4.3 External Timber Framed Walls

External timber framed plasterboard walls protect the inside from weather, noise and, when applicable, fire. They must also comply with local energy efficiency provisions.

Fire rated systems in this section are designed to satisfy BCA fire rating requirements for walls built close to a property boundary. These walls are usually required to be fi re rated from the outside only.

multishield forms part of the outer wall adding fire and sound resistance which is covered by a moisture barrier and external cladding which provide the weather protection.

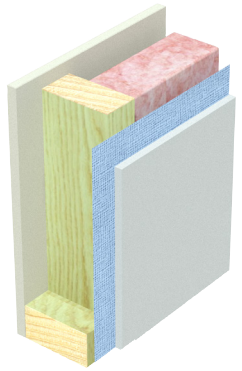
This section contains systems, installation instructions and construction details for fire rated and non-fi re rated external timber framed walls.

System Directory

System	Inside Lining	Outer Lining and Cladding	Frame	FRL	Acoustics[1]	
					Rw	Rw+Ctr
TSW73	1 x 10mm **masta**shield	Minimum 6mm fibre cement	Timber stud	-	40	31
TSW274	2 x 10mm **sound**shield	Minimum 6mm fibre cement	Timber stud	-	44	37
TSW470	1 x 10mm **masta**shield	1 x 13mm **multi**shield plus any external cladding	Timber stud	30/30/30 from outside	39	32
TSW473	1 x 10mm **masta**shield	1 x 16mm **multi**shield plus any external cladding	Timber stud	60/60/60 from outside	39	32
TSW471	1 x 10mm **masta**shield	2 x 13mm **multi**shield plus any external cladding	Timber stud	90/90/90 from outside	45	37
TSW472	1 x 10mm **masta**shield	3 x 13mm **multi**shield plus any external cladding	Timber stud	120/120/120 from outside	48	40
TSW491	Optional	2 x 13mm **multi**shield plus any external cladding	Timber stud	30/30/30 from outside	34	31
TSW494	Optional	2 x 16mm **multi**shield plus any external cladding	Timber stud	60/60/60 from outside	35	32
TSW492	Optional	3 x 13mm **multi**shield plus any external cladding	Timber stud	90/90/90 from outside	37	35
TSW495	Optional	3 x 16mm **multi**shield plus any external cladding	Timber stud	120/120/120 from outside	38	36
TSW476	1 x 16mm **fire**shield	1 x 16mm **multi**shield plus any external cladding	Timber stud	60/60/60	42	34
TSW477	1 x 16mm **fire**shield	2 x 13mm **multi**shield plus any external cladding	Timber stud	90/90/90 from outside 60/60/60 from inside	44	38
TSW478	2 x 13mm **fire**shield	2 x 13mm **multi**shield plus any external cladding	Timber stud	90/90/90	47	42
TSW479	2 x 16mm **fire**shield	2 x 16mm **multi**shield plus any external cladding	Timber stud	120/120/120	47	43
TSW480	1 x 10mm **masta**shield	1 x 13mm **multi**shield plus 7.5mm HardieTex™	Timber stud	30/30/30 from outside	45	37
TSW483	1 x 10mm **masta**shield	1 x 16mm **multi**shield plus 7.5mm HardieTex™	Timber stud	60/60/60 from outside	47	39
TSW481	1 x 10mm **masta**shield	2 x 13mm **multi**shield plus 7.5mm HardieTex™	Timber stud	90/90/90 from outside	48	41
TSW484	1 x 10mm **masta**shield	2 x 16mm **multi**shield plus 7.5mm HardieTex™	Timber stud	90/90/90 from outside	50	42
TSW482	1 x 10mm **masta**shield	3 x 13mm **multi**shield plus 7.5mm HardieTex™	Timber stud	120/120/120 from outside	50	44
TSW486	1 x 16mm **fire**shield	1 x 16mm **multi**shield plus 7.5mm HardieTex™	Timber stud	60/60/60	47	41
TSW487	1 x 16mm **fire**shield	2 x 13mm **multi**shield plus 7.5mm HardieTex™	Timber stud	90/90/90 from outside 60/60/60 from inside	48	43
TSW488	2 x 13mm **fire**shield	2 x 13mm **multi**shield plus 7.5mm HardieTex™	Timber stud	90/90/90	49	46
TSW489	2 x 16mm **fire**shield	2 x 16mm **multi**shield plus 7.5mm HardieTex™	Timber stud	120/120/120	50	47
TSW70	1 x 10mm **masta**shield	90mm masonry	Timber stud	60/60/60 from outside	54	46
TSW373	1 x 16mm **fire**shield	90mm masonry	Timber stud	60/60/60	54	49
TSW371	2 x 13mm **fire**shield	90mm masonry	Timber stud	90/90/90	54	**51**
TSW374	2 x 16mm **fire**shield	90mm masonry	Timber stud	120/120/120	55	**51**

1. Sound Insulation values determined using 90mm timber stud and R1.5 glasswool insulation.

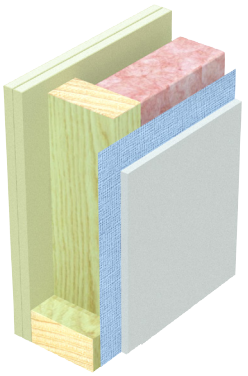
TSW73



- 1 layer of 10mm **masta**shield or 10mm **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- Wall wrap
- 1 layer of minimum 6mm James Hardie™ fibre cement sheeting

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	87 approximate	0.23 plus insulation R value	39 (30)	-	39 (30)	Report Insul
90	107 approximate		40 (31)	40 (31)	40 (31)	

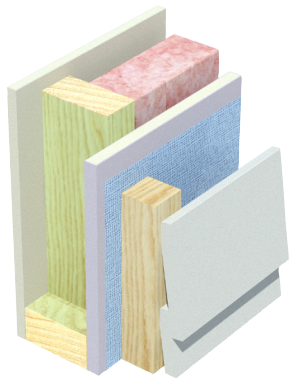
TSW274



- 2 layers of 10mm **sound**shield or 10mm **opal**
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- Wall wrap
- 1 layer of minimum 6mm James Hardie™ fibre cement sheeting

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	97 approximate	0.29 plus insulation R value	44 (35)	-	44 (35)	Report Day Design 3094-33
90	117 approximate		44 (37)	45 (38)	44 (37)	

TSW470



- 1 layer of 10mm **masta**shield or 10mm **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 1 layer of 13mm **multi**shield
- Wall wrap
- Any external wall cladding

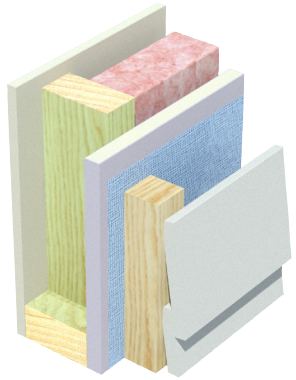
Fire Resistance Level

30/30/30
rated from the outside only

Report FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	94 + external cladding	0.84 plus insulation R value*	39 (31)	-	39 (31)	Report Insul
90	114 + external cladding		39 (32)	40 (32)	39 (31)	

TSW473



- 1 layer of 10mm **masta**shield or 10mm **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 1 layer of 16mm **multi**shield
- Wall wrap
- Any external wall cladding

Fire Resistance Level

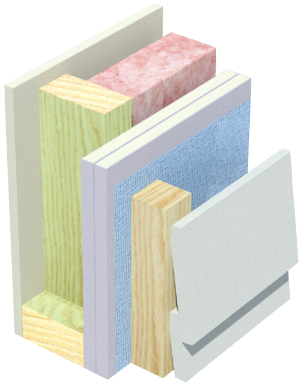
60/60/60
rated from the outside only

Report FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	97 + external cladding	0.86 plus insulation R value*	39 (31)	-	39 (31)	Report Insul
90	117 + external cladding		39 (32)	40 (33)	39 (32)	

* R-value based on 40mm batten cavity and anti-glare foil wall wrap - does not include thermal bridging pathway. Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

TSW471



- 1 layer of 10mm **masta**shield or 10mm **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 13mm **multi**shield
- Wall wrap
- Any external wall cladding

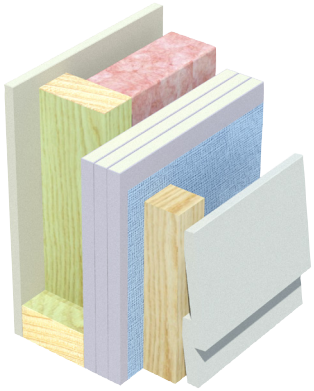
Fire Resistance Level

90/90/90
rated from the outside only

Report
FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m²K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	107 + external cladding	0.91 plus insulation R value*	44 (36)	-	44 (36)	Report Insul
90	127 + external cladding		45 (37)	45 (38)	45 (37)	

TSW472



- 1 layer of 10mm **masta**shield or 10mm **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 3 layers of 13mm **multi**shield
- Wall wrap
- Any external wall cladding

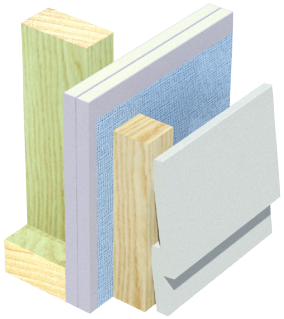
Fire Resistance Level

120/120/120
rated from the outside only

Report
FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m²K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	120 + external cladding	0.99 plus insulation R value*	47 (38)	-	47 (38)	Report Insul
90	140 + external cladding		48 (40)	48 (41)	48 (40)	

TSW491



- Optional internal wall lining
- Minimum 70mm timber stud framing at 600mm maximum centres
- Optional wall insulation
- 2 layers of 13mm **multi**shield
- Wall wrap
- Any external wall cladding

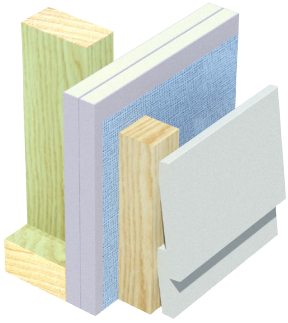
Fire Resistance Level

30/30/30
rated from the outside only

Report
FAR 3348

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m²K/W)	Sound Insulation Rw (Rw + Ctr)			
			No Insulation	Pink® Batts Wall R1.5	Polyester Wall R1.5	
70	97 + external cladding	0.86 plus insulation R value*	34 (31)	34 (31)	34 (31)	Report Day Design 3094-45
90	117 + external cladding		34 (31)	34 (31)	34 (31)	

TSW494



- Optional internal wall lining
- Minimum 70mm timber stud framing at 600mm maximum centres
- Optional wall insulation
- 2 layers of 16mm **multi**shield
- Wall wrap
- Any external wall cladding

Fire Resistance Level

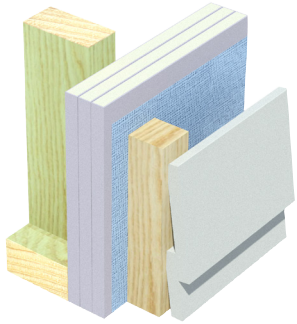
60/60/60
rated from the outside only

Report
FAR 3348

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m²K/W)	Sound Insulation Rw (Rw + Ctr)			
			No Insulation	Pink® Batts Wall R1.5	Polyester Wall R1.5	
70	103 + external cladding	0.89 plus insulation R value*	35 (32)	35 (32)	35 (32)	Report Day Design 3094-45
90	123 + external cladding		35 (32)	35 (32)	35 (32)	

* R-value based on 40mm batten cavity and anti-glare foil wall wrap - does not include thermal bridging pathway. Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

TSW492



- Optional internal wall lining
- Minimum 70mm timber stud framing at 600mm maximum centres
- Optional wall insulation
- 3 layers of 13mm **multi**shield
- Wall wrap
- Any external wall cladding

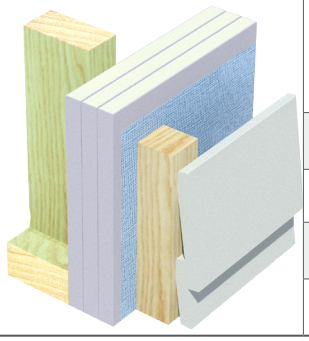
Fire Resistance Level

90/90/90
rated from the outside only

Report
FAR 3348

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m²K/W)	Sound Insulation Rw (Rw + Ctr)			
			No Insulation	Pink® Batts Wall R1.5	Polyester Wall R1.5	Report
70	110 + external cladding	0.93 plus insulation R value*	37 (35)	37 (35)	37 (35)	Day Design 3094-45
90	130 + external cladding		37 (35)	37 (35)	37 (35)	

TSW495



- Optional internal wall lining
- Minimum 70mm timber stud framing at 600mm maximum centres
- Optional wall insulation
- 3 layers of 16mm **multi**shield
- Wall wrap
- Any external wall cladding

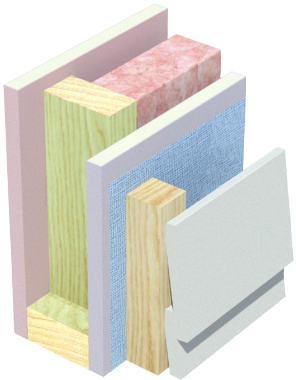
Fire Resistance Level

120/120/120
rated from the outside only

Report
FAR 3348

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m²K/W)	Sound Insulation Rw (Rw + Ctr)			
			No Insulation	Pink® Batts Wall R1.5	Polyester Wall R1.5	Report
70	119 + external cladding	0.98 plus insulation R value*	38 (36)	38 (36)	38 (36)	Day Design 3094-45
90	139 + external cladding		38 (36)	38 (36)	38 (36)	

TSW476



- 1 layer of 16mm **fire**shield or 16mm **multi**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 1 layer of 16mm **multi**shield
- Wall wrap
- Any external wall cladding

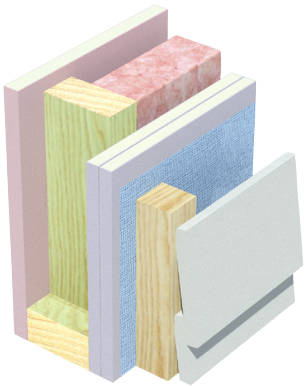
Fire Resistance Level

60/60/60
rated from both sides

Report
FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m²K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	Report
70	103 + external cladding	0.89 plus insulation R value*	41 (33)	-	41 (33)	Day Design 3094-45
90	123 + external cladding		42 (34)	42 (36)	42 (34)	

TSW477



- 1 layer of 16mm **fire**shield or 16mm **multi**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 13mm **multi**shield
- Wall wrap
- Any external wall cladding

Fire Resistance Level

90/90/90
rated from the outside

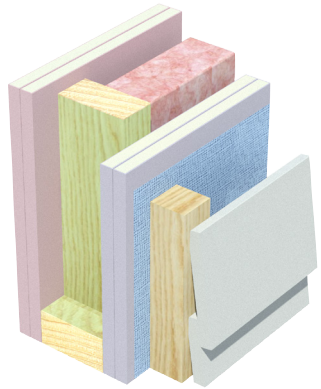
60/60/60
rated from the inside

Report
FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m²K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	Report
70	113 + external cladding	0.95 plus insulation R value*	44 (37)	-	44 (37)	Day Design 3094-45
90	133 + external cladding		44 (38)	45 (39)	44 (38)	

* R-value based on 40mm batten cavity and anti-glare foil wall wrap - does not include thermal bridging pathway. Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

TSW478



- 2 layers of 13mm **fire**shield or 13mm **multi**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 13mm **multi**shield
- Wall wrap
- Any external wall cladding with a drained and vented cavity

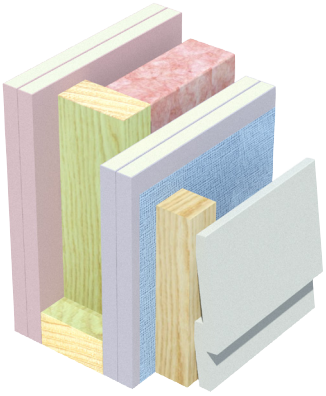
Fire Resistance Level

90/90/90
rated from both sides

Report
FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	123 + external cladding	1.01 plus insulation R value*	47 (41)	-	47 (41)	Report Day Design 3094-45
90	143 + external cladding		47 (42)	48 (43)	47 (42)	

TSW479



- 2 layers of 16mm **fire**shield or 16mm **multi**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 16mm **multi**shield
- Wall wrap
- Any external wall cladding

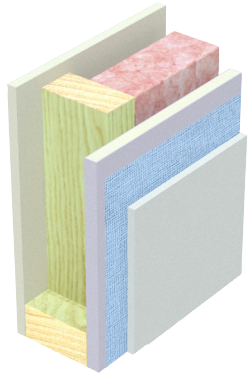
Fire Resistance Level

120/120/120
rated from both sides

Report
FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	135 + external cladding	1.08 plus insulation R value*	47 (42)	-	47 (42)	Report Day Design 3094-45
90	155 + external cladding		47 (43)	48 (44)	47 (43)	

TSW480



- 1 layer of 10mm **masta**shield or 10mm **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 1 layer of 13mm **multi**shield
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement sheeting

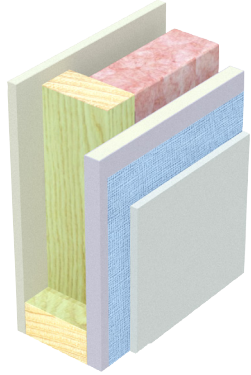
Fire Resistance Level

30/30/30
rated from the outside only

Report
FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	102 approx	0.31 plus insulation R value	45 (35)	-	44 (35)	Report Insul
90	122 approx		45 (37)	45 (38)	45 (37)	

TSW483



- 1 layer of 10mm **masta**shield or 10mm **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 1 layer of 16mm **multi**shield
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement sheeting

Fire Resistance Level

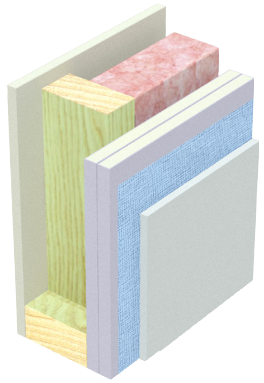
60/60/60
rated from the outside only

Report
FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	105 approx	0.33 plus insulation R value	47 (38)	-	46 (38)	Report Day Design 3094-43
90	125 approx		47 (39)	47 (39)	47 (39)	

* R-value based on 40mm batten cavity and anti-glare foil wall wrap - does not include thermal bridging pathway. Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

TSW481



- 1 layer of 10mm **masta**shield or 10mm **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 13mm **multi**shield
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement sheeting

Use approved fire rated penetration details in the non-fire rated internal lining to maintain FRL

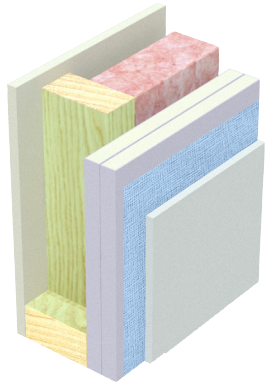
Fire Resistance Level

90/90/90
rated from the outside only

Report
FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	115 approx	0.39 plus insulation R value	47 (38)	-	47 (38)	Report Insul
90	135 approx		48 (41)	48 (41)	48 (41)	

TSW484



- 1 layer of 10mm **masta**shield or 10mm **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 16mm **multi**shield
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement sheeting

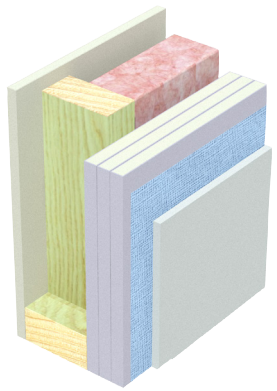
Fire Resistance Level

90/90/90
rated from the outside only

Report
FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	121 approx	0.42 plus insulation R value	49 (40)	-	49 (40)	Report Day Design 3094-43
90	141 approx		50 (42)	50 (42)	50 (42)	

TSW482



- 1 layer of 10mm **masta**shield or 10mm **water**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 3 layers of 13mm **multi**shield
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement sheeting

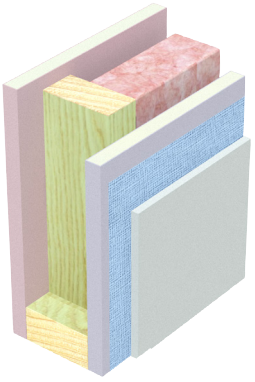
Fire Resistance Level

120/120/120
rated from the outside only

Report
FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	128 approx	0.46 plus insulation R value	49 (41)	-	49 (41)	Report Insul
90	148 approx		50 (44)	50 (44)	50 (44)	

TSW486



- 1 layer of 16mm **fire**shield or 16mm **multi**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 1 layer of 16mm **multi**shield
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement sheeting

Fire Resistance Level

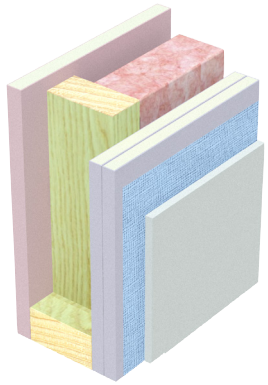
60/60/60
rated from both sides

Report
FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	111 approx	0.36 plus insulation R value	47 (40)	-	47 (39)	Report Day Design 3094-43
90	131 approx		47 (41)	47 (41)	47 (41)	

* R-value does not include thermal bridging pathway. Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

TSW487

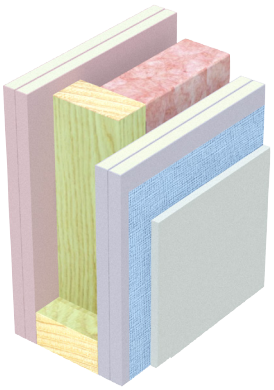


- 1 layer of 16mm **fire**shield or 16mm **multi**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 13mm **multi**shield
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement sheeting

Fire Resistance Level
90/90/90
rated from the outside
60/60/60
rated from the inside
Report FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	121 approx	0.42 plus insulation R value	47 (42)	-	47 (42)	Report Insul
90	141 approx		48 (43)	48 (44)	48 (43)	

TSW488

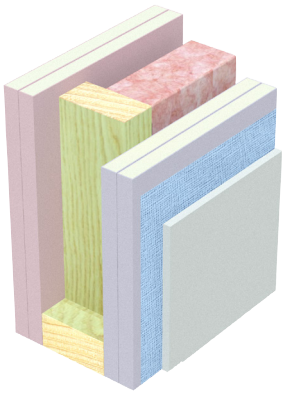


- 2 layers of 13mm **fire**shield or 13mm **multi**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 13mm **multi**shield
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement sheeting

Fire Resistance Level
90/90/90
rated from both sides
Report FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	131 approx	0.48 plus insulation R value	48 (45)	-	48 (45)	Report Insul
90	151 approx		49 (46)	49 (46)	49 (46)	

TSW489



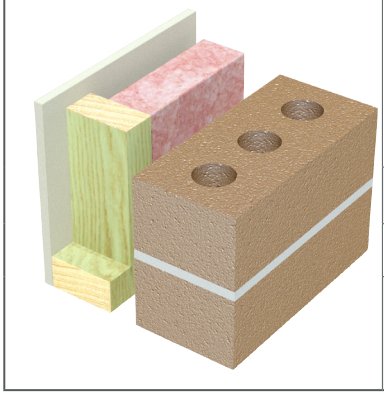
- 2 layers of 16mm **fire**shield or 16mm **multi**shield
- Minimum 70mm timber stud framing at 600mm maximum centres
- Wall insulation as specified in table
- 2 layers of 16mm **multi**shield
- Wall wrap
- 1 layer of minimum 7.5mm monolithic fibre cement sheeting

Fire Resistance Level
120/120/120
rated from both sides
Report FAR 3371

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m^2K/W)	Sound Insulation Rw (Rw + Ctr)			
			Pink® Batts Wall R1.5	Pink® Batts Wall R2.0	Polyester Wall R1.5	
70	143 approx	0.55 plus insulation R value	50 (47)	-	50 (47)	Report Insul
90	163 approx		50 (47)	50 (47)	50 (47)	

* R-value does not include thermal bridging pathway. Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

TSW70



- 1 layer of 10mm **masta**shield or 10mm **water**shield
- Minimum 70mm timber stud framing at 600mm max centres
- Optional wall insulation
- Minimum 40mm air-gap
- Minimum 90mm masonry with FRL 60/60/60 and minimum laid weight 130 kg/m²

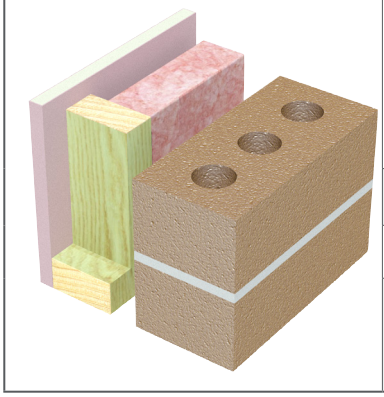
Fire Resistance Level

60/60/60
rated from the outside only

Report
FAR 3586

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m²K/W)	Sound Insulation Rw (Rw + Ctr)		
			Pink® Batts Wall R1.5	Polyester Wall R1.5	
70	210 approx	0.37 plus insulation R value	54 (46)	53 (46)	Report Insul

TSW373



- 1 layer of 16mm **fire**shield or 16mm **multi**shield
- Minimum 70mm timber stud framing at 600mm max centres
- Optional wall insulation
- Minimum 40mm air-gap
- Minimum 90mm masonry with FRL 60/60/60 and minimum laid weight 130 kg/m²

System designed to provide fire protection to stud (not masonry)

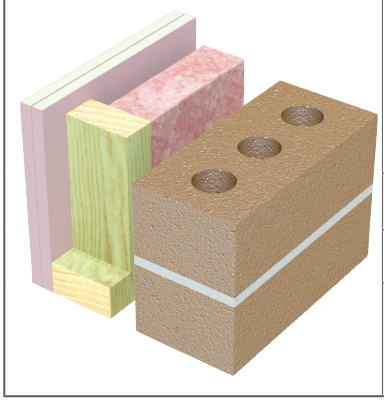
Fire Resistance Level

60/60/60
rated from both sides

Report
FAR 3586

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m²K/W)	Sound Insulation Rw (Rw + Ctr)		
			Pink® Batts Wall R1.5	Polyester Wall R1.5	
70	216 approx	0.40 plus insulation R value	54 (49)	54 (49)	Report Insul

TSW371



- 2 layers of 13mm **fire**shield or 13mm **multi**shield
- Minimum 70mm timber stud framing at 600mm max centres
- Optional wall insulation
- Minimum 40mm air-gap
- Minimum 90mm masonry with FRL 60/60/60 and minimum laid weight 130 kg/m²

System designed to provide fire protection to stud (not masonry)

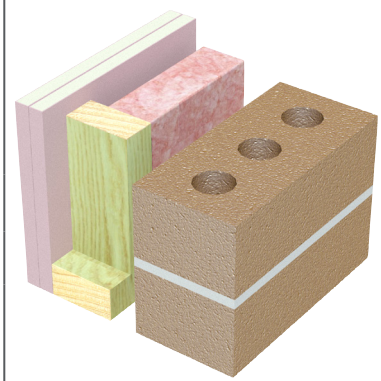
Fire Resistance Level

90/90/90
rated from both sides

Report
FAR 3586

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m²K/W)	Sound Insulation Rw (Rw + Ctr)		
			Pink® Batts Wall R1.5	Polyester Wall R1.5	
70	226 approx	0.46 plus insulation R value	54 (**51**)	54 (**51**)	Report Insul

TSW374



- 2 layers of 16mm **fire**shield or 16mm **multi**shield
- Minimum 70mm timber stud framing at 600mm max centres
- Optional wall insulation
- Minimum 40mm air-gap
- Minimum 90mm masonry with FRL 60/60/60 and minimum laid weight 130 kg/m²

System designed to provide fire protection to stud (not masonry)

Fire Resistance Level

120/120/120
rated from both sides

Report
FAR 3586

Stud Size (mm)	Wall Width (mm)	Insulation Pathway R-Value (m²K/W)	Sound Insulation Rw (Rw + Ctr)		
			Pink® Batts Wall R1.5	Polyester Wall R1.5	
70	232 approx	0.50 plus insulation R value	55 (**51**)	55 (**51**)	Report Insul

* R-value does not include thermal bridging pathway. Insulation shown is the minimum required to meet the acoustic rating. Refer to Chapter 2 for more information.

General Requirements

	Non-fire Rated	Fire Rated
Install control joints in plasterboard walls: > At 12m maximum intervals > At all control joints in the structure > At any change in the substrate	✓	✓
Jointing of **multi**shield is not required due to the overlying breathable wall wrap and cladding.		✓
Joint the face layer on the internal side. As a minimum, use paper tape with any Siniat jointing compound applied in one or two coats to the thickness of two coats. Alternatively, use **bindex** fire and acoustic sealant according to the Product Data Sheet.		✓
Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance.		✓
Protect plasterboard sheets from the weather when installed on the exterior side of external wall framing until the moisture barrier and exterior cladding are installed.	✓	✓
Protect plasterboard from water pooling at ground level.	✓	✓
Use **bindex** fire and acoustic sealant on all gaps and around perimeter. Vermiculite plaster is not permitted.		✓
Attach all fixtures to studs or purpose installed noggings. Wall anchors must not be fixed only to the plasterboard of fire rated walls.		✓

> For acceptable modifications or variations to fire rated systems, refer to Section 2.3 Fire Resistance.
> Penetrations in external walls of Class 1 buildings do not need to have an FRL, refer to NCC Volume Two, Clause 3.7.1.5
> Insulation products nominated in system tables are the minimum required to meet the acoustic rating. Insulation with higher R-value may be required to meet the desired system R-value.

Framing

	Non-fire Rated	Fire Rated
Framing members as per structural design up to 600mm maximum.	✓	✓
Use minimum 70x45mm or 90x35mm timber studs for load bearing walls.		✓

> Plumbing and electrical services must not protrude beyond the face of the studs.
> Noggings are permitted to assist the fixing of services.
> For non-fire rated walls, noggings are not required behind recessed joints when sheeting plasterboard horizontally.

Plasterboard Layout

	Non-fire Rated	Fire Rated
Vertical joints must be 200mm minimum from the edge of any opening such as windows and doorways to minimise cracking at the joints.	✓	✓
Horizontal Layout		
Stagger butt joints in single layer systems by 300mm minimum on adjoining sheets and on opposite sides of the wall.	✓	✓
Stagger butt joints in multilayer systems by 300mm minimum on adjoining sheets and between layers.	✓	✓
First layer butt joints must be backed by a stud or back-blocked.	✓	✓
Stagger recessed edges by 300mm minimum between layers.	✓	✓
Stagger recessed edges in single layer systems by 300mm minimum on opposite sides of the wall or alternatively, back by a nogging.		✓
Vertical Layout		
Stagger butt joints in single layer systems by 300mm minimum on adjoining sheets and on opposite sides of the wall.	✓	✓
Stagger butt joints by 300mm minimum on adjoining sheets and between layers.	✓	✓
First layer butt joints must be backed by a nogging or back-blocked.	✓	
First layer butt joints must be backed by a nogging.		✓
Stagger recessed edges by 300mm minimum between layers.	✓	✓
Stagger recessed edges by 300mm minimum on opposite sides of the wall for single layer systems	✓	✓

> Install plasterboard sheets horizontally when practical reduce the effect of glancing light.

> Minimise butt joints by using long sheets.

Plasterboard Fixing

	Non-fire Rated	Fire Rated
Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch.	✓	✓
Laminating screws can be used to fix butt joints in the second and third layer.	✓	✓
Fastener and Adhesive Method		
Apply mastagrip Stud Adhesive after the frame is clean, dry, and free from grease, dust and other contaminants.	✓	
Apply mastagrip daubs 200mm minimum from screws and plasterboard edges.	✓	
Fastener Only Method		
Use the 'Screw Only Method' in fire rated areas. Stud adhesive is not permitted.	✓	✓

The 'Fastener and Adhesive Method' is recommended for non-fire rated applications. mastagrip will:

- Minimise screw popping
- Reduce the number of screw heads that may show in glancing light
- Assist in compensating for frame irregularities
- Reduce rattle noise when applied to bracing straps.

Fastener Type and Minimum Size for the Installation of Plasterboard to Softwood Timber

Plasterboard Thickness	1st Layer	2nd Layer	3rd Layer
6.5mm	2.8 x 30mm galvanised nail or 2.8 x 25mm ring shank nail or 6g x 25mm screw	2.8 x 40mm galvanised nail or 2.8 x 30mm ring shank nail or 6g x 32mm screw	-
10mm	2.8 x 40mm galvanised nail or 2.8 x 30mm ring shank nail or 6g x 32mm screw	2.8 x 50mm galvanised nail or 6g x 41mm screw *	-
13mm	2.8 x 40mm galvanised nail or 2.8 x 30mm ring shank nail or 6g x 41mm screw	2.8 x 50mm galvanised nail or 7g x 50mm screw *	3.75 x 75mm galvanised nail or 8g x 65mm screw *
16mm	2.8 x 50mm galvanised nail or 7g x 45mm screw	3.15 x 65mm galvanised nail or 8g x 60mm screw *	3.75 x 75mm galvanised nail or 8g x 75mm screw *

*10g x 38mm Laminating screws may be used as detailed in installation diagrams.

Screw Type and Minimum Size for the Installation of Plasterboard to Steel

Plasterboard Thickness	1st Layer	2nd Layer	3rd Layer
10mm	6g x 25mm screw	6g x 41mm screw *	-
13mm	6g x 25mm screw	6g x 41mm screw *	7g x 57mm screw *
16mm	6g x 32mm screw	6g x 45mm screw *	8g x 65mm screw *

For steel ≤ 0.75mm BMT, use fine thread needle point screws.

For steel ≥ 0.75mm BMT, use fine thread drill point screws.

*10g x 38mm Laminating screws may be used as detailed in installation diagrams.

Exterior Cladding

	Fire Rated
The following cladding sheets or planks are not considered detrimental to the FRL of the wall: > PERMAROCK Outdoor > James Hardie™ fibre cement sheeting > Wood or timber > Steel > Aluminium > PVC > Rendered Polystyrene > Cladding fixed and supported independently of the wall For class 2 to 9 buildings, also refer to NCC Volume One Section C, CP2 Spread of fire requirements.	✓
Fix cladding or cladding battens to the timber frame through the **multi**shield.	✓
Extend the external fire rated wall up to the non-combustible roof covering or non-combustible eaves lining. Refer to Construction Details.	✓

> Protect plasterboard sheets from the weather when installed on the exterior side of external wall framing until the moisture barrier and exterior cladding are installed.

> Exterior cladding and the moisture barrier once installed, must provide protection from the weather.

> Use construction techniques that direct condensation and rain away from plasterboard.

> Siniat recommends a drained cavity between the external cladding and the **multi**shield for weathertightness and durability.

> Battens between external cladding and external plasterboard do not change the FRL of the system.

FIGURE 1 Fire Rated 1 Layer - Horizontal
Fastener Only Method

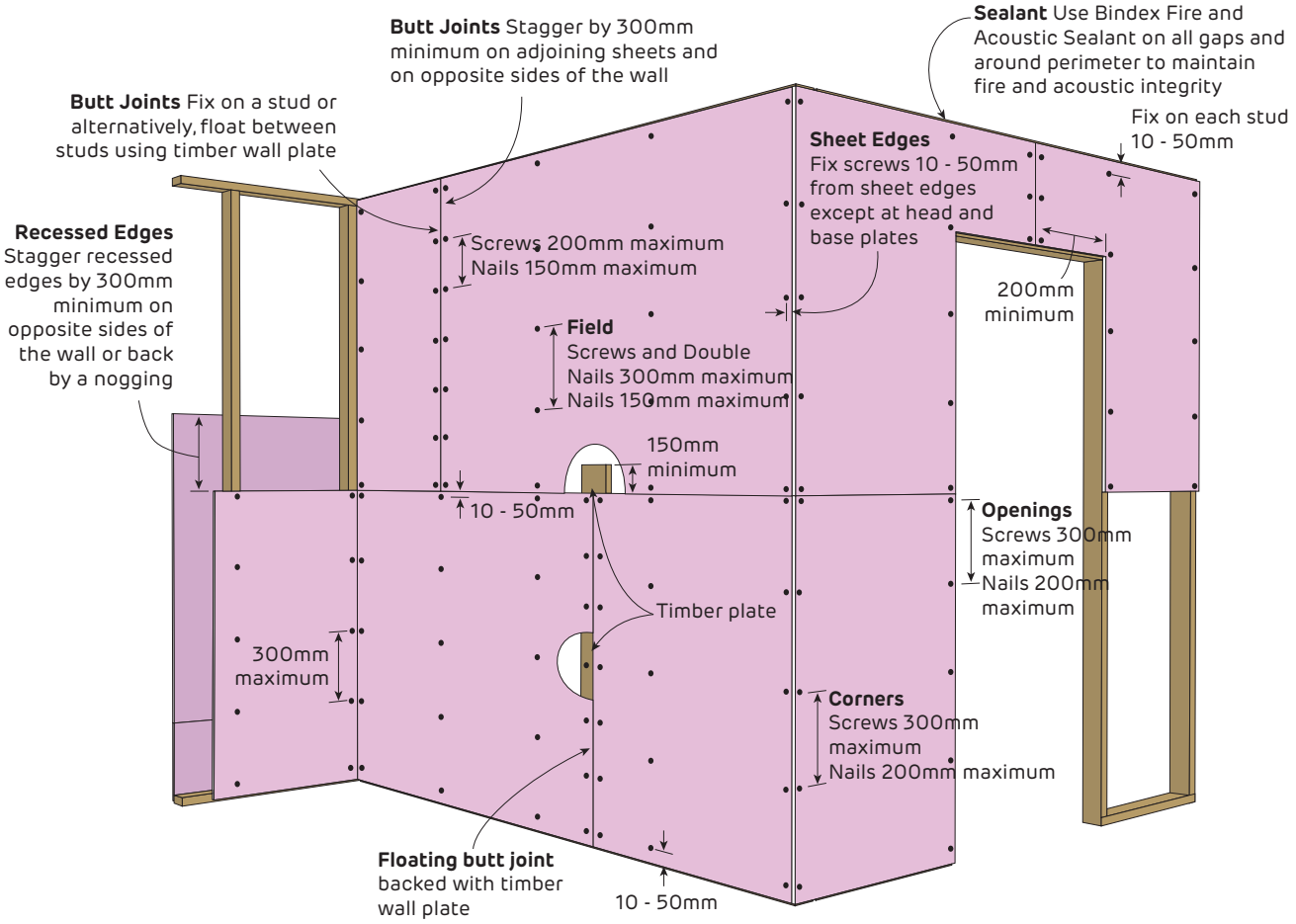


FIGURE 2 Fire Rated 2 Layers - Horizontal + Horizontal
Screw Only Method

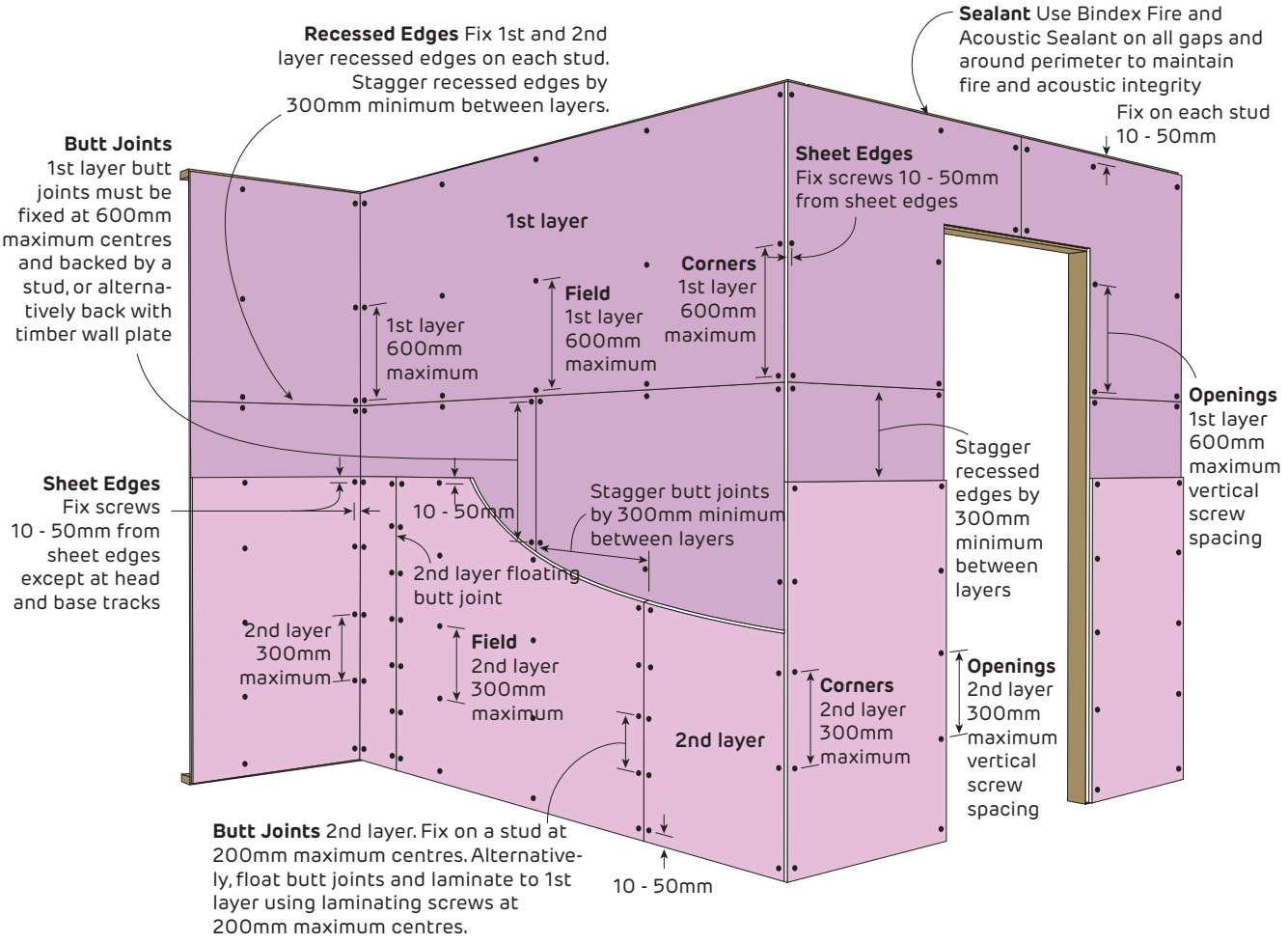
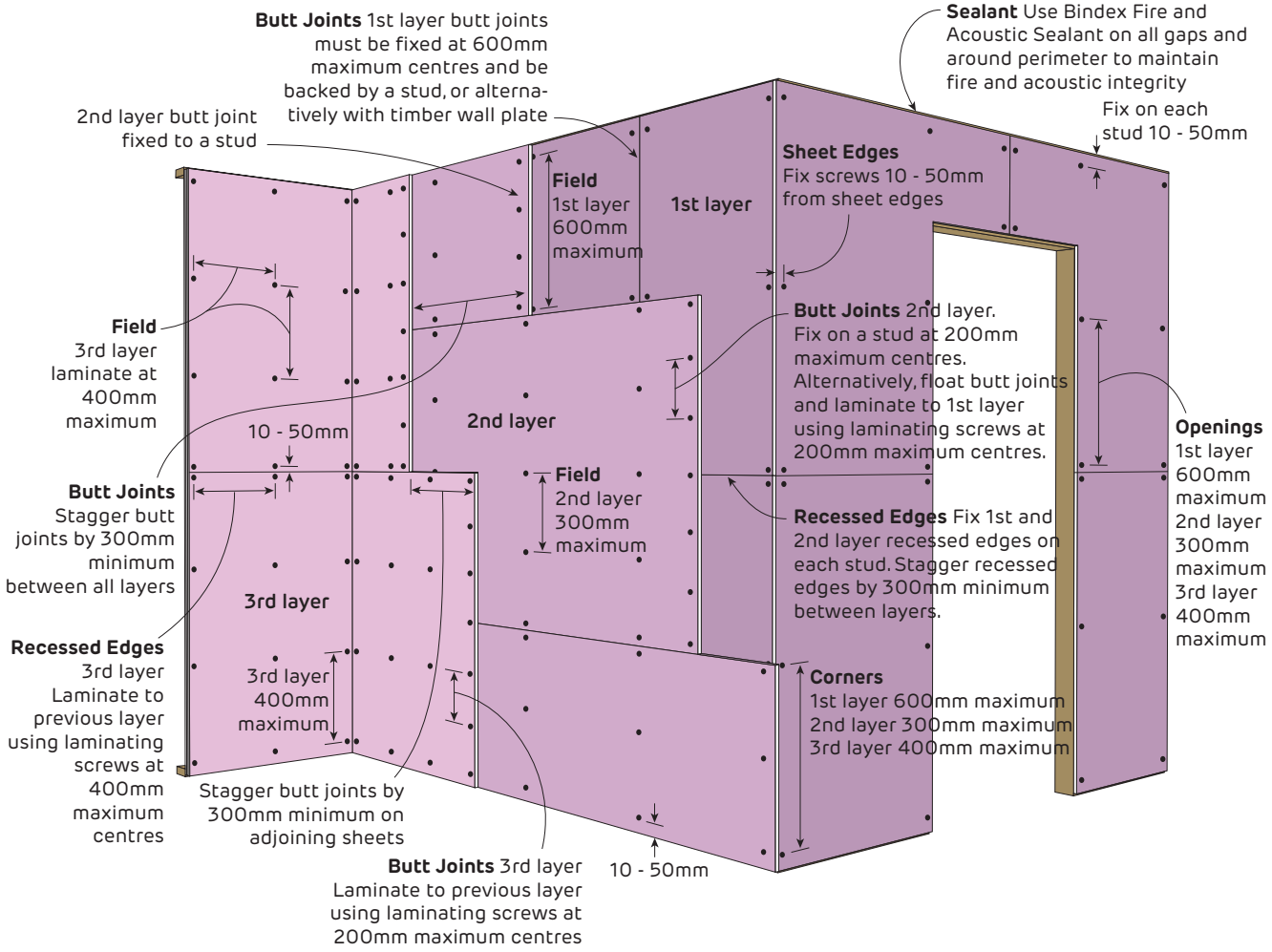


FIGURE 3 Fire Rated 3 Layers - Horizontal + Horizontal + Horizontal
Screw Only Method



Fire Rated

Typical Details for External Timber Stud Walls

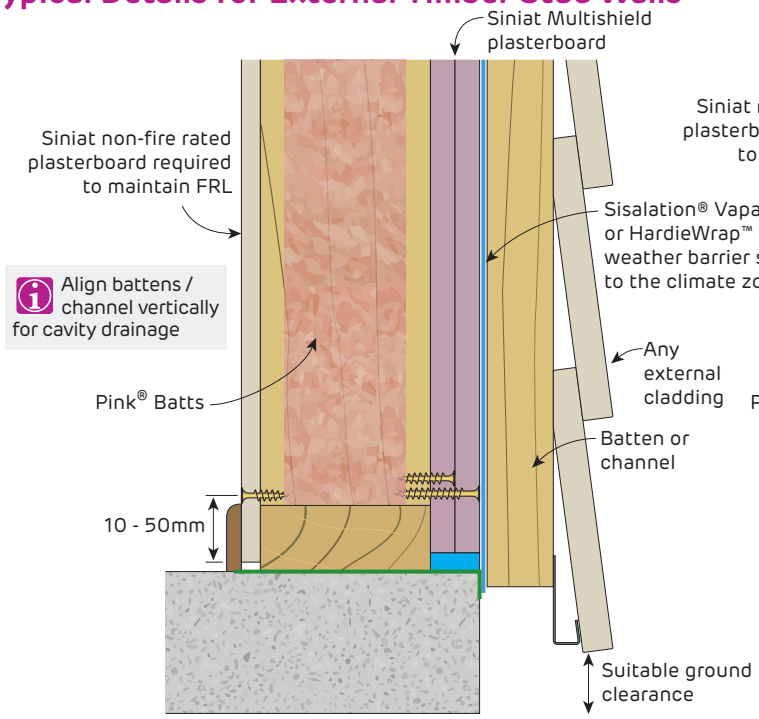


FIGURE 4 External Timber Stud Wall Base
With any external cladding over battens
Section

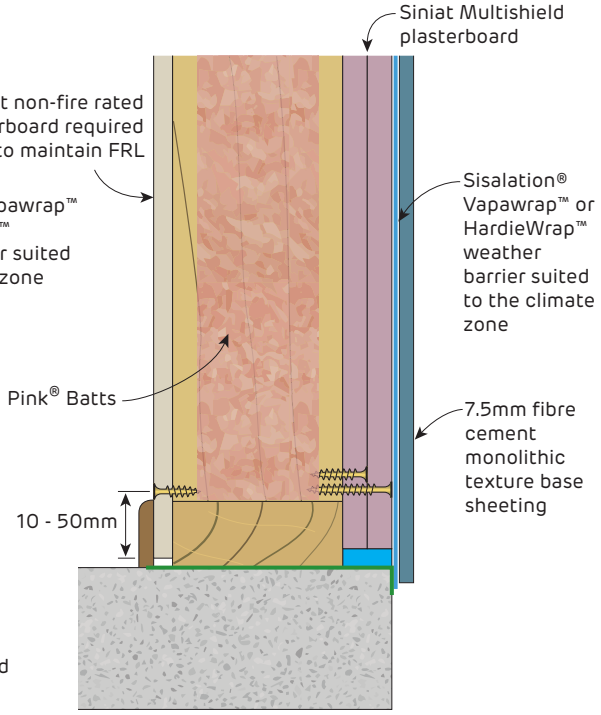


FIGURE 5 External Timber Stud Wall Base
With texture base fibre cement sheet
Section

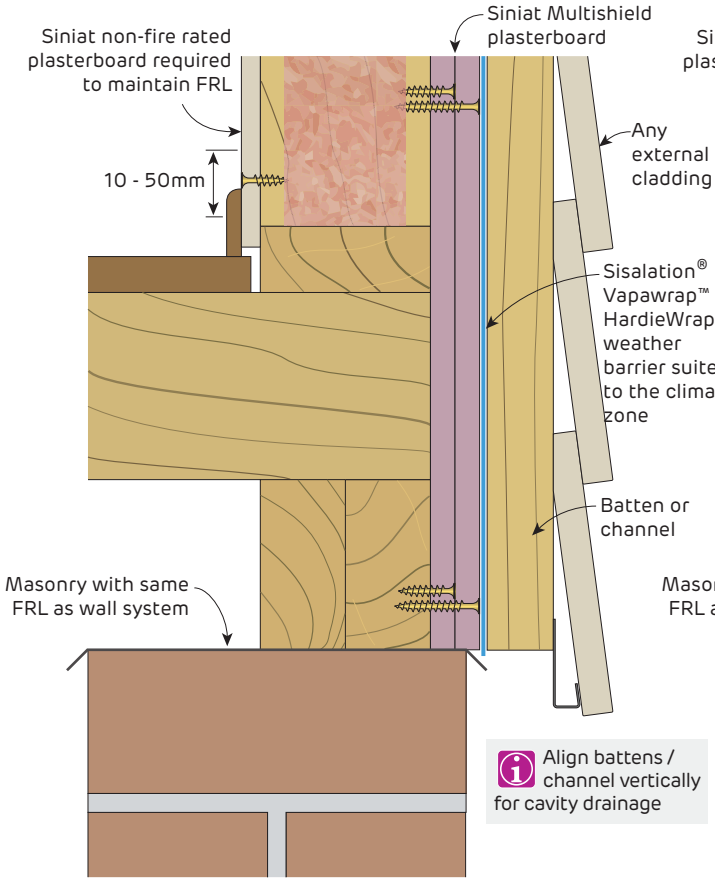


FIGURE 6 External Timber Wall Base with Sub-floor
With any external cladding over battens
For TSW491, TSW492, TSW494 and TSW495 only
Section

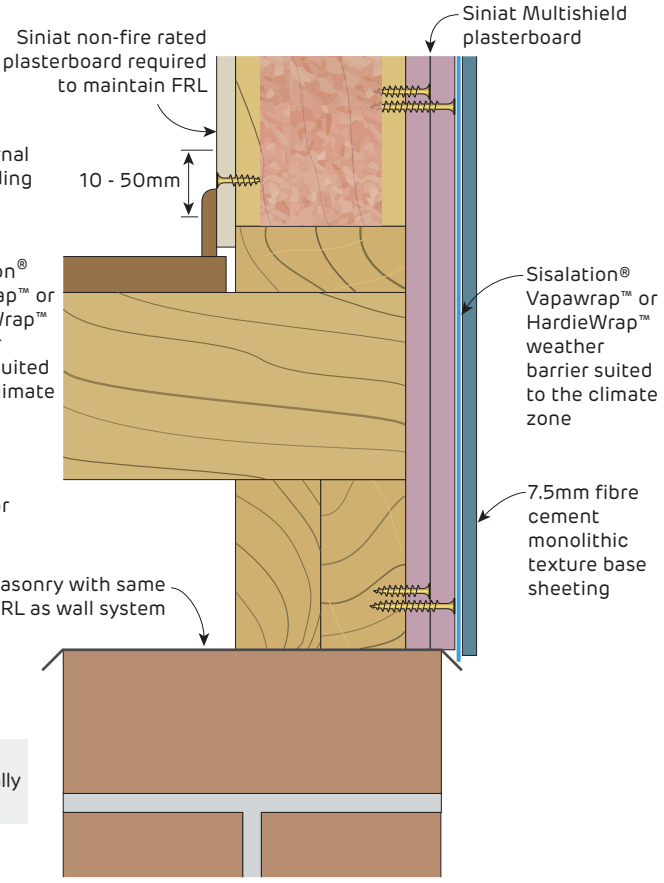


FIGURE 7 External Timber Wall Base with Sub-floor
With texture base fibre cement sheet
For TSW491, TSW492, TSW494 and TSW495 only
Section

Fire Rated

Typical Details for External Timber Stud Walls

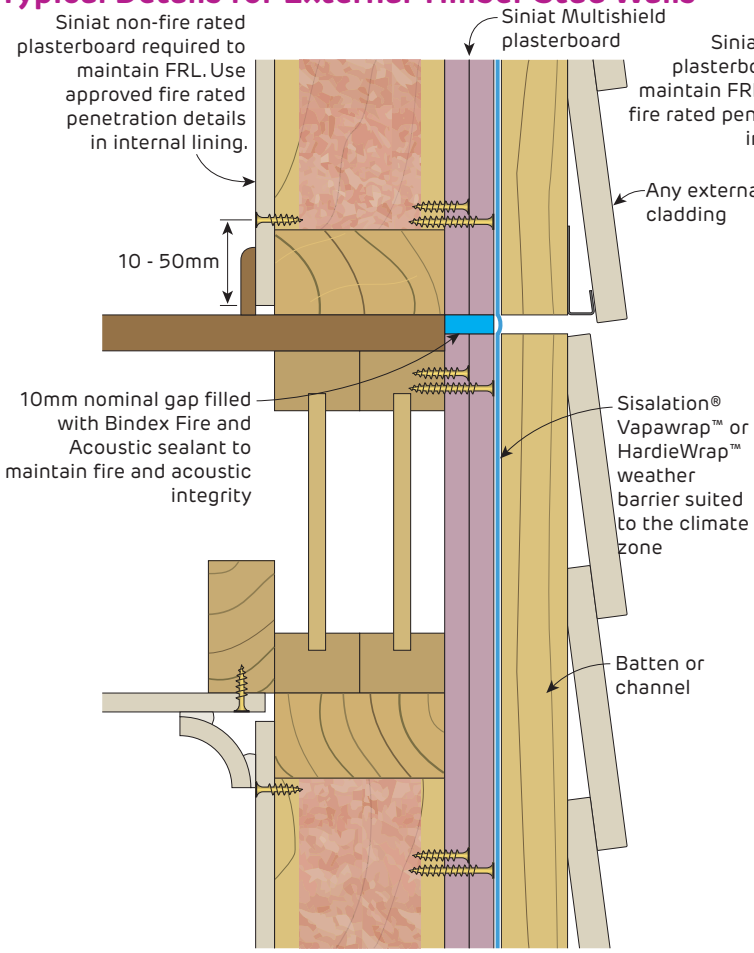


FIGURE 8 External Timber Wall with Suspended Floor
For TSW491, TSW492, TSW494 and TSW495 only
With any external cladding over battens
Section

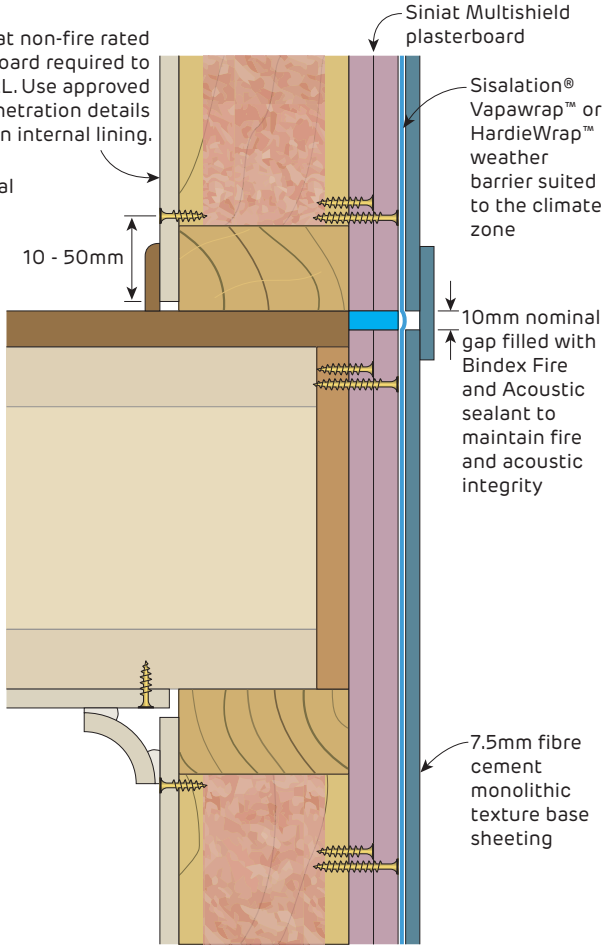


FIGURE 9 External Timber Wall with Suspended Floor
For TSW491, TSW492, TSW494 and TSW495 only
With texture base fibre cement sheet
Section

Fire Rated

Typical Details for External Timber Stud Walls

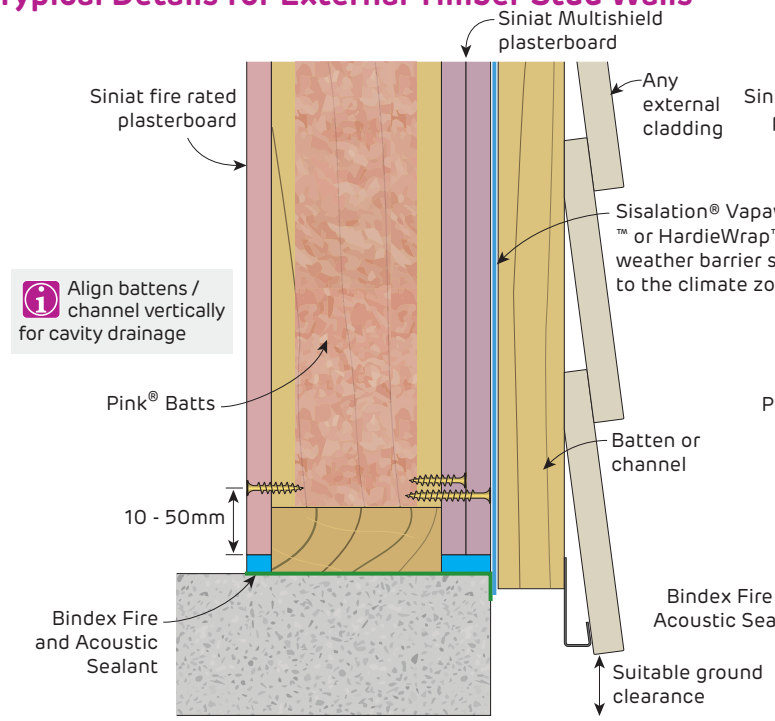


FIGURE 10 External Timber Stud Wall Base
With any external cladding over battens
Section

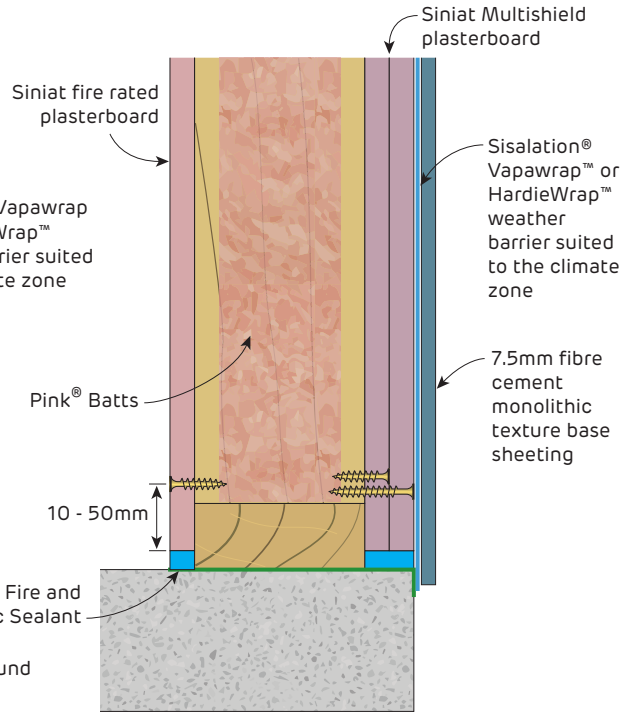


FIGURE 11 External Timber Stud Wall Base
With texture base fibre cement sheet
Section

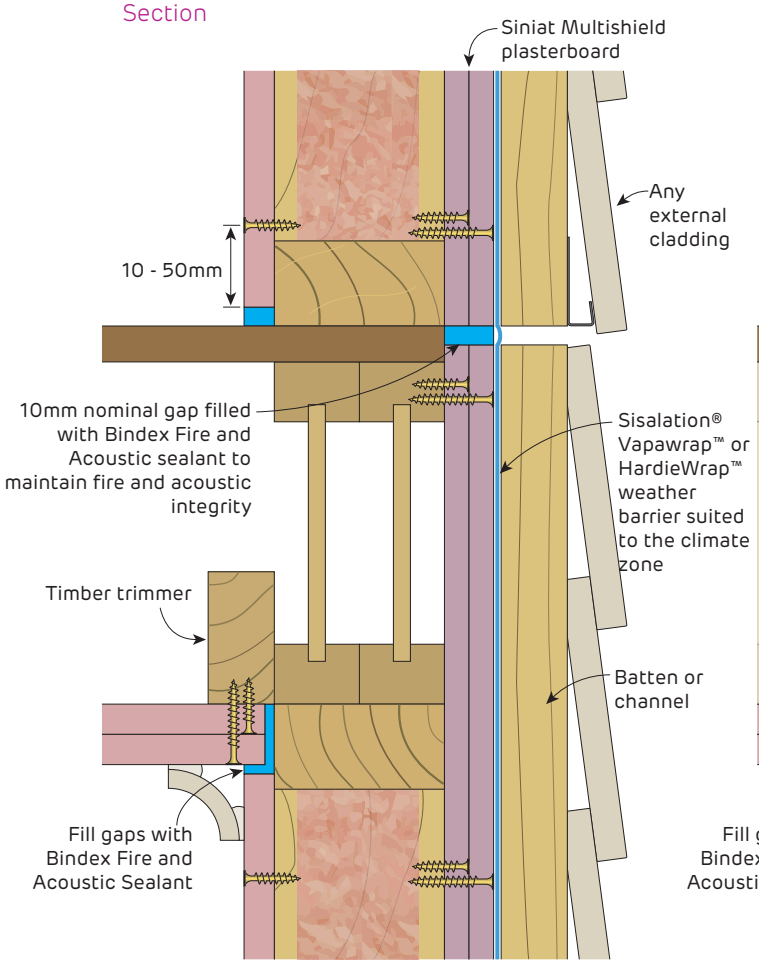


FIGURE 12 External Timber Wall with Suspended Floor
With any external cladding over battens
Section

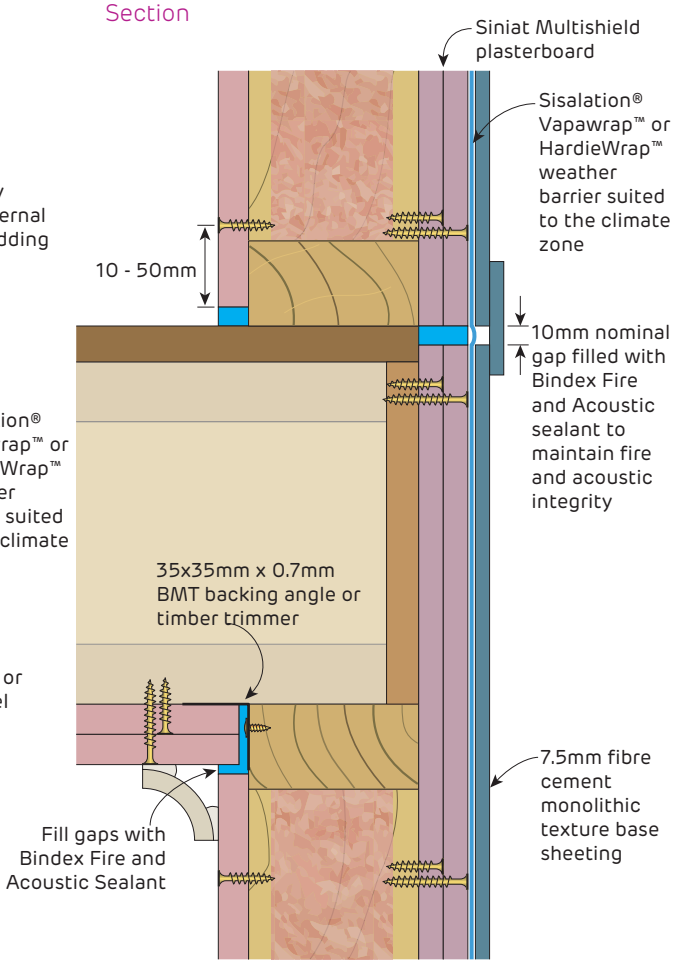


FIGURE 13 External Timber Wall with Suspended Floor
With texture base fibre cement sheet
Section

Fire Rated
Typical Details for External Timber Stud Walls

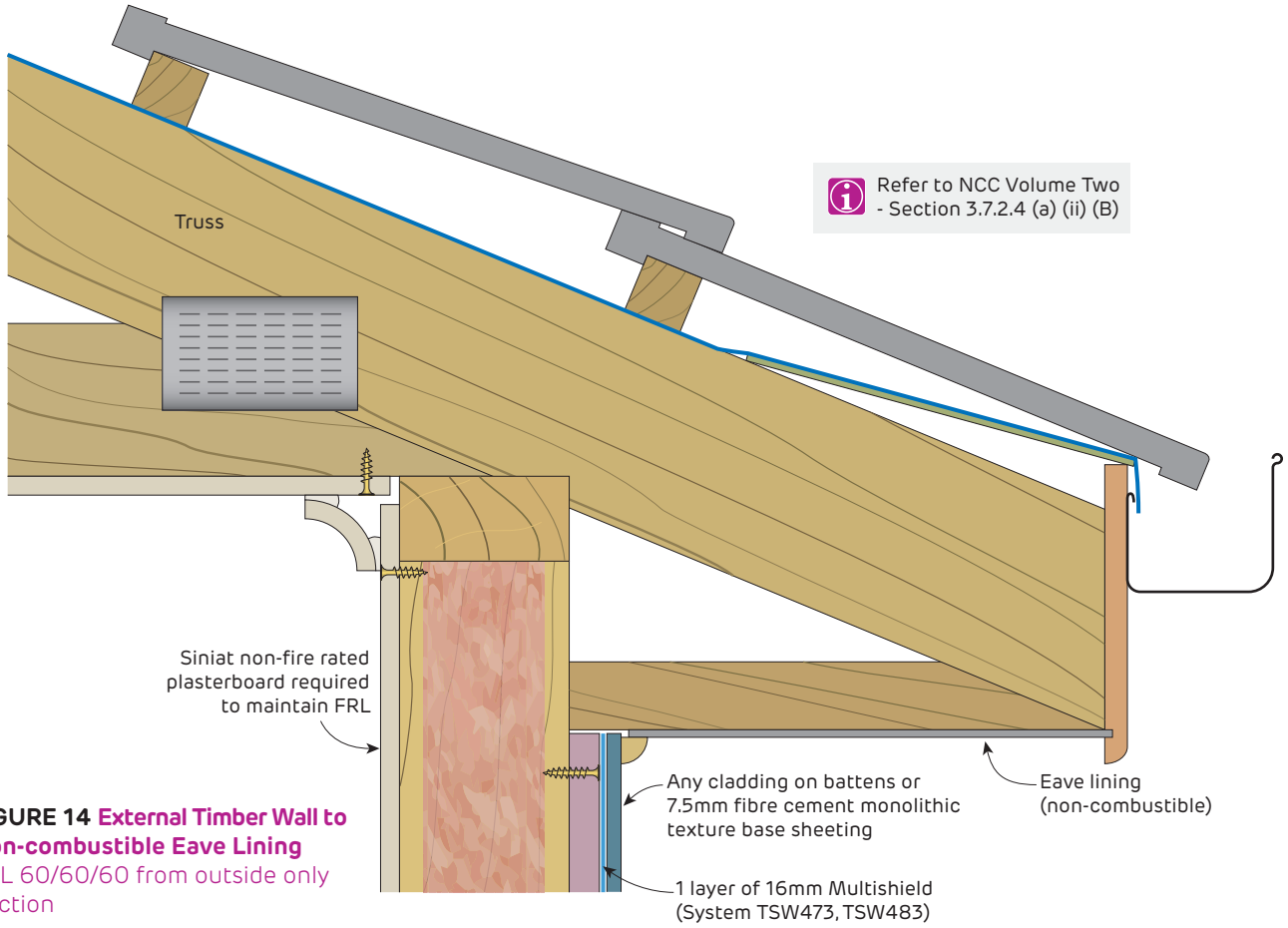


FIGURE 14 External Timber Wall to Non-combustible Eave Lining
FRL 60/60/60 from outside only
Section

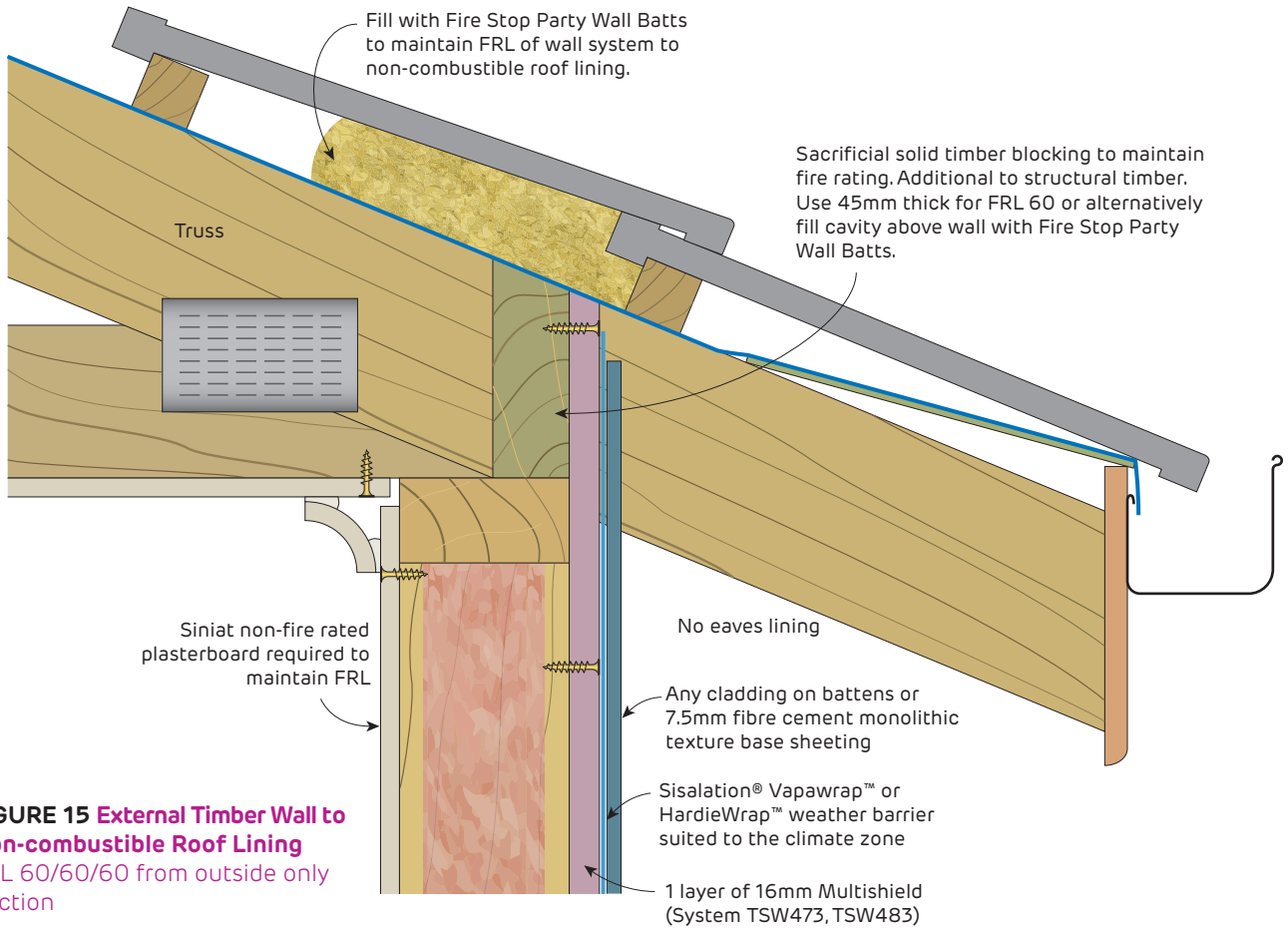


FIGURE 15 External Timber Wall to Non-combustible Roof Lining
FRL 60/60/60 from outside only
Section

Fire Rated
Typical Details for External Timber Stud Walls

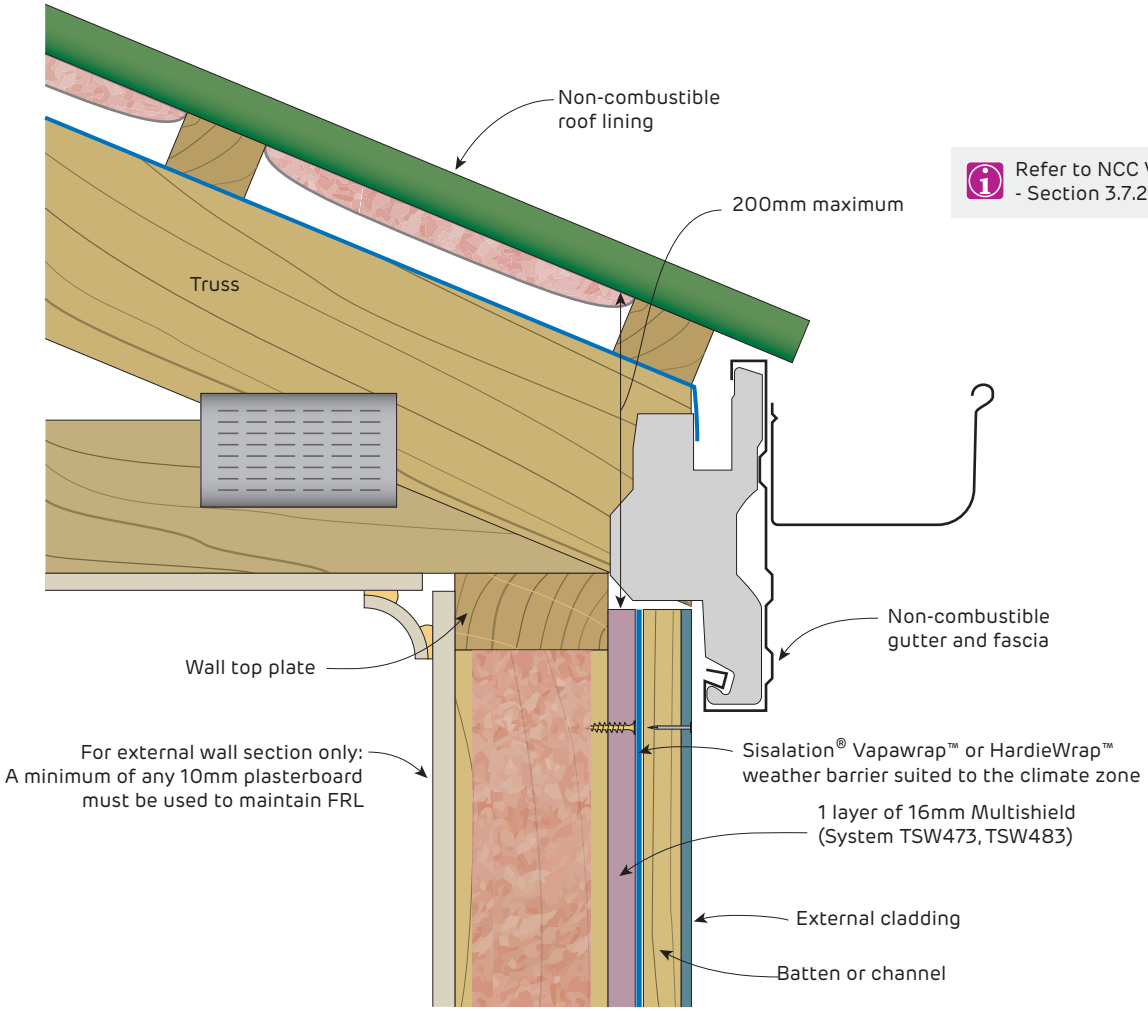


FIGURE 16 NCC Acceptable Construction Practice
FRL 60/60/60 from outside only
Section

Fire Rated
Typical Details for External Timber Stud Walls

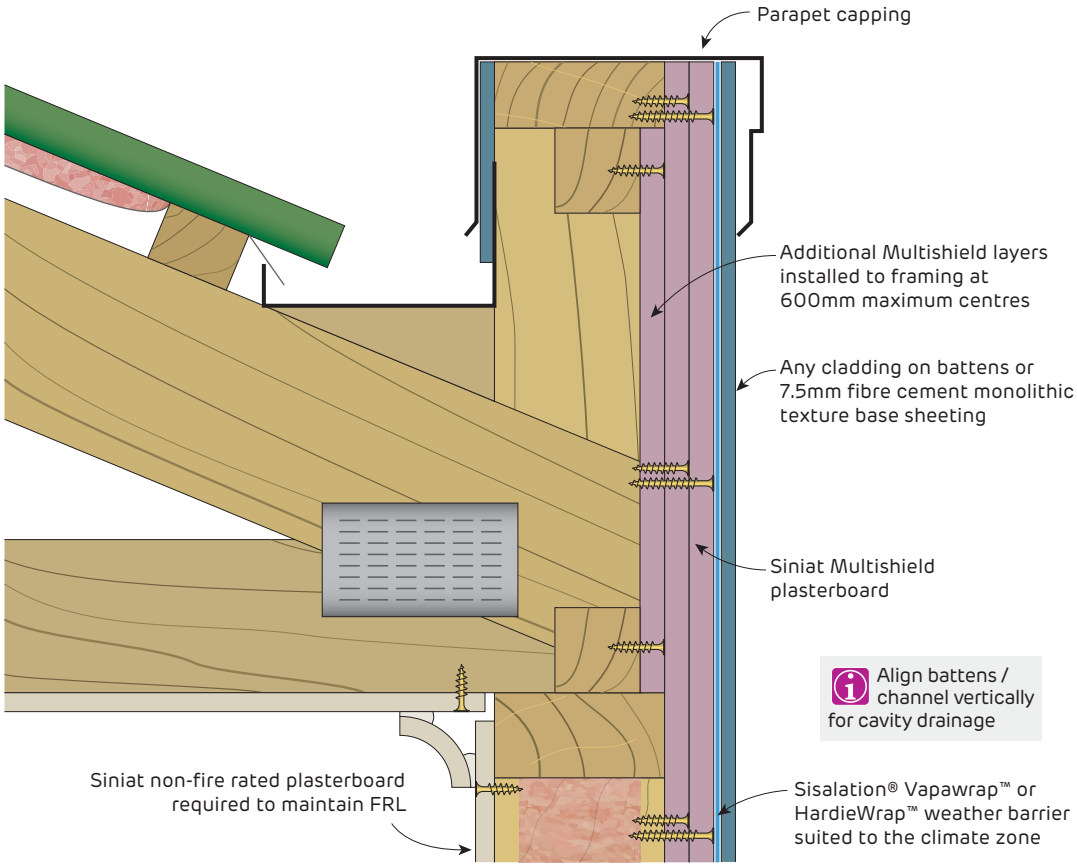


FIGURE 17 External Timber Wall to Non-combustible Roof Lining
Section

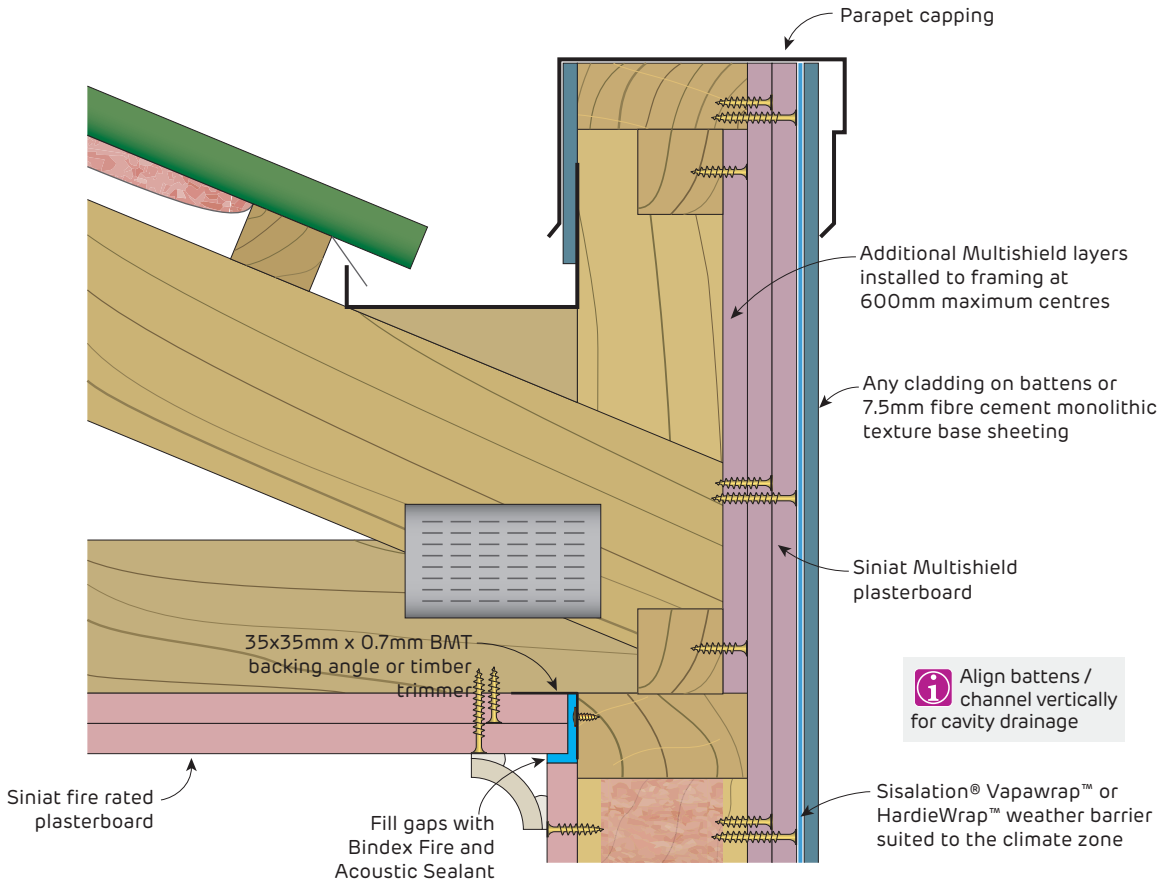


FIGURE 18 External Timber Wall to Non-combustible Roof Lining
Section

Fire Rated

Typical Details for External Timber Stud Walls

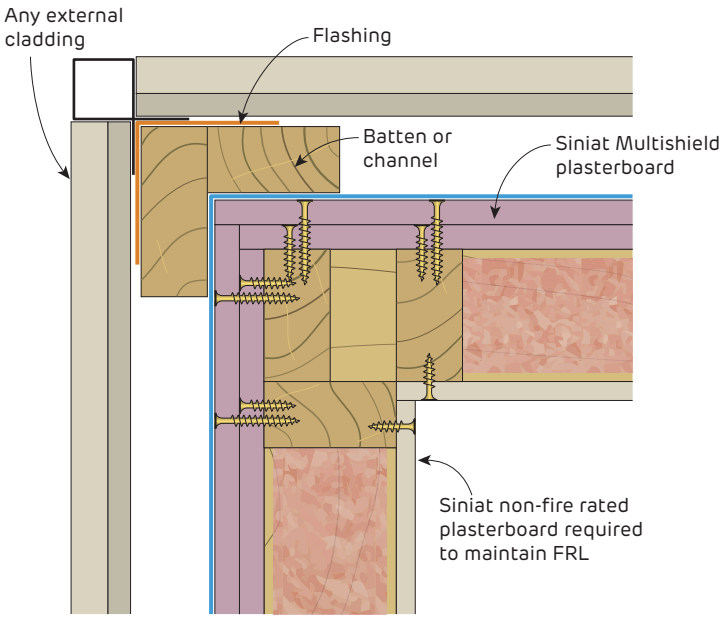


FIGURE 19 External Corner
Section

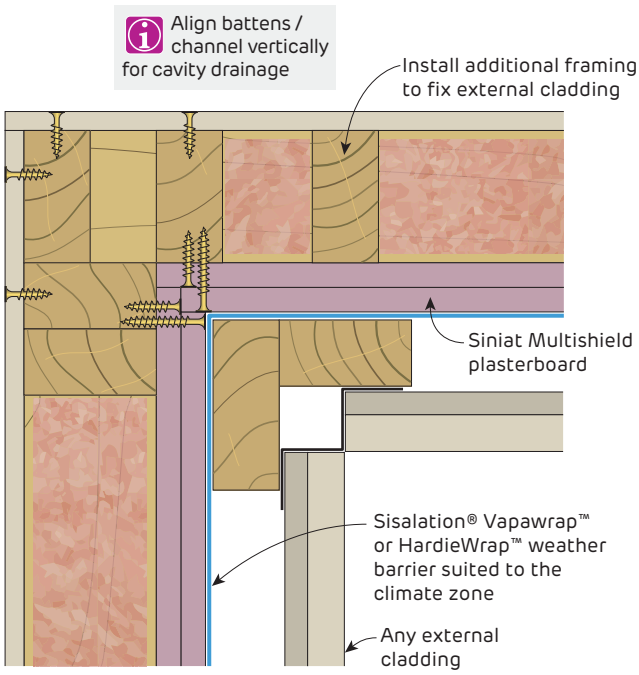


FIGURE 20 Internal Corner
Section

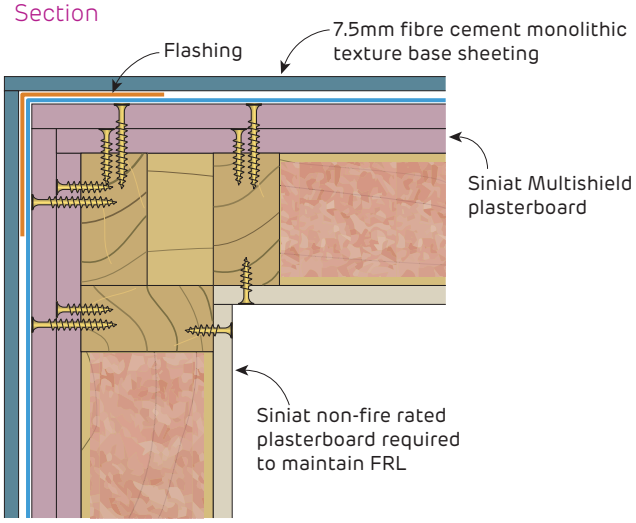


FIGURE 21 External Corner
Section

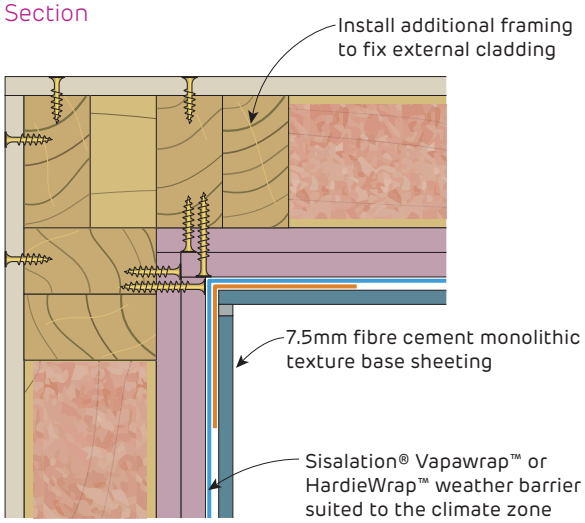


FIGURE 22 Internal Corner
Section

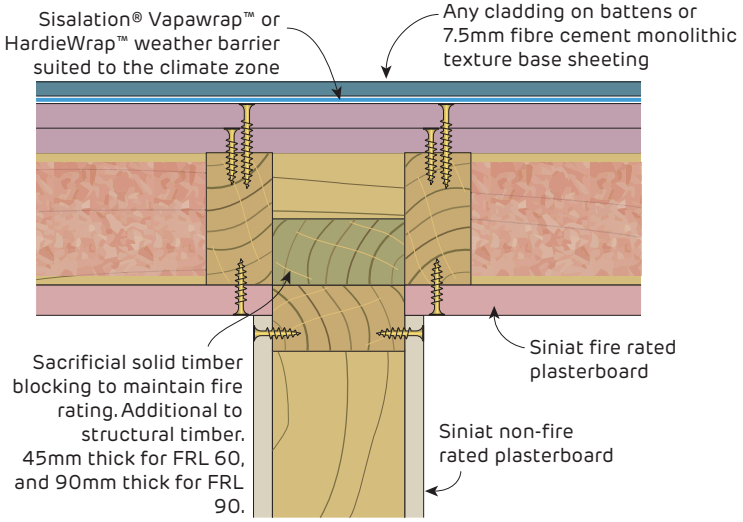


FIGURE 23 Intersecting Wall
Plan

Fire Rated
Typical Details for External Timber Stud Walls

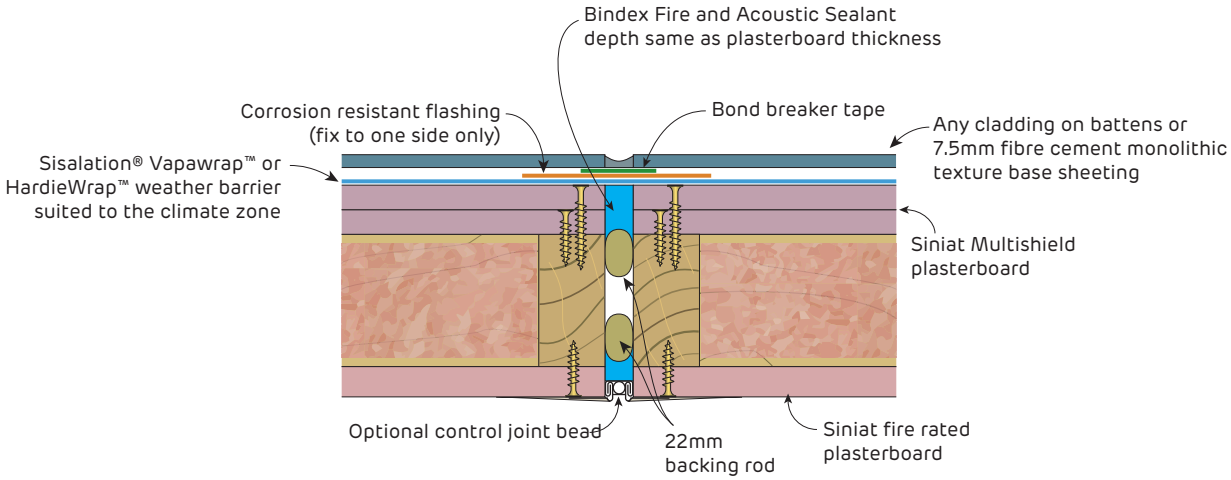


FIGURE 24 Control Joint
Plan