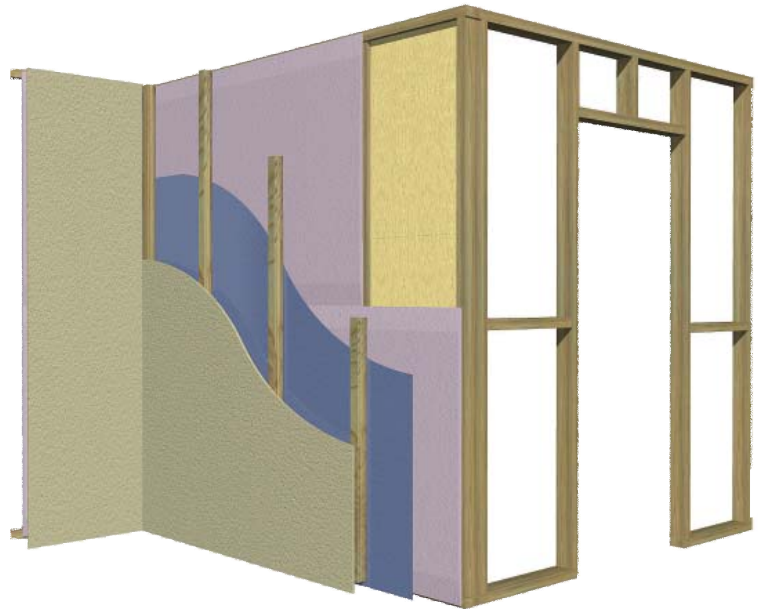


3.2.2

External Timber Walls

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INTRODUCTION

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 fire rated from the outside only.

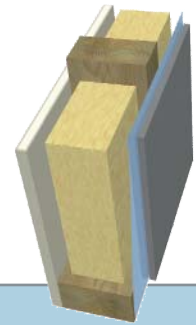
MultiShield forms part of the outer wall and are covered by a moisture barrier and external cladding which provide the weather protection.

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

NON-FIRE RATED

KTW73

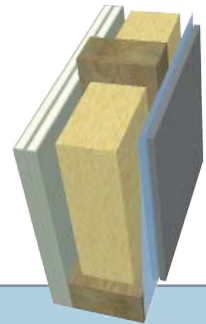
- EXTERNAL WALL CLADDING:** 1 layer of minimum 6mm fibre cement
MOISTURE BARRIER: Breathable wall wrap
FRAME: Minimum 70mm timber studs at maximum 600mm centres
WALL INSULATION: As specified in table below
INTERNAL WALL LINING: 1 layer of 10mm **MastaShield**
 [10mm **MastaShield** can be substituted with 10mm **WaterShield** or 10mm **SoundShield**]



FRL - / - / -	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Marshall Day
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	87mm approximate	39 (30)	-	39 (30)	
	90	107mm approximate	40 (31)	40 (31)	40 (31)	

KTW274

- EXTERNAL WALL CLADDING:** 1 layer of minimum 6mm fibre cement
MOISTURE BARRIER: Breathable wall wrap
FRAME: Minimum 70mm timber studs at maximum 600mm centres
WALL INSULATION: As specified in table below
INTERNAL WALL LINING: 2 layers of 10mm **SoundShield**

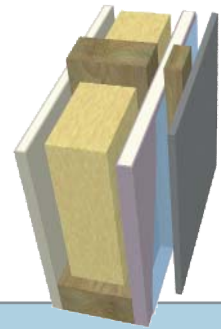


FRL - / - / -	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Day Design 3094-43
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	97mm approximate	44 (35)	-	44 (35)	
	90	117mm approximate	44 (37)	45 (38)	44 (37)	



KTW470

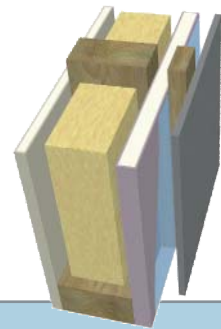
- EXTERNAL WALL CLADDING:** Any cladding
 - EXTERNAL CLADDING FRAME:** Timber or steel battens
 - MOISTURE BARRIER:** Breathable wall wrap
 - EXTERNAL WALL LINING:** 1 layer of 13mm **MultiShield**
 - FRAME:** Minimum 70mm timber studs at maximum 600mm centres
 - WALL INSULATION:** As specified in table below
 - INTERNAL WALL LINING:** 1 layer of 10mm **MastaShield**
- [10mm **MastaShield** can be substituted with 10mm **WaterShield** or 10mm **SoundShield**]
 [Use approved fire rated penetration details in the non-fire rated internal lining to maintain FRL]



FRL 30/30/30 rated from the outside only Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Marshall Day
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	94mm + external cladding	39 (31)	–	39 (31)	
90	114mm + external cladding	39 (32)	40 (32)	39 (31)		

KTW473

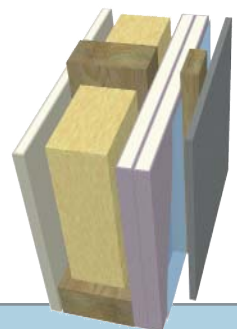
- EXTERNAL WALL CLADDING:** Any cladding
 - EXTERNAL CLADDING FRAME:** Timber or steel battens
 - MOISTURE BARRIER:** Breathable wall wrap
 - EXTERNAL WALL LINING:** 1 layer of 16mm **MultiShield**
 - FRAME:** Minimum 70mm timber studs at maximum 600mm centres
 - WALL INSULATION:** As specified in table below
 - INTERNAL WALL LINING:** 1 layer of 10mm **MastaShield**
- [10mm **MastaShield** can be substituted with 10mm **WaterShield** or 10mm **SoundShield**]
 [Use approved fire rated penetration details in the non-fire rated internal lining to maintain FRL]



FRL 60/60/60 rated from the outside only Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Marshall Day
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	97mm + external cladding	39 (31)	–	39 (37)	
90	117mm + external cladding	39 (32)	40 (33)	39 (32)		

KTW471

- EXTERNAL WALL CLADDING:** Any cladding
 - EXTERNAL CLADDING FRAME:** Timber or steel battens
 - MOISTURE BARRIER:** Breathable wall wrap
 - EXTERNAL WALL LINING:** 2 layers of 13mm **MultiShield**
 - FRAME:** Minimum 70mm timber studs at maximum 600mm centres
 - WALL INSULATION:** As specified in table below
 - INTERNAL WALL LINING:** 1 layer of 10mm **MastaShield**
- [10mm **MastaShield** can be substituted with 10mm **WaterShield** or 10mm **SoundShield**]
 [Use approved fire rated penetration details in the non-fire rated internal lining to maintain FRL]

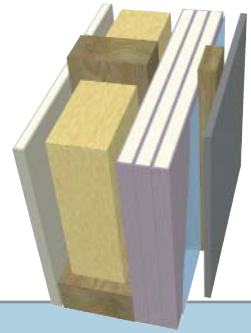


FRL 90/90/90 rated from the outside only Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Marshall Day
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	107mm + external cladding	44 (36)	–	44 (36)	
90	127mm + external cladding	45 (37)	45 (38)	45 (37)		



KTW472

- EXTERNAL WALL CLADDING:** Any cladding
EXTERNAL CLADDING FRAME: Timber or steel battens
MOISTURE BARRIER: Breathable wall wrap
EXTERNAL WALL LINING: 3 layers of 13mm **MultiShield**
FRAME: Minimum 70mm timber studs at maximum 600mm centres
WALL INSULATION: As specified in table below
INTERNAL WALL LINING: 1 layer of 10mm **MastaShield**
 [10mm **MastaShield** can be substituted with 10mm **WaterShield** or 10mm **SoundShield**]
 [Use approved fire rated penetration details in the non-fire rated internal lining to maintain FRL]



FRL 120/120/120 rated from the outside only Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Marshall Day
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	120mm + external cladding	47 (38)	–	47 (38)	
	90	140mm + external cladding	48 (40)	48 (41)	48 (40)	

KTW491

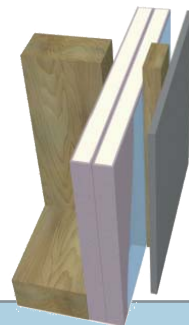
- EXTERNAL WALL CLADDING:** Any cladding
EXTERNAL CLADDING FRAME: Timber or steel battens
MOISTURE BARRIER: Breathable wall wrap
EXTERNAL WALL LINING: 2 layers of 13mm **MultiShield**
FRAME: Minimum 70mm timber studs at maximum 600mm centres
WALL INSULATION: Optional
INTERNAL WALL LINING: Optional



FRL 30/30/30 rated from the outside only Fire Report FAR 3348	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Day Design 3094-45
	Stud Depth		No Insulation	R1.5 EarthWool	R1.5 Polyester	
	70	97mm + external cladding	34 (31)	34 (31)	34 (31)	
	90	117mm + external cladding	34 (31)	34 (31)	34 (31)	

KTW494

- EXTERNAL WALL CLADDING:** Any cladding
EXTERNAL CLADDING FRAME: Timber or steel battens
MOISTURE BARRIER: Breathable wall wrap
EXTERNAL WALL LINING: 2 layers of 16mm **MultiShield**
FRAME: Minimum 70mm timber studs at maximum 600mm centres
WALL INSULATION: Optional
INTERNAL WALL LINING: Optional



FRL 60/60/60 rated from the outside only Fire Report FAR 3348	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Day Design 3094-45
	Stud Depth		No Insulation	R1.5 EarthWool	R1.5 Polyester	
	70	103mm + external cladding	35 (32)	35 (32)	35 (32)	
	90	123mm + external cladding	35 (32)	35 (32)	35 (32)	



KTW492

EXTERNAL WALL CLADDING: Any cladding
EXTERNAL CLADDING FRAME: Timber or steel battens
MOISTURE BARRIER: Breathable wall wrap
EXTERNAL WALL LINING: 3 layers of 13mm **MultiShield**
FRAME: Minimum 70mm timber studs at maximum 600mm centres
WALL INSULATION: Optional
INTERNAL WALL LINING: Optional



FRL 90/90/90 rated from the outside only Fire Report FAR 3348	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Day Design 3094-45
	Stud Depth		No Insulation	R1.5 EarthWool	R1.5 Polyester	
	70	110mm + external cladding	37 (35)	37 (35)	37 (35)	
90	130mm + external cladding	37 (35)	37 (35)	37 (35)		

KTW495

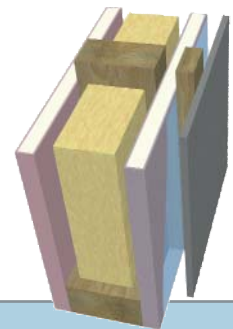
EXTERNAL WALL CLADDING: Any cladding
EXTERNAL CLADDING FRAME: Timber or steel battens
MOISTURE BARRIER: Breathable wall wrap
EXTERNAL WALL LINING: 3 layers of 16mm **MultiShield**
FRAME: Minimum 70mm timber studs at maximum 600mm centres
WALL INSULATION: Optional
INTERNAL WALL LINING: Optional



FRL 120/120/120 rated from the outside only Fire Report FAR 3348	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Day Design 3094-45
	Stud Depth		No Insulation	R1.5 EarthWool	R1.5 Polyester	
	70	119mm + external cladding	38 (36)	38 (36)	38 (36)	
90	139mm + external cladding	38 (36)	38 (36)	38 (36)		

KTW476

EXTERNAL WALL CLADDING: Any cladding
EXTERNAL CLADDING FRAME: Timber or steel battens
MOISTURE BARRIER: Breathable wall wrap
EXTERNAL WALL LINING: 1 layer of 16mm **MultiShield**
FRAME: Minimum 70mm timber studs at maximum 600mm centres
WALL INSULATION: As specified in table below
INTERNAL WALL LINING: 1 layer of 16mm **FireShield** or 16mm **MultiShield**

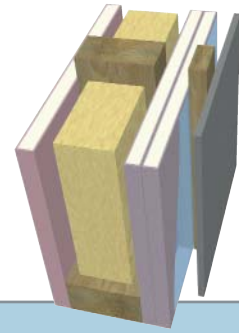


FRL 60/60/60 rated from both sides Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Day Design 3094-45
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	103mm + external cladding	41 (33)	41 (33)	-	
90	123mm + external cladding	42 (34)	42 (34)	42 (36)	42 (34)	



KTW477

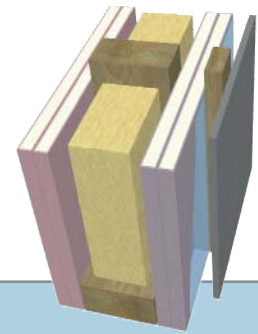
- EXTERNAL WALL CLADDING:** Any cladding
- EXTERNAL CLADDING FRAME:** Timber or steel battens
- MOISTURE BARRIER:** Breathable wall wrap
- EXTERNAL WALL LINING:** 2 layers of 13mm **MultiShield**
- FRAME:** Minimum 70mm timber studs at maximum 600mm centres
- WALL INSULATION:** As specified in table below
- INTERNAL WALL LINING:** 1 layer of 16mm **FireShield** or 16mm **MultiShield**



FRL 90/90/90 rated from the outside 60/60/60 rated from the inside Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Day Design 3094-45
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	113mm + external cladding	44 (37)	–	44 (37)	
	90	133mm + external cladding	44 (38)	45 (39)	44 (38)	

KTW478

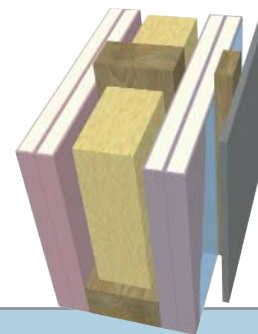
- EXTERNAL WALL CLADDING:** Any cladding
- EXTERNAL CLADDING FRAME:** Timber or steel battens
- MOISTURE BARRIER:** Breathable wall wrap
- EXTERNAL WALL LINING:** 2 layers of 13mm **MultiShield**
- FRAME:** Minimum 70mm timber studs at maximum 600mm centres
- WALL INSULATION:** As specified in table below
- INTERNAL WALL LINING:** 2 layers of 13mm **FireShield** or 13mm **MultiShield**



FRL 90/90/90 rated from both sides Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Day Design 3094-45
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	123mm + external cladding	47 (41)	–	47 (41)	
	90	143mm + external cladding	47 (42)	48 (43)	47 (42)	

KTW479

- EXTERNAL WALL CLADDING:** Any cladding
- EXTERNAL CLADDING FRAME:** Timber or steel battens
- MOISTURE BARRIER:** Breathable wall wrap
- EXTERNAL WALL LINING:** 2 layers of 16mm **MultiShield**
- FRAME:** Minimum 70mm timber studs at maximum 600mm centres
- WALL INSULATION:** As specified in table below
- INTERNAL WALL LINING:** 2 layers of 16mm **FireShield** or 16mm **MultiShield**

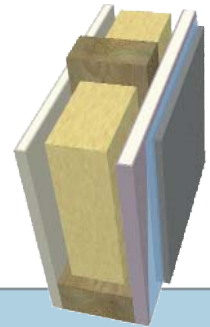


FRL 120/120/120 rated from both sides Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Day Design 3094-45
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	135mm + external cladding	47 (42)	–	47 (42)	
	90	155mm + external cladding	47 (43)	48 (44)	47 (43)	



KTW480

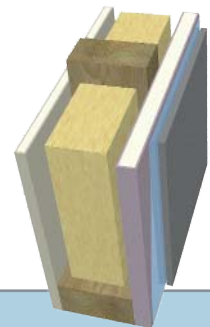
- EXTERNAL WALL CLADDING:** 1 layer of 7.5mm fibre cement monolithic texture base sheet
MOISTURE BARRIER: Breathable wall wrap
EXTERNAL WALL LINING: 1 layer of 13mm **MultiShield**
FRAME: Minimum 70mm timber studs at maximum 600mm centres
WALL INSULATION: As specified in table below
INTERNAL WALL LINING: 1 layer of 10mm **MastaShield**
 [10mm **MastaShield** can be substituted with 10mm **WaterShield** or 10mm **SoundShield**]
 [Use approved fire rated penetration details in the non-fire rated internal lining to maintain FRL]



FRL 30/30/30 rated from the outside only Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Marshall Day
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	102mm approximate	45 (35)	-	44 (35)	
90	122mm approximate	45 (37)	45 (38)	45 (37)		

KTW483

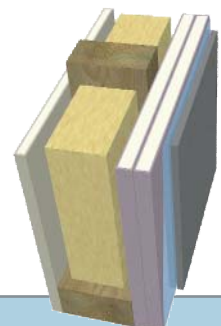
- EXTERNAL WALL CLADDING:** 1 layer of 7.5mm fibre cement monolithic texture base sheet
MOISTURE BARRIER: Breathable wall wrap
EXTERNAL WALL LINING: 1 layer of 16mm **MultiShield**
FRAME: Minimum 70mm timber studs at maximum 600mm centres
WALL INSULATION: As specified in table below
INTERNAL WALL LINING: 1 layer of 10mm **MastaShield**
 [10mm **MastaShield** can be substituted with 10mm **WaterShield** or 10mm **SoundShield**]
 [Use approved fire rated penetration details in the non-fire rated internal lining to maintain FRL]



FRL 60/60/60 rated from the outside only Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Day Design 3094-43
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	105mm approximate	47 (38)	-	46 (38)	
90	125mm approximate	47 (39)	47 (39)	47 (39)		

KTW481

- EXTERNAL WALL CLADDING:** 1 layer of 7.5mm fibre cement monolithic texture base sheet
MOISTURE BARRIER: Breathable foil
EXTERNAL WALL LINING: 2 layers of 13mm **MultiShield**
FRAME: Minimum 70mm timber studs at maximum 600mm centres
WALL INSULATION: As specified in table below
INTERNAL WALL LINING: 1 layer of 10mm **MastaShield**
 [10mm **MastaShield** can be substituted with 10mm **WaterShield** or 10mm **SoundShield**]
 [Use approved fire rated penetration details in the non-fire rated internal lining to maintain FRL]

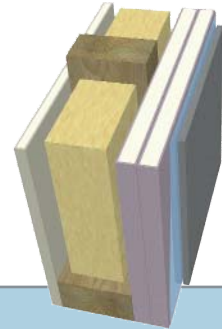


FRL 90/90/90 rated from the outside only Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Marshall Day
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	115mm approximate	47 (38)	-	47 (38)	
90	135mm approximate	48 (41)	48 (41)	48 (41)		



KTW484

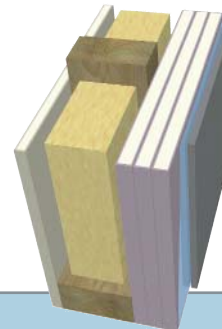
- EXTERNAL WALL CLADDING:** 1 layer of 7.5mm fibre cement monolithic texture base sheet
MOISTURE BARRIER: Breathable foil
EXTERNAL WALL LINING: 2 layers of 16mm **MultiShield**
FRAME: Minimum 70mm timber studs at maximum 600mm centres
WALL INSULATION: As specified in table below
INTERNAL WALL LINING: 1 layer of 10mm **MastaShield**
 [10mm **MastaShield** can be substituted with 10mm **WaterShield** or 10mm **SoundShield**]
 [Use approved fire rated penetration details in the non-fire rated internal lining to maintain FRL]



FRL 90/90/90 rated from the outside only Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Day Design 3094-43
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	121mm approximate	49 (40)	–	49 (40)	
	90	141mm approximate	50 (42)	50 (42)	50 (42)	

KTW482

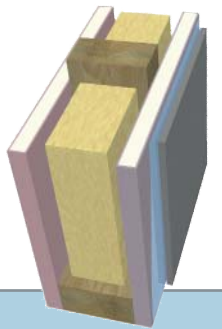
- EXTERNAL WALL CLADDING:** 1 layer of 7.5mm fibre cement monolithic texture base sheet
MOISTURE BARRIER: Breathable wall wrap
EXTERNAL WALL LINING: 3 layers of 13mm **MultiShield**
FRAME: Minimum 70mm timber studs at maximum 600mm centres
WALL INSULATION: As specified in table below
INTERNAL WALL LINING: 1 layer of 10mm **MastaShield**
 [10mm **MastaShield** can be substituted with 10mm **WaterShield** or 10mm **SoundShield**]
 [Use approved fire rated penetration details in the non-fire rated internal lining to maintain FRL]



FRL 120/120/120 rated from the outside only Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Marshall Day
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	128mm approximate	49 (41)	–	49 (41)	
	90	148mm approximate	50 (44)	50 (44)	50 (44)	

KTW486

- EXTERNAL WALL CLADDING:** 1 layer of 7.5mm fibre cement monolithic texture base sheet
MOISTURE BARRIER: Breathable wall wrap
EXTERNAL WALL LINING: 1 layer of 16mm **MultiShield**
FRAME: Minimum 70mm timber studs at maximum 600mm centres
WALL INSULATION: As specified in table below
INTERNAL WALL LINING: 1 layer of 16mm **FireShield** or 16mm **MultiShield**

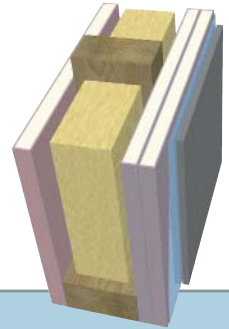


FRL 60/60/60 rated from both sides Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Day Design 3094-43
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	111mm approximate	47 (40)	–	47 (39)	
	90	131mm approximate	47 (41)	47 (41)	47 (41)	



KTW487

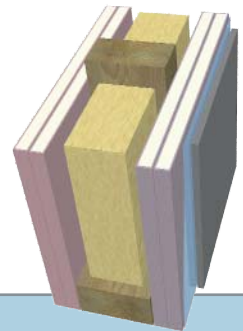
- EXTERNAL WALL CLADDING:** 1 layer of 7.5mm fibre cement monolithic texture base sheet
- MOISTURE BARRIER:** Breathable wall wrap
- EXTERNAL WALL LINING:** 2 layers of 13mm **MultiShield**
- FRAME:** Minimum 70mm timber studs at maximum 600mm centres
- WALL INSULATION:** As specified in table below
- INTERNAL WALL LINING:** 1 layer of 16mm **FireShield** or 16mm **MultiShield**



FRL 90/90/90 rated from the outside 60/60/60 rated from the inside Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Marshall Day
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	121mm approximate	47 (42)	–	47 (42)	
	90	141mm approximate	48 (43)	48 (44)	48 (43)	

KTW488

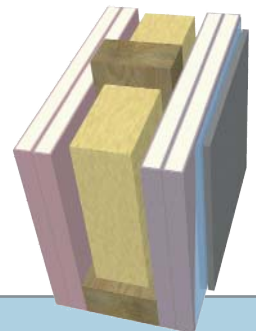
- EXTERNAL WALL CLADDING:** 1 layer of 7.5mm fibre cement monolithic texture base sheet
- MOISTURE BARRIER:** Breathable wall wrap
- EXTERNAL WALL LINING:** 2 layers of 13mm **MultiShield**
- FRAME:** Minimum 70mm timber studs at maximum 600mm centres
- WALL INSULATION:** As specified in table below
- INTERNAL WALL LINING:** 2 layers of 13mm **FireShield** or 13mm **MultiShield**



FRL 90/90/90 rated from both sides Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Marshall Day
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	131mm approximate	48 (45)	–	48 (45)	
	90	151mm approximate	49 (46)	49 (46)	49 (46)	

KTW489

- EXTERNAL WALL CLADDING:** 1 layer of 7.5mm fibre cement monolithic texture base sheet
- MOISTURE BARRIER:** Breathable wall wrap
- EXTERNAL WALL LINING:** 2 layers of 16mm **MultiShield**
- FRAME:** Minimum 70mm timber studs at maximum 600mm centres
- WALL INSULATION:** As specified in table below
- INTERNAL WALL LINING:** 2 layers of 16mm **FireShield** or 16mm **MultiShield**

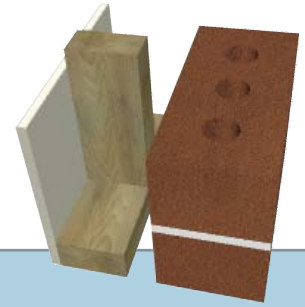


FRL 120/120/120 rated from both sides Fire Report FAR 3371	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)			Acoustic Report Marshall Day
	Stud Depth		R1.5 EarthWool	R2.0 EarthWool	R1.5 Polyester	
	70	143mm approximate	50 (47)	–	50 (47)	
	90	163mm approximate	50 (47)	50 (47)	50 (47)	



KTW70

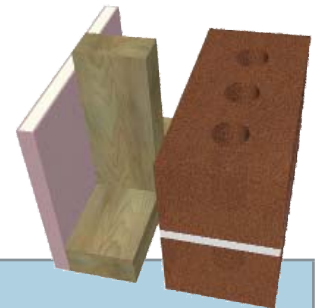
- EXTERNAL MASONRY:** Minimum 90mm masonry with FRL 60/60/60 (Minimum laid weight 130 kg/m²)
- FRAME:** Minimum 70mm timber studs at maximum 600mm centres with a minimum 20mm air gap
- WALL INSULATION:** As specified in table below
- INTERNAL WALL LINING:** 1 layer of 10mm **MastaShield**
[10mm **MastaShield** can be substituted with 10mm **WaterShield** or 10mm **SoundShield**]



FRL 60/60/60 rated from the outside only Fire Report FAR 3586	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)		Acoustic Report Marshall Day
	Stud Depth		R1.5 EarthWool	R1.5 Polyester	
	70	190 mm approximate	54 (46)	53 (46)	

KTW373

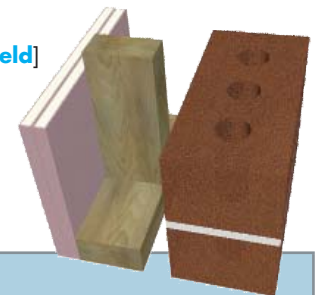
- EXTERNAL MASONRY:** Minimum 90mm masonry with FRL 60/60/60 (Minimum laid weight 130 kg/m²)
- FRAME:** Minimum 70mm timber studs at maximum 600mm centres with a minimum 20mm air gap
- WALL INSULATION:** As specified in table below
- INTERNAL WALL LINING:** 1 layer of 16mm **FireShield**
[16mm **FireShield** can be substituted with 16mm **MultiShield**]



FRL 60/60/60 rated from both sides Fire Report FAR 3586	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)		Acoustic Report Marshall Day
	Stud Depth		R1.5 EarthWool	R1.5 Polyester	
	70	196 mm approximate	54 (49)	54 (49)	

KTW371

- EXTERNAL MASONRY:** Minimum 90mm masonry with FRL 90/90/90 (Minimum laid weight 130 kg/m²)
- FRAME:** Minimum 70mm timber studs at maximum 600mm centres with a minimum 20mm air gap
- WALL INSULATION:** As specified in table below
- INTERNAL WALL LINING:** 2 layers of 13mm **FireShield**
[13mm **FireShield** can be substituted with 13mm **MultiShield** or 13mm **ImpactShield** or 13mm **QuadShield**]

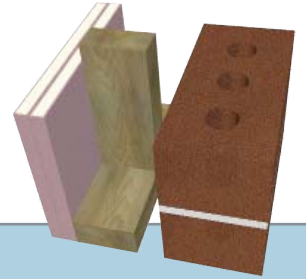


FRL 90/90/90 rated from both sides Fire Report FAR 3586	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)		Acoustic Report Marshall Day
	Stud Depth		R1.5 EarthWool	R1.5 Polyester	
	70	206 mm approximate	54 (51)	54 (51)	




KTW374

- EXTERNAL MASONRY:** Minimum 90mm masonry with FRL 120/120/120 (Minimum laid weight 130 kg/m²)
- FRAME:** Minimum 70mm timber studs at maximum 600mm centres with a minimum 20mm air gap
- WALL INSULATION:** As specified in table below
- INTERNAL WALL LINING:** 2 layers of 16mm **FireShield**
[16mm **FireShield** can be substituted with 16mm **MultiShield**]



FRL 120/120/120 rated from both sides Fire Report FAR 3586	Stud Size (mm)	Width (mm)	Acoustics Rw (Rw + Ctr)		
	Stud Depth			R1.5 EarthWool	R1.5 Polyester
70	212 mm approximate		55 (51)	55 (51)	


GENERAL REQUIREMENTS

	Non-Fire Rated	 Fire Rated
Install control joints in plasterboard walls: <ul style="list-style-type: none"> ➤ At 12m maximum intervals ➤ At all control joints in the structure ➤ At any change in the substrate material 	✓	✓
Jointing of MultiShield is not required due to the overlying breathable wall wrap and external cladding.		✓
Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance.		✓
Use approved fire rated penetration details for systems that use the internal non-fire rated plasterboard wall lining to maintain the FRL.		✓
Pack any gaps between the top of the wall and the underside of the roof covering with mineral fibre or other suitable fire resisting material. This maintains the fire rating of the system. <i>[Refer to mineral fibre manufacturers specifications for minimum widths required]</i>		✓
Protect plasterboard from water pooling at ground level.	✓	✓
Use fire sealant on all gaps and around perimeter, vermiculite plaster is not permitted.		✓



For acceptable modifications or variations to fire rated systems. *[Refer to Section 2.3 Fire Resistance]*


FRAMING

	Non-Fire Rated	 Fire Rated
Framing members must be spaced at 600mm maximum centres	✓	✓
For load bearing walls use timber studs with minimum dimensions 70x45mm or 90x35mm.	✓	✓



- 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.
- Plumbing and electrical services must not protrude beyond the face of the stud.


PLASTERBOARD LAYOUT

	Non-Fire Rated	 Fire Rated
Alternate from one side of the wall to the other when fixing the plasterboard sheets.	✓	✓
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 by 600mm minimum on adjoining sheets, between layers and on opposite sides of the wall.	✓	✓
First layer butt joints must be backed by a stud or back-blocked.	✓	
First layer butt joints must be backed by a stud.		✓
Stagger recessed edges by 300mm minimum between layers.	✓	✓
Stagger recessed edges by 300mm minimum on opposite sides of the wall or alternatively, back by a nogging.		✓
Vertical Layout		
Stagger butt joints by 600mm minimum on adjoining sheets, between layers and on opposite sides of the wall.	✓	✓
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 and on opposite sides of the wall.	✓	✓



- Install plasterboard sheets horizontally when practical to reduce the effect of glancing light.
- Minimise butt joints by using long sheets.

PLASTERBOARD FIXING

	Non-Fire Rated	 Fire Rated
Drive fasteners to just below the sheet surface, taking care not to break the paper linerboard.	✓	✓
Do not fix plasterboard to steel more than 2mm BMT.	✓	✓
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.	✓	
Screw Only Method		
Use the 'Fastener Only Method' in tiled or fire rated areas. Stud adhesive is not permitted.	✓	✓



The 'Screw 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

SCREW TYPE AND MINIMUM SIZE FOR THE INSTALLATION OF PLASTERBOARD TO STEEL

Plasterboard Thickness	1st Layer	2nd Layer	3rd Layer
10mm	25mm – 6g S screw	40mm – 6g S screw*	–
13mm	25mm – 6g S screw	40mm – 6g S screw*	60mm – 6g S screw*
16mm	30mm – 6g S screw	45mm – 6g S screw*	65mm – 6g S screw*

For steel up to 0.8mm BMT use Type 'S' fine thread needle point screws.
For steel 0.8mm to 2.0mm BMT use Type 'S' fine thread drill point screws.
*40mm – 10g Laminating screws may be used as detailed in installation diagrams.

FASTENER TYPE AND MINIMUM SIZE FOR THE INSTALLATION OF PLASTERBOARD TO SOFTWOOD TIMBER

Plasterboard Thickness	1st Layer	2nd Layer	3rd Layer
6.5mm	30mm x 2.8 galvanised nail or 25mm x 2.8 ring shank nail or 25mm – 6g W screw	40mm x 2.8 galvanised nail or 30mm x 2.8 ring shank nail or 30mm – 6g W screw	–
10mm	40mm x 2.8 galvanised nail or 30mm x 2.8 ring shank nail or 25mm – 6g W screw for walls or 30mm – 6g W screw for ceilings	50mm x 2.8 galvanised nail or 40mm – 6g W screw*	–
13mm	40mm x 2.8 galvanised nail or 30mm x 2.8 ring shank nail or 30mm – 6g Type W screw	50mm x 2.8 galvanised nail or 45mm – 6g W screw*	75mm x 3.75 galvanised nail or 65mm – 8g W screw*
16mm	50mm x 2.8 galvanised nail or 45mm – 6g W screw	65mm x 3.15 galvanised nail or 50mm – 6g W screw*	75mm x 3.75 galvanised nail or 65mm – 8g W screw*

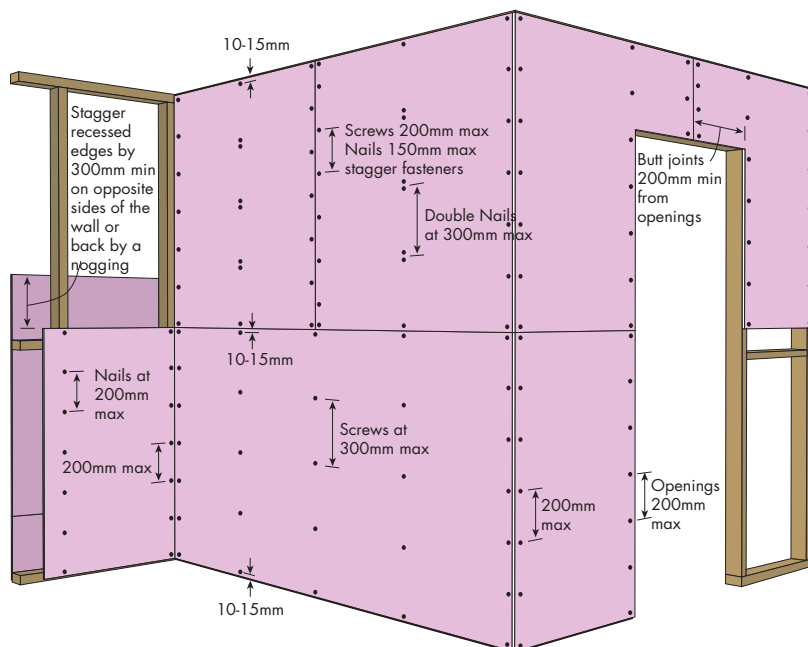
For timber use Type 'W' coarse thread needle point screws.
*40mm – 10g Laminating screws may be used as detailed in installation diagrams.

EXTERIOR CLADDING

	Non-Fire Rated	Fire Rated
Fix cladding or cladding battens to the timber frame through the MultiShield		✓
Extend the external fire rated wall up to the non-combustible roof covering or non-combustible eaves lining [Refer to Construction Details].		✓

- i** > Exterior cladding and breathable wall wrap must provide protection from the weather.
- > Use construction techniques that direct condensation and rain away from plasterboard.
- > When using external cladding other than 7.5mm fibre cement texture base sheet, Knauf recommends systems that include a drained cavity between the external cladding and the **MultiShield**.
- > Battens between external cladding and external plasterboard may be used without degrading the fire and acoustic performance.

FIGURE 1 Fire Rated 1 Layer – Horizontal
Fastener Only Method

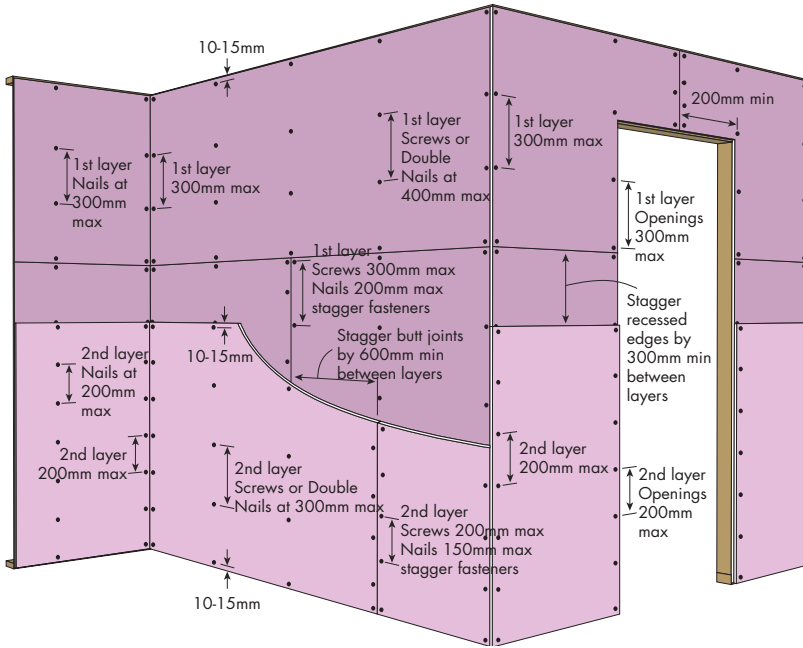


Fixing	Fastener Only Method
Sheet Layout	Horizontal
Perimeter	Perimeter fasteners 10-15mm from sheet edges
Field	Fix screws or double nails at 300mm max centres. Fix nails at 200mm max centres.
Recessed Edges	Fix on each stud. Stagger recessed edges by 300mm min on opposite sides of the wall or back by a nogging.
Butt Joints	Fix screws at 200mm max centres. Fix nails at 150mm max centres. Stagger fasteners. Stagger butt joints by 600mm min on adjoining sheets and on opposite sides of the wall. 1st layer butt joints must be backed by a stud.
Internal and External Corners	Fix at 200mm max centres
Openings	Fix at 200mm max centres
Fire Sealant	Use fire sealant on all gaps and around perimeter to maintain fire and acoustic integrity. [Refer to Construction Details]
Jointing Face Layer	Jointing of the face layer is not required if a breathable wall wrap is used over the plasterboard.



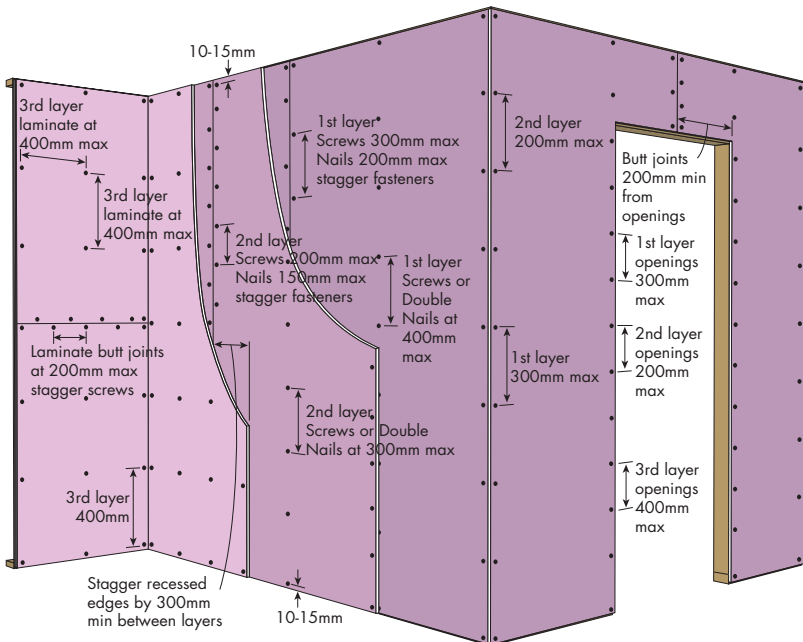


FIGURE 2 Fire Rated 2 Layers – Horizontal + Horizontal
Fastener Only Method



Fixing	Fastener Only Method
Sheet Layout	1st and 2nd layer: Horizontal
Perimeter	Perimeter fasteners 10-15mm from sheet edges
Field	1st layer: Fix screws or double nails at 400mm max centres. Fix nails at 300mm max centres. 2nd layer: Fix screws or double nails at 300mm max centres. Fix nails at 200mm max centres.
Recessed Edges	1st layer: Fix on each stud. Stagger recessed edges by 300mm min between layers and on opposite sides of the wall, or back by a nogging. 2nd layer: Fix on each stud.
Butt Joints	1st layer: Fix screws at 200mm max centres. Fix nails at 150mm max centres. Stagger fasteners. Stagger butt joints by 600mm min on adjoining sheets, between layers and on opposite sides of the wall. 1st layer butt joints must be backed by a stud. 2nd layer: Fix screws at 200mm max centres. Fix nails at 150mm max centres. Stagger fasteners. Alternately, float butt joints and laminate to 1st layer using laminating screws at 200mm max centres and stagger screws.
Internal and External Corners	1st layer: Fix at 300mm max centres 2nd layer: Fix at 200mm max centres
Openings	1st layer: Fix at 300mm max centres 2nd layer: Fix at 200mm max centres
Fire Sealant	Use fire sealant on all gaps and around perimeter to maintain fire and acoustic integrity. [Refer to Construction Details]
Jointing Face Layer	Jointing of the face layer is not required if a breathable wall wrap is used over the plasterboard.

FIGURE 3 Fire Rated 3 Layers – All Vertical
Fastener Only Method



Fixing	Fastener Only Method
Sheet Layout	1st, 2nd and 3rd layers: Vertical
Perimeter	Perimeter fasteners 10-15mm from sheet edges
Field	1st layer: Fix screws or double nails at 400mm max centres. Fix nails at 300mm max centres. 2nd layer: Fix screws or double nails at 300mm max centres. Fix nails at 200mm max centres. 3rd layer: Fix screws or double nails at 400mm max centres. Fix nails at 300mm max centres. Alternately, laminate to 2nd layer at 400x400mm max centres.
Recessed Edges	1st layer: Fix screws at 300mm max centres. Fix nails at 200mm max centres. Stagger fasteners. Stagger recessed edges by 300mm min between layers and on opposite sides of the wall. Recessed edges must be back by a stud. 2nd layer: Fix screws at 200mm max centres. Fix nails at 150mm max centres. Stagger fasteners. Recessed edges must be backed by a stud. 3rd layer: Fix screws at 400mm max centres. Fix nails at 300mm max centres. Stagger fasteners.
Butt Joints	1st layer: Fix screws at 200mm max centres. Fix nails at 150mm max centres. Stagger fasteners. Stagger butt joints by 600mm min on adjoining sheets, between layers and on opposite sides of the wall. 1st layer butt joints must be backed by a nogging. 2nd layer: Fix screws at 200mm max centres. Fix nails at 150mm max centres. Stagger fasteners. Alternately, laminate to 1st layer using laminating screws at 200mm max centres and stagger screws. 3rd layer: Laminate to 2nd layer at 200mm max centres and stagger screws.
Internal and External Corners	1st layer: Fix at 300mm max centres 2nd layer: Fix at 200mm max centres 3rd layer: Fix at 400mm max centres
Openings	1st layer: Fix at 300mm max centres 2nd layer: Fix at 200mm max centres 3rd layer: Fix at 400mm max centres
Fire Sealant	Use fire sealant on all gaps and around perimeter to maintain fire and acoustic integrity. [Refer to Construction Details]
Jointing Face Layer	Jointing of the face layer is not required if a breathable wall wrap is used over the plasterboard.



FIRE RATED FROM THE OUTSIDE ONLY

EXTERNAL WALL BASE - ELEVATION

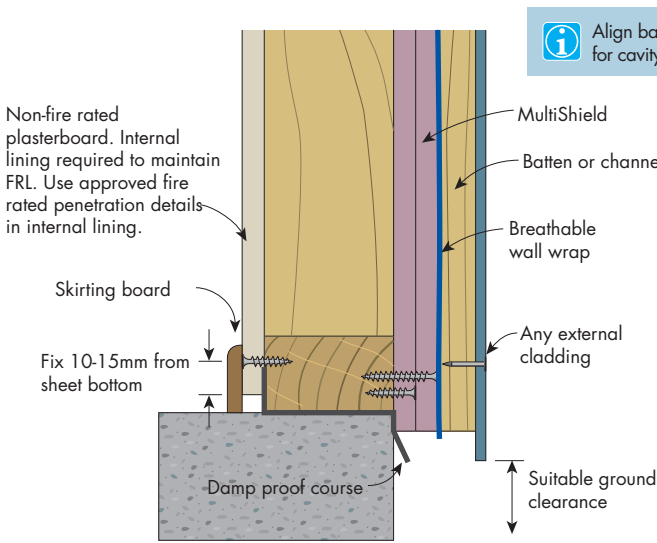


FIGURE 4 Wall Base to Slab

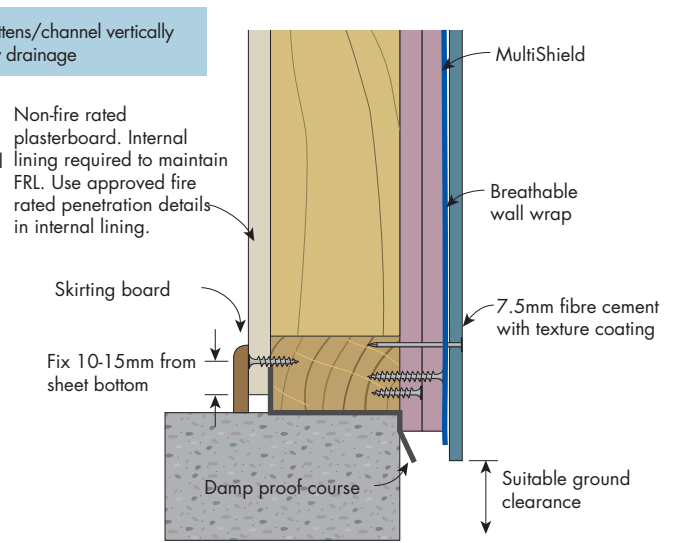


FIGURE 5 Wall Base to Slab

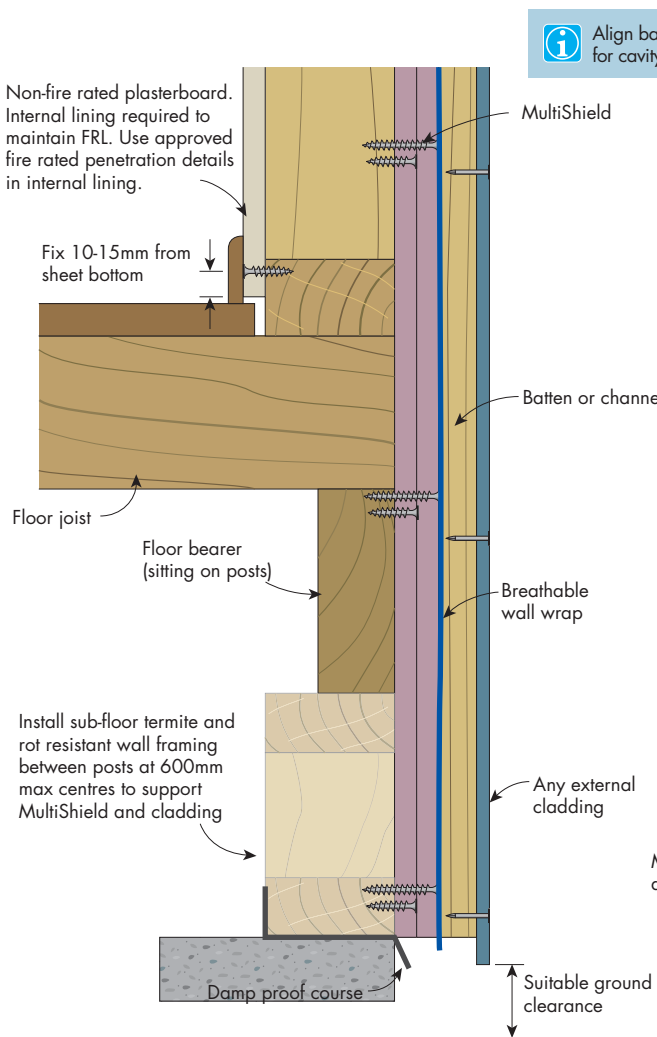


FIGURE 6 Wall to Suspended Ground Floor

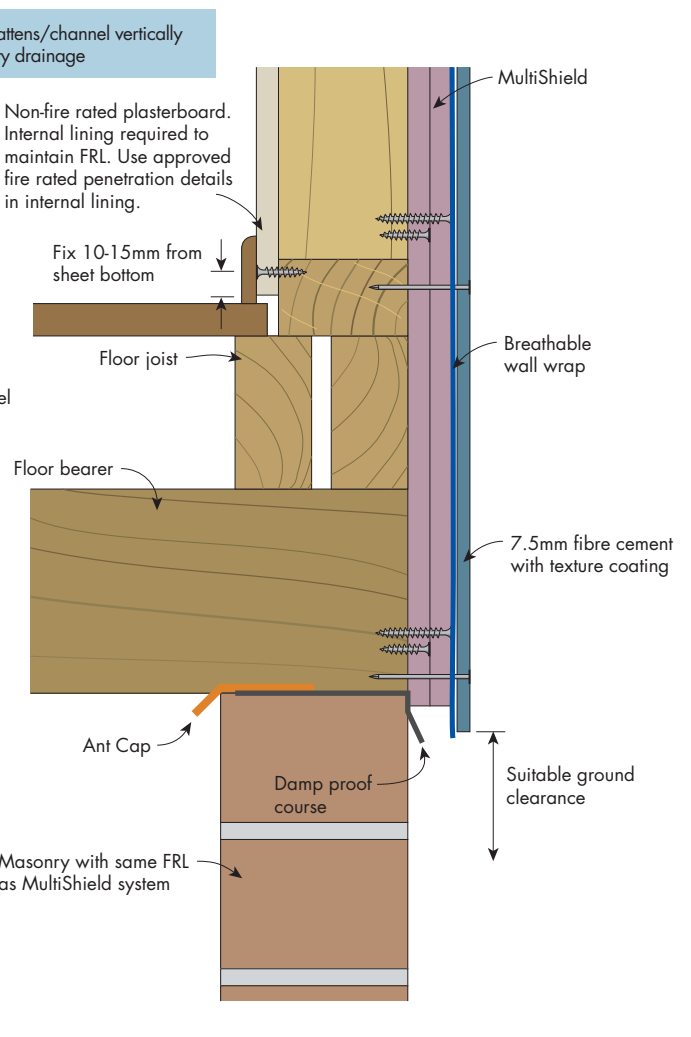
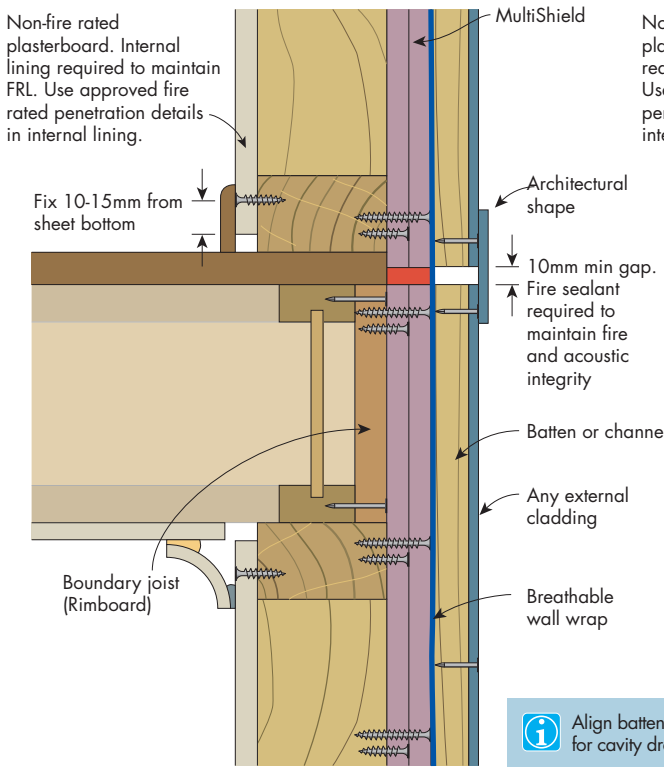


FIGURE 7 Wall to Suspended Ground Floor



FIRE RATED FROM THE OUTSIDE ONLY

EXTERNAL WALL UPPER STOREY FLOOR AND FIRE RATED WINDOW – ELEVATION



Align battens/channel vertically for cavity drainage

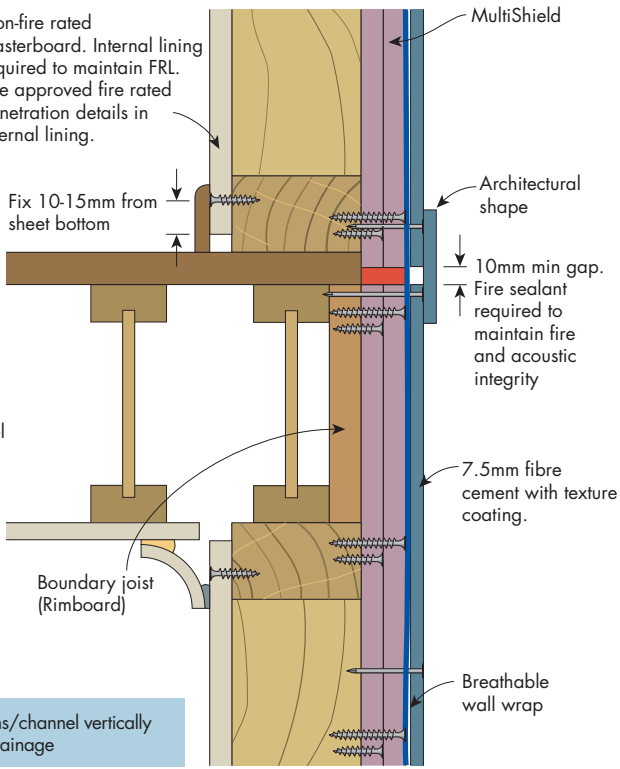


FIGURE 8 Wall of Upper Storey Floor

FIGURE 9 Wall of Upper Storey Floor

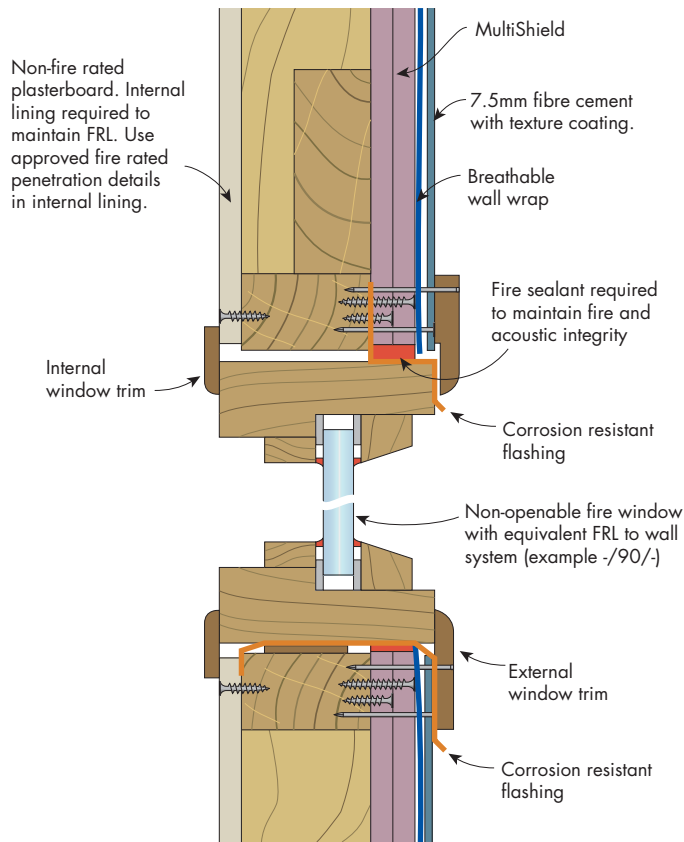


FIGURE 10 Fire Rated External Window

Example only

FIRE RATED FROM BOTH DIRECTIONS

EXTERNAL WALL BASE – ELEVATION

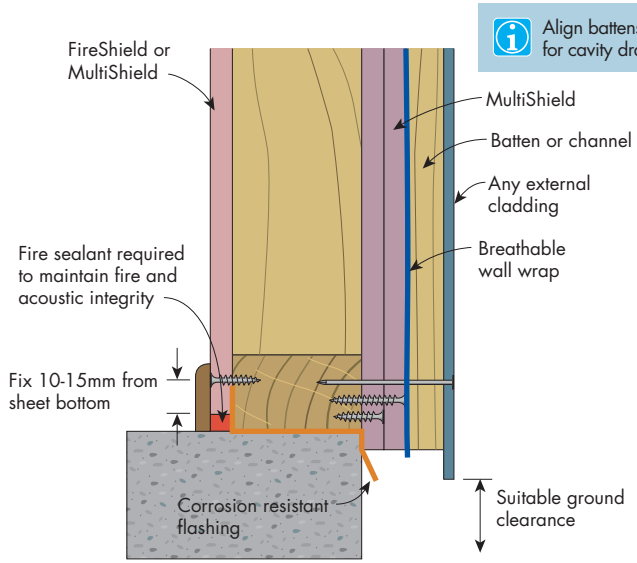


FIGURE 11 Wall Base to Slab

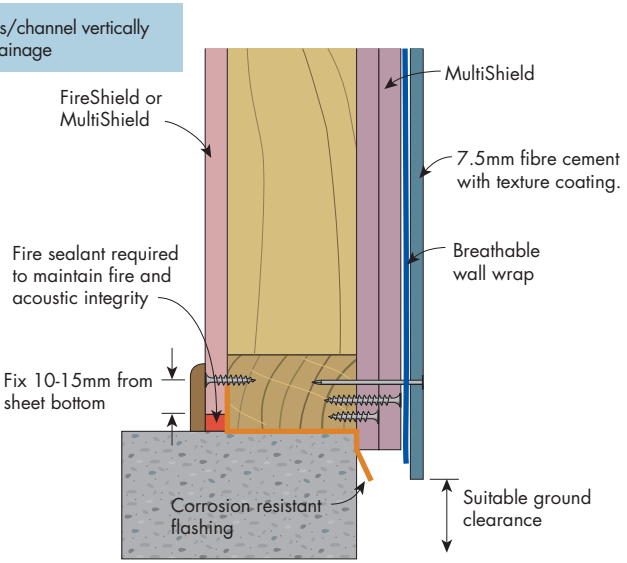


FIGURE 12 Wall Base to Slab

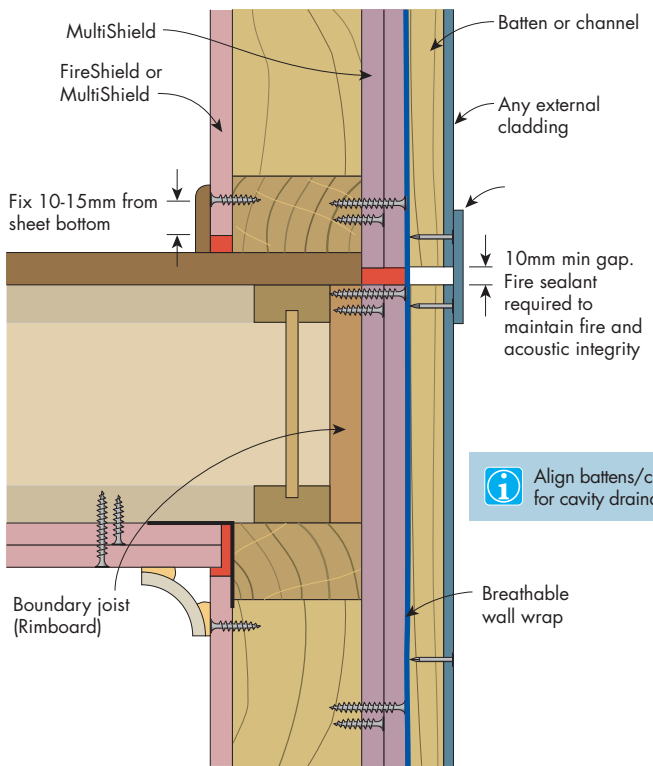


FIGURE 13 Wall of Upper Storey Floor

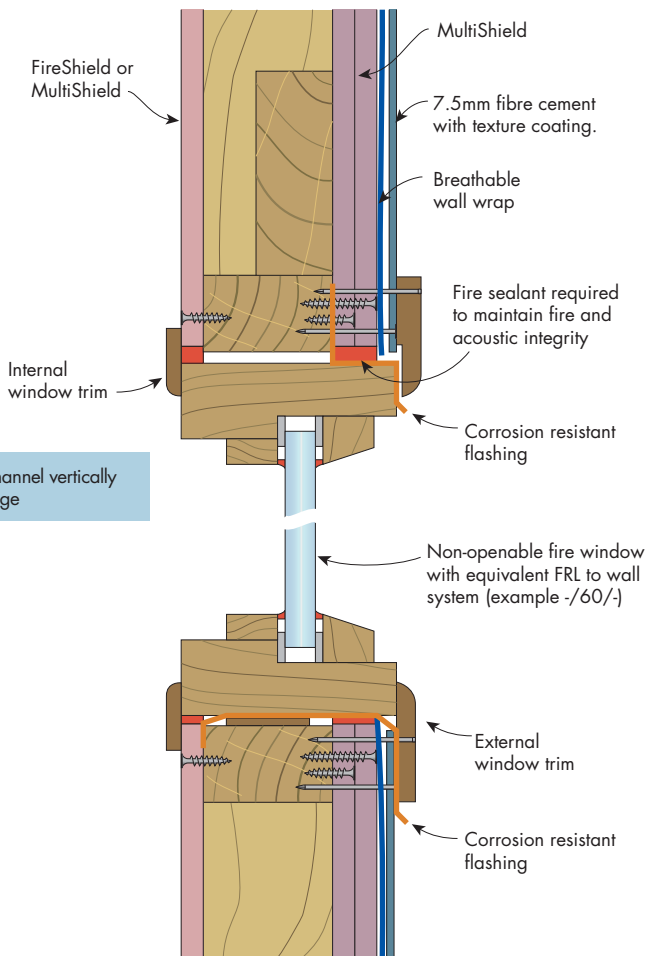


FIGURE 14 Fire Rated External Window
Example only

FIRE RATED

EXTERNAL WALL TO ROOF - ELEVATION



FIGURE 15 External Wall to Non-Combustible Eave Lining

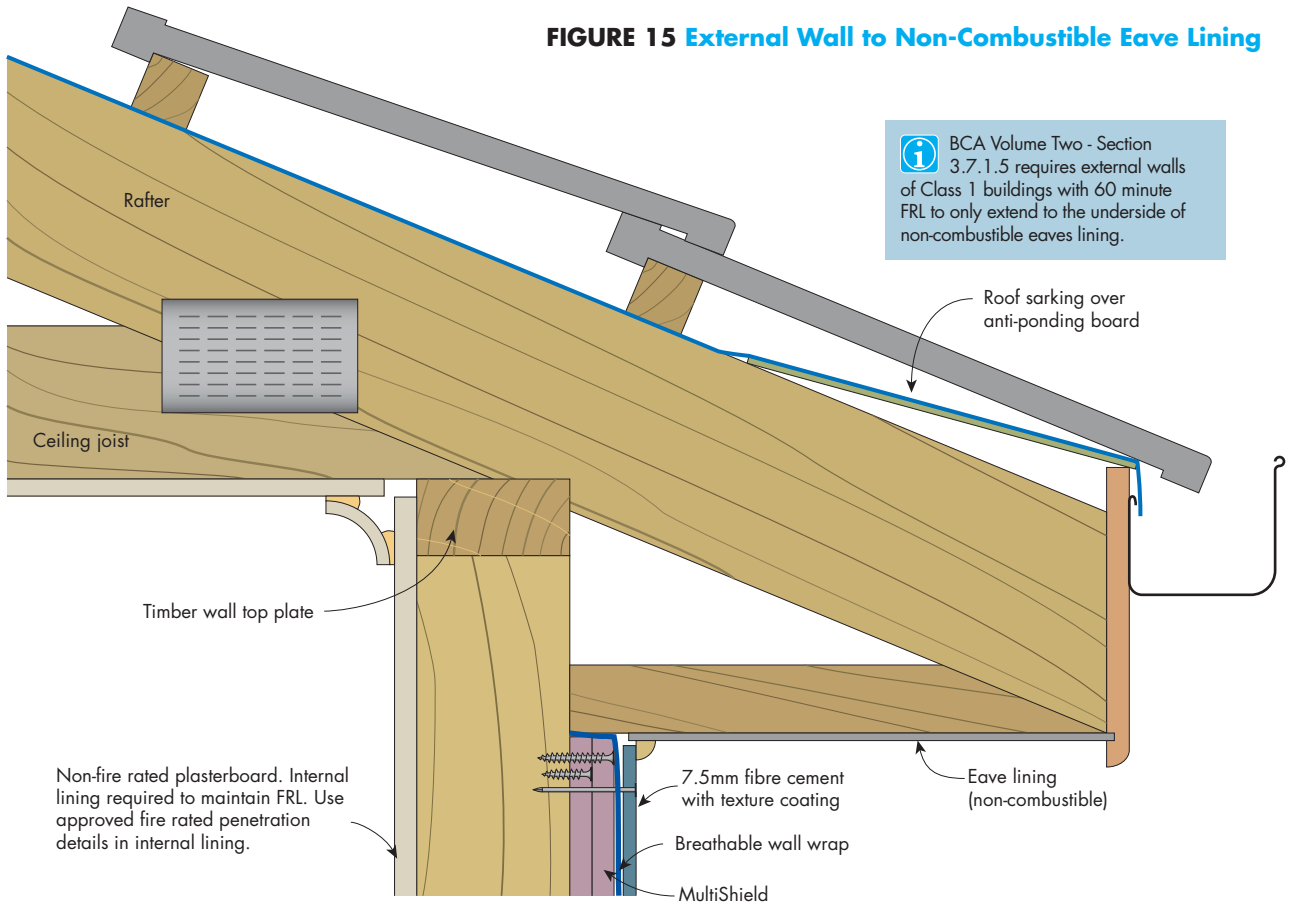
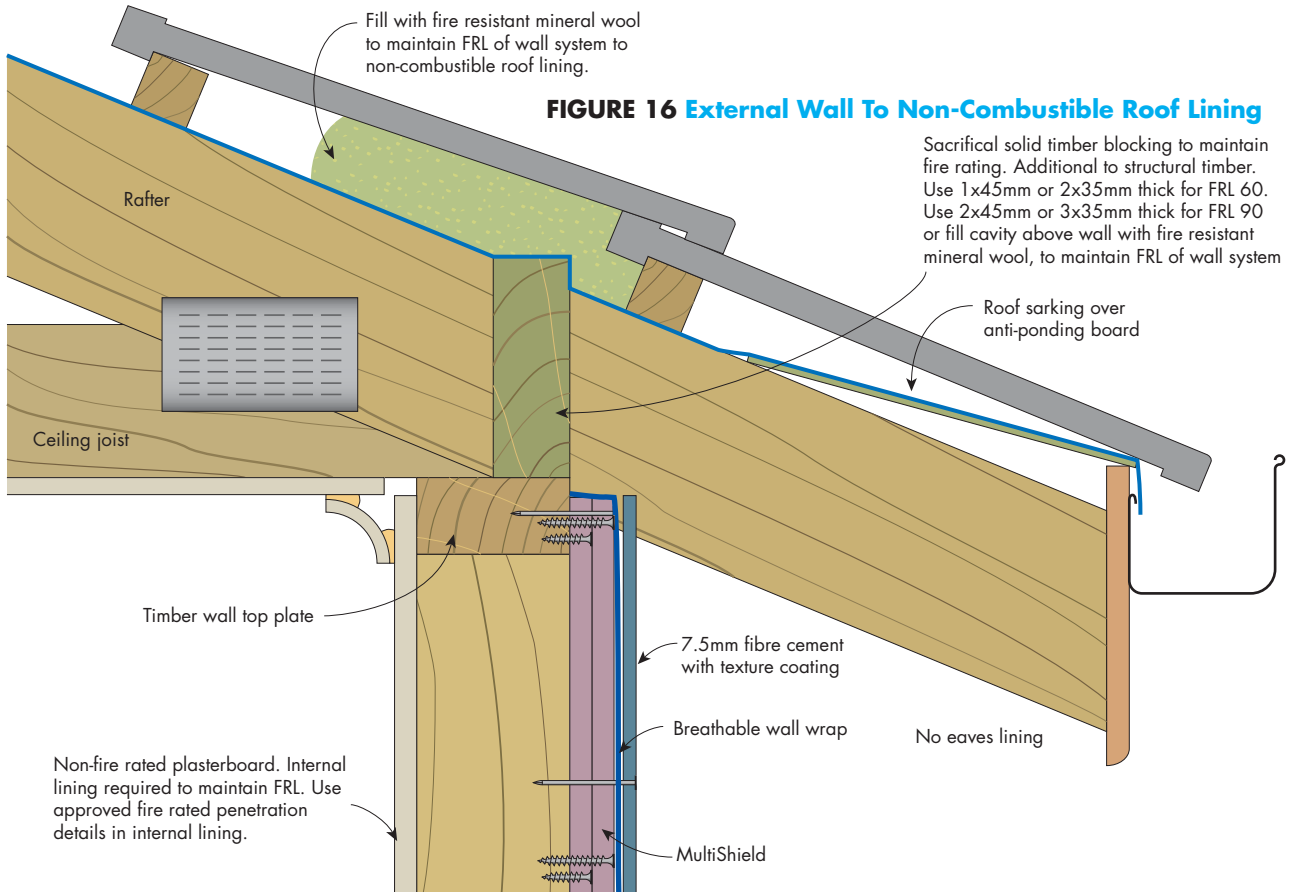


FIGURE 16 External Wall to Non-Combustible Roof Lining



FIRE RATED
EXTERNAL WALL TO ROOF – ELEVATION

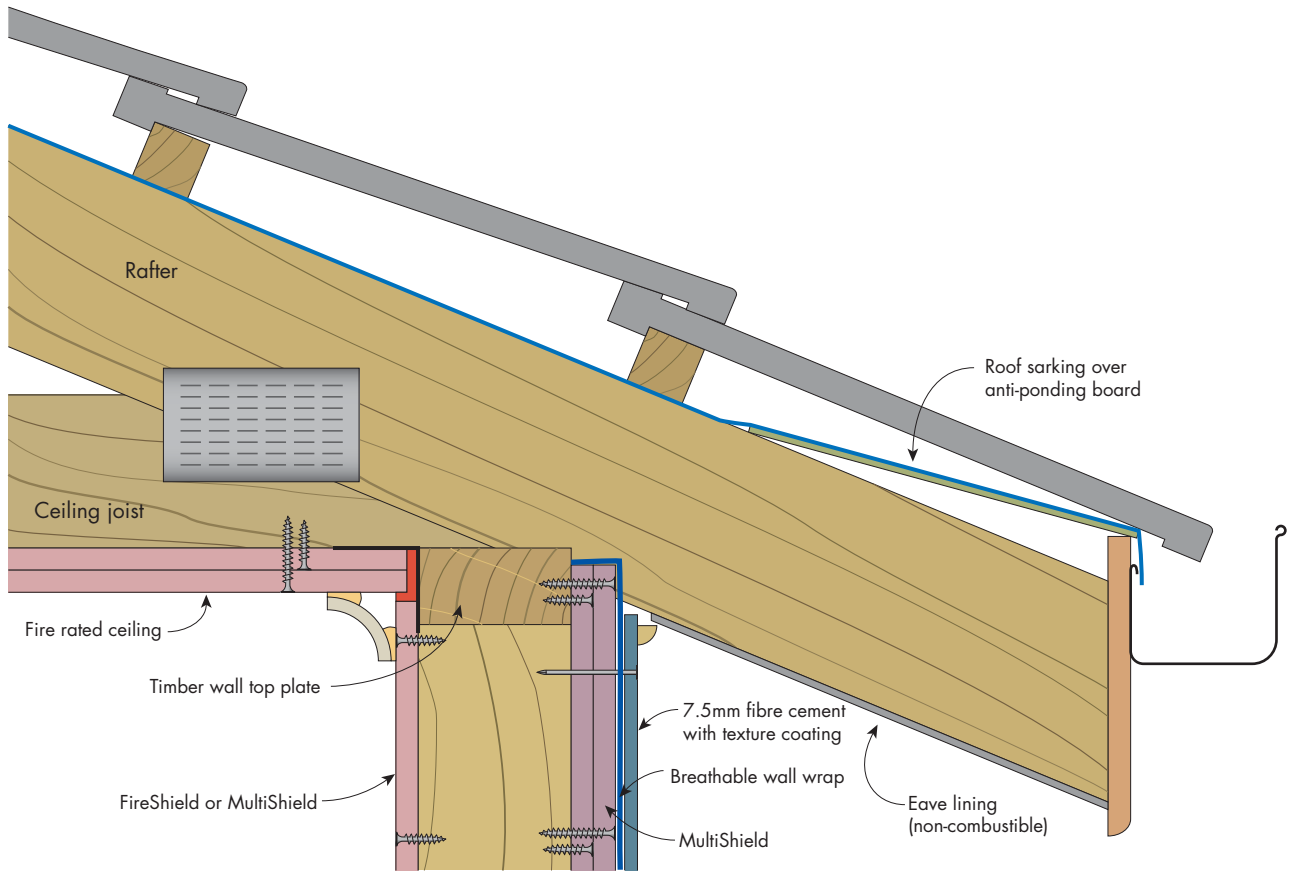


FIGURE 17 External Wall to Non-Combustible Roof Lining

FIRE RATED
EXTERNAL WALL TO PARAPET ROOF – ELEVATION

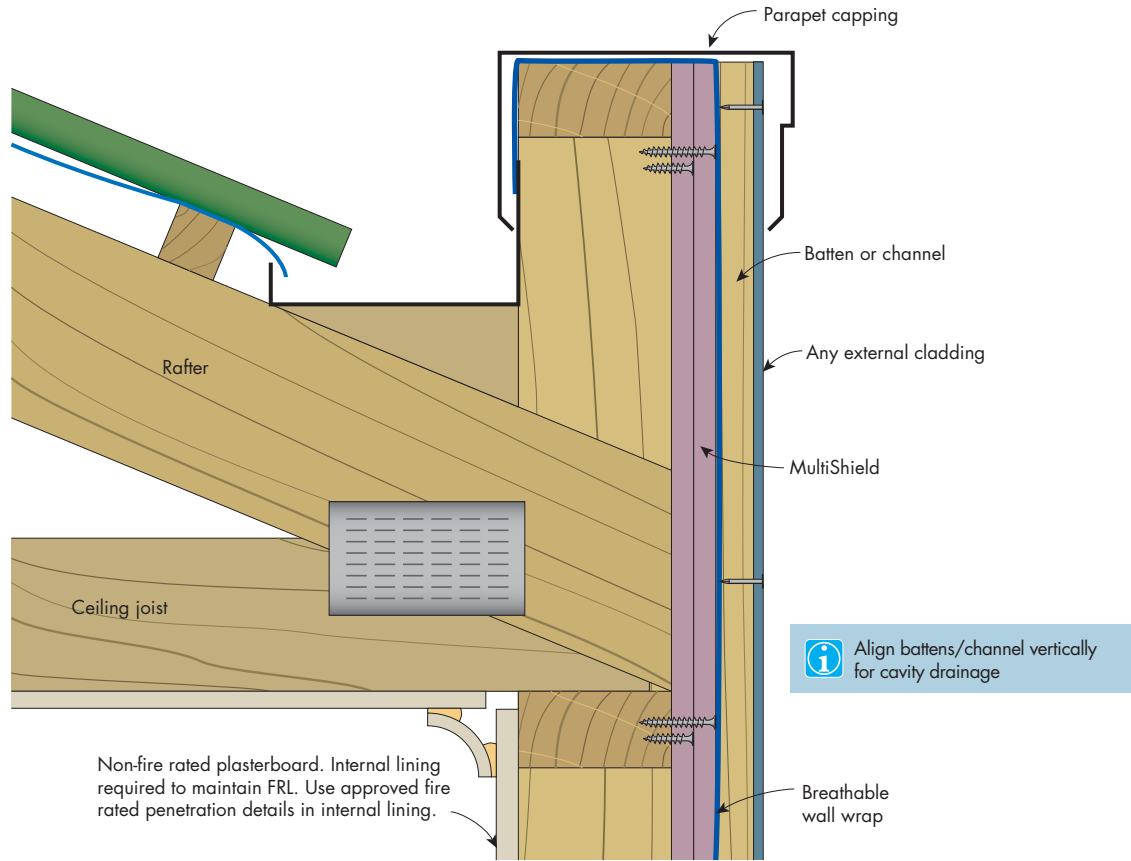


FIGURE 18 External Wall to Parapet Roof

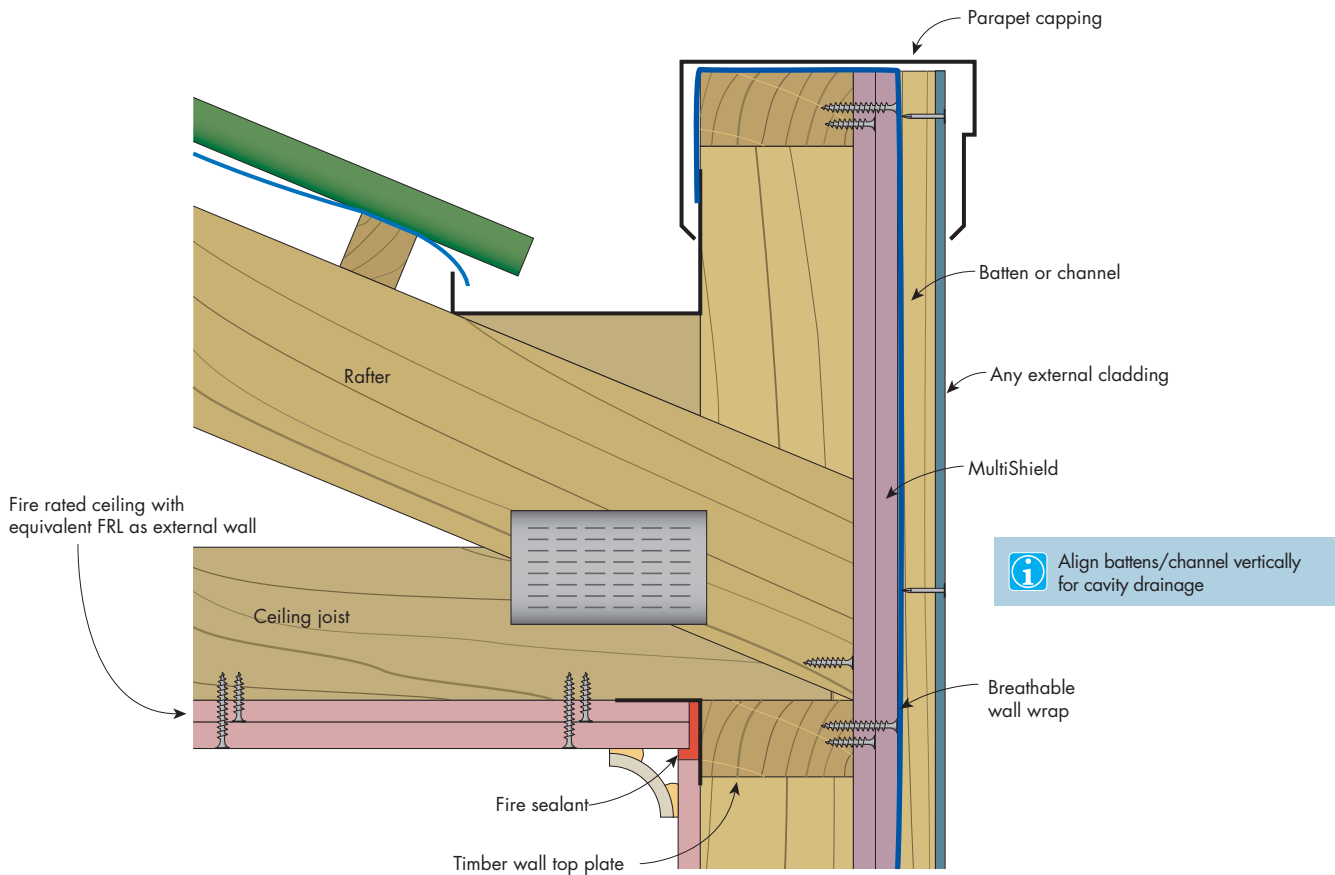


FIGURE 19 External Wall to Parapet Roof

FIRE RATED
EXTERNAL WALL JUNCTIONS – PLAN VIEW

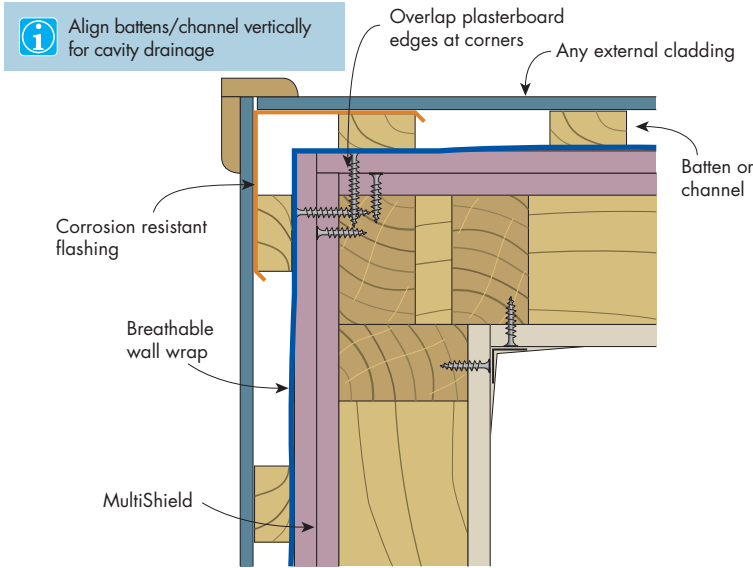


FIGURE 20 External Corner

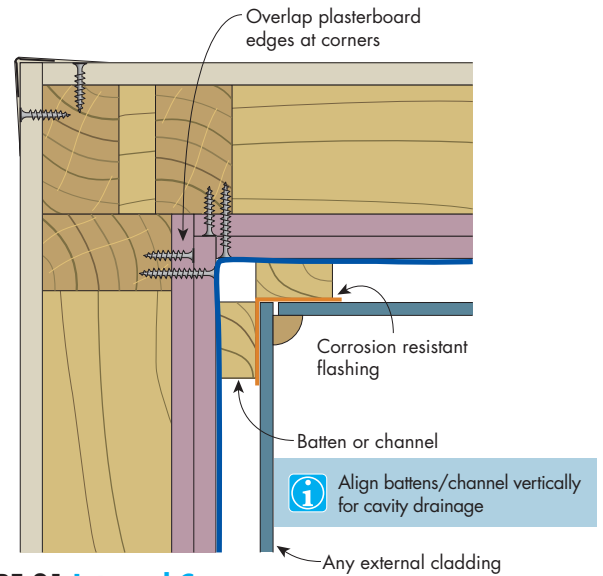


FIGURE 21 Internal Corner

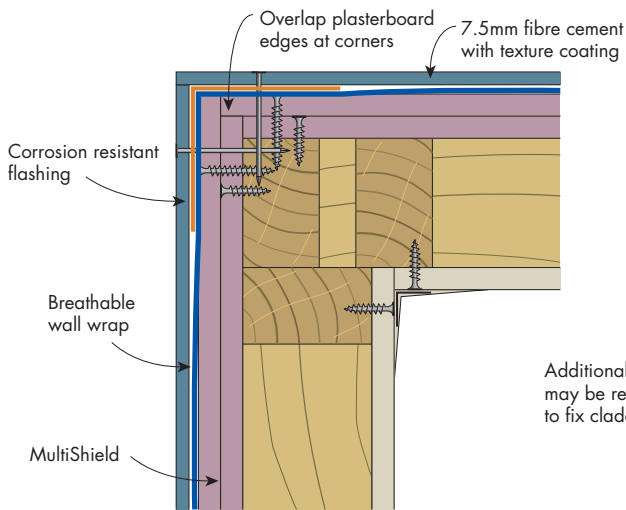


FIGURE 22 External Corner

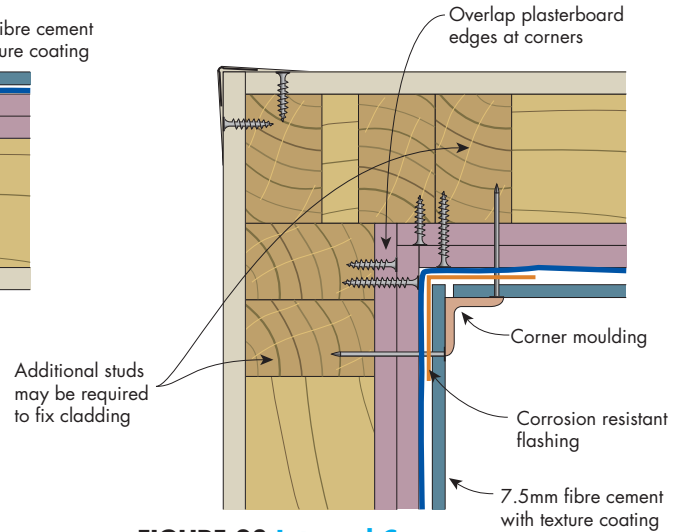


FIGURE 23 Internal Corner

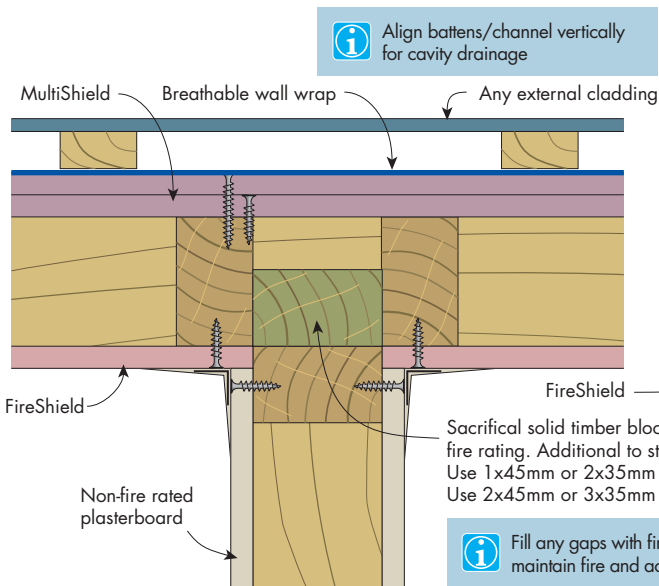


FIGURE 24 Non-Fire Rated Intersecting Wall

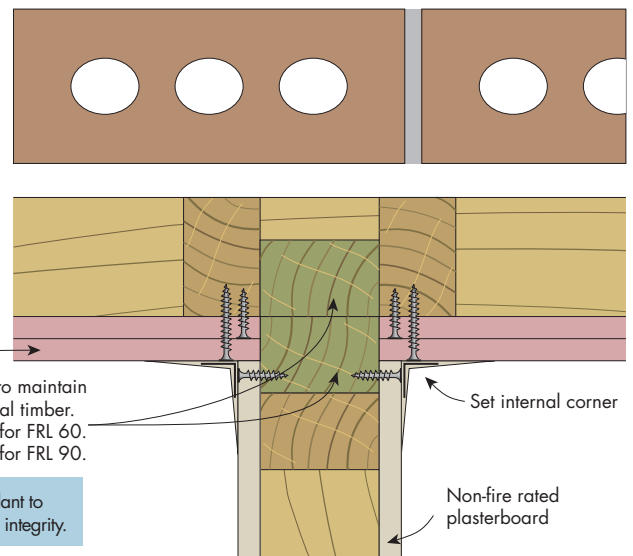


FIGURE 23 Intersecting Wall to External Brick Vener Wall

1 Fill any gaps with fire sealant to maintain fire and acoustic integrity.

Sacrificial solid timber blocking to maintain fire rating. Additional to structural timber. Use 1x45mm or 2x35mm thick for FRL 60. Use 2x45mm or 3x35mm thick for FRL 90.



FIRE RATED

EXTERNAL WALL CONTROL JOINTS – PLAN VIEW

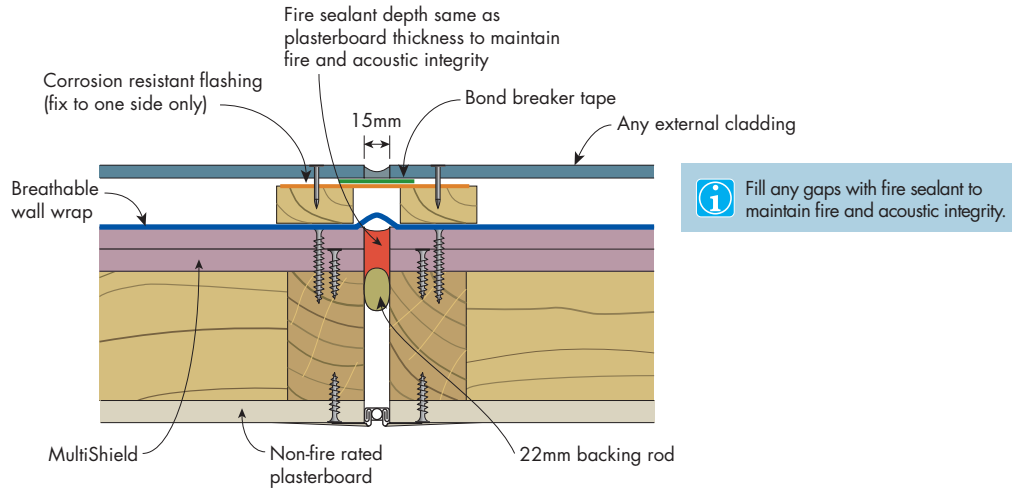


FIGURE 26 Fire Rated External Wall Control Joint

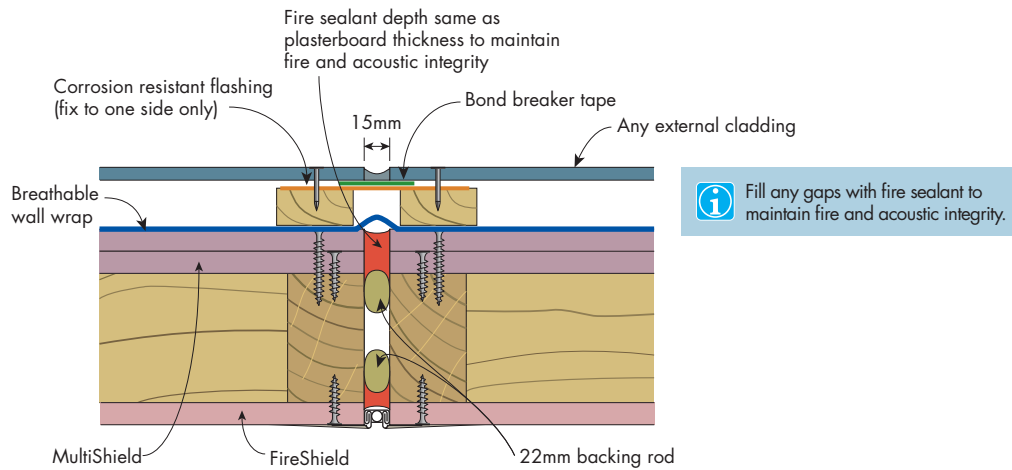


FIGURE 27 Fire Rated External Wall Control Joint

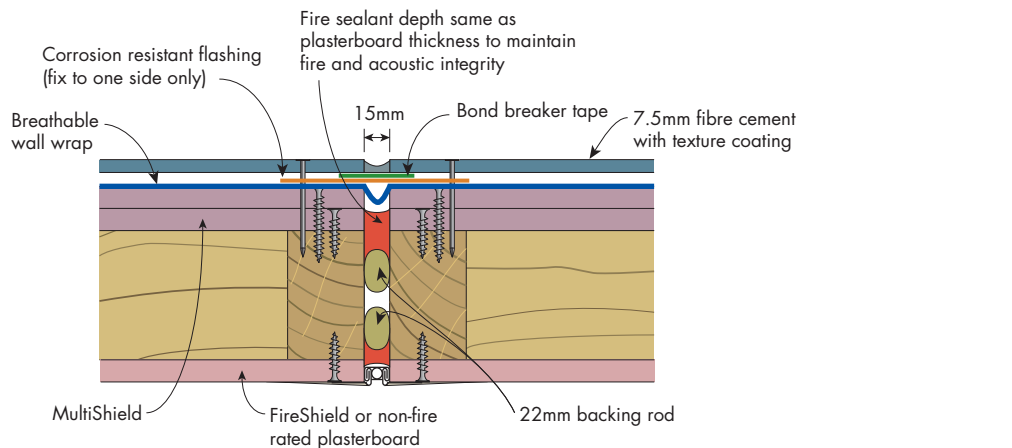


FIGURE 28 Fire Rated External Wall Control Joint