

inter**home** FRL 90/90/90 Supplement

Separating Wall System for Low-rise **Multi-Residential Construction**



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Siniat is one of the Etex Group's flagship commercial brands, and one of the leading global manufacturers of interior and exterior materials for drywall construction.

In Australia, Etex has Siniat manufacturing facilities located in Sydney, Melbourne, Bundaberg and Brisbane. Etex supplies Siniat branded plasterboard, compounds, cornice, steel profiles and associated products and systems to the Australian building industry through its national distribution network.

Siniat's comprehensive range of quality wall and ceiling lining products are developed with specific characteristics to enhance performance and provide fire, water, acoustic and decorative solutions to all construction projects.

The Siniat team is committed to providing excellent technical service and sales support to help with innovative solutions for your next project.

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FIGURE 1 Suitability of FRL 90/90/90 Interhome Wall Section

This **inter**home FRL 90/90/90 Supplement is suitable for load bearing walls with 90 minutes fire protection supporting non-fire rated floors and roofs. The **inter**home wall starts at the ground slab or other fire rated support and finishes at the roof.

interhome systems consist of twin timber or steel framed walls with a central fire barrier of 25mm shaftliner or intershield encased in steel H-studs from ground to roof. A layer of 16mm fireshield or multishield is then fixed to the 25mm shaftliner or intershield over the entire wall. On the opposite side, an additional layer of 16mm fireshield or multishield is fixed to the 25mm shaftliner or intershield at suspended floors and in the roof cavity. The layers of 16mm fireshield or multishield are simply fixed to the shaftliner or intershield using laminating screws.

The central fire barrier provides the primary fire protection and sound insulation barrier for the system, and thus simplifies installation by allowing non-fire rated installation of internal linings and nonfire rated penetrations of the outer wall linings during construction and also once a dwelling is occupied.

Application

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interhome FRL 90/90/90 walls are ideally suited to load bearing walls separating sole occupancy units in Class 2, Type A Construction such as duplexes and townhouses which are built over a shared garage or row of shops.

Features

- > Fire Resistance Level 90/90/90
- Sound insulation performance of separating wall of Rw + Ctr 50 plus discontinuous construction
- Sound insulation performance for soil and waste pipes of Rw + Ctr 25 and Rw + Ctr 40.
- > Provision for the installation in wet areas.

*WARNING: The **inter**home system is <u>not</u> suitable for use in buildings with tenancies separated by timber or steel framed floors that require a Fire Resistance Level such as buildings where sole occupancy units are located above one another.

Refer to the **inter**home high-rise manual for **inter**home wall systems installed between concrete slabs and for ceiling treatment options on the top floor of a Class 2 building with a framed roof.

Refer to the **inter**home manual for load bearing **inter**home wall systems with an FRL of 60/60/60 where the wall starts at the ground slab or other fire rated support and finishes at the roof, such as Class 1 duplexes and townhouses

Timber Systems

•					
IHW20	 10mm mastashield or watershield Timber stud framing with insulation 			Fire Resistance Level	
	 Minimum 20mm air-gap 25mm shaftliner or intershield encased in interhome H-studs plus 1 layer of 16mm fireshield or multishield Minimum 20mm air-gap Timber stud framing with insulation 10mm mastashield or watershield 			90/90/90 rated for the wall frame opposite to fire attack Fire Report FC11661	
	Minimum Cavity On Both Sides (mm)				
	Cavity size = stud size + air-gap		2 x Pink [®] Batts Wall R2.0	Acoustic Report Day Design 4738-14	
	110 (eg: 70 stud + 40 gap) 110 (eg: 90 stud + 20 gap)	- 281	64 (50)	Note: Impact Sound Resistant - Discontinuous Construction	
IHW21	 2 layers of 10mm ma Timber stud framing 			Fire Resistance Level	
	 Minimum 20mm air-gap 25mm shaftliner or intershield encased in interhome H-studs plus 1 layer of 16mm fireshield or multishield Minimum 20mm air-gap Timber stud framing 2 layers of 10mm mastashield or watershield 			90/90/90 rated for the wall frame opposite to fire attack Fire Report FC11661	
	Minimum Cavity On Both Sides (mm)	Wall Width (mm)	Sound Insulation Rw (Rw + Ctr)		
	Cavity size = stud size + air-gap		2 x Pink [®] Batts Wall R1.5	Acoustic Report	
	90 (eg: 70 stud + 20 gap)	261	66 (52)	Day Design 4738-14	
	110 (eg: 90 stud + 20 gap)	301	67 (52)	Sound Resistant - Discontinuous Construction	
IHW22	 10mm soundshield or opal Timber stud framing with insulation Minimum 20mm air-gap 25mm shaftliner or intershield encased in interhome H-studs plus 1 layer of 16mm fireshield or multishield Minimum 20mm air-gap Timber stud framing with insulation 10mm soundshield or opal 			Fire Resistance Level 90/90/90 rated for the wall frame opposite to fire attack Fire Report FC11661	
	Minimum Cavity	Wall Width	Sound Insulation		
	On Both Sides (mm) Cavity size = stud size + air-gap	(mm)	Rw (Rw + Ctr) 2 x Pink [®] Batts Wall R1.5	Acoustic Report	
	90 (eg: 70 stud + 20 gap)	241	69 (55)	Day Design 4738-14 Note: Impact	
	110 (eg: 90 stud + 20 gap)	281	70 (55)	Sound Resistant - Discontinuous Construction	
 13mm soundshield Timber stud framing with insulation Minimum 20mm air-gap 25mm shaftliner or intershield encased plus 1 layer of 16mm fireshield or multi Minimum 20mm air-gap Timber stud framing with insulation 			cased in interhome H-studs multi shield	Fire Resistance Level 90/90/90 rated for the wall frame opposite to fire attack	
	• 13mm soundshield		Fire Report FC11661		
	Minimum Cavity On Both Sides (mm)	(mm)	Rw (Rw + Ctr)		
	Cavity size = stud size + air-gap 90		2 x Pink [®] Batts Wall R1.5	Acoustic Report Day Design 4738-14	
	90 (eq. 70 stud + 20 gap)	247	70 (55)	Noto: Impact	

287

(eg: 70 stud + 20 gap)

110

(eg: 90 stud + 20 gap)

70 **(55**)

Note: Impact Sound Resistant -Discontinuous Construction



IHW24	 6mm Villabaord[™] Timber stud framing with insulation Minimum 20mm air-gap 25mm shaftliner or intershield encased in interhome H-studs plus 1 layer of 16mm fireshield or multishield Minimum 20mm air-gap Timber stud framing with insulation 6mm Villabaord[™] 			Fire Resistance Level 90/90/90 rated for the wall frame opposite to fire attack Fire Report FC11661
	Minimum Cavity On Both Sides (mm)	Wall Width (mm)	Sound Insulation Rw (Rw + Ctr)	
	Cavity size = stud size + air-gap		2 x Pink [®] Batts Wall R1.5	Acoustic Report
	90 (eg: 70 stud + 20 gap)	233	69 (55)	Day Design 4738-14 Note: Impact Sound Resistant - Discontinuous Construction
	110 (eg: 90 stud + 20 gap)	273	70 (55)	
IHW44	 10mm mastashield or watershield Timber stud framing with insulation Minimum 20mm air-gap 25mm shaftliner or intershield encased in interhome H-studs plus 1 layer of 16mm fireshield or multishield Minimum 20mm air-gap Timber stud framing with insulation 6mm Villabaord[™] 			Fire Resistance Level 90/90/90 rated for the wall frame opposite to fire attack Fire Report FC11661
	Minimum Cavity On Both Sides (mm)	Wall Width (mm)	Sound Insulation Rw (Rw + Ctr)	
	Cavity size = stud size + air-gap		2 x Pink [®] Batts Wall R2.0	INSUL v8
	110 (eg: 70 stud + 40 gap) 110 (eq: 90 stud + 20 gap)	- 277	67 (53)	Note: Impact Sound Resistant - Discontinuous Construction

Steel Systems

1111/1/20	• 10mm mastashield c	or water shield	1	Fire Desistence Lovel
IHW30	 Steel stud framing with insulation Minimum 20mm air-gap 25mm shaftliner or intershield encased in interhome H-studs plus 1 layer of 16mm fireshield or multishield Minimum 20mm air-gap Steel stud framing with insulation 10mm mastashield or watershield 			Fire Resistance Level 90/90/90 rated for the wall frame opposite to fire attack Fire Report FC11661
	Minimum Cavity On Both Sides (mm)	Wall Width (mm)	Sound Insulation Rw (Rw + Ctr)	
	Cavity size = stud size + air-gap		2 x Pink [®] Batts Wall R2.0	Acoustic Report Day Design 4738-14
	110 (eg: 70 stud + 40 gap) 110 (eg: 90 stud + 20 gap)	- 281	64 (50)	Note: Impact Sound Resistant - Discontinuous Construction
IHW31	 2 layers of 10mm ma Steel stud framing w 			Fire Resistance Level
	 Steel stud framing with insulation Minimum 20mm air-gap 25mm shaftliner or intershield encased in interhome H-studs plus 1 layer of 16mm fireshield or multishield Minimum 20mm air-gap Steel stud framing 2 layers of 10mm mastashield or watershield 			90/90/90 rated for the wall frame opposite to fire attack Fire Report FC11661
	Minimum Cavity On Both Sides (mm)	Wall Width (mm)	Sound Insulation Rw (Rw + Ctr)	
	Cavity size = stud size + air-gap		1 x Pink [®] Batts Wall R1.5	Acoustic Report Day Design 4738-14
	90 (eg: 70 stud + 20 gap)	261	64 (52)	Note: Impact Sound Resistant -
	110 (eg: 90 stud + 20 gap)	301	65 (52)	Discontinuous Constructio
IHW32	 10mm soundshield or opal Steel stud framing with insulation Minimum 20mm air-gap 25mm shaftliner or intershield encased in interhome H-studs plus 1 layer of 16mm fireshield or multishield Minimum 20mm air-gap Steel stud framing with insulation 10mm soundshield or opal 		Fire Resistance Level 90/90/90 rated for the wall frame opposite to fire attack Fire Report FC11661	
	Minimum Cavity On Both Sides (mm)	Wall Width (mm)	Sound Insulation Rw (Rw + Ctr)	
	Cavity size = stud size + air-gap		2 x Pink [®] Batts Wall R1.5	Acoustic Report Day Design 4738-14
	90 (eg: 70 stud + 20 gap)	241	67 (55)	Note: Impact Sound Resistant -
	110 (eg: 90 stud + 20 gap)	281	68 (55)	Discontinuous Construction
 IHW33 Steel stud framing with insulation Minimum 20mm air-gap 25mm shaftliner or intershield encased in interhome H-studs plus 1 layer of 16mm fireshield or multishield Minimum 20mm air-gap Steel stud framing with insulation 13mm soundshield 			Fire Resistance Level	
			90/90/90 rated for the wall frame opposite to fire attack	
			Fire Report FC11661	



IHW34	 6mm Villabaord[™] Steel stud framing with insulation Minimum 20mm air-gap 25mm shaftliner or intershield encased in interhome H-studs plus 1 layer of 16mm fireshield or multishield Minimum 20mm air-gap Steel stud framing with insulation 6mm Villabaord[™] 			Fire Resistance Level 90/90/90 rated for the wall frame opposite to fire attack Fire Report FC11661
	Minimum Cavity On Both Sides (mm)	Wall Width (mm)	Sound Insulation Rw (Rw + Ctr)	
	Cavity size = stud size + air-gap		$2 \times Pink^{ entropy}$ Batts Wall R1.5	Acoustic Report Day Design 4738-14 Note: Impact Sound Resistant - Discontinuous Construction
	90 (eg: 70 stud + 20 gap)	233	68 (55)	
	110 (eg: 90 stud + 20 gap)	273	69 (55)	
 IOmm mastashield or watershield Steel stud framing with insulation Minimum 20mm air-gap 25mm shaftliner or intershield encased in interhome H-studs plus 1 layer of 16mm fireshield or multishield Minimum 20mm air-gap Steel stud framing with insulation 6mm Villabaord™ 			Fire Resistance Level 90/90/90 rated for the wall frame opposite to fire attack Fire Report FC11661	
	Minimum Cavity On Both Sides (mm)	Wall Width (mm)	Vidth Sound Insulation Rw (Rw + Ctr)	
	Cavity size = stud size + air-gap		2 x Pink [®] Batts Wall R2.0	INSUL v8
	110 (eg: 70 stud + 40 gap) 110	- 277 67 (53)		Note: Impact Sound Resistant -
	(eg: 90 stud + 20 gap)			Discontinuous Construction



Components

Steel Profiles









Plasterboard

Central Fire Barrier

- Siniat 25mm shaftliner or intershield
 Wall Linings
- > Siniat mastashield
- > Siniat **sound**shield
- > Siniat opal
- > Siniat watershield
- > Siniat fireshield
- > Siniat multishield
- > James Hardie Villaboard™

Wall Insulation

- > Fletcher Pink Batts[®] Wall Insulation or Fletcher Firmasoft[™] Wall Insulation (glasswool)
- > Polyester wall insulation

Fire Rated Mineral Wool

- > Fletcher Fire Stop Party Wall Batts
- Sealant
- > bindex fire and acoustic sealant

Aluminium Clip



FIGURE 4 interhome aluminium clip Isometric

Fasteners

Refer to 'Framing' for information on fasteners use in the **inter**home Wall System.



General Requirements

Use a central fire barrier of **inter**home H-studs and 25mm **shaft**liner or **inter**shield and 16mm **fire**shield or **multi**shield fixed using laminating screws.

Adequately prop the central fire barrier until the dwelling is enclosed for wind loading purposes.

Protect plasterboard in the central fire barrier from water and excessive moisture until the dwelling is enclosed to prevent mould growth and degradation of the plasterboard. Use **inter**shield and **multi**shield for improved mould and water resistance during construction.

interhome aluminium clips (CIH-L) are to connect **inter**home H-studs to the stud frames on either side. Aluminium will melt in a fire so the frame of the dwelling on the fire side can detach from the central fire barrier.

Leave a gap of at least 20mm between the central fire barrier and the studs of both wall frames. A gap of at least 25mm is recommended.

Control joints are not required in the central fire barrier.

Prevent contact between services in the wall cavities and the central fire barrier.

Apply **bindex** fire and acoustic sealant to all gaps in the central fire barrier to maintain fire and acoustic integrity. If sheets or tracks are touch fitting and no gap exists, fire sealant is not required.

Pack any gaps between the top of the central fire barrier and the underside of the roof covering with Fire Stop Party Wall Batts to maintain the 90 minute fire rating.

> Refer to the **inter**home high-rise guide for non-load bearing FRL -/60/60 walls in slab to slab buildings.

Refer to the interhome Class 1 guide for load bearing walls with an FRL of 60/60/60 for separating Class 1 dwellings from ground to roof.

Fire Resistance

All systems in this section are displayed with an FRL of 90/90/90 to indicate that they support the frame on the opposite side to fire attack. In a fire event, the framing on the fire side of the central fire barrier is considered to collapse before 90 minutes.

All **inter**home systems have a Fire Resistance Level (FRL) assigned by an Accredited Testing Laboratory in accordance with Section A5.2 of Volume One of the *National Construction Code* (NCC) and AS 1530.4 Fire resistance tests for elements of construction.

In the event of a fire, the **inter**home aluminium clips on the fire side are designed to melt and allow the frame to collapse, leaving the central fire barrier attached to the unaffected frame on the non-fire side.

The outer wall lining and cavity insulation of any **inter**home system can be used on one side of a different system without reducing its FRL. The linings may also transition along a wall from one **inter**home system to another.

Sound Insulation

Services installed in one cavity have an acoustic rating to the other side of the **inter**home wall of at least Rw + Ctr 40 which meets the requirements of the NCC for walls separating soil, waste or water supply pipes from a habitable room.

When the internal lining and cavity insulation of one **inter**home system is used on one side of a different **inter**home system, the acoustic rating is the lower of the two provided that the central fire barrier and stud cavity sizes are the same.

Framing

J-Tracks:

- Position on the slab or footing 20mm minimum (25mm recommended) from the existing frame of the dwelling
- > Fix to the concrete at 600mm maximum centres and 150mm maximum from track ends using concrete anchors
- > Fix to both vertical ends of the central fire barrier. Screw fix vertical J-Track to horizontal J-Tracks
- > Use back-to-back at the top of each row to form the top track and also the bottom track for the next level. Screw fix the back-to-back J-Tracks at 600mm maximum centres and 150mm from ends

interhome H-studs:

- > Friction fit into bottom J-Track and push down completely. They are not required to be fastenered to the top or bottom J-Tracks
- > Space at 600mm centres. Alternate between 25mm shaftliner / intershield panels and H-Studs until the row is complete
- > Use 3m H-Studs with 3m shaftliner / intershield panels and 3.6m H-Studs with 3.6m shaftliner / intershield panels.

Leave a gap of 20mm minimum between the central fire barrier and both of the dwelling's frames.

Maximum height is 12m for the central fire barrier

Fix interhome aluminium clips to both sides of each H-stud and vertical J-Track:

- > At the floor / ceiling levels on top or bottom plates
- > Within 300mm of the top of the central fire barrier
- > At maximum 3m intervals for 3m **shaft**liner / **inter**shield panels
- > At maximum 3.6m intervals for 3.6m shaftliner / intershield panels
- Within 700mm from the top of H-Studs at a horizontal joint in the shaftliner / intershield (back-to-back J-Track) [Refer to Details].

It is critical to correctly fix the **inter**home aluminium clips only in the locations listed above to comply with the discontinuous construction requirements of the NCC.

Substituting interhome aluminium clips will significantly effect system performance
 Plumbing and electrical services must not protrude beyond the face of the stud

Installation



Fasteners

Fixing Aluminium Clips	Fastener
interhome aluminium clips to steel (2 screws)	8g x 16mm screw ²
inter home aluminium clips to steel H-studs through 16mm fire shield / multi shield (2 screws)	6g x 30mm screw ²
inter home aluminium clips to softwood timber (2 fasteners)	6g x 25mm screw or 2.8 x 30mm galvanised nail
Fixing J-Track	Fastener
Back to back J-tracks	8g x 16mm screw ²
Laminating	Fastener
Laminating fire shield / multi shield to shaft liner / inter shield	10g x 38mm coarse thread laminating screws ²

Fasteners gauges and lengths are minimums. Screws may be fine or coarse thread and must comply with Australian Standard 3566.1.
 Maximum screw length is 50mm

Plasterboard Layout

Central Fire Barrier

Build the central fire barrier up to the underside of a non-combustible roof lining or 450mm above a combustible roof.

Additional 16mm Fireshield / Multishield

Laminate an additional 16mm fireshield or multishield to the central fire barrier in the following locations:

- > At floor joists to 150mm above floor level
- > 150mm below ceilings
- > Roof space
- > Parapets

Plasterboard Fixing

The **shaft**liner / **inter**shield of the central fire barrier is friction fit into the **inter**home H-Stud and J-Track, no screws are required.

Install internal linings with either the Fastener and Adhesive method or the Fastener Only method. Both methods may be used to achieve the fire rating for the **inter**home system.



FIGURE 5 Fire Rated 1 Layer of 16mm Fireshield or Multishield Laminating Screw Method

Fixing	Laminating screw method using 10g x 38mm laminating screw		
Sheet Layout	Horizontal or Vertical		
Recessed Edges and Butt Joints	Fix screws 10 - 50mm from sheet edges		
Field	Laminate to central fire barrier at 400 x 400mm maximum centres		
Fire Sealant	Use bindex fire and acoustic sealant on any gaps to maintain integrity. fire shield / multi shield that has been touch fitted (no gaps) does not need to have fire sealant applied to joints. [Refer to Details]		
Jointing	No plaster jointing required. Use bindex fire and acoustic sealant on any gaps up to 20mm wide.		

Intershield and Multishield

intershield and **multi**shield are plasterboards that have been formulated to resist sound and fire as well as providing enhanced water and mould resistance. They are suitable for use in **inter**home systems where an FRL (Fire Resistance Level) and sound insulation rating are required. **inter**shield and **multi**shield have recycled blue liner paper.

The mould resistance technology used in **inter**shield and **multi**shield is enhanced by a water resistant additive. Together these unique features dramatically reduce mould growth under severe conditions.



Fire Rated Interhome Wall Base Details







FIGURE 10 Interhome Wall Base to Slab with Larger Step-Down FRL 90/90/90 Section



Fire Rated Interhome Wall to Upper Storey Floor





Fire Rated Interhome Wall to Upper Storey Staggered Floors



FIGURE 12 Interhome Wall to Upper Storey Staggered Floor FRL 90/90/90

Section

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Fire Rated Interhome Wall to Upper Storey Staggered Floors



FIGURE 13 Interhome Wall to Upper Storey Staggered Floor with Additional Nogging Installed FRL 90/90/90 Section





FIGURE 14 Interhome Wall to Roof Lining FRL 90/90/90 Section



Fire Rated Interhome Wall to Roof Lining







Section



Fire Rated Interhome Central Fire Barrier



FIGURE 18 Interhome with Horizontal Shaftliner / Intershield to Roof Line FRL 90/90/90



FIGURE 19 Interhome with Flattened Aluminium Clips over Horizontally Installed Shaftliner / Intershield FRL 90/90/90 Section



Fire Rated Interhome Central Fire Barrier



FIGURE 20 Interhome with Horizontal Shaftliner / Intershield panels FRL 90/90/90 Section

Fill any gaps with Bindex fire and

acoustic sealant to maintain integrity

Aluminium clips fixed to H-Studs on both sides of central fire barrier at wall top or roof framing, and within 700mm from the top of H-Studs. Install additional trimmers between roof framing if necessary.



FIGURE 21 Interhome with Step-Down in Slab FRL 90/90/90 Section



Fire Rated Interhome Wall Over Eaves



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FIGURE 23 Interhome over Eave End Detail for Class 2 Buildings
FRL 90/90/90
Elevation
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Fire Rated Interhome Wall to External Wall Above with Eave Overhanging Boundary



FRL 90/90/90 - Section



Fire Rated Interhome Wall to External Wall Above





Fire Rated Interhome Junctions



FIGURE 29 Interhome Wall with Non-Fire Rated Intersecting Wall Timber Frame - FRL 90/90/90 Plan











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Details



Roof framing members must not cross through central fire barrier 









FIGURE 39 Interhome Wall to External Clad Wall with Cavity battens with Return FRL 90/90/90 Plan







Fire Rated Interhome Wall to External Wall



Timber Frame - FRL 90/90/90 Plan



Steel Frame - FRL 90/90/90 Plan

Fire Rated Interhome Wall to External Wall



Fire Rated Penetration Details



FIGURE 45 Plumbing and Electrical Penetrations in Wall Linings FRL 90/90/90 Plan



Fire Rated Patching of Central Fire Barrier - 50 x 50mm maximum opening

Technical Advice 1300 724 505 siniat.com.au

Section - FRL 90/90/90



Fire Rated Patching of Central Fire Barrier - 300 x 300mm maximum opening



Section - FRL 90/90/90





Fire Rated Patching of Central Fire Barrier - Crack in Shaftliner / Intershield

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