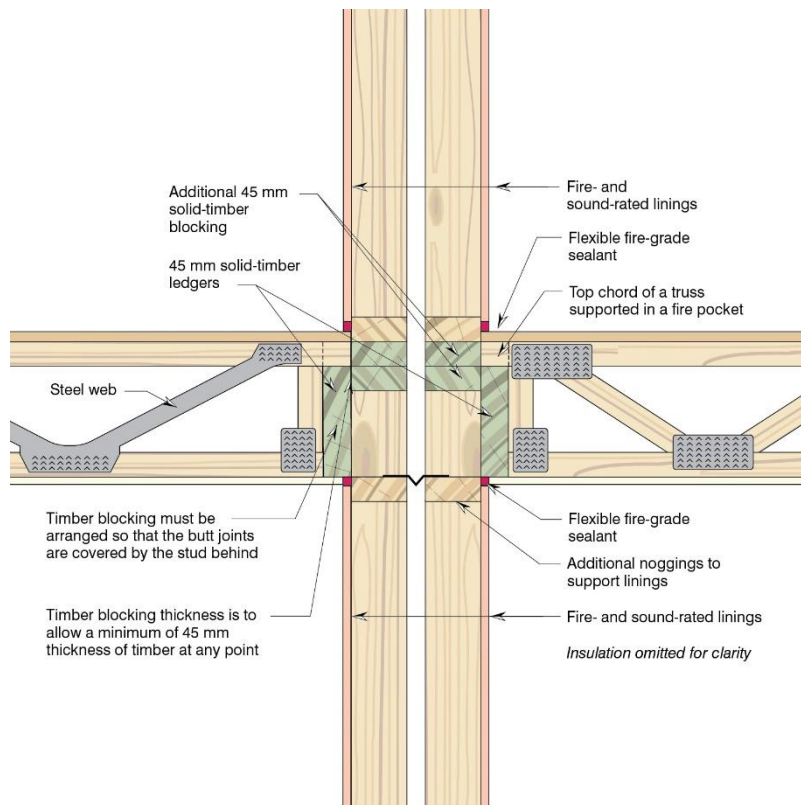


Figure 46 Double stud wall with floor truss supported by fire pockets protected with 1 × 45 mm timber block

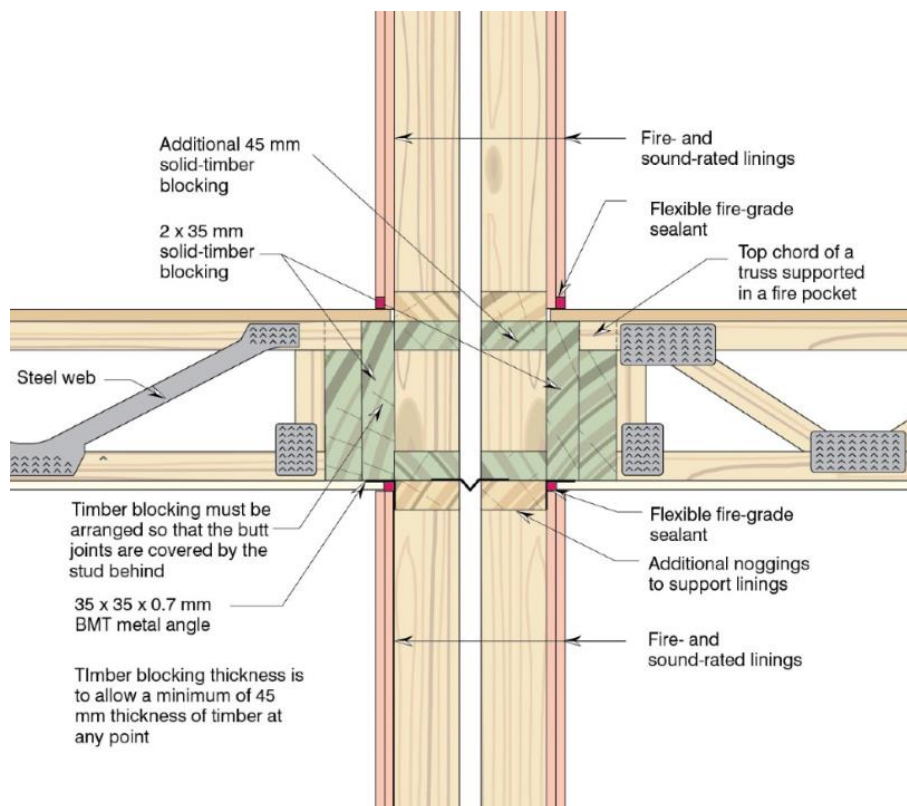


Figure 47 Double stud wall with floor truss supported by fire pockets with an additional 35 mm or minimum 2 × 35 mm timber blocks and metal angles

4.4.5 Steel beam to wall junctions

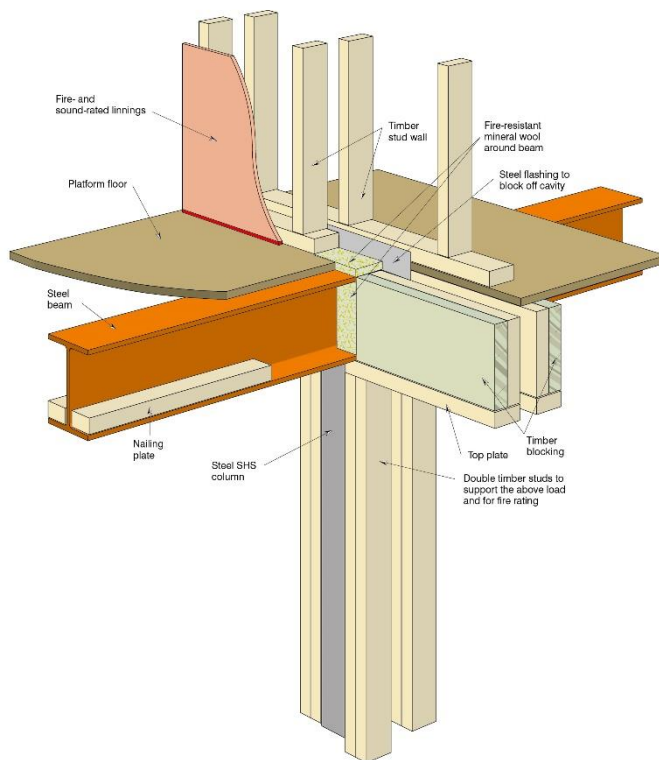


Figure 48 Steel beam and column junction - cut away view

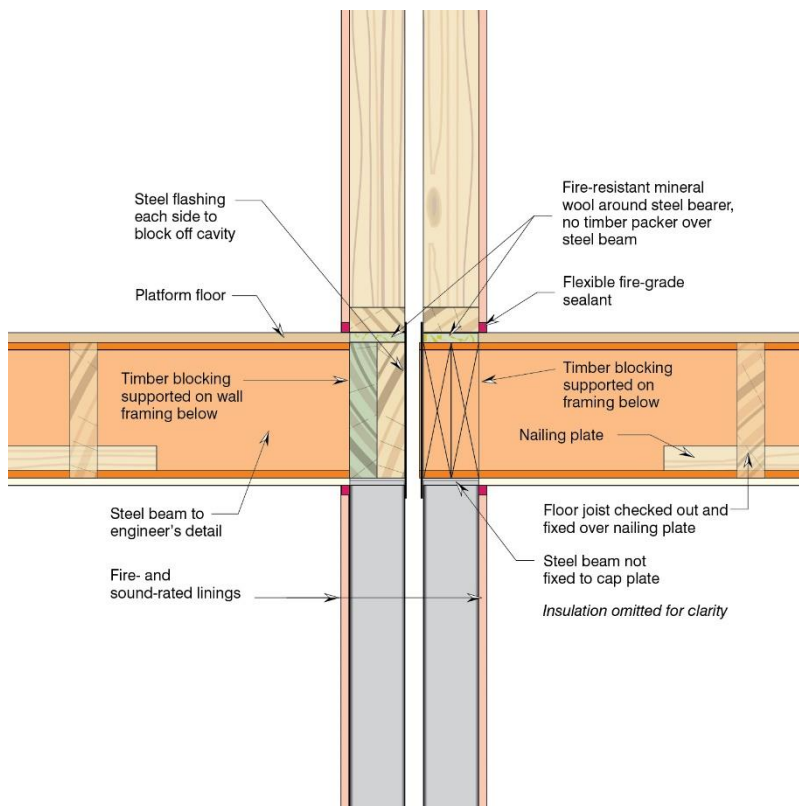


Figure 49 Steel beam and column junction - section elevation through wall

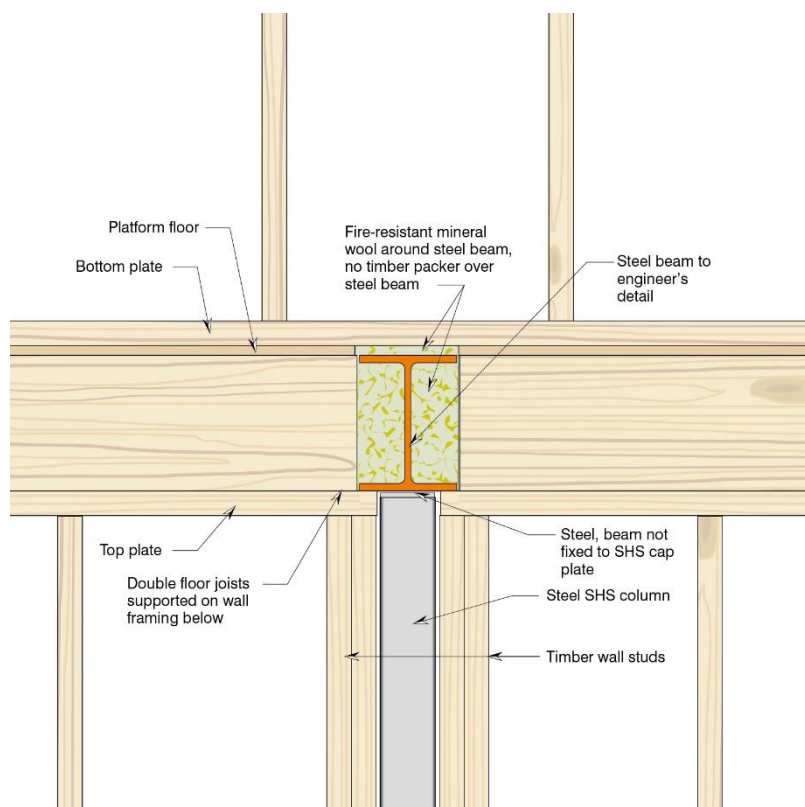


Figure 50 Steel beam and column junction - section elevation through beam

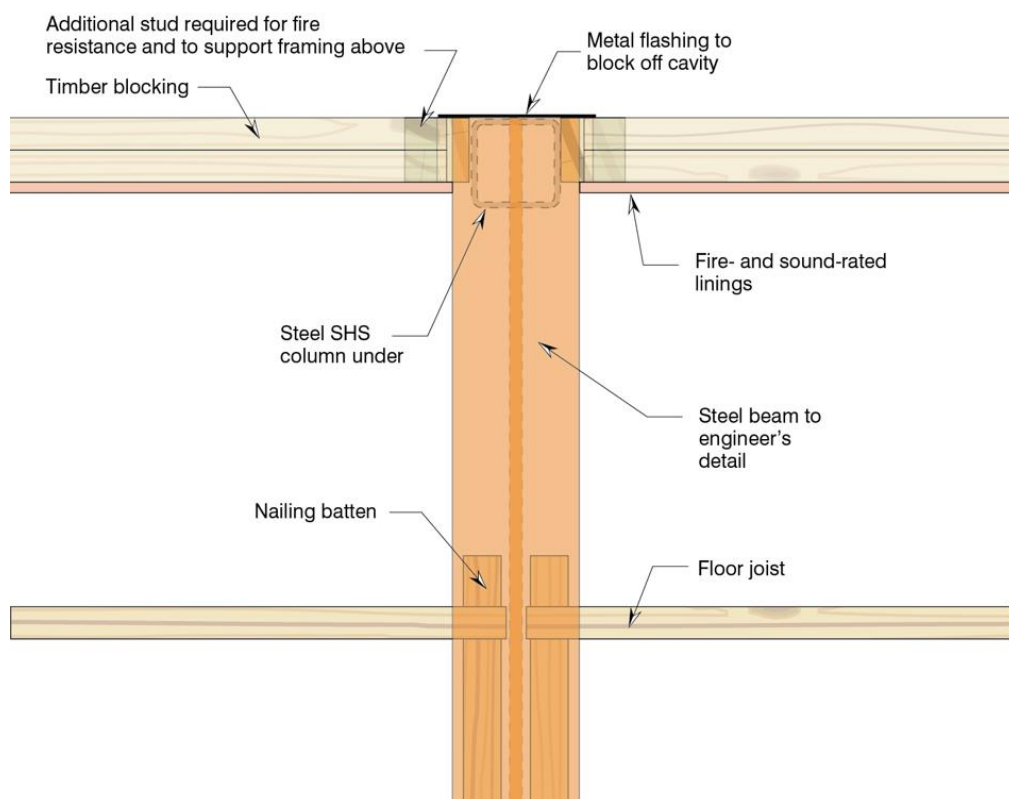


Figure 51 Steel beam and column junction - plan one side of wall only

4.4.6 Lowest floor and subfloor

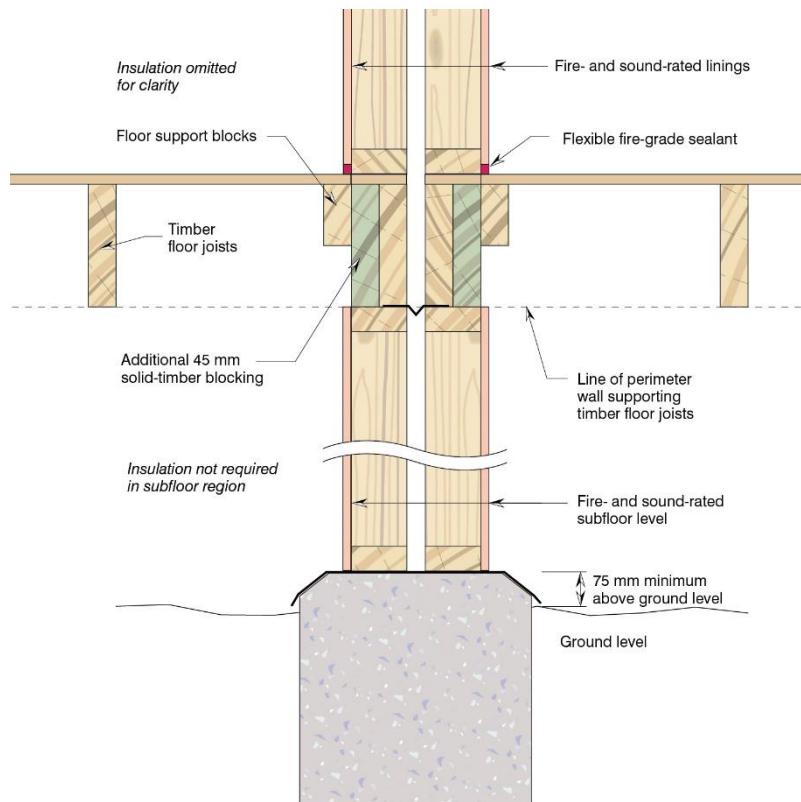


Figure 52 Lowest floor and subfloor protected with 1 × 45 mm timber block

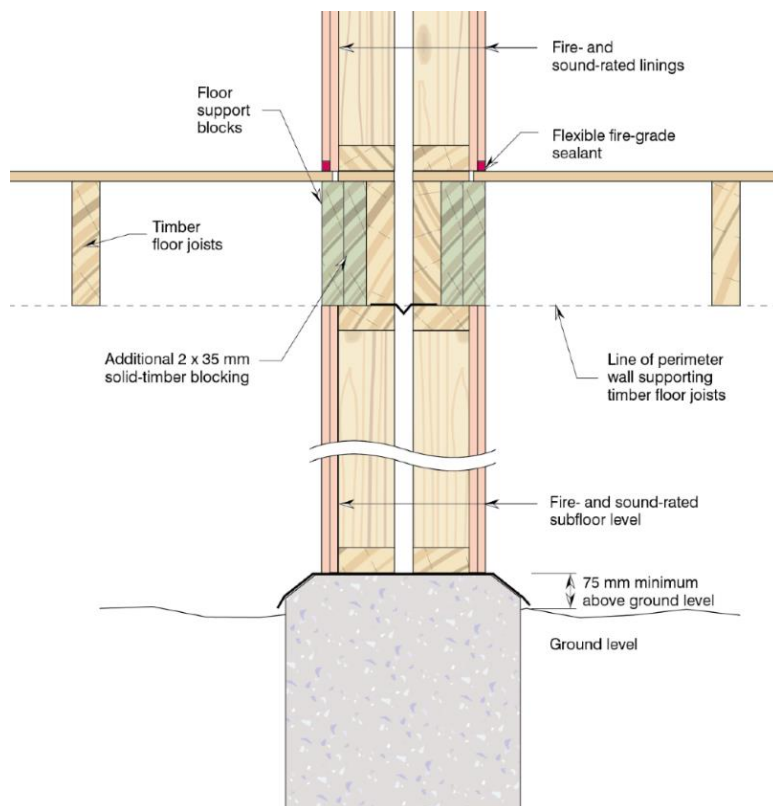


Figure 53 Lowest floor and subfloor with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle

5. Assessment outcome

Details of the assessment and discussion are only available in the referenced main assessment report.

The referenced assessment demonstrates that the proposed joints are capable of achieving 60/60/60 and 90/90/90 FRLS as specified in Table 4 and Table 5, respectively – in accordance with AS 1530.4:2014.

Table 4 Assessment summary for 60/60/60 FRL applications

Report number	Test sponsor
Figure 2	Roof framing elements supported on timber blocks and a roof truss protected with 1 × 45 mm solid timber block
Figure 4	Girder truss running parallel to the wall protected with 1 × 45 mm solid timber block
Figure 6	Roof framing elements supported on timber blocks at box gutter protected with 1 × 45 mm solid timber block
Figure 8	Staggered roof lines meeting at a separating element protected with 1 × 45 mm solid timber block
Figure 10	Double stud fire rated wall meeting a non-fire rated wall protected with 1 × 45 mm timber block
Figure 12	Double stud fire rated wall meeting a non-fire rated wall with an alternative method using metal angles and protected with 1 × 45 mm timber block
Figure 14	Single stud fire rated wall meeting a non-fire rated wall using 1 × 45 mm timber block (6)
Figure 18	Single stud fire rated wall meeting an external cavity brick wall protected with 1 × 45 mm timber block
Figure 21	Double stud fire rated wall meeting an external cavity brick wall protected with 1 × 45 mm timber block
Figure 23	Double stud fire rated wall meeting an external cavity brick wall at a step in the plan of the building protected with 1 × 45 mm timber block
Figure 25	Double stud fire rated wall meeting a light external cladding
Figure 27	Double stud fire rated wall meeting a light external cladding – option 1
Figure 29	Single stud fire rated wall meeting floor joist parallel to wall stud through junction protected with 1 × 45 mm timber block
Figure 31	Double stud fire rated wall meeting floor joist parallel to wall protected with 1 × 45 mm timber block
Figure 33	Double stud fire rated wall meeting floor joist parallel to wall stud through junction protected with 1 × 45 mm timber block
Figure 35	Double stud fire rated wall meeting floor joist perpendicular to wall
Figure 37	Single stud fire rated wall meeting floor joist protected with 1 × 45 mm timber block
Figure 39	Arrangement of fire pockets for joists for double stud walls protected with 1 × 45 mm timber block
Figure 41	Double stud fire rated wall meeting floor joist, joists housed in fire pockets in framing protected with 1 × 45 mm timber block
Figure 43	Double stud wall with floor truss supported by fire pockets protected with 1 × 45 mm timber block
Figure 46	Double stud wall with floor truss supported by fire pockets protected with 1 × 45 mm timber block
Figure 48	Steel beam and column junction - cut away view
Figure 49	Steel beam and column junction - section elevation through wall
Figure 50	Steel beam and column junction - section elevation through beam

Report number	Test sponsor
Figure 51	Steel beam and column junction - plan one side of wall only
Figure 52	Lowest floor and subfloor protected with 1 × 45 mm timber block

Table 5 Assessment summary for 90/90/90 FRL applications

Report number	Test sponsor
Figure 3	Roof framing elements supported on timber blocks and a roof truss protected with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle
Figure 5	Girder truss running parallel to the wall protected with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle
Figure 7	Roof framing elements supported on timber blocks at box gutter protected with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle
Figure 9	Staggered roof lines meeting at a separating element with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle
Figure 11	Double stud fire rated wall meeting a non-fire rated wall protected with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle
Figure 13	Double stud fire rated wall meeting a non-fire rated wall with an alternative method using metal angles and protected with an additional 35 mm or 2 × 35 mm timber blocks and metal angle
Figure 15	Single stud fire rated wall meeting a non-fire rated wall using an additional 35 mm block or 2 × 35 mm timber blocks and metal angle
Figure 16	Double stud fire rated wall meeting a non-fire rated wall using 2 × 35 mm timber blocks and metal angle
Figure 17	Single stud fire rated wall meeting a non-fire rated wall using 2 × 35 mm timber blocks and metal angle
Figure 19	Single stud fire rated wall meeting an external cavity brick wall protected with an additional 35 mm block or 2 × 35 mm timber blocks and metal angle – option 1
Figure 20	Single stud fire rated wall meeting an external cavity brick wall protected with an additional 35 mm block or 2 × 35 mm timber blocks and metal angle – option 2
Figure 22	Double stud fire rated wall meeting an external cavity brick wall protected with an additional 35 mm block or 2 × 35 mm timber blocks and metal angle
Figure 24	Double stud fire rated wall meeting an external cavity brick wall at a step in the plan of the building protected with an additional 35 mm block or 2 × 35 mm timber blocks and metal angle
Figure 26	Double stud fire rated wall meeting a light external cladding
Figure 28	Double stud fire rated wall meeting a light external cladding – option 2
Figure 30	Single stud fire rated wall meeting floor joist parallel to wall stud through junction with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle
Figure 32	Double stud fire rated wall meeting floor joist parallel to wall with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle
Figure 34	Double stud fire rated wall meeting floor joist parallel to wall stud through junction with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle
Figure 36	Double stud fire rated wall meeting floor joist perpendicular to wall with an additional 35 mm or 2 × 35 mm solid timber blocks and metal
Figure 38	Single stud fire rated wall meeting floor joist with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle
Figure 40	Arrangement of fire pockets for joists for double stud walls with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle
Figure 42	Double stud fire rated wall meeting floor joist, joists housed in fire pockets in framing with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle

Report number	Test sponsor
Figure 44	Double stud wall with floor truss supported by fire pockets with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle
Figure 45	Double stud wall with floor truss top chord supported in fire pockets with an additional 35 mm or minimum 2 × 35 mm timber blocks and metal angles
Figure 47	Double stud wall with floor truss supported by fire pockets with an additional 35 mm or minimum 2 × 35 mm timber blocks and metal angles
Figure 53	Lowest floor and subfloor with an additional 35 mm or 2 × 35 mm solid timber blocks and metal angle

2 × 35 mm MGP 10 timber blocks used as sacrificial timber to protect the main timber supports for 90/90/90 applications – shown in Figure 29 to Figure 51 – may be replaced by a single block of higher timber density of sufficient thickness to provide at least 75 minutes protection.

The thickness must be determined based on the notional charring rates provided in Table 2.5.1 of AS 1720.4:2019 – extracted and given in Table 6. However, it should be noted that the thickness should not be less than 45 mm to ensure that the external linear gaps are adequately lapped. The densities shown in Table 6 were extracted from Tables H2.3 and H2.4 in AS 1720.1.

Table 6 Notional charring rates for common timber species extracted from AS 1720.4:2019

Timber species	Notional density in kg/m ³	Notional charring rate in mm/minute
Blackbutt	900	0.50
Cypress	700	0.56
Douglas fir (North America and New Zealand)	550	0.65
European spruce	Not provided, assumed 550	0.65
Gum, spotted	1100	0.46
Ironbark, grey	1100	0.46
Ironbark, red	1050	0.47
Jarra	800	0.52
Kwila (Merbau)	850	0.51
Radiata pine (Australia and New Zealand)	550	0.65
Victorian ash and Tasmanian oak	650	0.59

6. Validity

Warringtonfire does not endorse the tested or assessed products and systems in any way. The conclusions of the referenced assessment may be used to directly assess fire resistance, but it should be recognised that a single test method will not provide a full assessment of fire resistance 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 is based on test data, information and experience available at the time of preparation. If contradictory evidence becomes available to the assessing authority, the assessment will be unconditionally withdrawn and the report sponsor will be notified in writing. Similarly, the assessment should be re-evaluated, if the assessed construction is subsequently tested since actual test data is deemed to take precedence.

The procedures for the conduct of tests and the assessment of test results are subject to constant review and improvement. The sponsor is therefore recommended that the referenced assessment report be reviewed on, or before, the stated expiry date.

The referenced assessment represents our opinion about the performance of the proposed systems that is expected to be demonstrated when subjected to test conditions in accordance with AS 1530.4:2014, based on the evidence referred to in the referenced assessment report.

The referenced assessment is provided to Forest and Wood Products Australia Limited for their own specific purposes. The referenced assessment report may be used as evidence of suitability in accordance with the requirements of the relevant National Construction Code. Building certifiers and other third parties must determine the suitability of the systems described in the referenced assessment report for a specific installation.

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