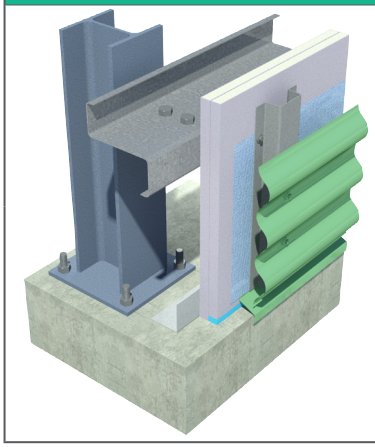
SYSTEMS	**433**
INSTALLATION	**434**
GENERAL REQUIREMENTS	434
FRAMING	434
PLASTERBOARD LAYOUT	435
PLASTERBOARD FIXING	435
EXTERIOR CLADDING	435
CONSTRUCTION DETAILS	**437**

4.4 External Steel Girt Walls

External structural steel walls with horizontal girts are used in buildings such as car parks, factories, industrial units and workshops. If these walls are built close to property boundaries, they often require fire protection from the outside.

Systems in this section provide fire protection from the outside for up to 120 minutes. **multi**shield forms part of the wall, which is covered by a moisture barrier and external cladding to provide protection from the weather.

SSW504



- Horizontal girts over structural steel columns
- 2 layers of 16mm **multi**shield
- Breathable wall wrap
- Top-Hats
- Exterior steel cladding

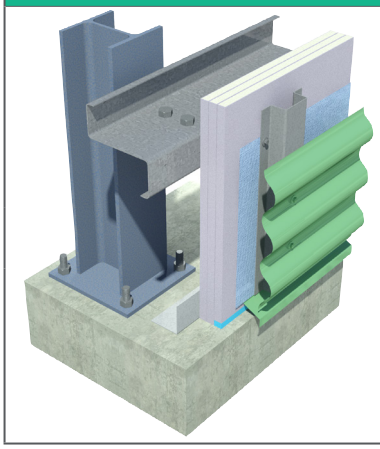
Fire Resistance Level

60/60/60
rated from the outside only

Report FAR 3998

Maximum Frame Spacing (mm)	Plasterboard Thickness (mm)	Sound Insulation Rw (Rw + Ctr)	
600	32	35 (31)	Report Day Design 3094-33

SSW502



- Horizontal girts over structural steel columns
- 3 layers of 13mm **multi**shield
- Breathable wall wrap
- Top-Hats
- Exterior steel cladding

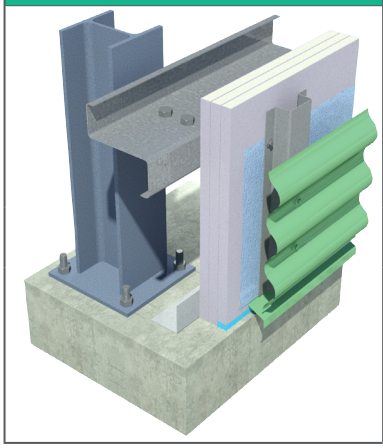
Fire Resistance Level

90/90/90
rated from the outside only

Report FAR 3998

Maximum Frame Spacing (mm)	Plasterboard Thickness (mm)	Sound Insulation Rw (Rw + Ctr)	
900	39	37 (34)	Report Day Design 3094-33

SSW505



- Horizontal girts over structural steel columns
- 3 layers of 16mm **multi**shield
- Breathable wall wrap
- Top-Hats
- Exterior steel cladding

Fire Resistance Level

120/120/120
rated from the outside only

Report FAR 3998

Maximum Frame Spacing (mm)	Plasterboard Thickness (mm)	Sound Insulation Rw (Rw + Ctr)	
1200	49	38 (35)	Report Day Design 3094-33

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	✓
Jointing of **multi**shield is not required due to the overlying wall wrap and external sheeting.	✓
Use approved fire rated penetration details. Fire penetrations may require fire collars or other devices to maintain fire performance.	✓
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.	✓
Protect plasterboard from water pooling at ground level.	✓
Attach all fixtures to studs or purpose installed noggings. Wall anchors must not be fixed only to the plasterboard of fire rated walls.	✓

For acceptable modifications or variations to fire rated systems, refer to Section 2.3 Fire Resistance

Framing

	Fire Rated
Install 1.15mm BMT Steel Backing Angle to: > Base of wall > Internal for external corners of girts > Control joints	✓
Install an anti-splash board at the base of the wall to protect the plasterboard from water damage (Refer to Details)	✓
Framing members as per framing table or structural design up to 600mm maximum.	✓
Refer to Section 4.5 for information on Top-Hat framing.	✓

Plasterboard Layout

	Fire Rated
Install plasterboard sheets perpendicular to framing	✓
Stagger butt joints by 600mm minimum on adjoining sheets and between layers	✓
First layer butt joints must be back-blocked by framing.	✓
Stagger recessed edges by 300mm minimum between layers.	✓

If a jointed finish on the interior of the wall is desired, face the first layer inwards.

Plasterboard Fixing

	Fire Rated
Use the 'Screw Only Method' in tiled or fire rated areas. Stud adhesive is not permitted.	✓
Drive screws to just below the sheet surface, taking care not to break the paper linerboard. For over-driven screws, install another screw 20mm away. Leave or remove the over-driven screw and patch.	✓
Laminating screws can be used to fix 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
13mm	6g x 25mm screw	6g x 41mm screw *	7g x 57mm screw *
16mm	6g x 32mm screw	6g x 45mm screw *	8g x 65mm screw *

For steel ≤ 0.75mm BMT, use fine thread needle point screws.
For steel ≥ 0.75mm BMT, use fine thread drill point screws.
*10g x 38mm Laminating screws may be used as detailed in installation diagrams.

Exterior Cladding

	Fire Rated
Fix top hats through the **multi**shield to the steel girts behind.	✓

- Exterior cladding and moisture barrier must provide protection from the weather.
- Use construction techniques that direct condensation and rain away from plasterboard.
- Siniat recommends a drained cavity between the external sheeting and the **multi**shield for weathertightness and durability.
- Top hats between external cladding and external plasterboard do not change the FRL of the system.

FIGURE 1 Fire Rated 2 Layers - Vertical + Vertical
Screw Only Method

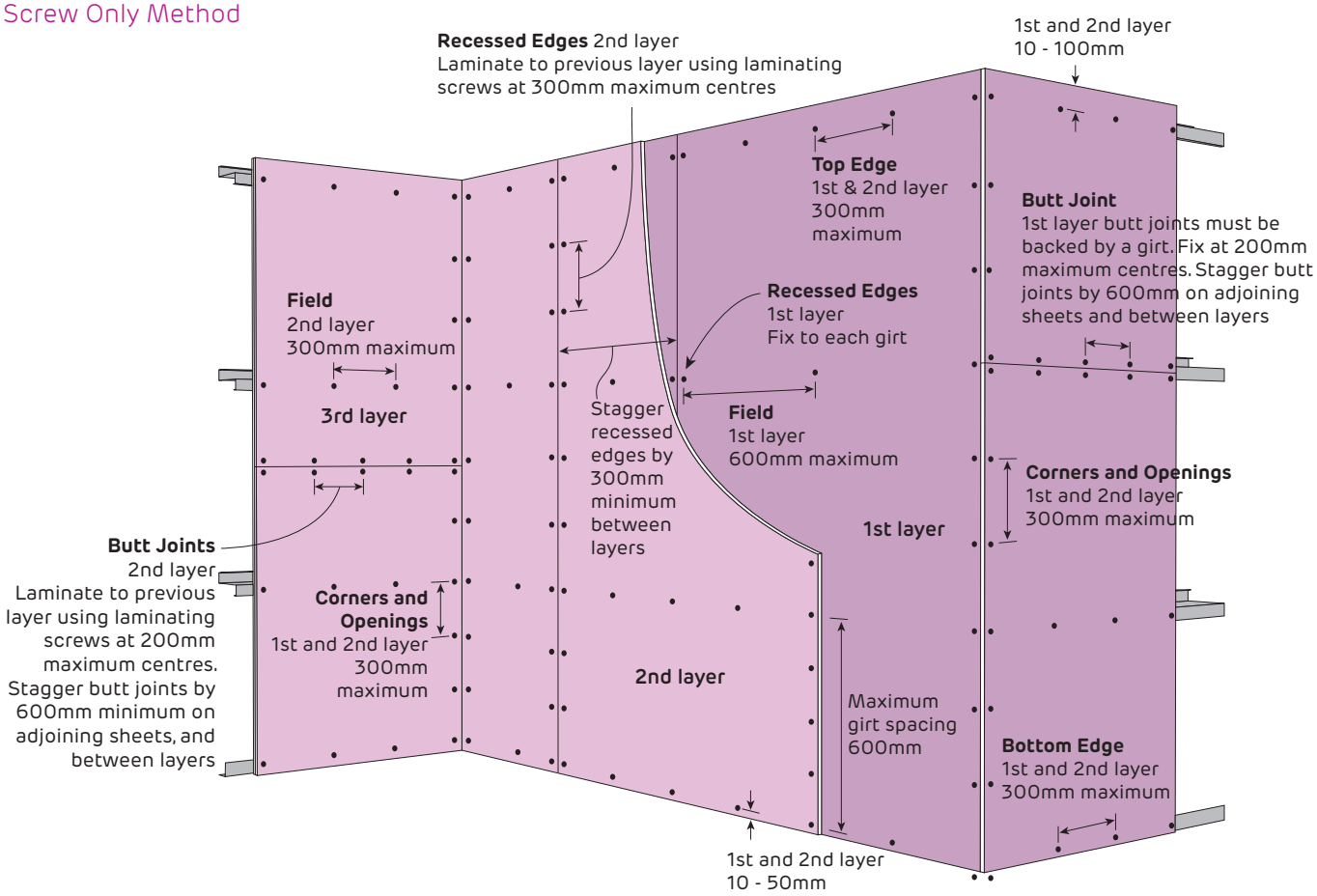
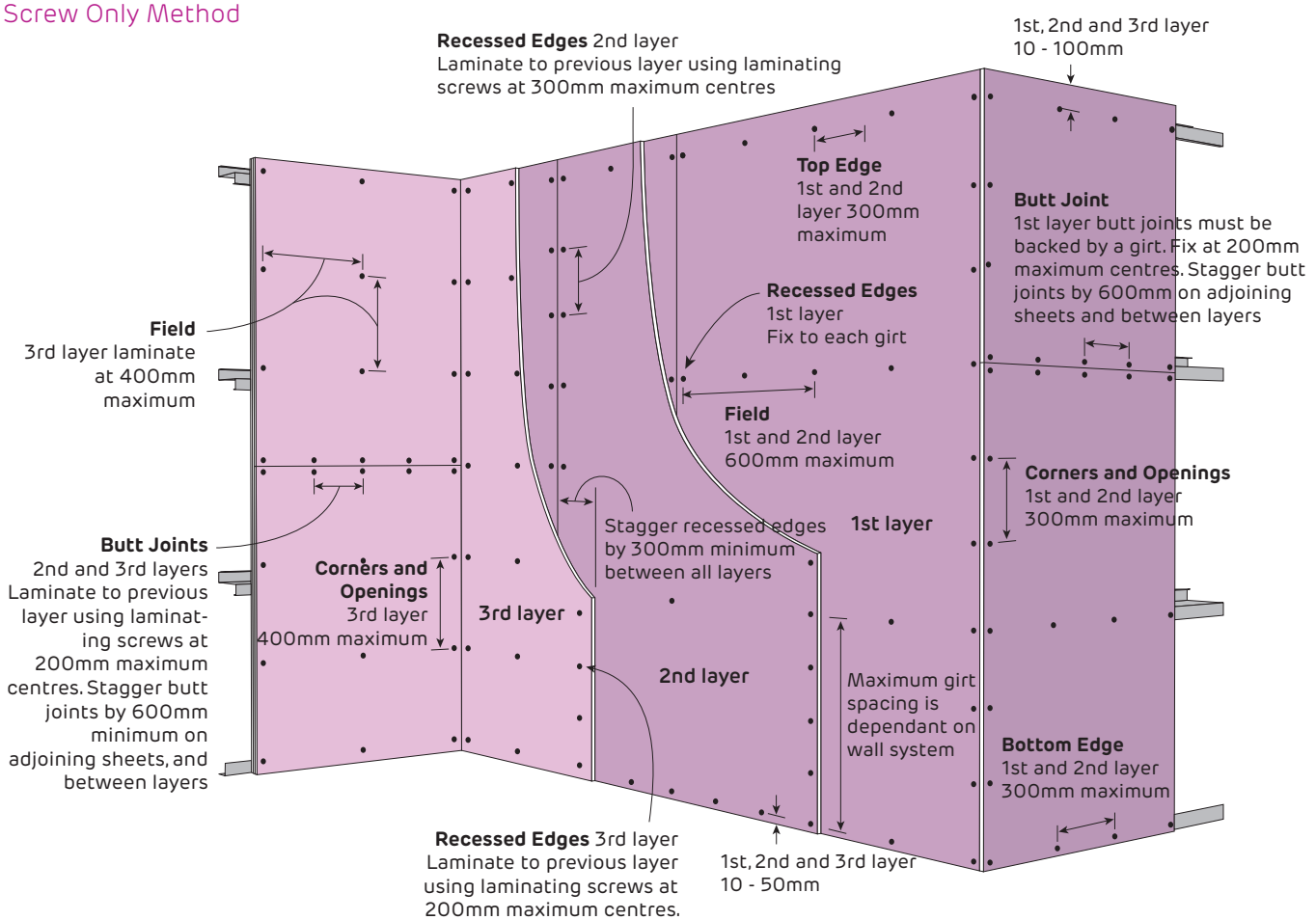


FIGURE 2 Fire Rated 3 Layers - Vertical + Vertical + Vertical
Screw Only Method



Fire Rated

Typical Head and base Details for External Steel Girt Walls

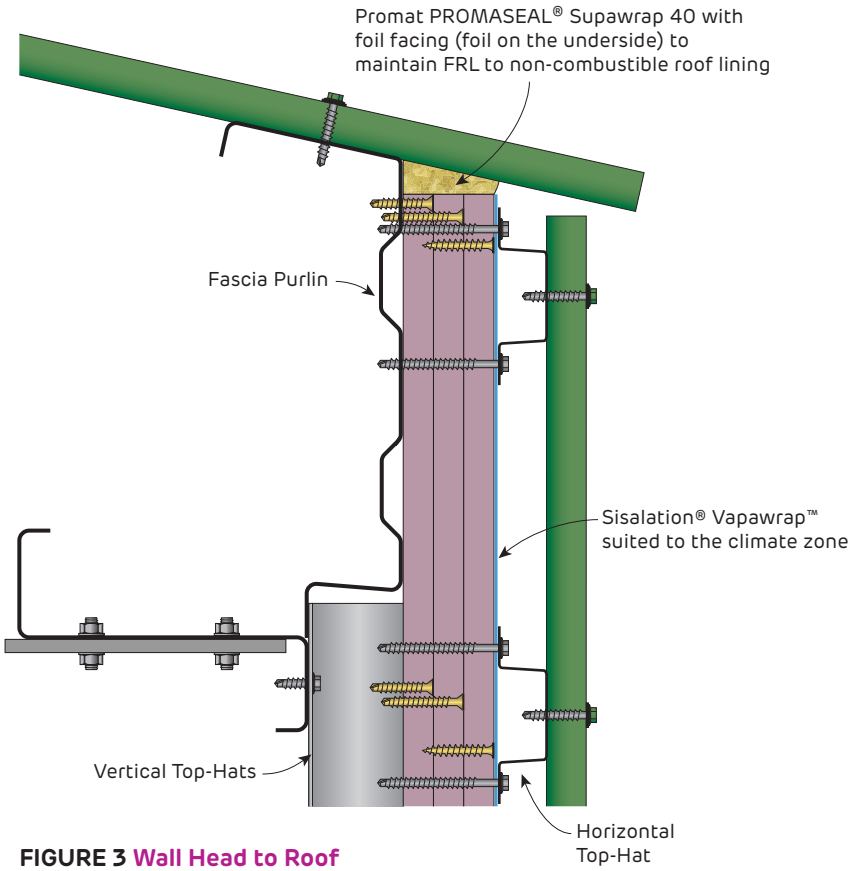


FIGURE 3 Wall Head to Roof
Section

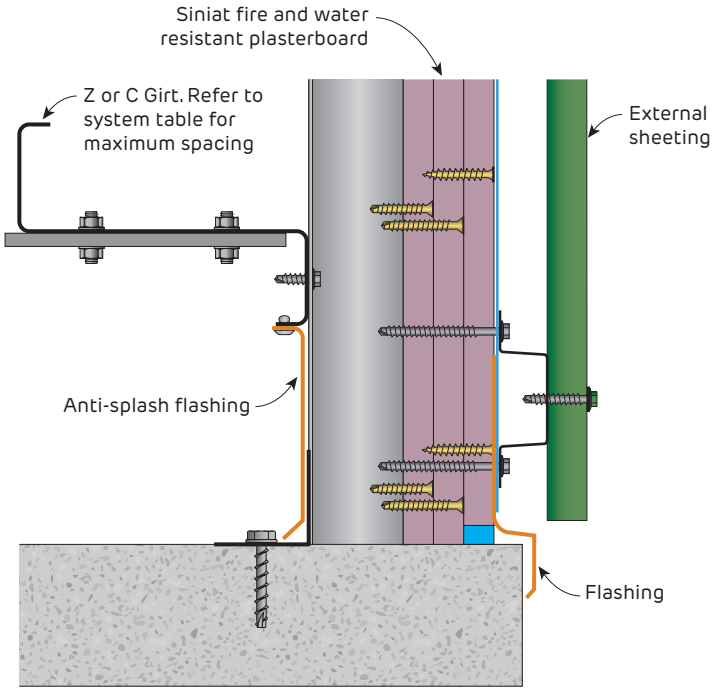


FIGURE 4 Wall Base to Slab
Section