

FIRE RATED VERTICAL LAMINATED DUCT

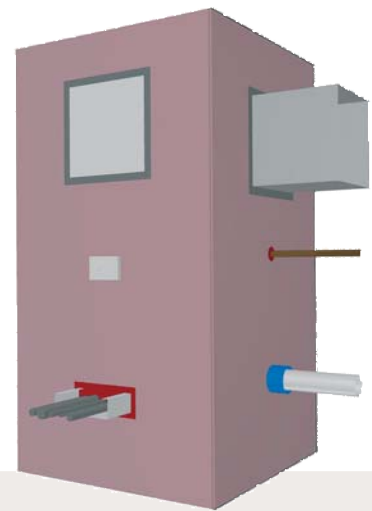
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Laminated duct systems are fire rated laminated plasterboard enclosures for building services. They are designed to provide fire and acoustic isolation for electrical, plumbing and air-handling services. The laminated duct systems are constructed from three layers of either 13mm or 16mm **FireShield** and metal angle framing.

Laminated duct systems are suitable for use with fire rated penetrations including access panels, cable trays and power points. They cannot be used for services containing combustible liquids or gases.

Laminated ducts can form one up to four sides of a fire rated enclosure. They can be easily joined to other plasterboard, masonry or concrete walls with an equivalent or higher fire rating.

Unless otherwise stated, laminated duct systems are non-load bearing and must not support roof, ceiling or floor loads.




LLVD1-LLVD2

FRAME: 25x50mm or 50x50mm, x 0.7mm BMT steel angles
 DUCT LINING: 3 layers of 13mm or 16mm **FireShield** laminated together

[Laminated Vertical Duct can be 1, 2, 3 or 4 sided]
 [Height and Width dimensions apply to both LLVD1 and LLVD2 systems]
 [13mm FireShield can be substituted with 13mm MultiShield or 13mm ImpactShield]
 [16mm FireShield can be substituted with 16mm MultiShield]

FRL	SYSTEM	PLASTERBOARD LINING	PLASTERBOARD THICKNESS (mm)	MAX DUCT HEIGHT (m)	MAX DUCT WIDTH (m)	ACOUSTICS Rw (Rw + Ctr)
- /90/90 rated from both sides	LLVD1	3 layers of 13mm FireShield	39	3.0	Unlimited	37 (34)
				3.6	3.0	
				4.2	2.4	
- /120/120 rated from both sides	LLVD2	3 layers of 16mm FireShield	48	4.8	1.8	38 (35)
				5.4	1.2	
				-	-	

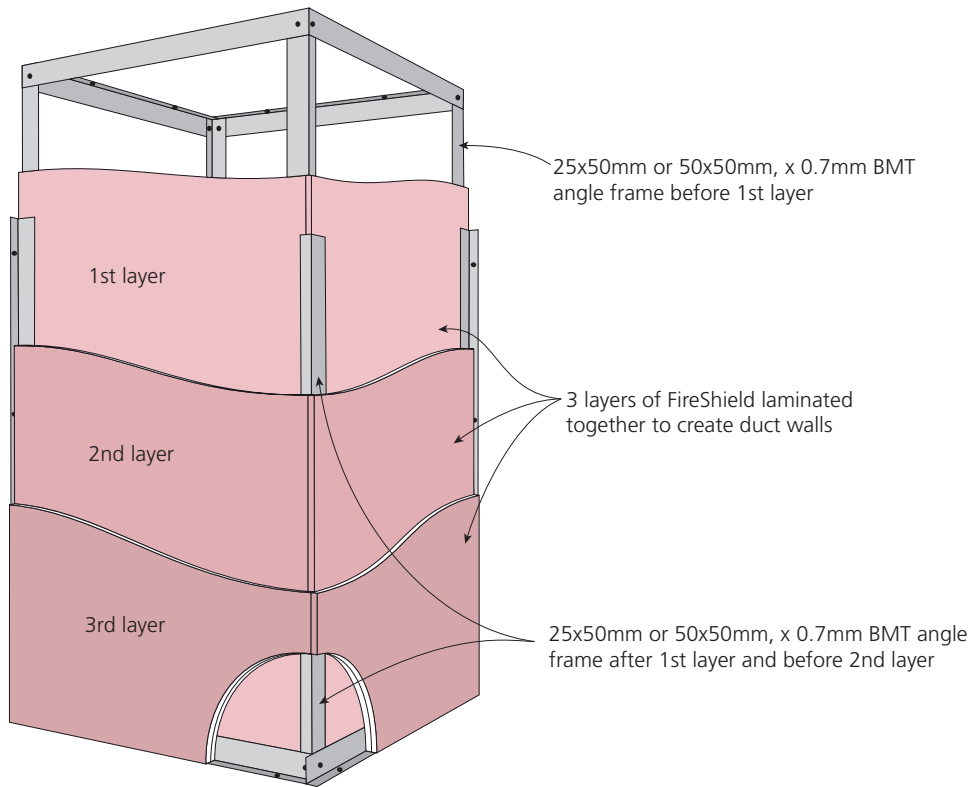
GENERAL REQUIREMENTS


	FIRE RATED 
Only joint the face layer. As a minimum to achieve the FRL, only use paper tape and: <ul style="list-style-type: none"> ➤ 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.	✓

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

PLASTERBOARD LAYOUT


FIGURE 1
Framing and plasterboard layout



	FIRE RATED 
VERTICAL LAYOUT	
Stagger butt joints by 600mm minimum on adjoining sheets and between layers.	✓
First layer butt joints must be backed by a steel angle of minimum 50mm width.	✓
Stagger recessed edges by 300mm minimum between layers.	✓

i 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 and third layer.	✓

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

PLASTERBOARD THICKNESS	1ST LAYER	2ND LAYER	3RD LAYER
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.

FIGURE 2

Steel angle frames and 1st layer

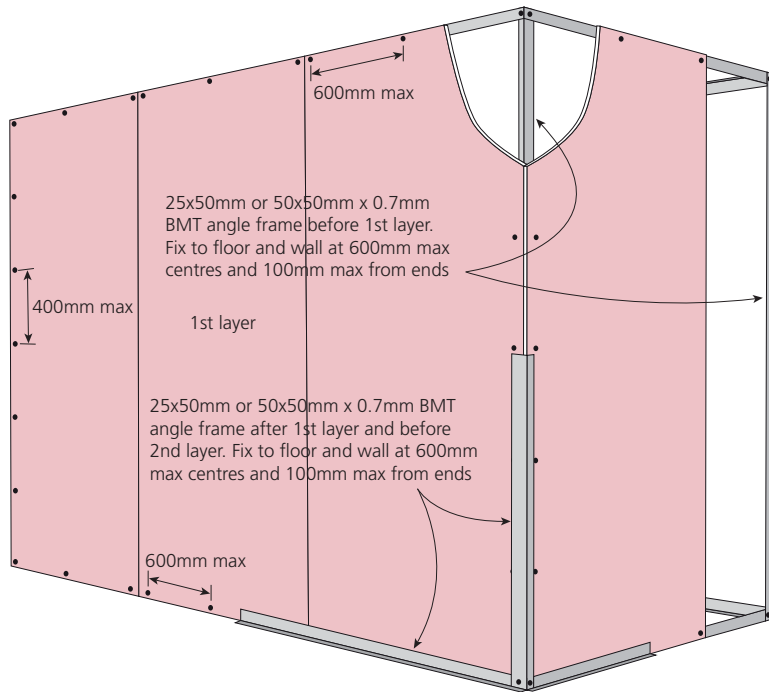
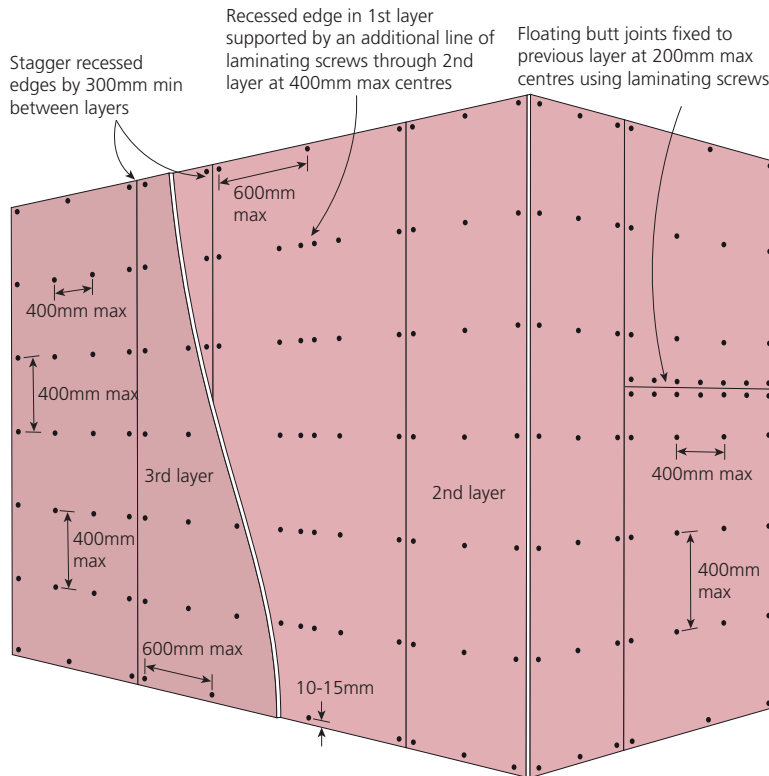


FIGURE 3

2nd and 3rd layers



Fixing	SCREW ONLY METHOD
Frame 1	Steel Angle 25x50 or 50x50mm x 0.7mm BMT. Installed before 1st layer
Frame 2	Steel Angle 25x50 or 50x50mm x 0.7mm BMT. Installed between 1st and 2nd layers.
Sheet Layout	1st, 2nd and 3rd layers: All Vertical
Fasteners	Perimeter screws 10-15mm from sheet edges.
Sheet Perimeter	Screw fix to steel angle at 400mm max centres vertically and 600mm max horizontally.
Field	2nd layer: Laminate to 1st layer at 400mm max centres vertically and horizontally. 3rd layer: Laminate to 2nd layer at 400mm max centres vertically and horizontally.
Recessed Edges	1st layer: Once 2nd layer is installed, support the recessed edge in the 1st layer with an additional line of laminating screws through 2nd layer at 400mm max centres. Stagger recessed edges by 300mm min between layers. 2nd layer: Laminate to 1st layer at 400mm max centres. 3rd layer: Laminate to 2nd layer at 400mm max centres.
Butt Joints	1st layer: Fix at 200mm max centres to additional horizontal steel angle. Stagger butt joints by 600mm min on adjoining sheets and between layers. 2nd layer: Laminate to 1st layer at 200mm max centres. 3rd layer: Laminate to 2nd layer at 200mm max centres.
Internal and External corners	All layers: Fix to angle at 400mm max centres vertically.
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
LAMINATED VERTICAL DUCT

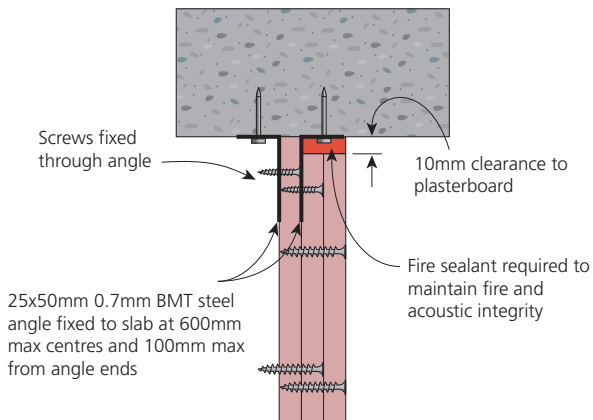


FIGURE 4
Laminated duct head to slab
Elevation

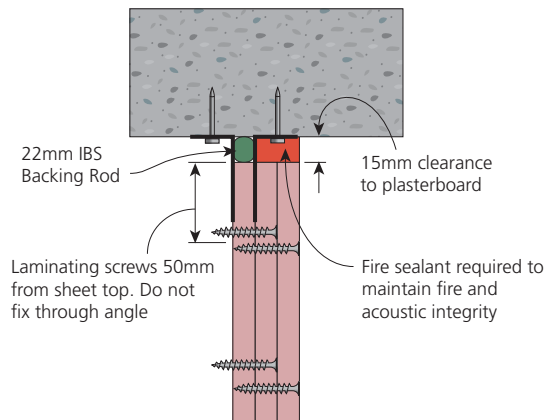


FIGURE 5
Laminated duct deflection head to slab
Elevation

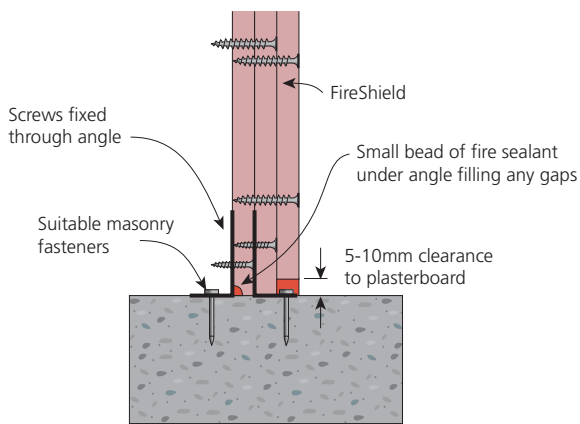


FIGURE 6
Laminated duct base to slab
Elevation

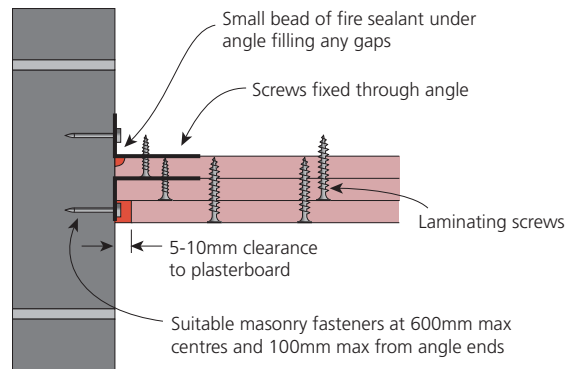


FIGURE 7
Laminated duct to masonry wall
Plan view

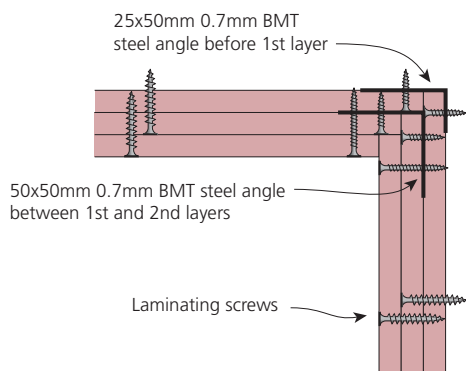


FIGURE 8
Laminated duct internal corner
Plan view

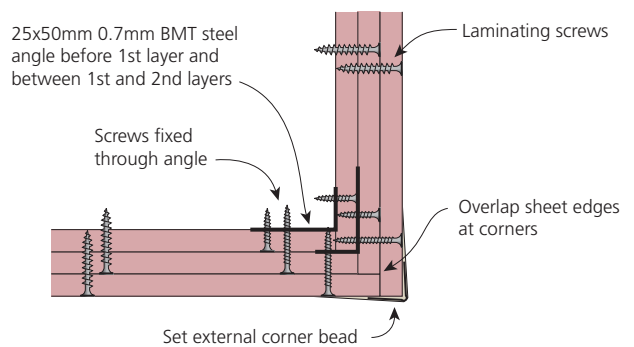


FIGURE 9
Laminated duct external corner
Plan view

FIRE RATED
LAMINATED VERTICAL DUCT

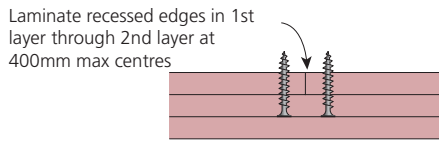


FIGURE 10
Laminated duct recessed edge in 1st layer
Plan view

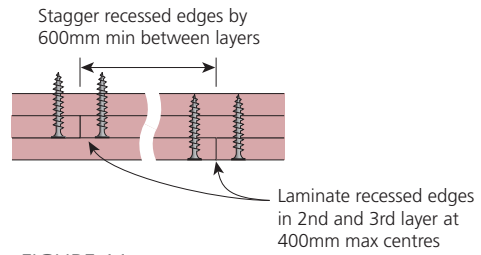


FIGURE 11
Laminated duct recessed edge in 2nd and 3rd layer
Plan view

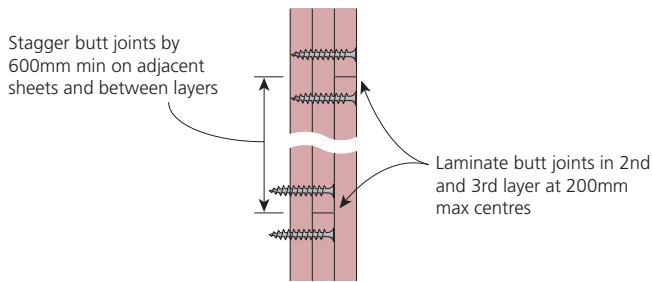


FIGURE 12
Laminated duct butt joint in 2nd and 3rd layer

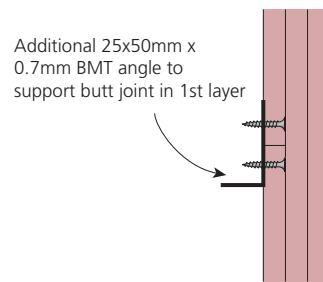


FIGURE 13
Laminated duct butt joint in 1st layer

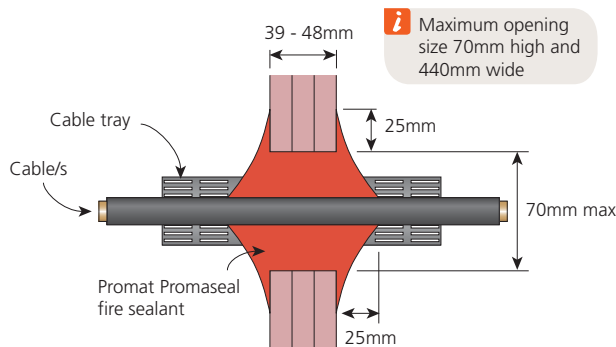


FIGURE 14
Typical cable tray penetration
Up to 2 hours FRL

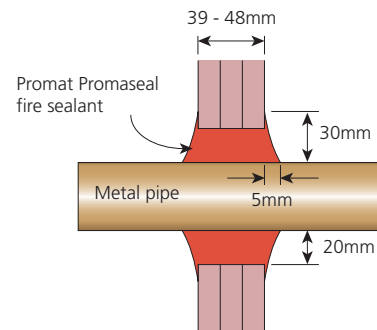


FIGURE 15
Typical metal pipe penetration
Up to 2 hours FRL

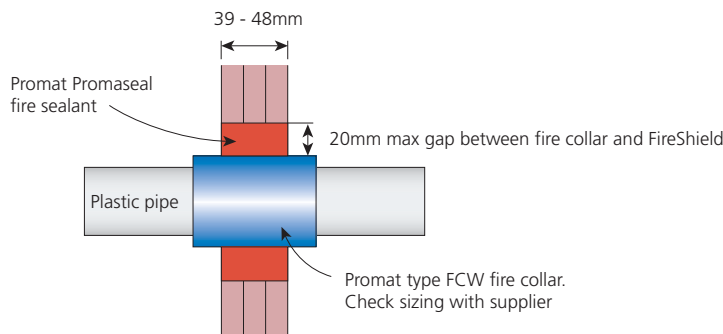


FIGURE 16
Typical fire collar penetration
Up to 2 Hours FRL