Shaft Wall

Shaft Wall systems are fire rated non-load bearing walls used for shafts and service ducts.

Shaft Wall systems 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.

KSHW1

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 **TruRock**]

FRL – /60/60 rated from both sides Fire Report FAR 2863	**CH-Stud Size (mm)**		**Max Height (m)**		**Width (mm)**	**Sound Insulation** for studs at 600mm centres and thinnest BMT **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 EarthWool 11 kg/m³	60mm Polyester ASB3	
	64	0.55 0.9	2.95 3.46	2.64 3.09	80	39 (32)	46 (39)	46 (38)	Acoustic Report Day Design 3094-18
	102	0.55 0.9	3.73 4.98	2.66 4.19	118	42 (33)	48 (41)	48 (41)	

KSHW2

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 **TruRock**]

FRL – /120/120 rated from both sides Fire Report FAR 2863	**CH-Stud Size (mm)**		**Max Height (m)**		**Width (mm)**	**Sound Insulation** for studs at 600mm centres and thinnest BMT **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 EarthWool 11 kg/m³	60mm Polyester ASB3	
	64	0.55 0.9	3.73 4.38	2.66 3.89	96	44 (36)	50 (42)	50 (42)	Acoustic Report Day Design 3094-18
	102	0.55 0.9	3.73 5.51	2.66 4.19	134	46 (37)	52 (46)	52 (46)	

KSHW3

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 **TruRock**]

FRL – /120/120 rated from both sides Fire Report FAR 2863	**CH-Stud Size (mm)**		**Max Height (m)**		**Width (mm)**	**Sound Insulation** for studs at 600mm centres and thinnest BMT **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 EarthWool 11 kg/m³	60mm Polyester ASB3	
	64	0.55 0.9	3.73 4.38	2.66 3.89	96	42 (35)	50 (42)	50 (42)	Acoustic Report Day Design 3094-18
	102	0.55 0.9	3.73 5.51	2.66 4.19	134	45 (36)	52 (45)	52 (45)	

General Requirements

	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 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 **MastaLite**.	✔
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.	✔

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

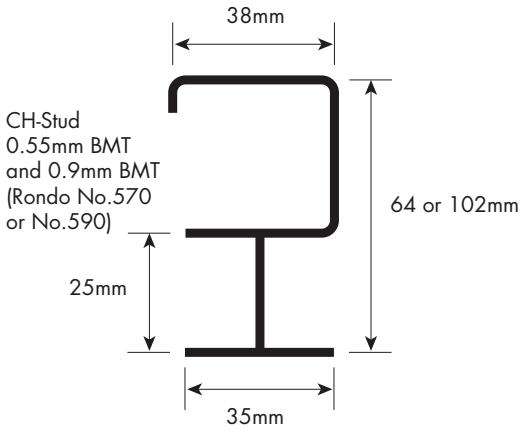


FIGURE 1 Shaft Wall CH-Stud
Section

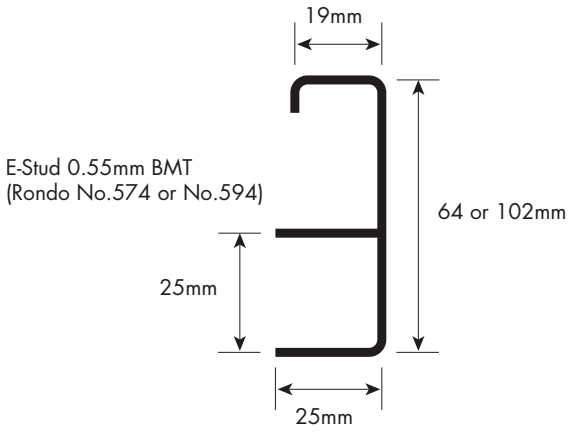


FIGURE 2 Shaft Wall E-Stud
Section

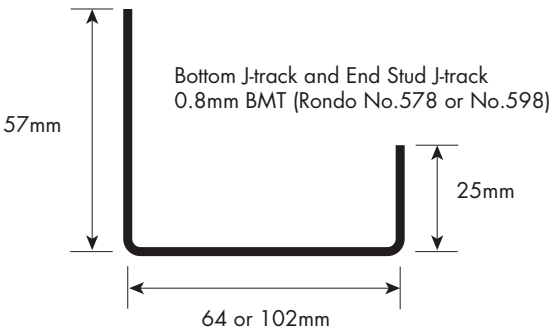


FIGURE 3 Shaft Wall J-Track
Section

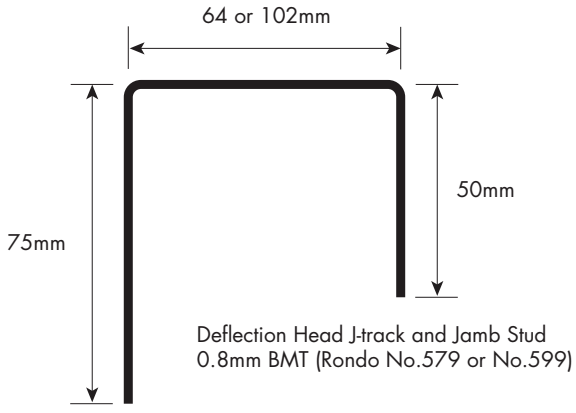


FIGURE 4 Shaft Wall Deflection Head J-Track
Section

Plasterboard Layout

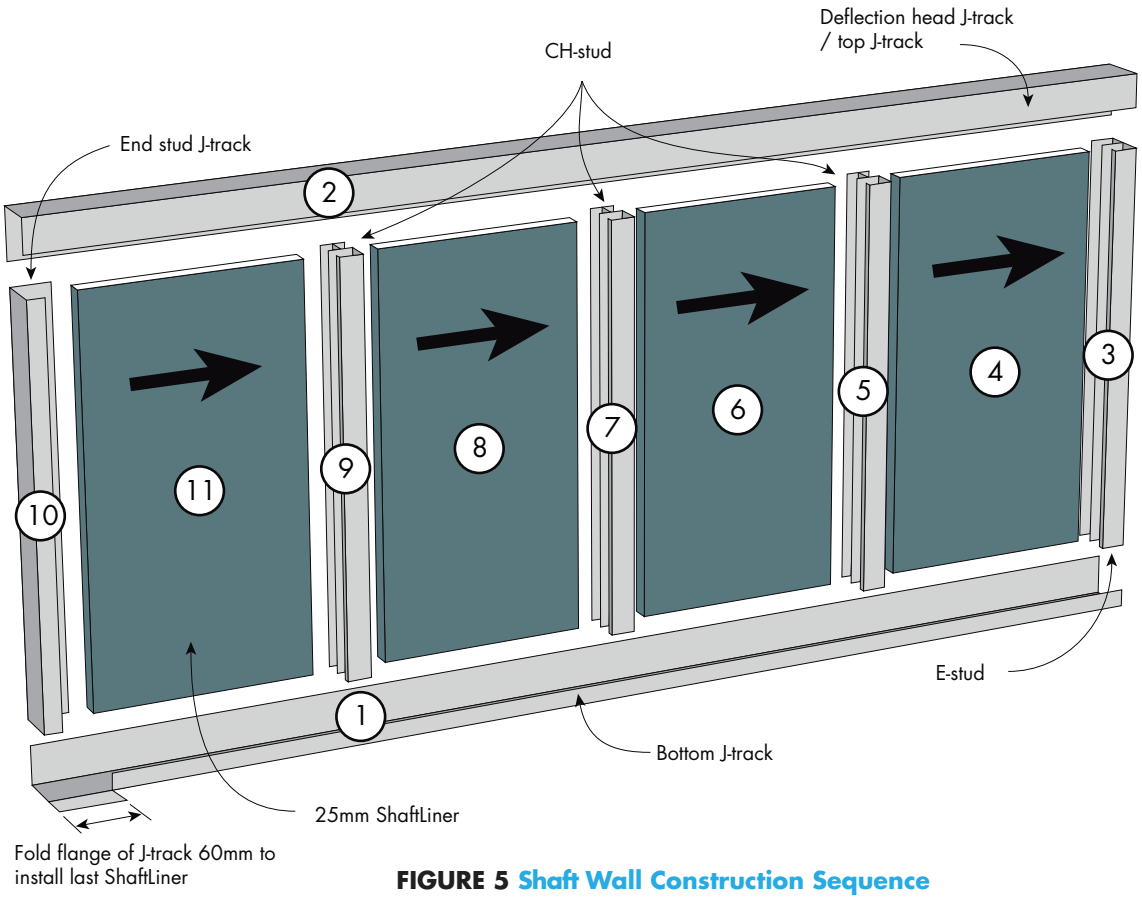


FIGURE 5 Shaft Wall Construction Sequence
Perspective

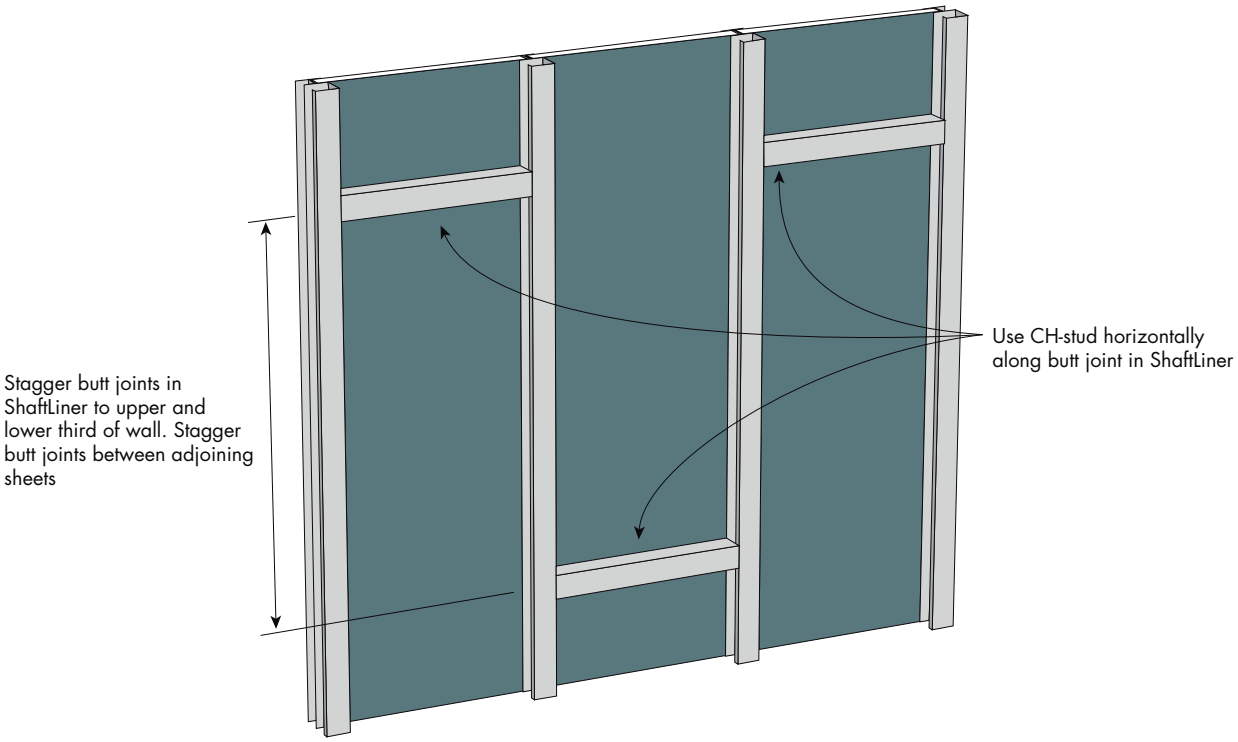


FIGURE 6 ShaftLiner Butt Joint Layout
Perspective

Plasterboard Layout

	Fire Rated
FireShield Horizontal 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-stud.	✔
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 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.	✔
Laminating screws can be used to fix butt joints in the second layer.	✔

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

Plasterboard Thickness	1st Layer	2nd Layer	3rd Layer
16mm **FireShield**	30mm screw	45mm screw*	65mm screw*
25mm **ShaftLiner**	45mm screw+	–	–

For steel ≤ 0.75mm BMT minimum 6g fine thread needle point screws.
For steel ≥ 0.75mm BMT minimum 6g fine thread drill point screws.
*38mm – 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 – Horizontal
Screw Only Method

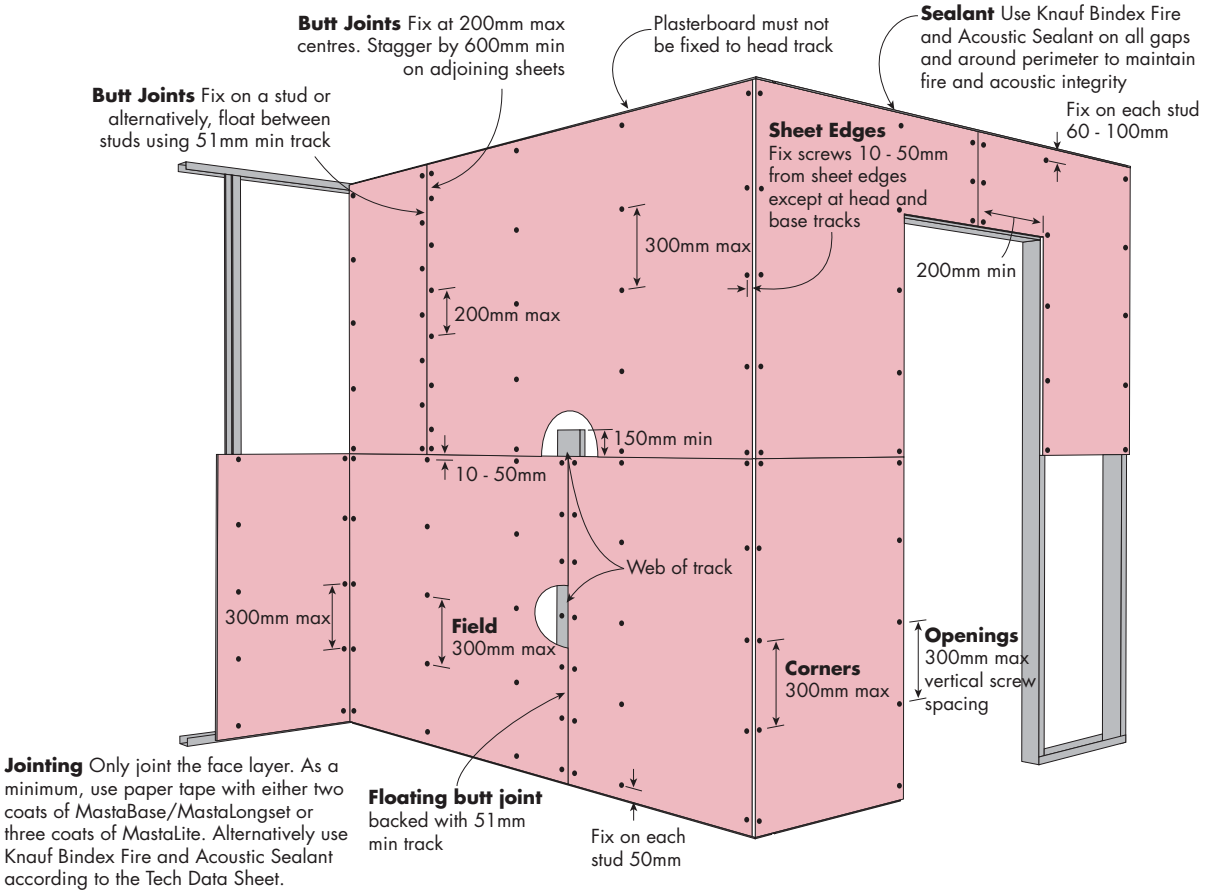


FIGURE 8 Fire Rated 2 Layers – Horizontal + Horizontal
Screw Only Method

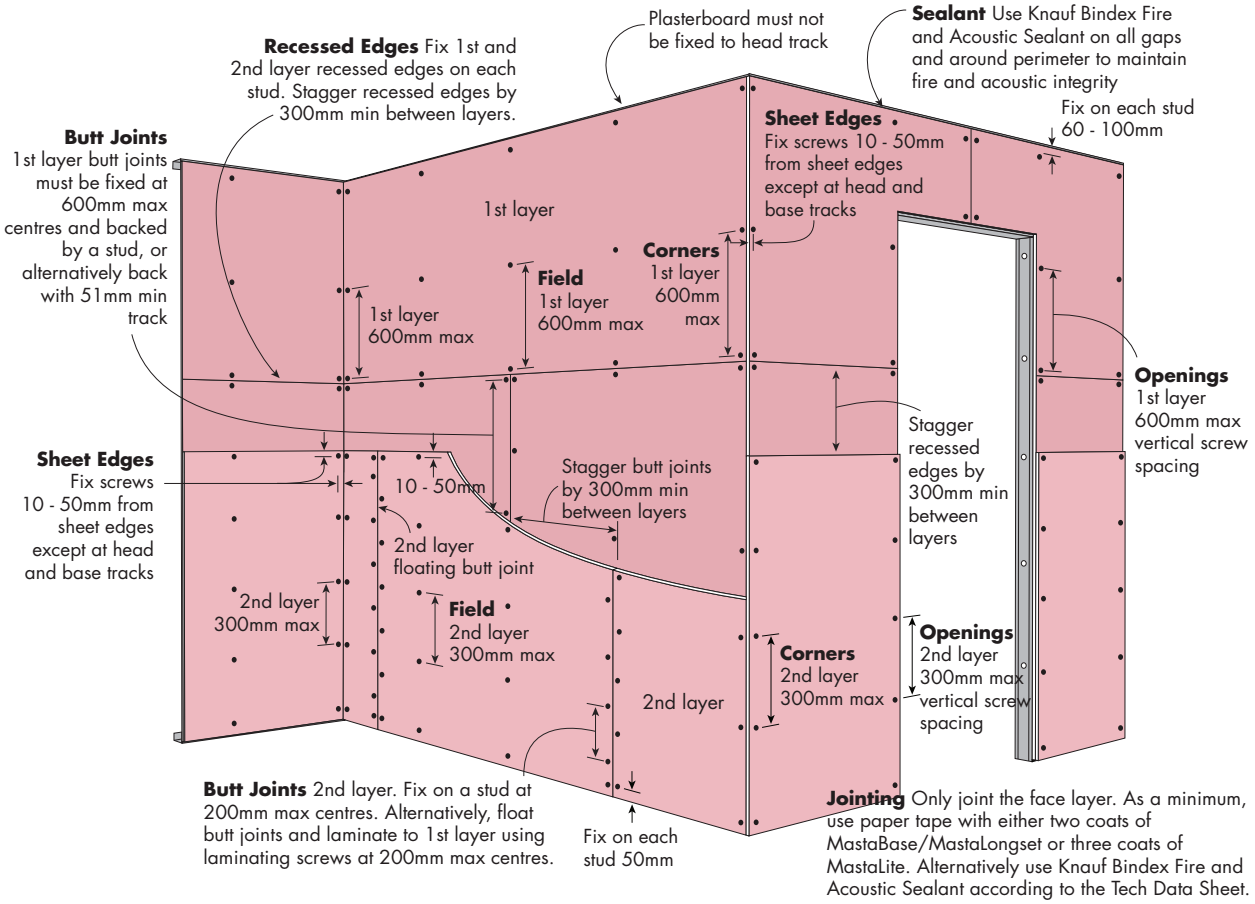


FIGURE 9 Fire Rated 1 Layer – Vertical
Screw Only Method

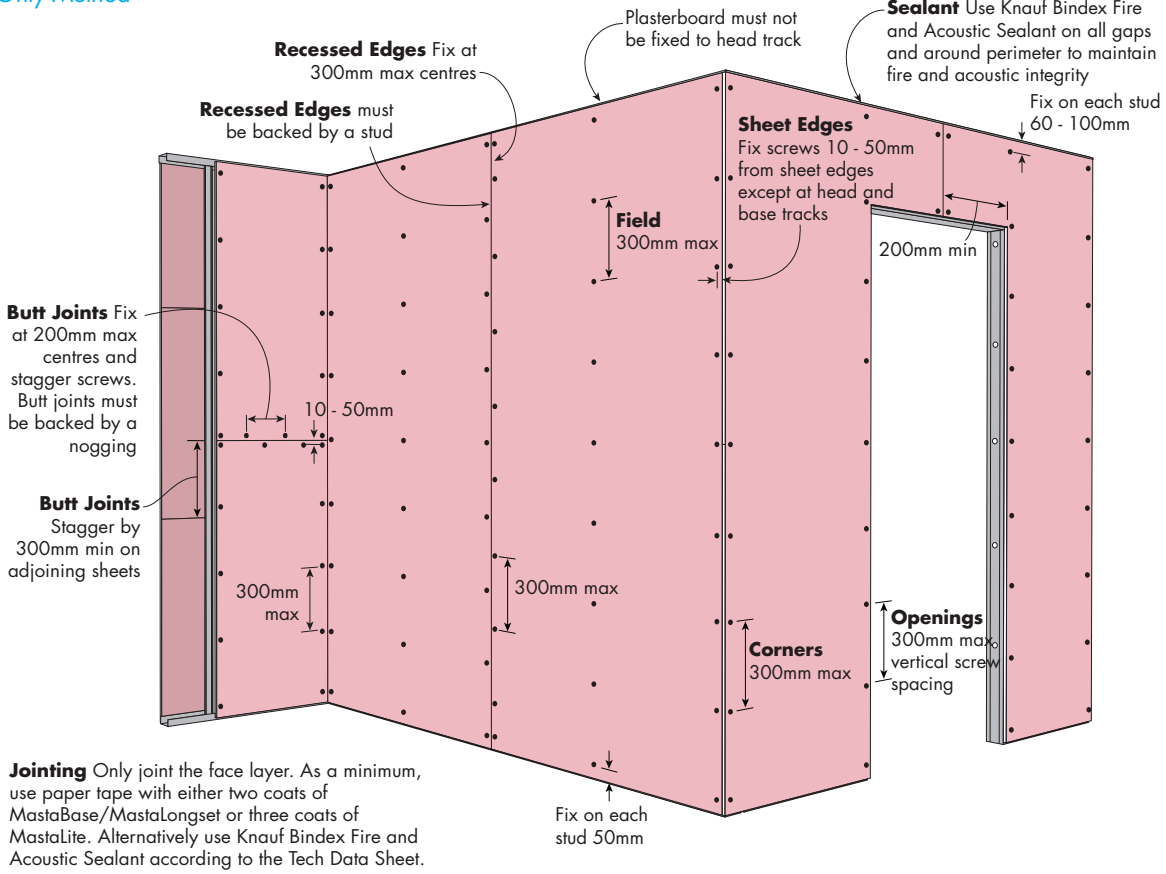
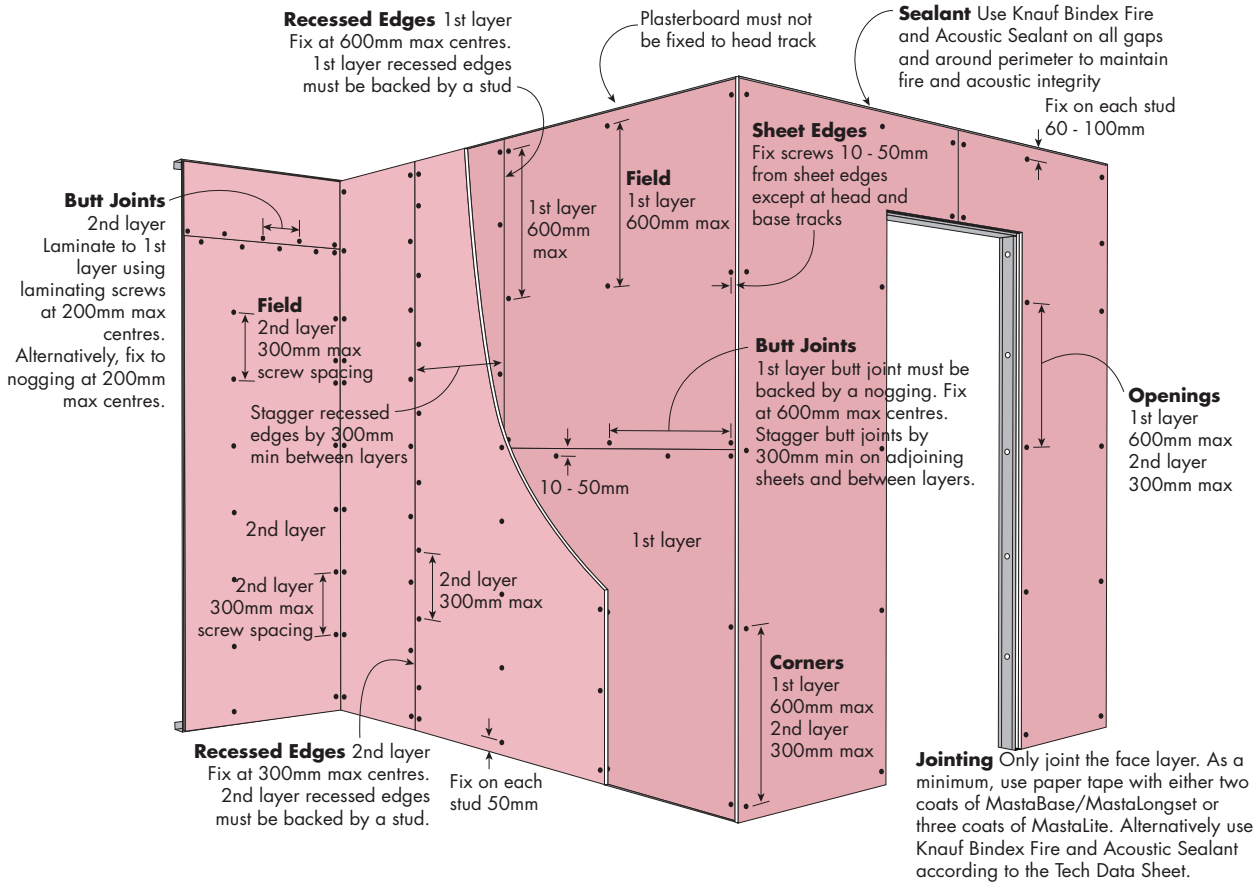


FIGURE 10 Fire Rated 2 Layers – Vertical + Vertical
Screw Only Method



FIRE RATED

SHAFT WALL HEAD AND BASE DETAILS

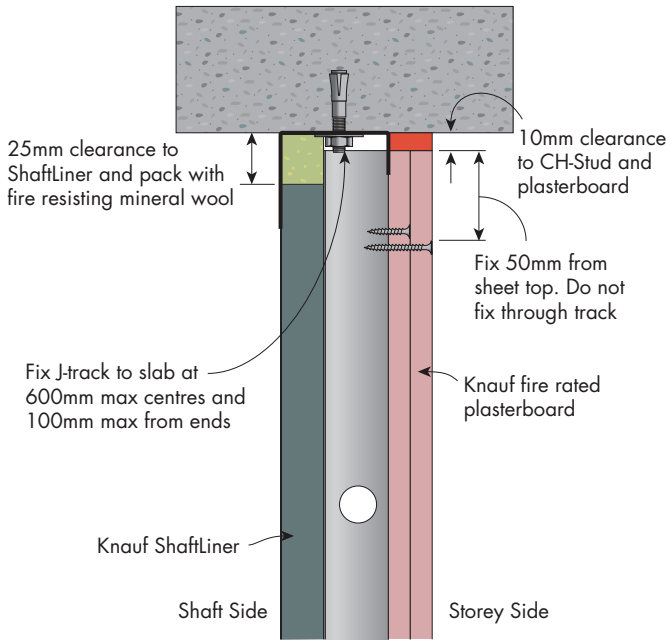


FIGURE 11 Shaft Wall Head to Slab
System KSHW2
Section

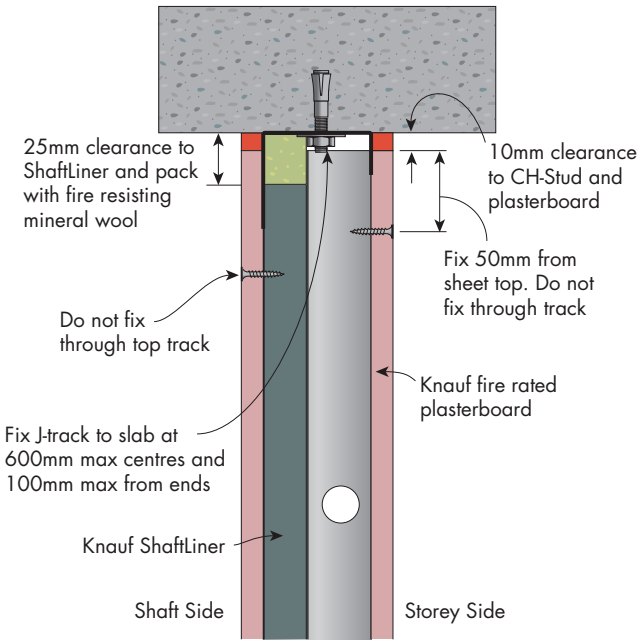


FIGURE 12 Shaft Wall Head to Slab
Systems KSHW1 and KSHW3
Section

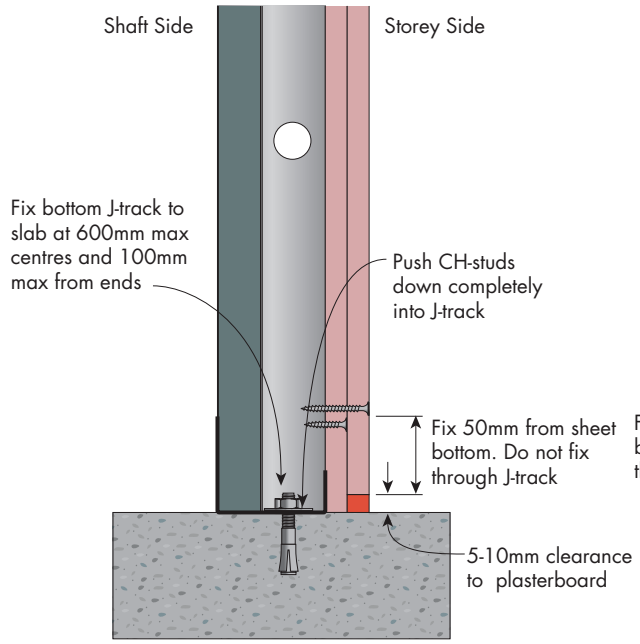


FIGURE 13 Shaft Wall Head to Base
System KSHW2
Section

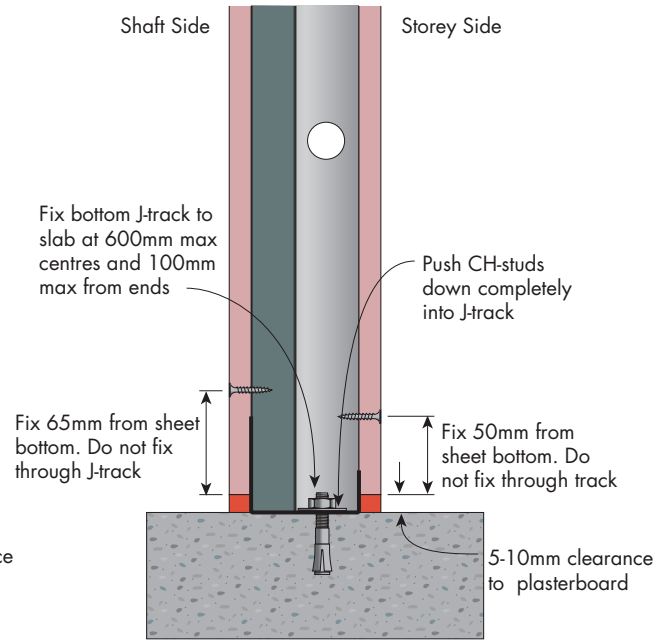


FIGURE 14 Shaft Wall Head to Base
Systems KSHW1 and KSHW3
Section

FIRE RATED

SHAFT WALL SECTION DETAILS

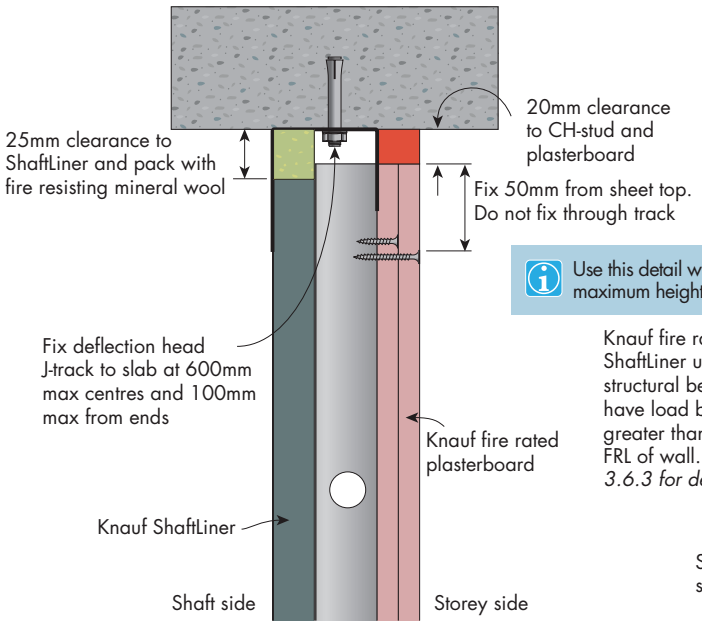


FIGURE 15 Shaft Wall Deflection Head to Slab
Section

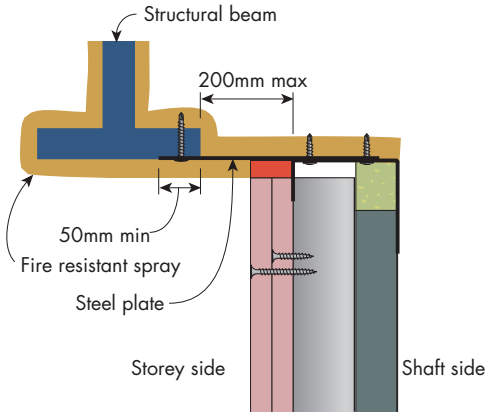


FIGURE 17 Shaft Wall to Structural Beam
Section

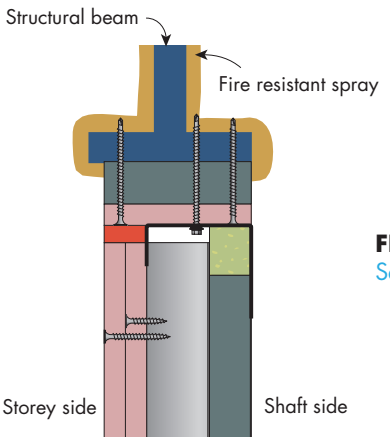


FIGURE 18 Shaft Wall to Structural Beam
Section

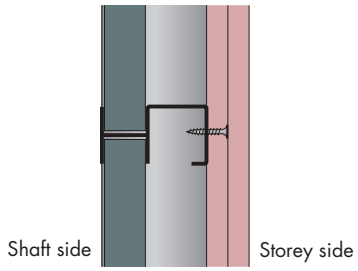


FIGURE 19 Butt Joint in ShaftLiner
Section

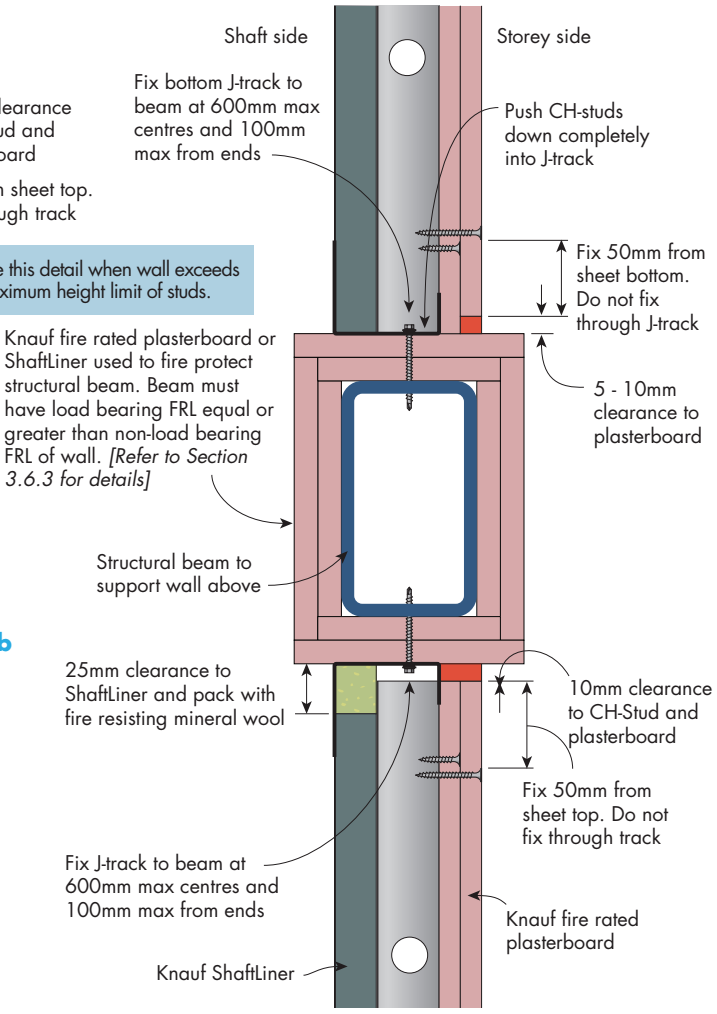


FIGURE 16 Shaft Wall to Supporting Beam
Section

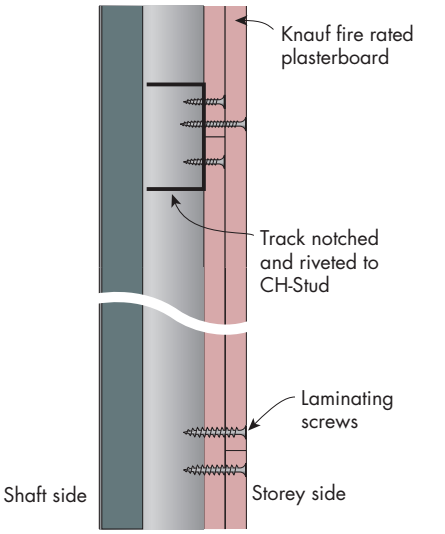


FIGURE 20 Butt Joint in Fire Rated Plasterboard
Section

FIRE RATED

SHAFT WALL PLAN DETAILS

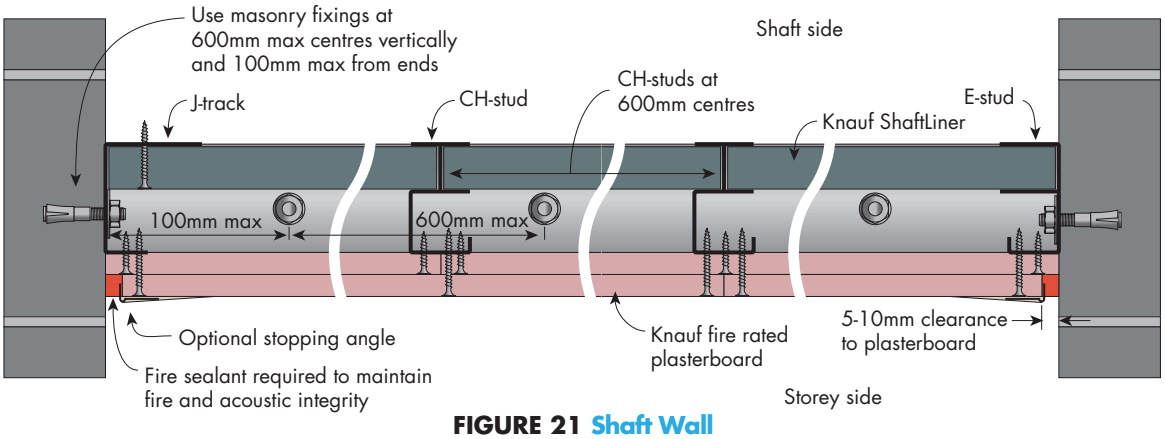


FIGURE 21 Shaft Wall
Plan

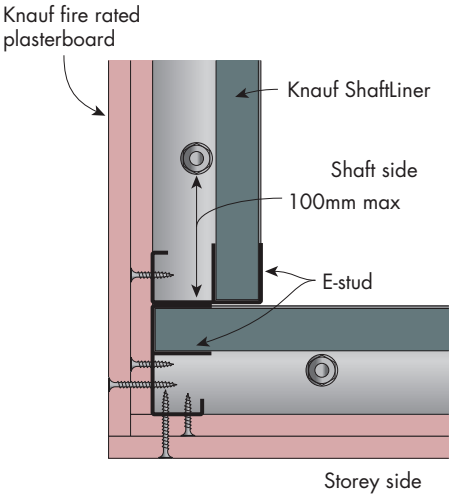


FIGURE 22 Shaft Wall Corner
Plan

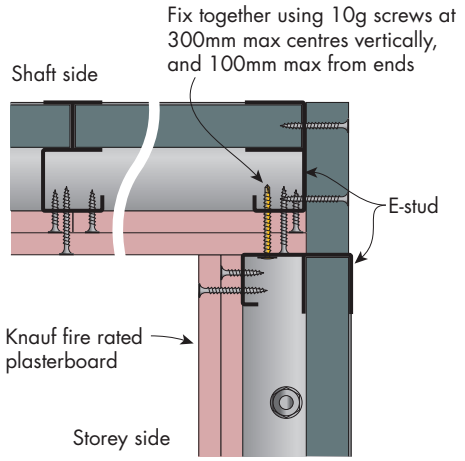


FIGURE 23 Shaft Wall Corner
Plan

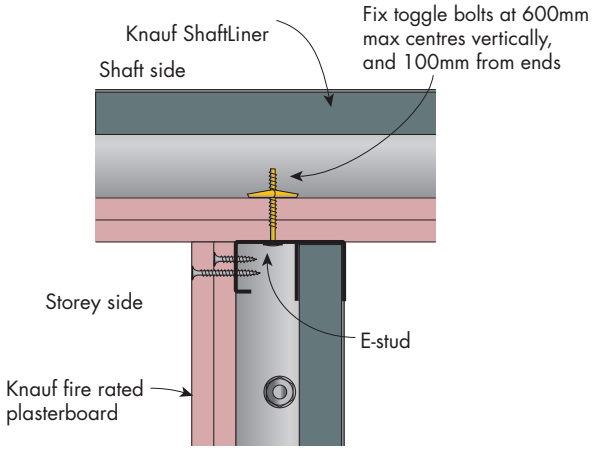


FIGURE 24 Shaft Wall Intersecting Wall
Plan

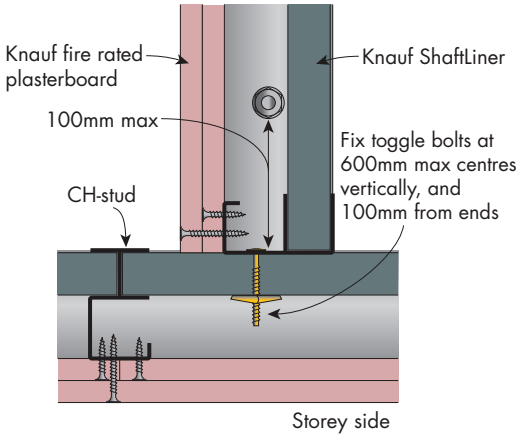


FIGURE 25 Shaft Wall Intersecting Wall
Plan

For internal and external corners, fill gaps with either Knauf Bindex Fire and Acoustic Sealant or Mastabase jointing compound. Fill any other gaps with Knauf Bindex Sealant to maintain integrity.

FIRE RATED

SHAFT WALL CONTROL JOINT AND OPENING DETAIL FOR ACCESS PANEL OR FIRE DAMPER

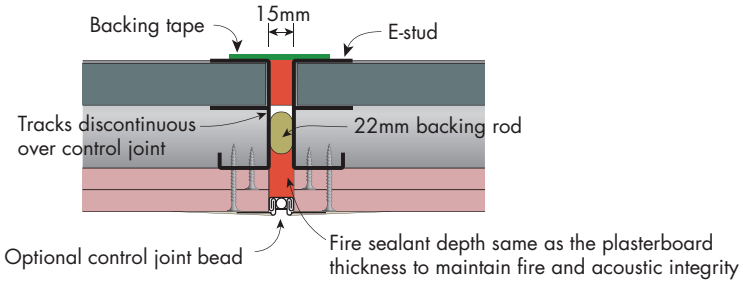


FIGURE 26 Shaft Wall Control Joint
Plan

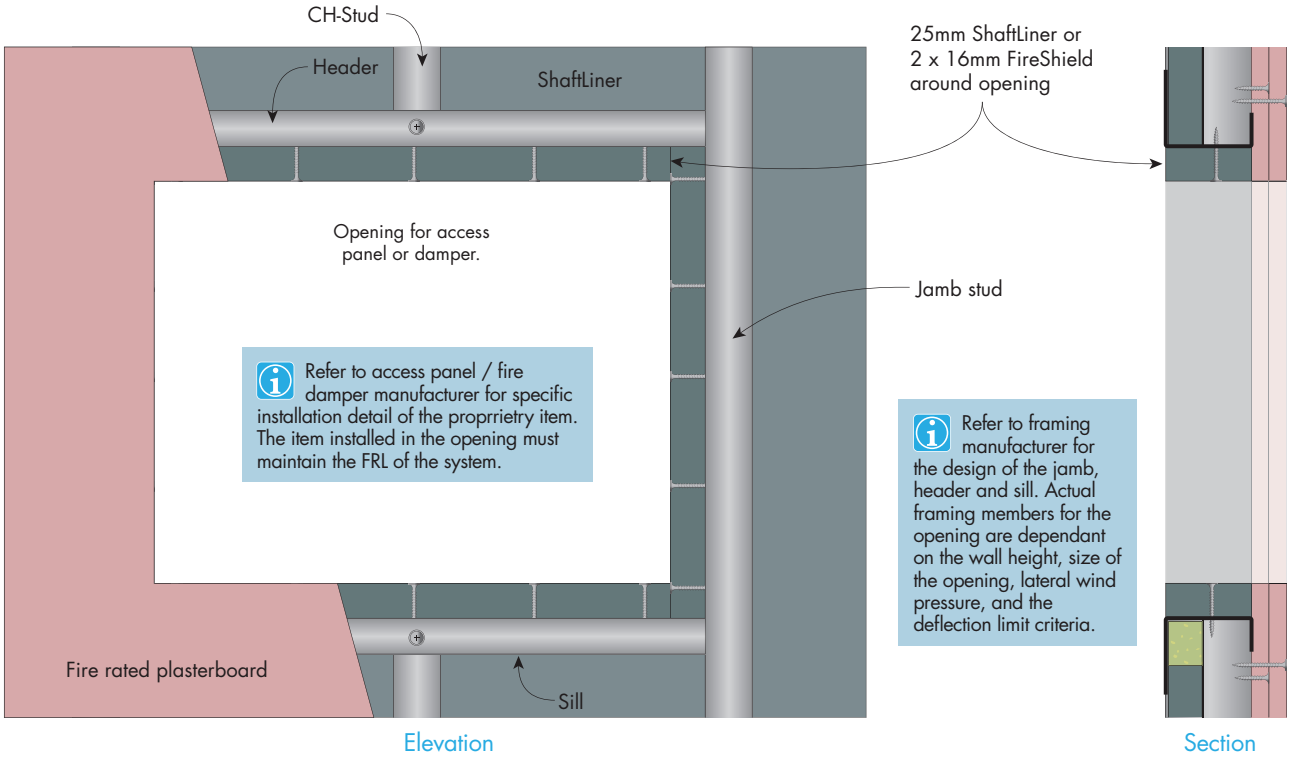


FIGURE 27 Opening Detail For Fire Damper or Access Panel
Fire rated from both directions but built from one side only

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

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