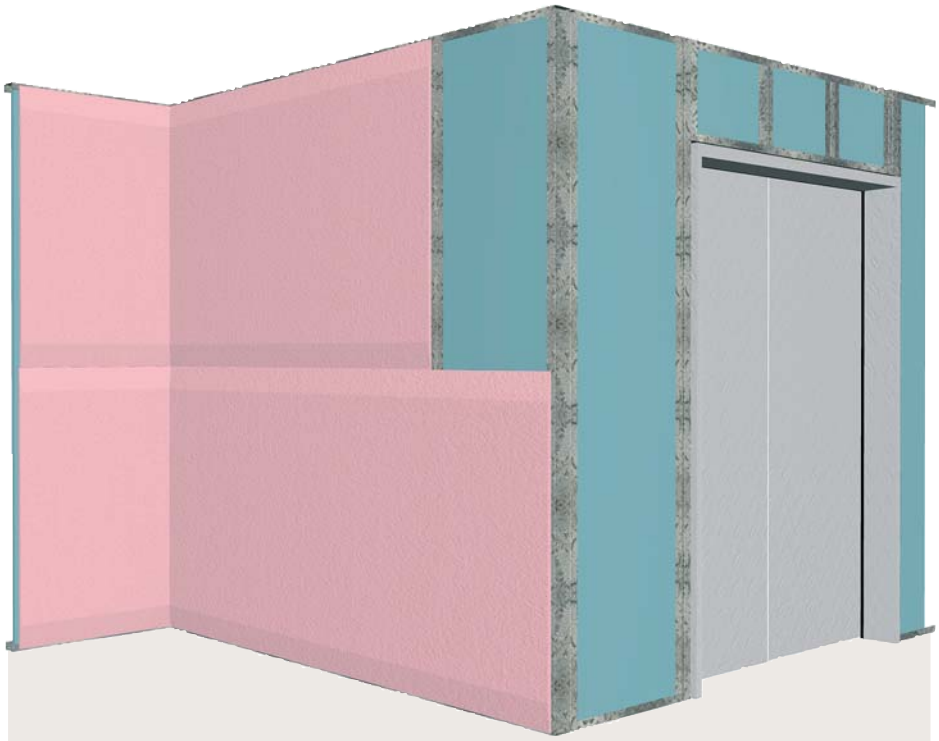
SHAFT WALL



Shaft Wall systems are fire rated non-load bearing walls used for lift shafts, service ducts, stairwells and fire isolated passageways.

They are ideal when constructing a wall where access is only possible from one side. This side is referred to as the storey side.

Shaft Wall has advantages compared with masonry construction:

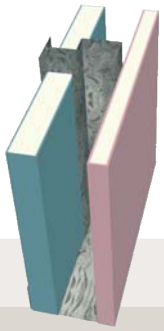
- 75% lighter
- Thinner – typically less than 100mm wide using 64mm CH-Studs
- No wet trades required
- Faster installation – no scaffolding is required inside the shaft.

Shaft Wall systems meet the necessary performance requirements of the BCA for lift shafts:

- Fire resistance requirements
- Structural requirements under Specification C1.8 for lift shafts.

Shaft Wall systems can resist positive and negative air pressure surges up to 0.7 kPa, and can resist positive and negative sustained air pressures up to 0.5 kPa. If the sustained air pressure exceeds 0.5kPa the air handling should be contained within a metal duct.

LSHW1



WALL LINING: [SIDE 1] 1 layer of 16mm **FireShield**
[SIDE 2] 1 layer of 25mm **ShaftLiner** encased in CH-studs

FRAME: Shaft Wall CH-steel studs at maximum 600mm centres

[16mm FireShield can be substituted with 16mm MultiShield]

FRL	CH-STUD SIZE (mm)		MAX HEIGHT (m)		WIDTH (mm)	ACOUSTICS Rw (Rw + Ctr)			
	CH-Stud Depth	CH-Stud BMT	Non-Load Bearing Studs at 600mm UDL 0.25kPa	Non-Load Bearing Studs at 600mm UDL 0.35kPa		No Insulation	50mm Glasswool	50mm Polyester ISB2	
- /60/60 rated from both sides FAR 2817 FAR 2863	64	0.55	2.95	2.64	80	39 (32)	46 (39)	46 (38)	Day Design 3094-18
		0.9	3.46	3.09					
	102	0.55	3.73	2.66	118	42 (33)	48 (41)	48 (41)	
		0.9	4.98	4.19					

LSHW2

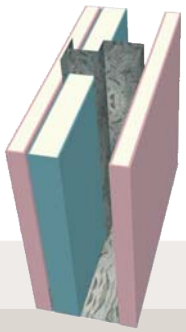
WALL LINING: [SIDE 1] 2 layers of 16mm **FireShield**
[SIDE 2] 1 layer of 25mm **ShaftLiner** encased in CH-studs

FRAME: Shaft Wall CH-steel studs at maximum 600mm centres

[16mm FireShield can be substituted with 16mm MultiShield]

FRL	CH-STUD SIZE (mm)		MAX HEIGHT (m)		WIDTH (mm)	ACOUSTICS Rw (Rw + Ctr)			
	CH-Stud Depth	CH-Stud BMT	Non-Load Bearing Studs at 600mm UDL 0.25kPa	Non-Load Bearing Studs at 600mm UDL 0.35kPa		No Insulation	50mm Glasswool	50mm Polyester ISB2	
- /120/120 rated from both sides FAR 2817 FAR 2863	64	0.55	3.73	2.66	96	44 (36)	50 (42)	50 (42)	Day Design 3094-18
		0.9	4.38	3.89					
	102	0.55	3.73	2.66	134	46 (37)	52 (46)	52 (46)	
		0.9	5.51	4.19					

LSHW3



WALL LINING: [SIDE 1] 1 layer of 16mm **FireShield**
[SIDE 2] 1 layer of 25mm **ShaftLiner** encased in CH-studs and 1 layer of 16mm **FireShield**

FRAME: Shaft Wall CH-steel studs at maximum 600mm centres

[16mm FireShield can be substituted with 16mm MultiShield]

FRL	CH-STUD SIZE (mm)		MAX HEIGHT (m)		WIDTH (mm)	ACOUSTICS Rw (Rw + Ctr)			
	CH-Stud Depth	CH-Stud BMT	Non-Load Bearing Studs at 600mm UDL 0.25kPa	Non-Load Bearing Studs at 600mm UDL 0.35kPa		No Insulation	50mm Glasswool	50mm Polyester ISB2	
- /120/120 rated from both sides FAR 2817 FAR 2863	64	0.55	2.95	2.64	96	42 (35)	50 (42)	50 (42)	Day Design 3094-18
		0.9	3.46	3.09					
	102	0.55	3.73	2.66	134	45 (36)	52 (45)	52 (45)	
		0.9	4.98	4.19					

GENERAL REQUIREMENTS

	FIRE RATED
Install control joints in plasterboard walls: › At 10m maximum intervals › At all control joints in the structure › At any change in the substrate material.	✓
Only joint the face layer. As a minimum to achieve the FRL, only use paper tape and: › Two coats of **MastaBase** / **MastaLongset**, or › Three coats of **MastaRapid** / **MastaLite**. Never joint sheets with fire sealant [REFER TO SECTION 5].	✓
Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance.	✓
Use fire sealant on all gaps and around perimeter, vermiculite plaster is not permitted.	✓
Mount lift operating equipment on structural members independent from the Shaft Wall system. [REFER TO CONSTRUCTION DETAILS FOR LIFT CALL BUTTON INDICATOR BOXES, FIGURES 39 AND 40].	✓

For acceptable modifications or variations to fire rated systems [REFER TO SECTION 3.3 FIRE RESISTANCE].

FRAMING

	FIRE RATED
Fix the bottom track and top track or deflection head at 600mm maximum centres and 100mm maximum from each end.	✓
Use a deflection head if: › Wall heights are 4800mm or greater › Ceiling, roof or floor movement is expected.	✓
Space CH-studs at 600mm centres maximum.	✓
Push CH-studs down completely into bottom track.	✓
Friction fit all CH-studs. They must not be screwed to the top and bottom tracks.	✓

Plumbing and electrical services must not protrude beyond the face of the stud.
Gas services are not permitted in fire rated systems.

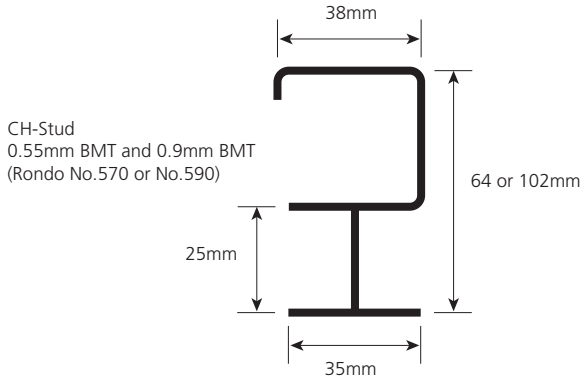


FIGURE 1
Shaft Wall Framing Components
Shaft Wall CH-stud

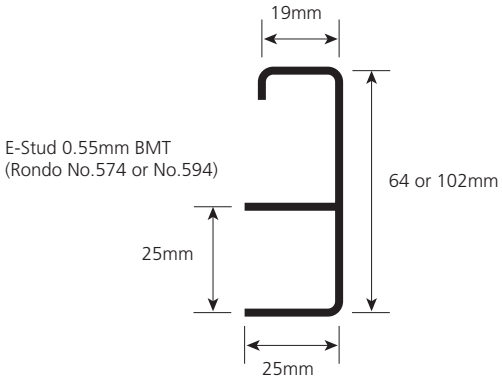


FIGURE 2
Shaft Wall Framing Components
Shaft Wall E-stud

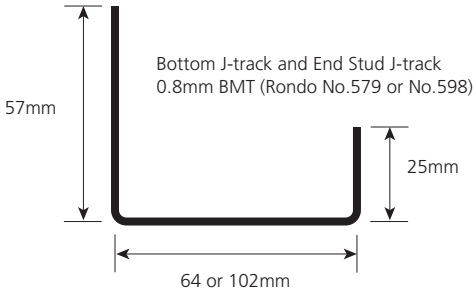


FIGURE 3
Shaft Wall Framing Components
J-track

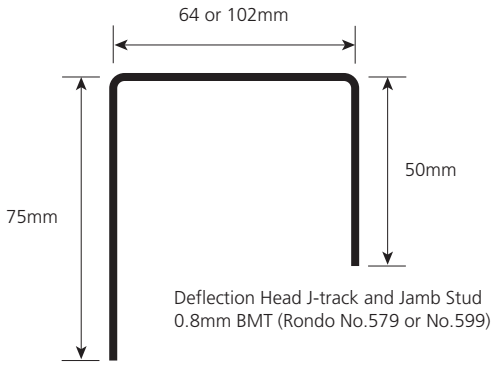


FIGURE 4
Shaft Wall Framing Components
Deflection head J-track and jamb stud

PLASTERBOARD LAYOUT

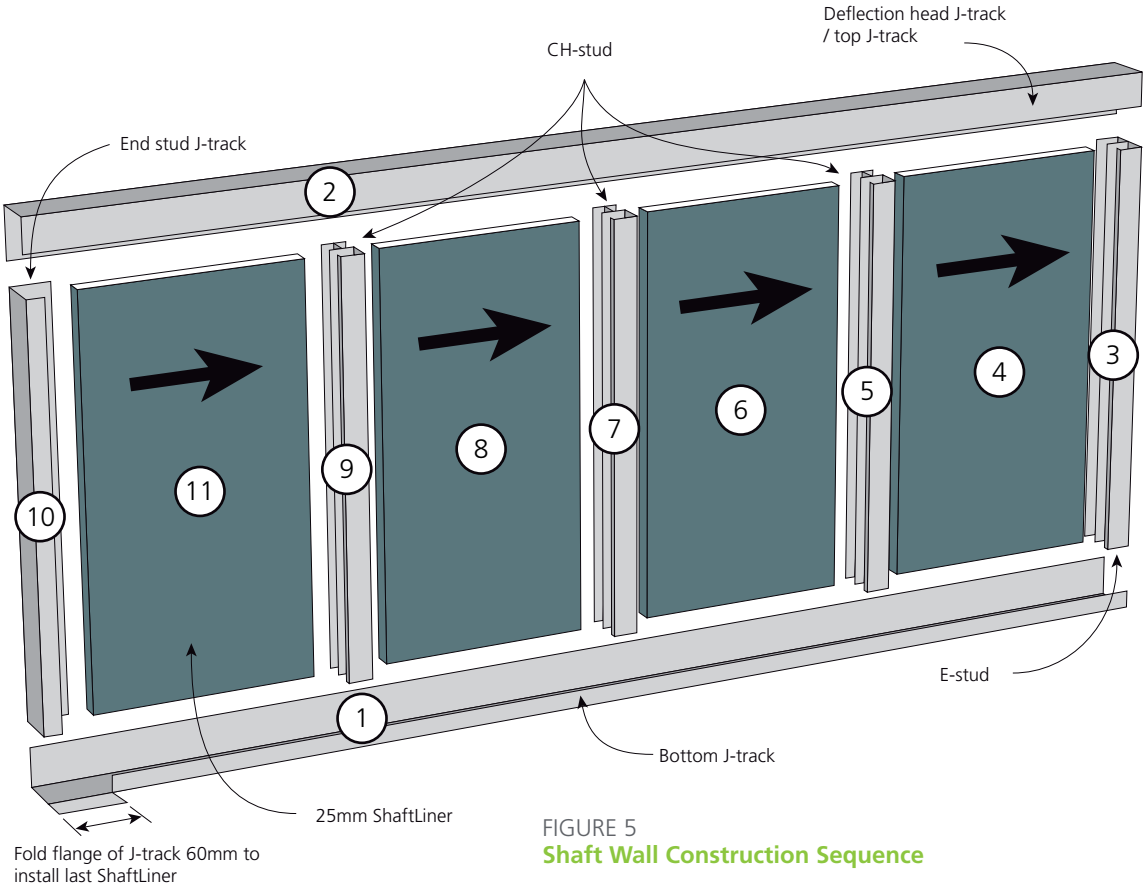


FIGURE 5
Shaft Wall Construction Sequence

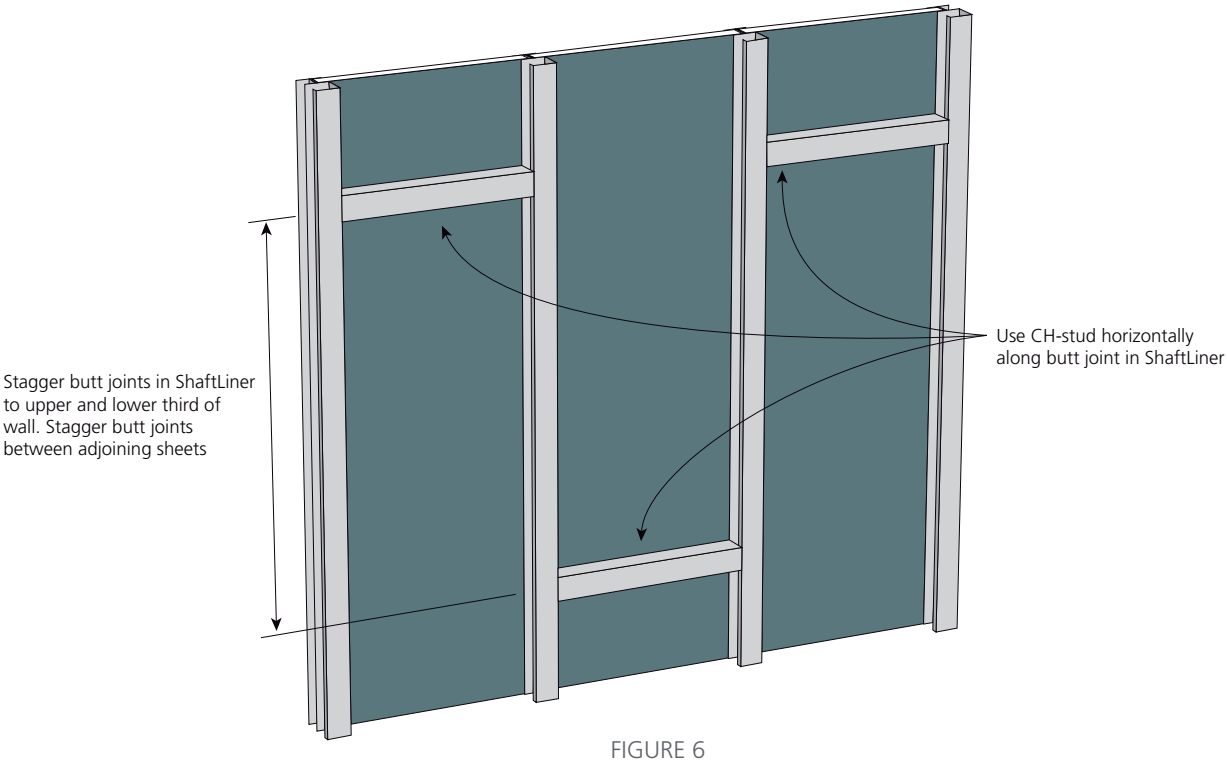


FIGURE 6
ShaftLiner butt joint layout

PLASTERBOARD LAYOUT

	FIRE RATED
FIRESHIELD HORIZONTAL LAYOUT	
Stagger butt joints by 600mm minimum on adjoining sheets and between layers.	✓
First layer butt joints must be backed by a CH-stud.	✓
Stagger recessed edges by 300mm minimum between layers.	✓
FIRESHIELD VERTICAL LAYOUT	
Stagger butt joints by 600mm minimum on adjoining sheets and between layers.	✓
Stagger recessed edges by 300mm minimum between layers.	✓
First layer butt joints must be backed by a CH-nogging.	✓
SHAFTLINER LAYOUT	
If the wall height exceeds the length of **ShaftLiner**, position the ShaftLiner butt joints within the upper and lower third of the wall [REFER TO FIGURE 6].	✓
Stagger **ShaftLiner** butt joints for adjacent panels and reinforce with horizontal CH-stud cut to fit between the vertical studs [REFER TO FIGURE 6].	✓

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

PLASTERBOARD FIXING

	FIRE RATED
Use the Screw Only Method. Stud adhesive is not permitted.	✓
Drive screws 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.	✓

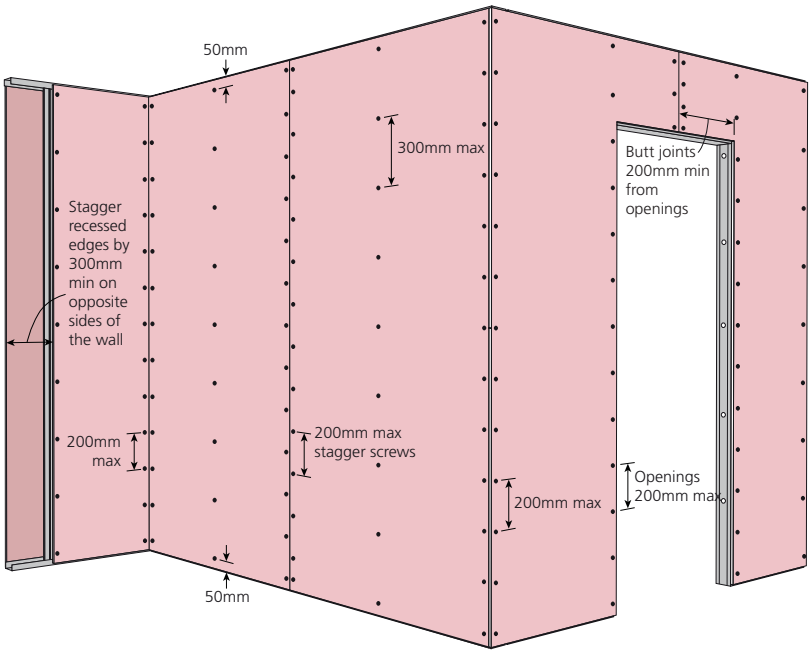
SCREW TYPE AND MINIMUM SIZE FOR THE INSTALLATION OF PLASTERBOARD TO STEEL

PLASTERBOARD THICKNESS	1ST LAYER	2ND LAYER	3RD LAYER
16mm **FireShield**	30mm – 6g S screw	45mm – 6g S screw *	65mm – 6g S screw *
25mm **ShaftLiner**	45mm – 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.
+ Use for securing ShaftLiner to J-track when the J-track is being used as an end stud.

FIGURE 7

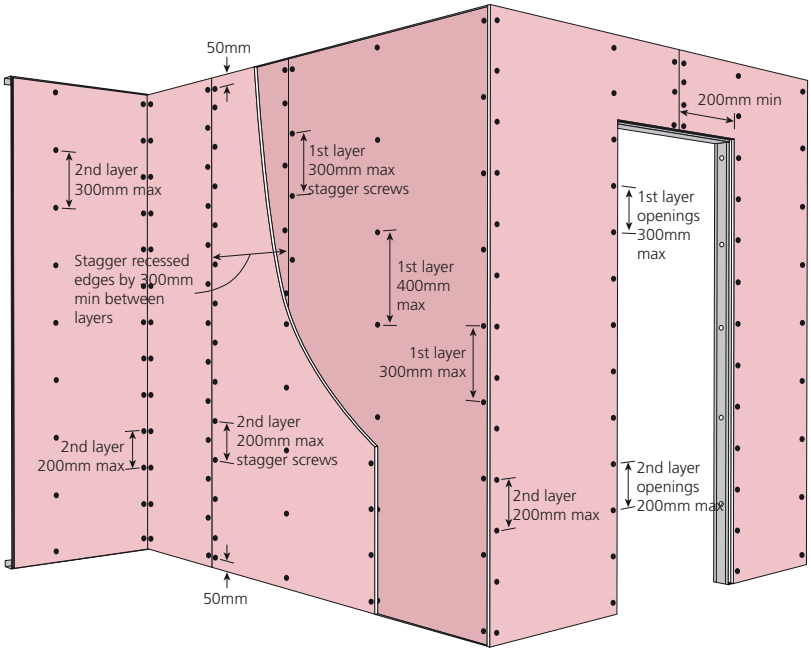
Fire rated 1 layer - Vertical
Screw Only Method



Fixing	SCREW ONLY METHOD
Sheet Layout	Vertical.
Perimeter	Perimeter screws 10-15mm from sheet edges except at top and bottom tracks. Plasterboard must not be fixed to top and bottom tracks.
Field	Fix at 300mm max centres.
Recessed Edges	Fix at 200mm max centres and stagger screws. Stagger recessed edges by 300mm min on opposite sides of the wall. Recessed edges must be backed by a stud.
Butt Joints	Fix at 200mm max centres and stagger screws. 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 nogging.
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	As a minimum, only use paper tape with either two coats of MastaBase/MastaLongset or three coats of MastaRapid/MastaLite. [REFER TO SECTION 5]

FIGURE 8

Fire rated 2 layers - Vertical + Vertical
Screw Only Method



Fixing	SCREW ONLY METHOD
Sheet Layout	1st layer: Vertical. 2nd layer: Vertical.
Perimeter	Perimeter screws 10-15mm from sheet edges except at top and bottom tracks. Plasterboard must not be fixed to top and bottom tracks.
Field	1st layer: Fix at 400mm max centres. 2nd layer: Fix at 300mm max centres.
Recessed Edges	1st layer: Fix at 300mm max centres and stagger screws. Stagger recessed edges by 300mm min on opposite sides of the wall. Recessed edges must be backed by a stud. 2nd layer: Fix at 200mm max centres and stagger screws. Recessed edges must be backed by a stud.
Butt Joints	1st layer: Fix at 200mm max centres and stagger screws. Stagger butt joints by 600mm min on adjoining sheets, between layers and on opposite sides of the wall. 1st layer butt joint must be backed by a nogging. 2nd layer: Fix at 200mm max centres and stagger screws. Alternatively, 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	As a minimum, only use paper tape with either two coats of MastaBase/MastaLongset or three coats of MastaRapid/MastaLite. [REFER TO SECTION 5]

FIRE RATED
SHAFT WALL HEAD AND BASE - ELEVATION

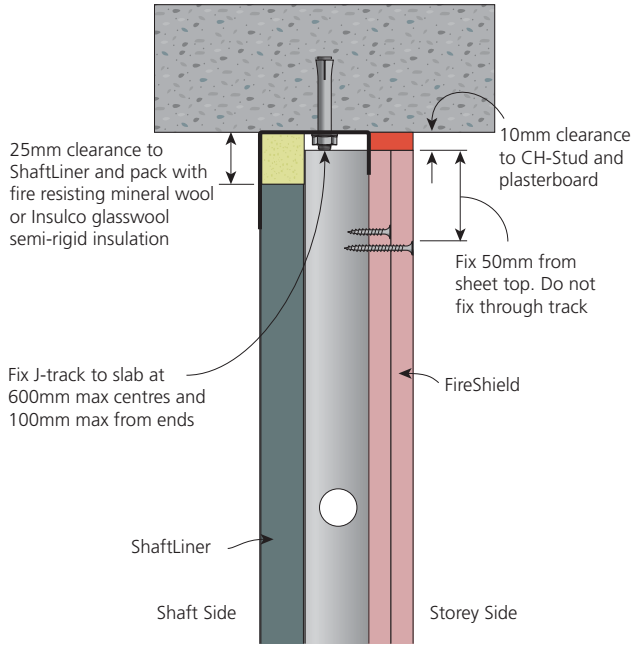


FIGURE 9
Shaft wall head to slab
System LSHW2

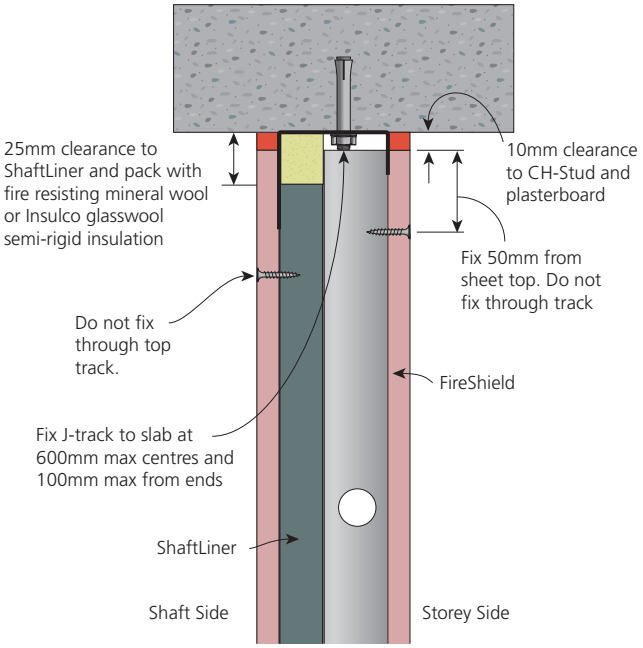


FIGURE 10
Shaft wall head to slab
System LSHW1/3

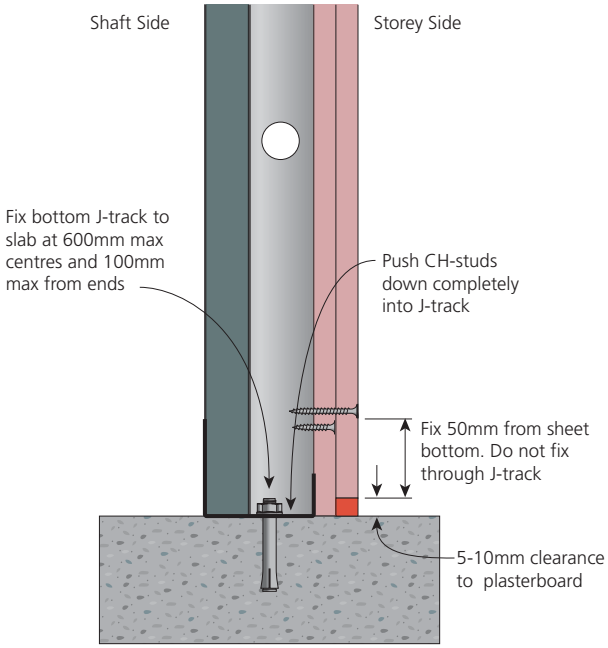


FIGURE 11
Shaft wall base to slab
System LSHW2

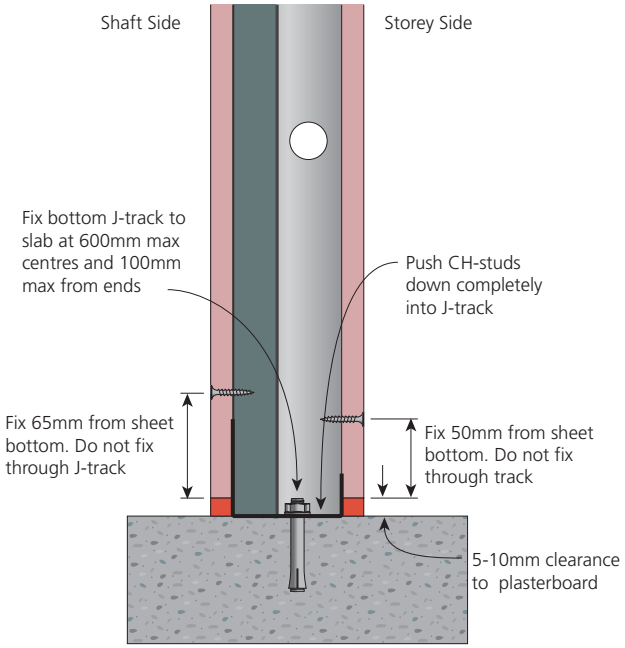


FIGURE 12
Shaft wall base to slab
System LSHW1/3

FIRE RATED
SHAFT WALL HEAD AND BASE DETAIL AND BUTT JOINT - ELEVATION

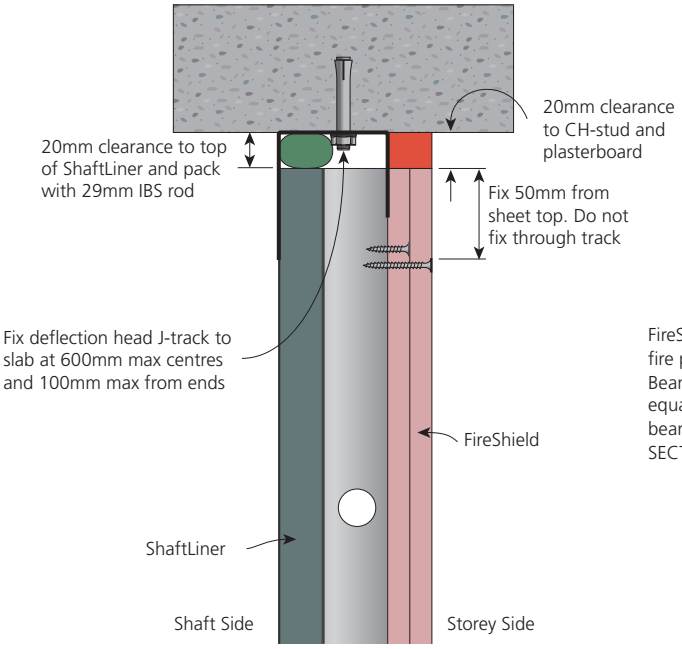


FIGURE 13
Shaft wall deflection head
Elevation

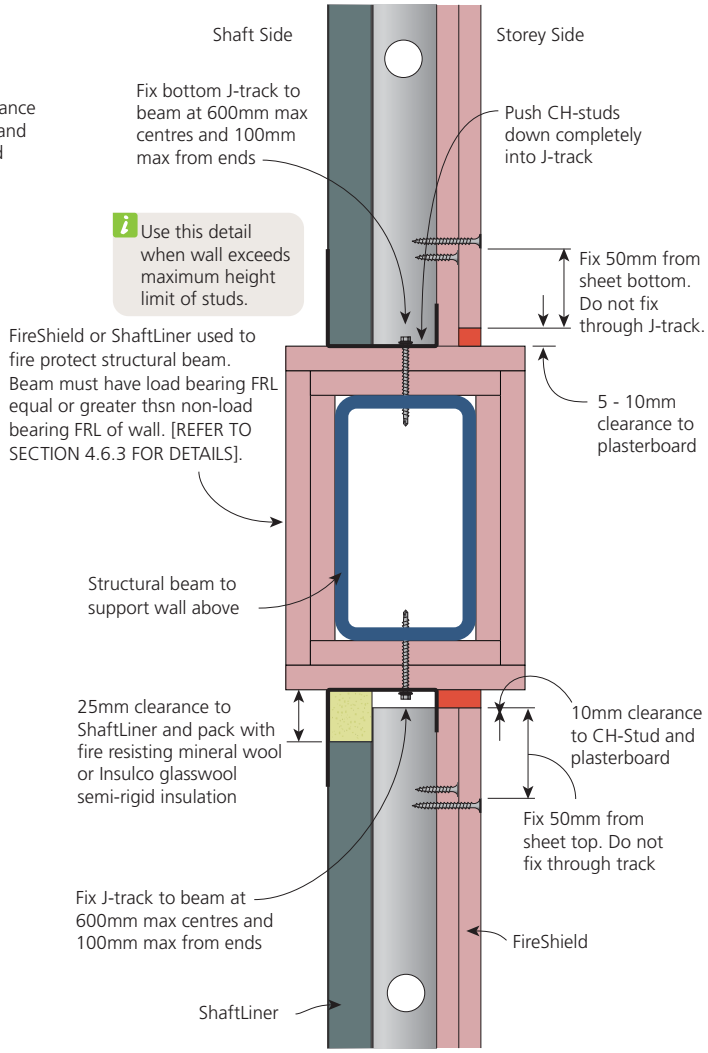


FIGURE 14
Shaft Wall to supporting beam
Elevation

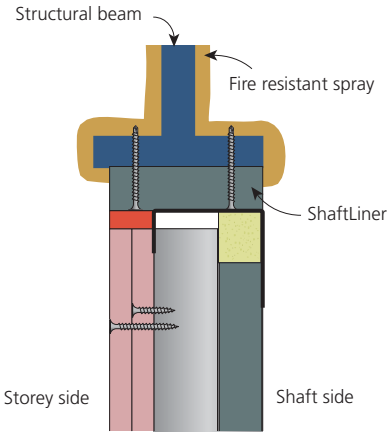


FIGURE 15
Shaft wall head to structural beam
Elevation

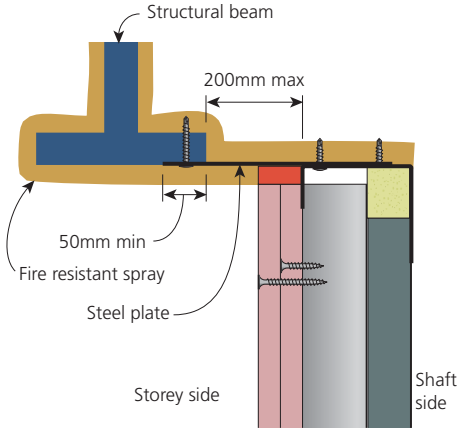


FIGURE 16
Shaft wall head to structural beam
Elevation

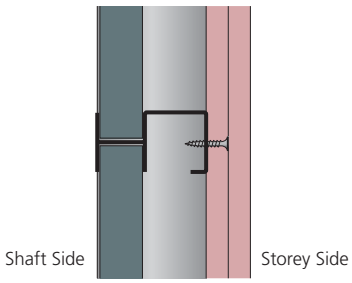


FIGURE 17
Butt joint in ShaftLiner
Elevation

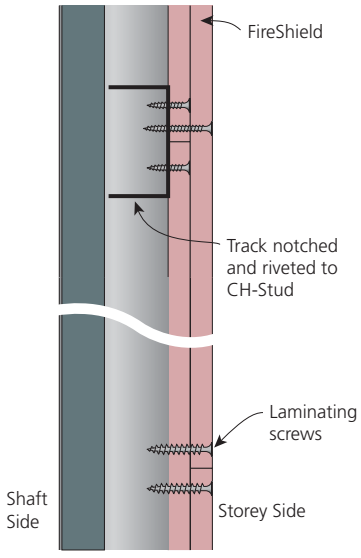


FIGURE 18
Alternate butt joint detail in FireShield
Elevation

FIRE RATED
SHAFT WALL JUNCTIONS - PLAN VIEW

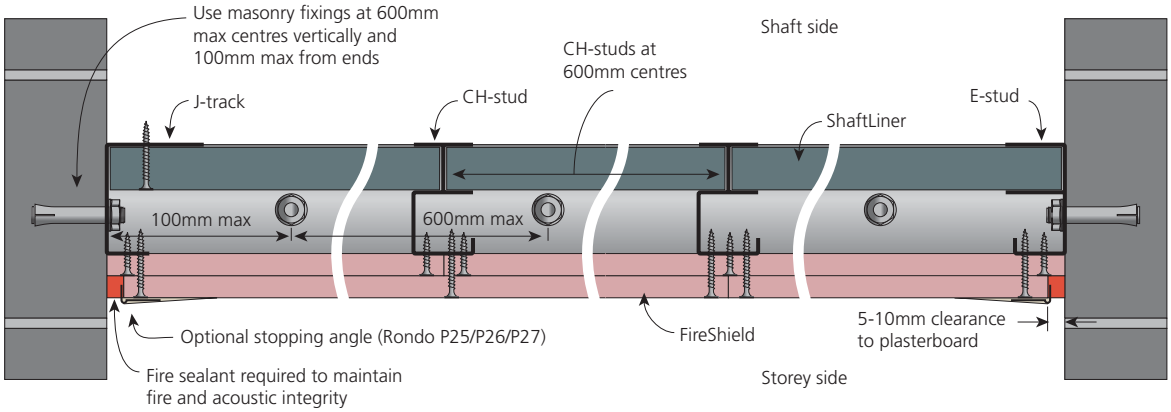


FIGURE 19
Shaft wall detail

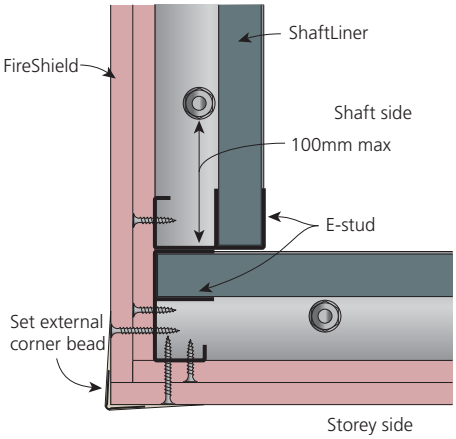


FIGURE 20
Shaft wall external corner detail

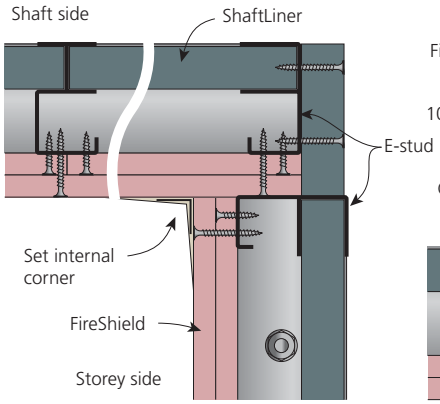


FIGURE 21
Shaft wall internal corner detail

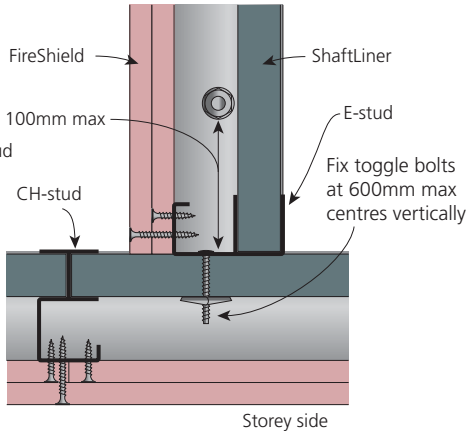


FIGURE 22
Shaft wall intersecting wall detail

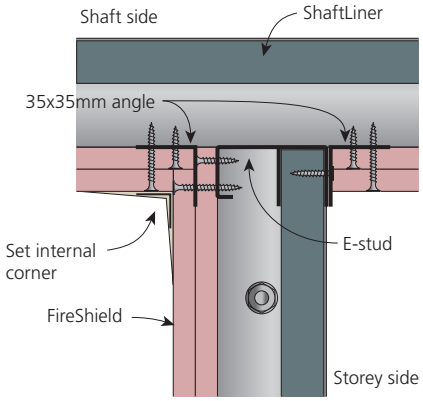


FIGURE 23
Shaft wall intersecting wall detail

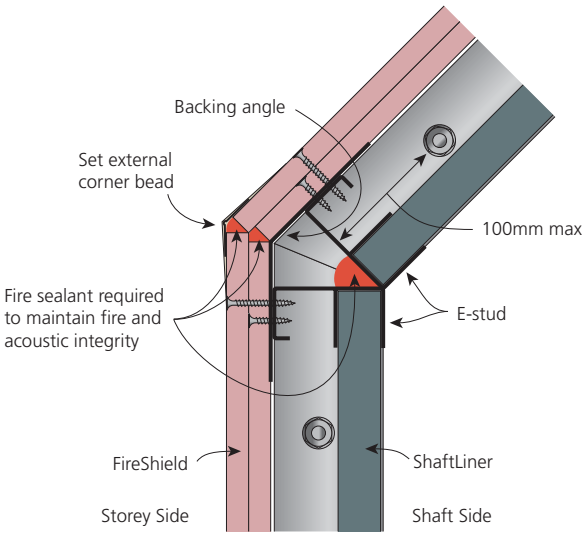


FIGURE 24
Shaft wall angled corner
Plan view

FIRE RATED
SHAFT WALL JUNCTIONS WITH STRUCTURAL MEMBERS AND CONTROL JOINT - PLAN VIEW

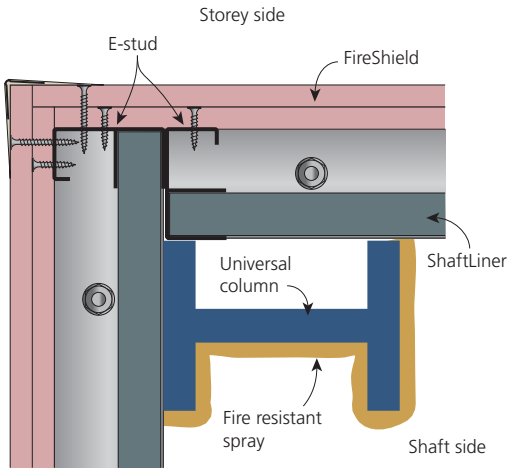


FIGURE 25
Shaft wall intersecting column detail
Plan view

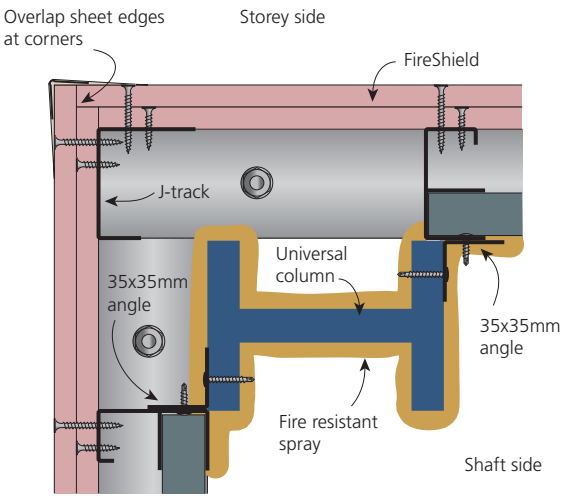


FIGURE 26
Shaft wall intersecting column detail
Plan view

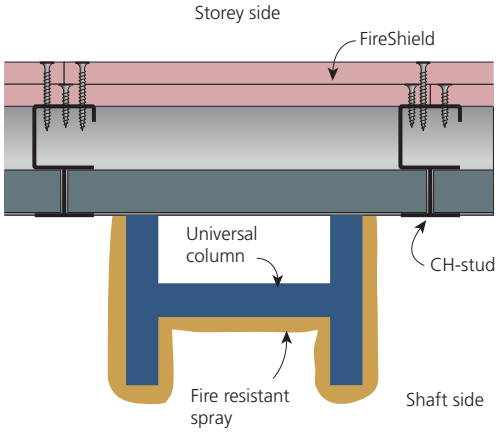


FIGURE 27
Shaft wall junction column detail
Plan view

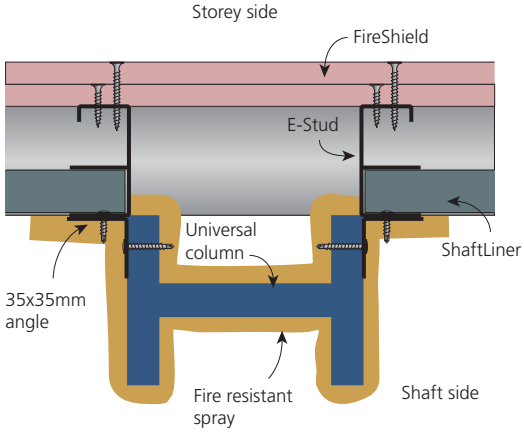


FIGURE 28
Shaft wall junction column detail
Plan view

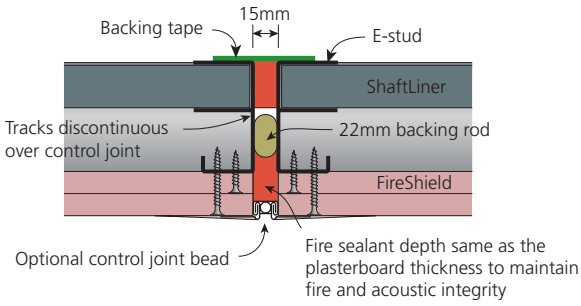


FIGURE 29
Shaft wall control joint
Plan view

FIRE RATED
SHAFT WALL DOORS

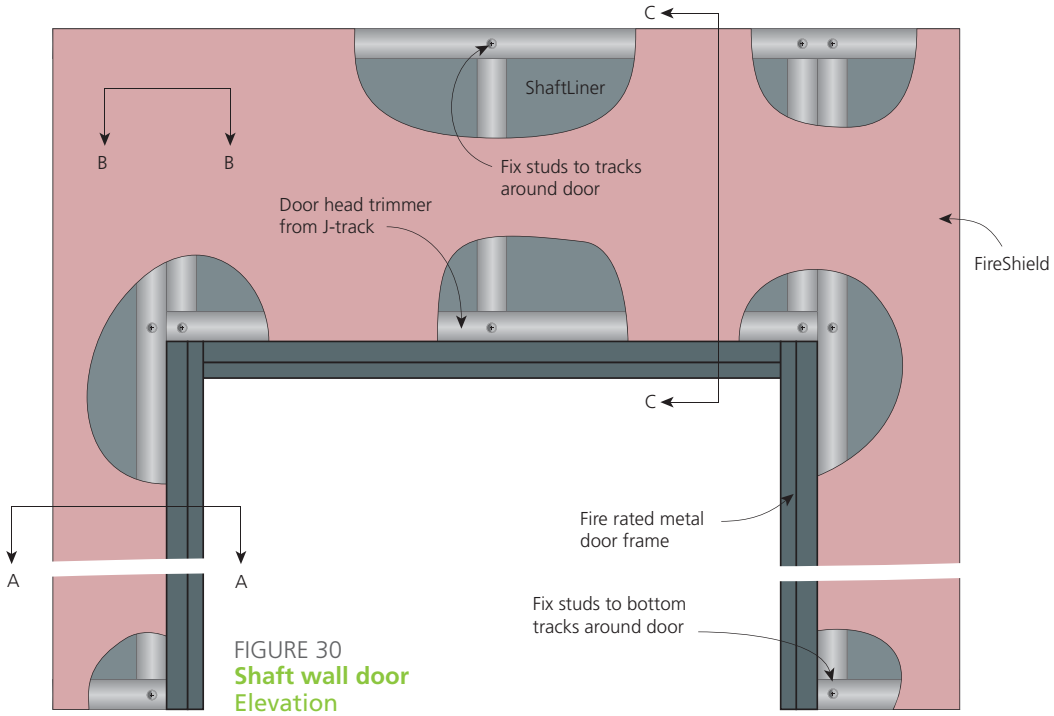


FIGURE 30
Shaft wall door
Elevation

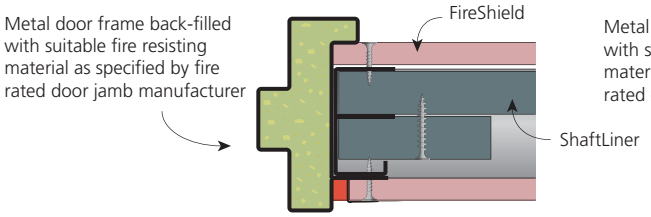


FIGURE 31
Section A-A System LSHW2
Example only - Plan view

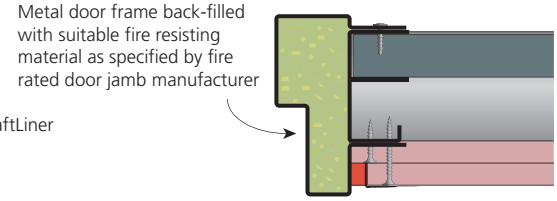


FIGURE 32
Section A-A System LSHW1/3
Example only - Plan view

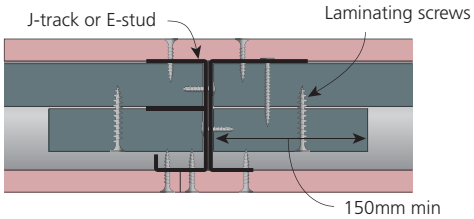


FIGURE 33
Section B-B System LSHW2
Plan view

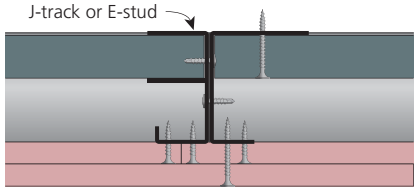


FIGURE 34
Section B-B System LSHW1/3
Example only - Plan view

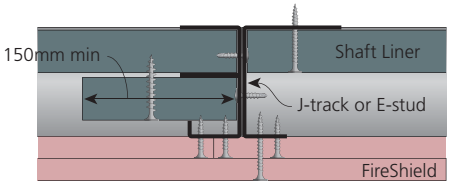


FIGURE 35
Section B-B Lift landing door
Example only - Plan view

FIRE RATED
SHAFT WALL DOORS - ELEVATIONS

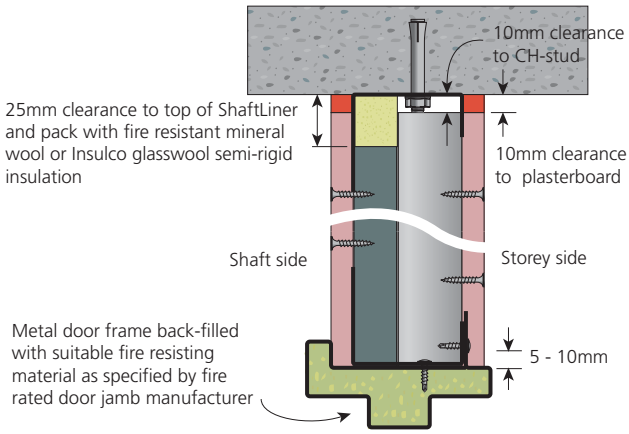


FIGURE 36
Section C-C System LSHW2
Example only

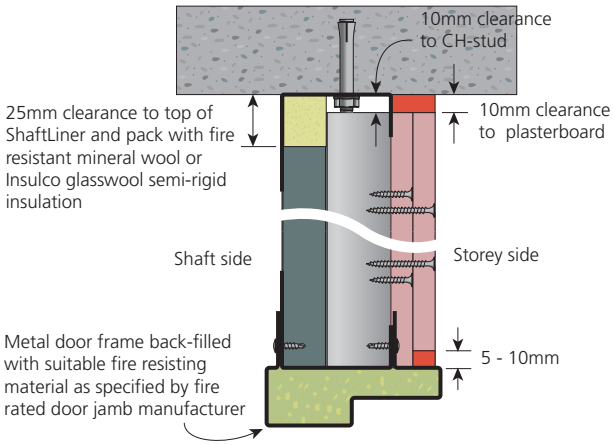


FIGURE 37
Section C-C System LSHW1/3
Example only

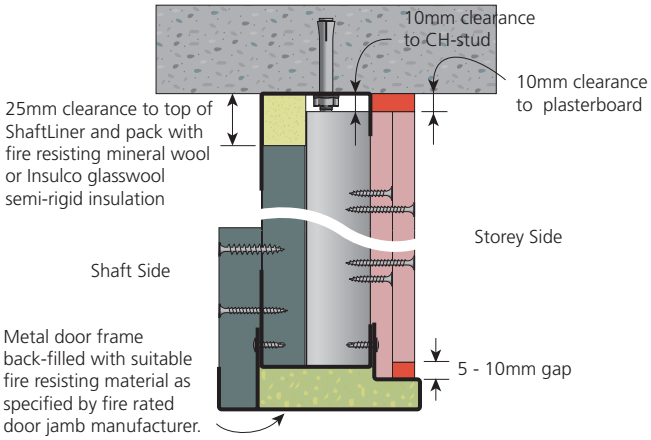


FIGURE 38
Section C-C Lift landing door
Example only

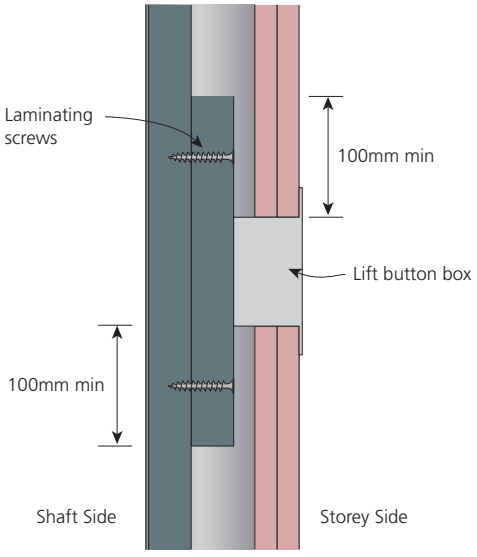


FIGURE 39
Lift button box detail 1

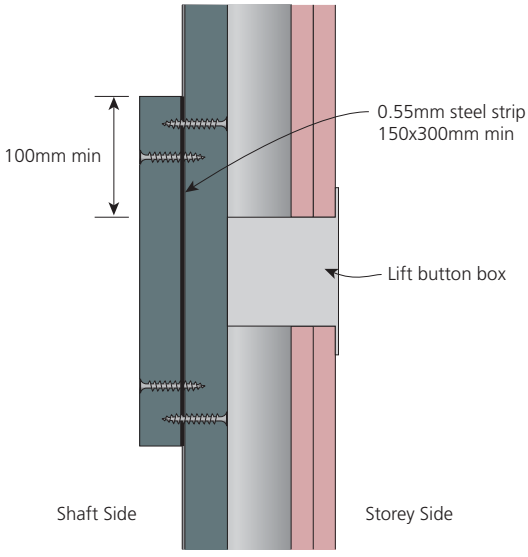


FIGURE 40
Lift button box detail 2

FIRE RATED
FIRE PENETRATIONS - ELEVATION

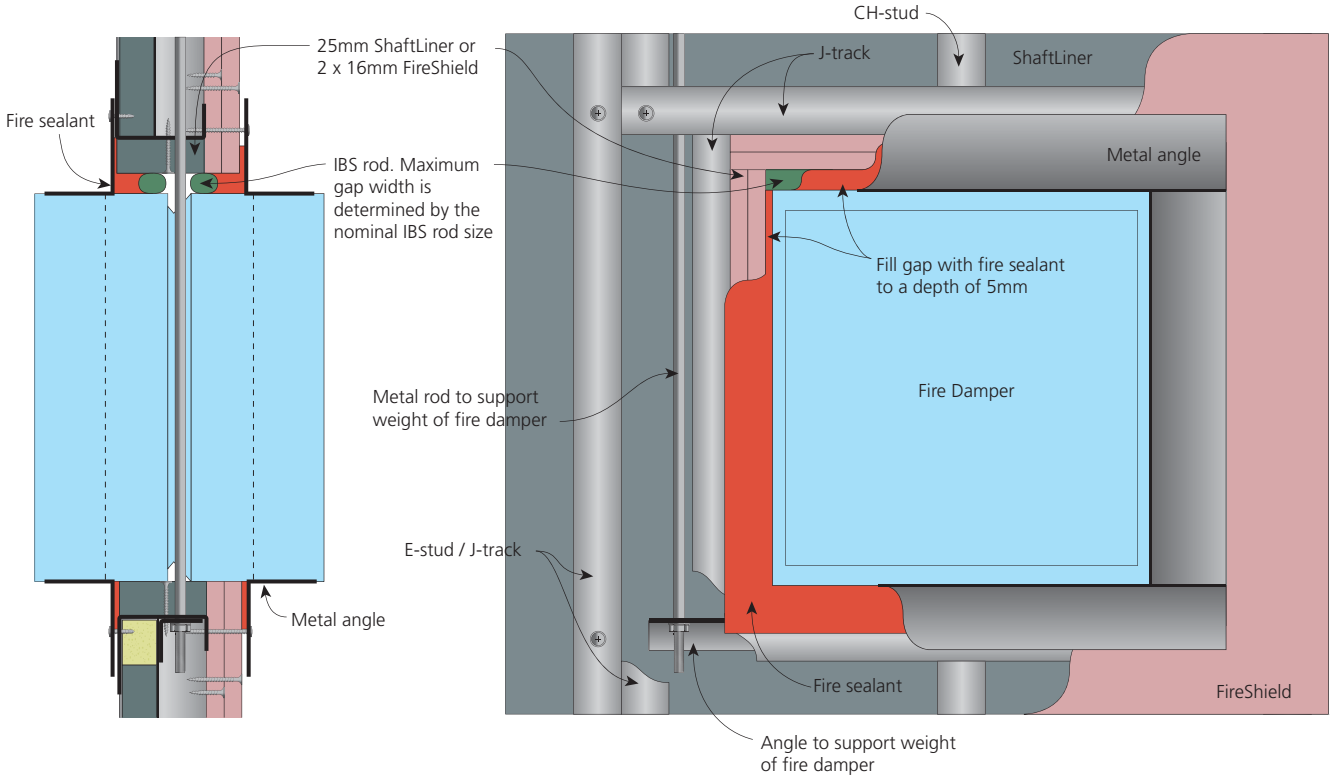


FIGURE 41
Fire damper
Example only