Insulated Panels

Design, Build, Excel

Designers Guide to:

- Trisomet
- Trimapanel
- Enviropanel

Project: M.L. Flood Ltd. Dublin
Architects: Newenham Mulligan & Assocs.
Product: Tegral Arcline 40

A world of experience

Our Company

Tegral Metal Forming is part of the Tegral Group and a subsidiary of the Etex Group, a world-renowned international building products company. For over 25 years, Tegral Metal Forming has been to the forefront of development with regard to roofing, cladding and flooring systems.

Based in Athy, Co. Kildare, the Tegral Group consists of Tegral Building Products and Tegral Metal Forming. Tegral Building Products is Ireland's largest manufacturer and distributor of roofing products and Tegral Metal Forming Ltd. is a leading manufacturer and supplier of metal roofing, cladding and flooring systems for the construction industry.

The comprehensive product range is designed to suit most applications in modern commercial, industrial and agricultural construction. Over the years, Tegral Metal Forming has developed an expertise in every aspect of metal systems application.

Project: Colaiste de hIdé, Dublin
Architects: Campbell Conroy Hickey
Product: Tegral Fineline 19

Cover Photo
Project: Astral Court
Product: Trimapanel
Corus Colorcoat® Product: Celestia® walls

Our Partners

Through a long-standing partnership with Corus, a world-renowned manufacturer of steel and aluminium, Tegral customers and specifiers are assured of the highest standards and quality in all Tegral products.

Our Standards

All manufacturing in Athy meets with the stringent requirements of Quality Assurance systems to ISO EN 9001:2000 and ISO 14001 Environmental Management Standard.

Our People

People really do matter at Tegral Metal Forming. Recently the company proudly embraced and succeeded in achieving the "Excellence Through People" award, Ireland's national standard for human resource development.

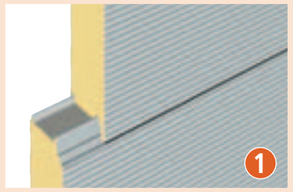
Our Industry Associates

Tegral Metal Forming takes an active role in the promotion of the metal industry and is involved in the Roof Manufacturers and Suppliers Association (RMSA) in Ireland, the Metal Cladding and Roofing Manufacturers Association (MCRMA) in the UK and also the Irish Farm Buildings Association.

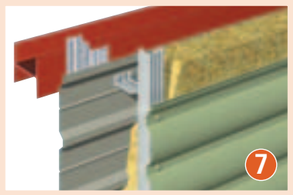
corus

I·F·B·A

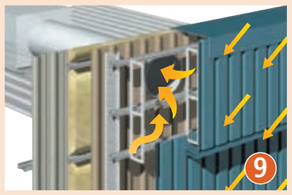
Tegral product range



LPCB & FM approved Insulated Panel Range



Built-Up Roofing and Wall Cladding Systems



SolarWall™

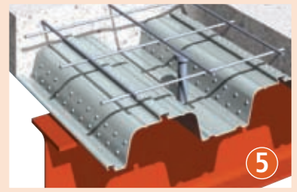
Aluseam® and Seam-Loc Standing Seam Roofing

Superdeck Membrane-faced Insulated Roof Panel

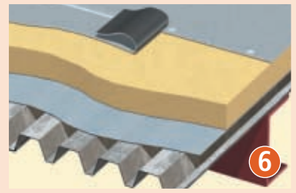
Complete Tegral Systems Range including the World's first CarbonNeutral building envelope through Confidex Sustain™ from Corus with Colorcoat® assessed systems.

DESIGNER'S STRUCTURAL PRODUCTS GUIDE Introduction

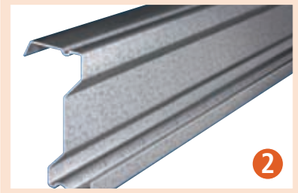
Tegral product range



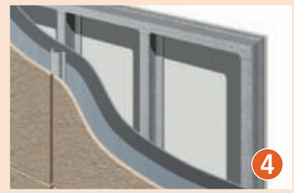
ComFlor® Flooring Range



Flat Roof Deck Range



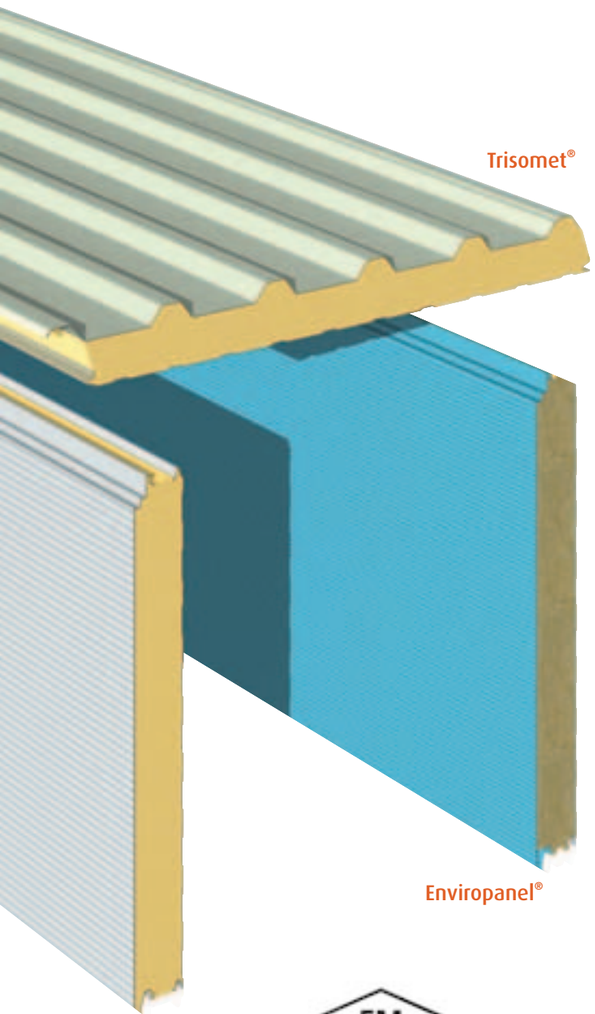
Zeta Purlin Range



Tegframe® Light Gauge Steel Framing

Flashings

An Introduction to Tegral Insulated Panels

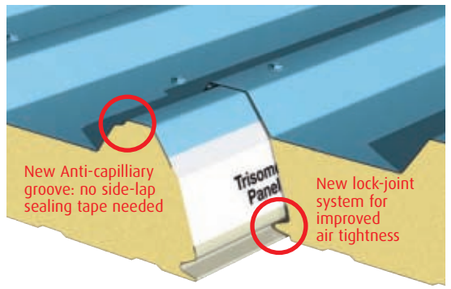


The Tegral range of insulated roof & wall products provide a choice of quality pre-engineered systems that are fully insurer approved and meet the latest regulations on thermal performance and air-tightness. Only the Tegral range provide two NEW innovations to improve construction efficiency and air-tightness:

New anti-capilliary groove: mitigates the need to apply side lap sealing tape making installation even easier.

New joint-lock system: Improving air tightness and therefore thermal performance.

In addition to these innovative new features our insulated panel range includes the following benefits:

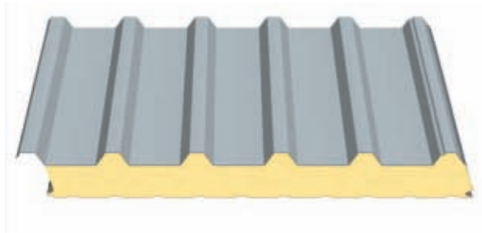


Features

- Fully compliant with latest building regulations and standards.
- Insurer approved Loss Prevention Certification Board (LPCB) Factory Mutual (FM) and BS476 specifications are available.
- Improved reliable air-tightness.
- Guaranteed U Value performance.
- No cold bridges, no cavities, no gaps, no interstitial condensation risk and guaranteed uninterrupted insulation continuity.
- Pre-engineered and factory produced single fix installation.
- Low pitch roof to minimum 4 degrees with conventional through-fix fasteners achievable.
- Non-combustible 100% recyclable option available.
- Maintenance free on roof and wall: Up to 30 years maintenance free Confidex® Guarantee from Corus available with Colorcoat HPS200® and Colorcoat Prisma® pre-finished steel.

Trisomet® product features

Our improved composite panels have the extra flexibility to give your buildings the edge. Their new sharper design features a revolutionary, robust interlocking joint to deliver greener, LPCB and FM Approved solutions to your projects.



Trisomet® is a profiled composite panel that is capable of spanning considerable distances with high resistance to bending. It is suitable for roof and wall application.

Foam filled composites offer the benefit of total one source quality control and provide a cost effective, environmentally sympathetic means of construction. Panels have autohesively bonded, CFC/HCFC free polyisocyanurate cores and the joint detail, together with the foam formulation, providing great strength and thermal efficiency.

Trisomet® is FM and LPCB approved for both roof and wall applications and has a 1 hour fire resistance to BS476 Part 22. It also satisfies the requirements of Class O as defined in the Building Regulations.

Features

- Single component assembly - fast track construction, minimal installation costs.
- Uninterrupted insulation coverage - excellent thermal efficiency.
- Autohesively bonded steel facings - increased structural integrity.
- No cold bridges - warm roof construction.
- A range of panel thicknesses available - can comply with Building Regulations Part L.
- A range of tailor-made components - total envelope approach allows design freedom.
- CFC/HCFC free insulation - environmentally friendly.
- Robust interlocking joint - thermally efficient and low air permeability.

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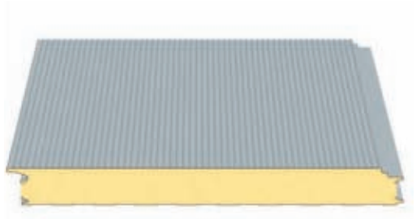
Trimapanel® product features

Our improved composite panels have the extra flexibility to give your buildings the edge. Their new sharper design features a revolutionary, robust interlocking joint to deliver greener, LPCB and FM Approved solutions to your projects.



Trimapanel® is a wall panel with a microrib or planked external skin that offers an aesthetically pleasing solution at an economical price.

Foam filled composites offer the benefit of total one source quality control and provide a cost effective, environmentally sympathetic means of construction. Panels have autohesively bonded, CFC/HCFC free polyisocyanurate cores and the joint detail, together with the foam formulation, providing great strength and thermal efficiency.

Trimapanel® is FM and LPCB approved for wall applications either vertically or horizontally. It also satisfies the requirements of Class 0 as defined in the Building Regulations.

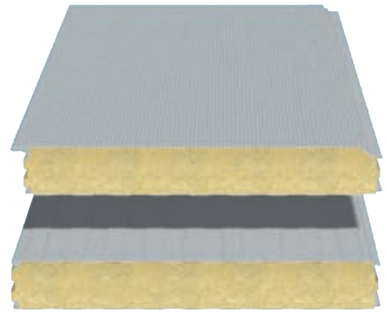
Features

- Single component assembly - fast track construction, minimal installation costs.
- Uninterrupted insulation coverage - excellent thermal efficiency.
- Autohesively bonded steel facings - increased structural integrity.
- No cold bridges - warm roof construction.
- A range of panel thicknesses available - can comply with Building Regulations Part L.
- A range of tailor-made components - total envelope approach allows design freedom.
- CFC/HCFC free insulation - environmentally friendly.
- Robust interlocking joint - thermally efficient and low air permeability.
- Available in stylish trace micro-rib or planked profile

INSULATED PANELS FROM TEGRAL Product Range

Enviropanel® product features

Enviropanel® Rockfibre cored panel systems combine the best steel technology with the proven fire performance of Rockfibre. They are available as both secret fix and through fix.



The panels have excellent fire and acoustic properties and have been engineered to eliminate cold bridging with an airtight seal, thus lowering the environmental impact and running costs of the building.

The strict quality control regime employed at the manufacturing units ensure the product conforms to the rigid specifications required for structural, thermal and acoustic performance.

The Enviropanel® panels were tested at Warrington Fire Research Centre in accordance with BS476, Part 22 and were shown to give a minimum performance of 60 minutes integrity and insulation. The panels are approved by the Loss Prevention Certification Board (LPCB) and are suitable for use as fire rated external or partition walls. The Enviropanel® panels also satisfy the requirements of Class 0 as defined in Building Regulations.

Features

- Rockfibre Core - Fire resistant and acoustically efficient.
- Approved by the Loss Prevention Certification Board (LPCB) and Factory Mutual (FM).
- Panel Engineering - Weather tight and thermally efficient.
- Complies with Part L Building Regulations.
- Wide Range of Finishes - Aesthetically pleasing
- Comprehensive and robust warranties - peace of mind and reassurance.
- Available as through fix and secret fix.

Trisomet®

A redesigned and improved profiled polyisocyanurate composite panel equally suited for roof or wall assembly.

Features

- Fire resistance to BS5476 achievable.
- The panel carries approval by the Loss Prevention Certification Board (LPCB) and also by Factory Mutual (FM) for both roof and wall applications.
- The interlocking and angled joint design allows the panel to be compressed tightly at its side lap, giving improvements in air permeability.
- Greater panel strength is achieved by the interlocking liner providing greater resistance to loading and the scope to span larger distances.
- The increased thermal efficiency makes it ideally suited to high humidity conditions.
- The panel is HCFC and CFC free
- The panels are available in a wide range of pre-finished steel products including Colorcoat HPS200®, Colorcoat Prisma® and Colorcoat Armacor®. Colorcoat HPS200® is the most specified pre-finished steel in Europe which is now maintenance free and covered with the Confidex® Guarantee for up to 30 years. Developed over forty years the Colorcoat® brand provides the Corus recognised mark of quality and metal envelope expertise.

When used in roof applications, construction can be safely undertaken down to a 4 degree pitch using conventional through fasteners.

Factory assembled windows, rooflights and flashing accessories complete the system, offering cost effective, fully insulated “warm construction” for industrial and commercial buildings.

Curved eaves and ridged details can also be accommodated to complement the Trisomet® system.

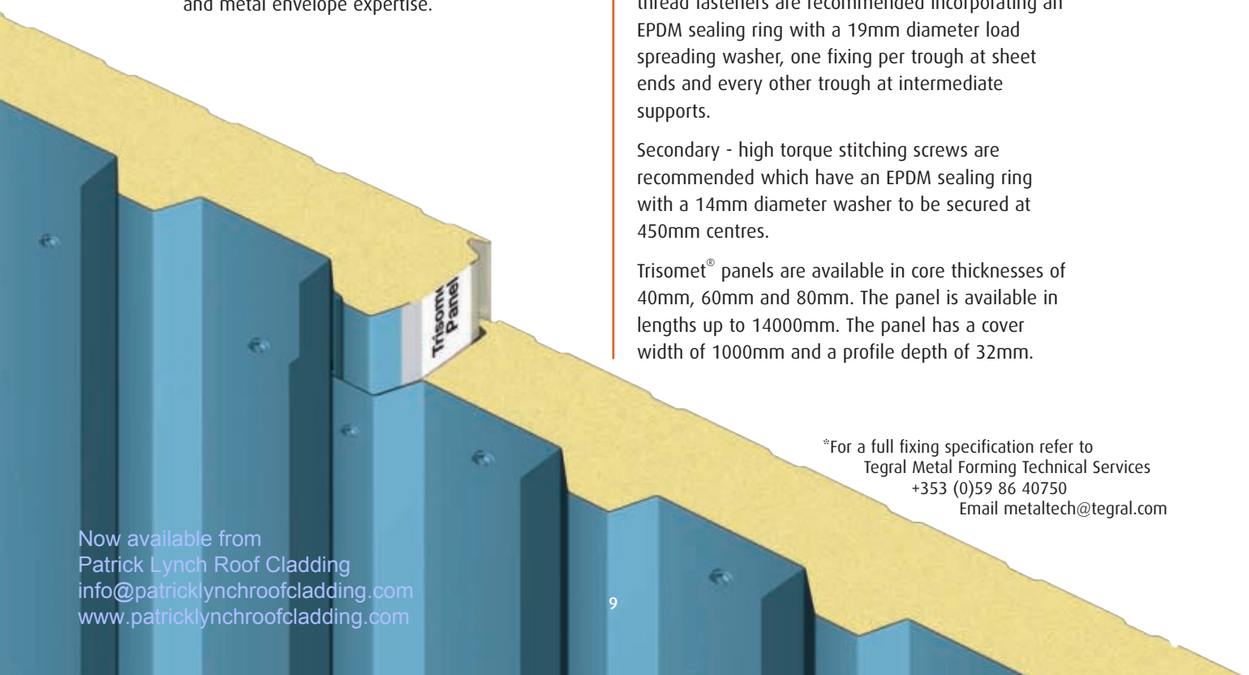
The panel specification can be matched with a range of fasteners, sealants and flute fillers.

Fixing*

Primary - preferably positioned in the valley. High thread fasteners are recommended incorporating an EPDM sealing ring with a 19mm diameter load spreading washer, one fixing per trough at sheet ends and every other trough at intermediate supports.

Secondary - high torque stitching screws are recommended which have an EPDM sealing ring with a 14mm diameter washer to be secured at 450mm centres.

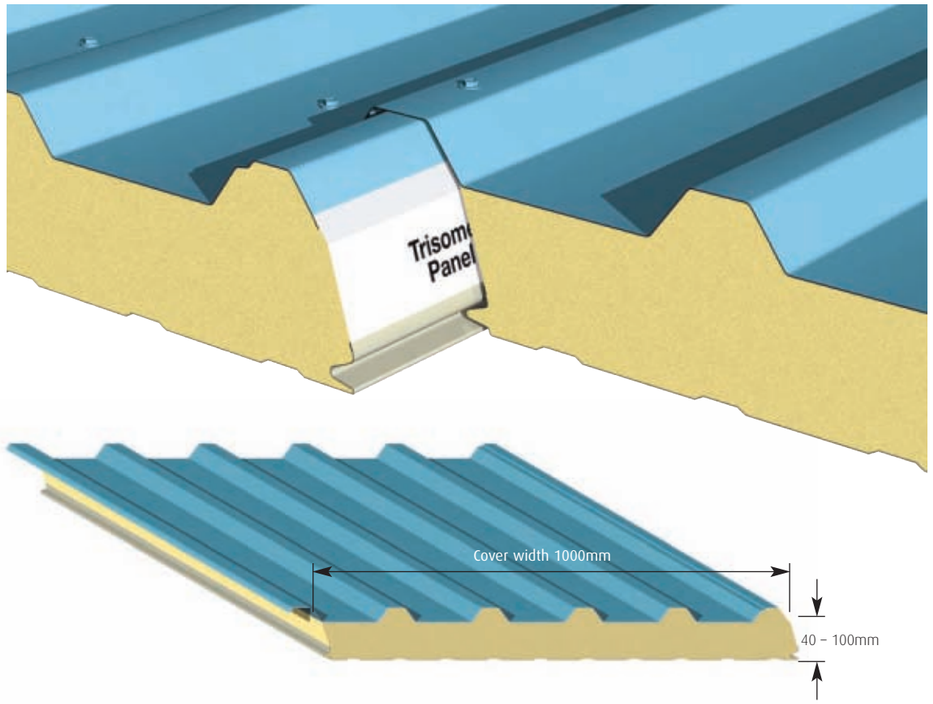
Trisomet® panels are available in core thicknesses of 40mm, 60mm and 80mm. The panel is available in lengths up to 14000mm. The panel has a cover width of 1000mm and a profile depth of 32mm.



*For a full fixing specification refer to
Tegral Metal Forming Technical Services
+353 (0)59 86 40750
Email metaltech@tegral.com

INSULATED PANELS FROM TEGRAL Trisomet®

Trisomet®

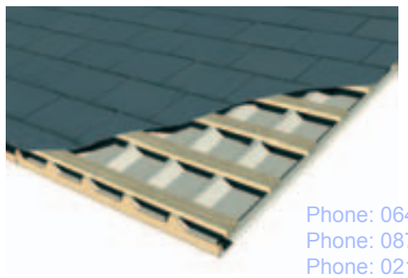


Trisomet® Specification

Application	*Wall or Roof (Vertical & Horizontal)*
External Sheet	*Corus Colorcoat Armacor®, Colorcoat HPS200®, Colorcoat Prisma®*
Internal Sheet	*Smooth Bright White Polyester*
External Face	*Profiled (1000/32)*
Internal Face	*Planked*
Standard Width	*1000mm*
Max Length	*14000mm*
External Gauge	*0.5mm Steel, (0.7mm Steel to order)*
Internal Gauge	*0.4mm Steel*
Thickness ‘U’ Value	*40mm - 0.45W/m²K, 60mm - 0.32W/m²K, 80mm - 0.25W/m²K, 100mm - 0.20W/m²K*
Weight	*40mm - 10.53kg/m², 60mm - 11.29kg/m², 80mm - 12.05kg/m², 100mm - 12.81kg/m²*
Insulant	*PIR (HCFC & CFC free), LPCB approved*
Acoustic Properties	*Sound transmission class rating - 28db (for sound transmission loss tabulated from frequency range 100-5000 Hz)*

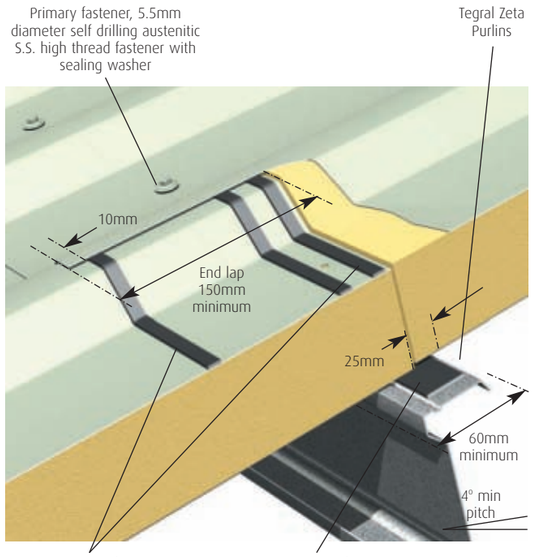
Trisomet Roof Slate Support

Trisomet is suitable for use as an insulated support deck for pitched roof coverings of fibre-cement or natural slate, clay or concrete tile. Particularly suited to wide-span, low-pitch roof constructions where speed of construction is critical. Full details are available on request from Tegral Metal Forming technical services.

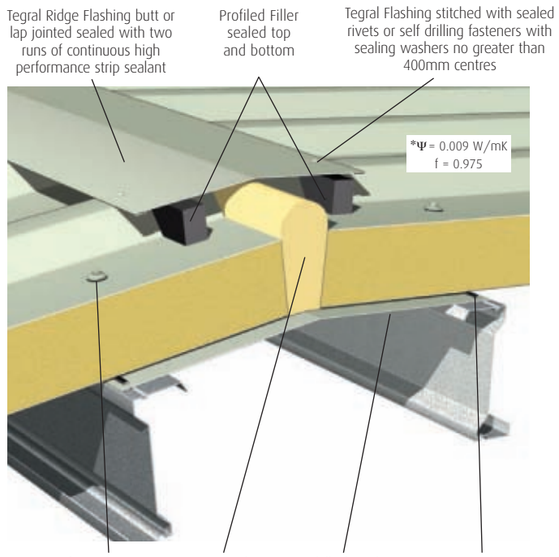


Construction Details - Trisomet®

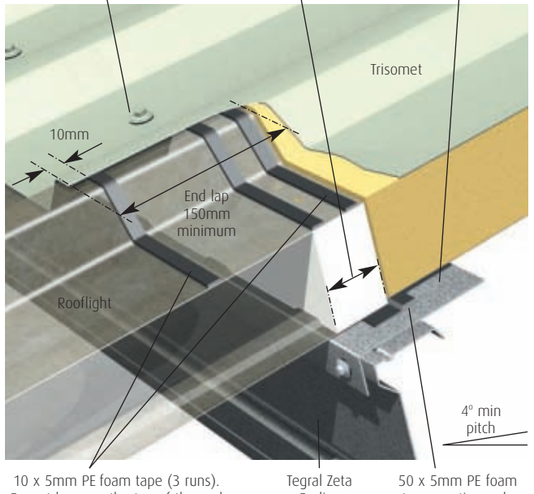
Roof End Lap



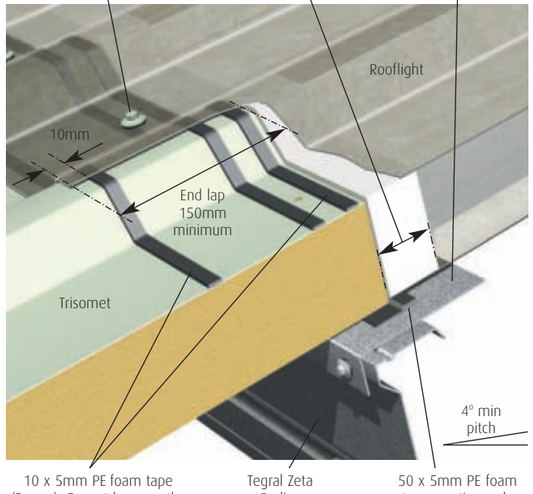
Roof Ridge



Rooflight - end lap detail



Rooflight - end lap detail

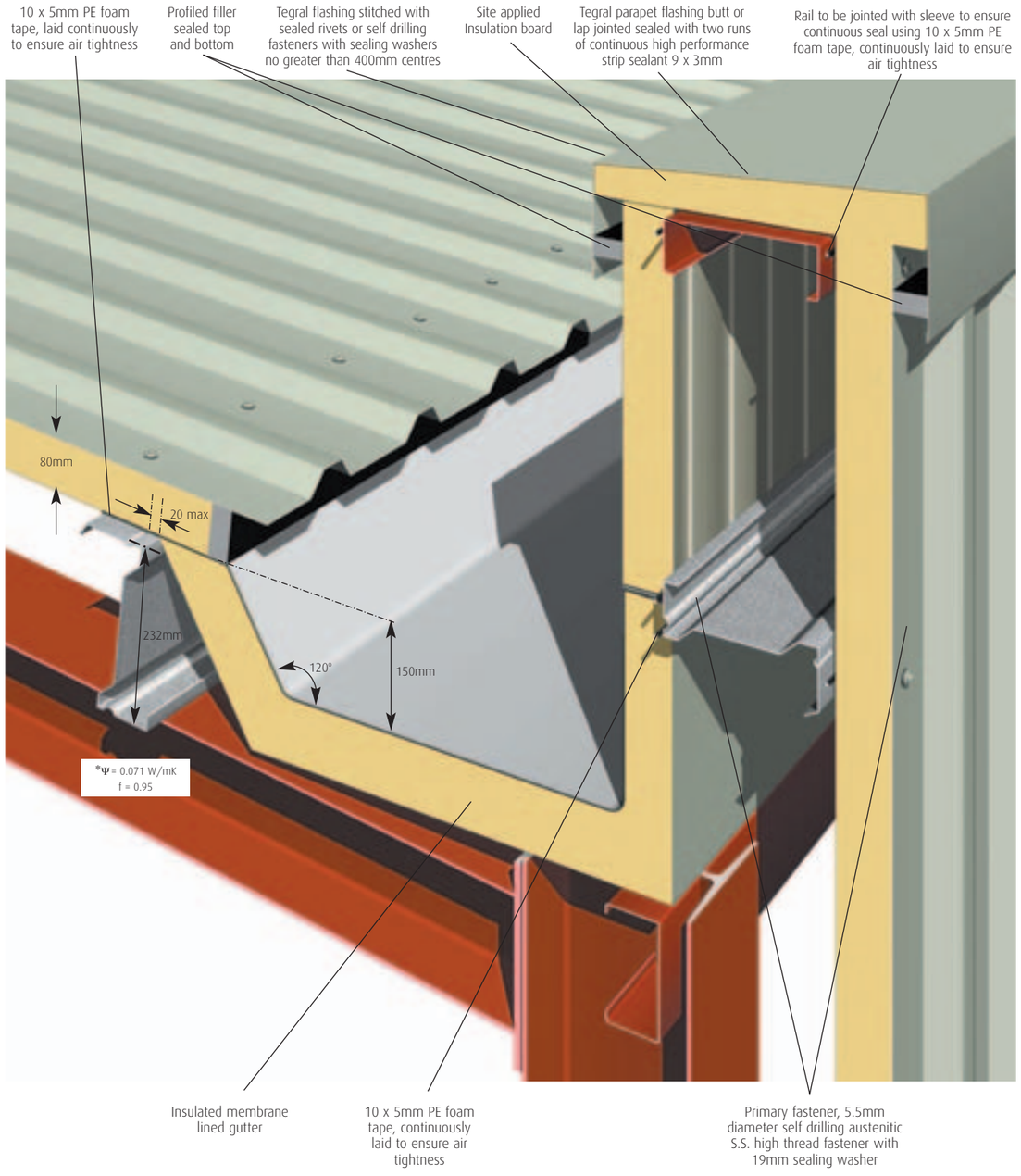


*See page 4 for ψ and f permissible values.

INSULATED PANELS FROM TEGRAL Trisomet®

Construction Details - Trisomet®

Parapet



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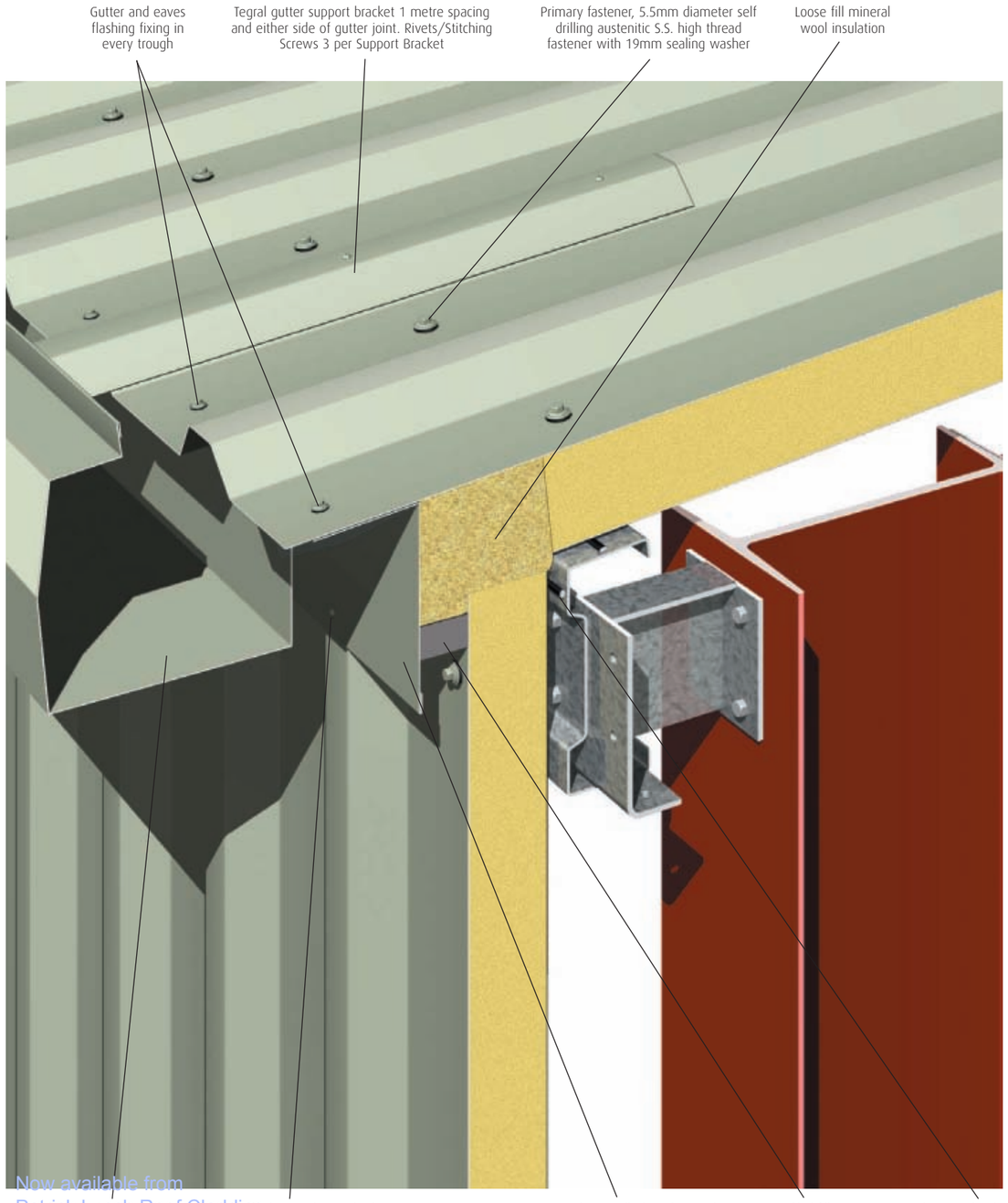
Construction Details - Trisomet®

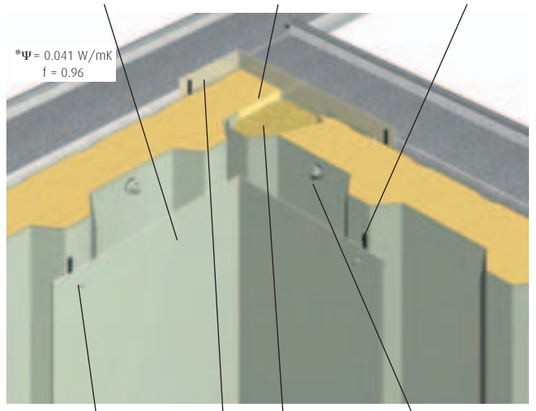
Eaves



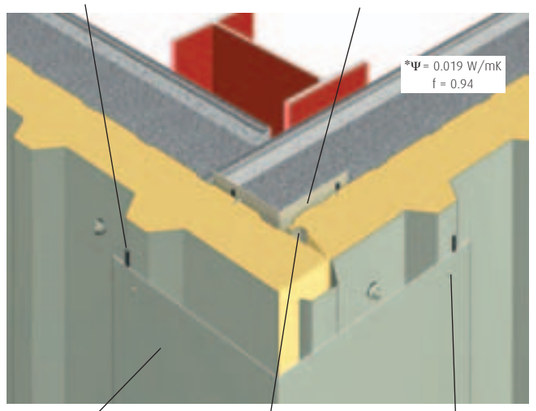
INSULATED PANELS FROM TEGRAL Trisomet®

Construction Details - Trisomet®

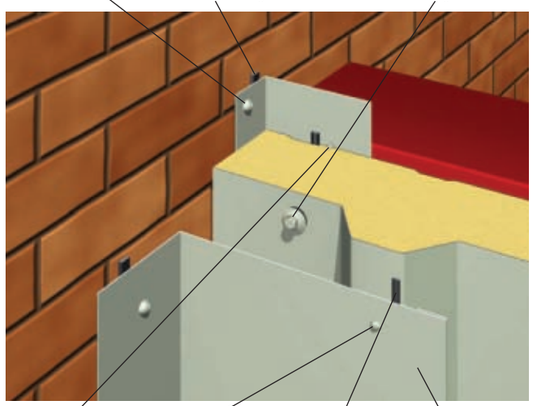
Internal Corner



External Corner

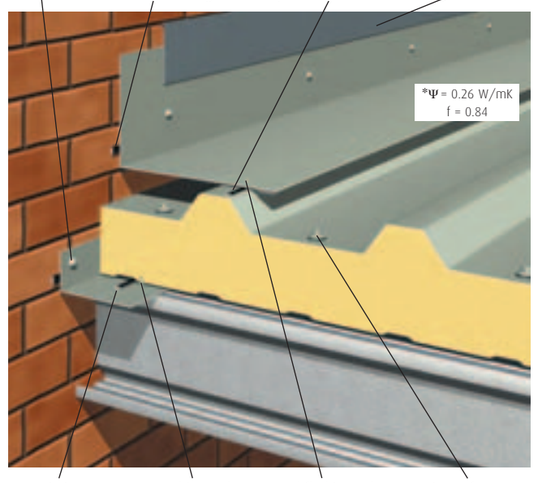


Wall to Brick Wall Abutment



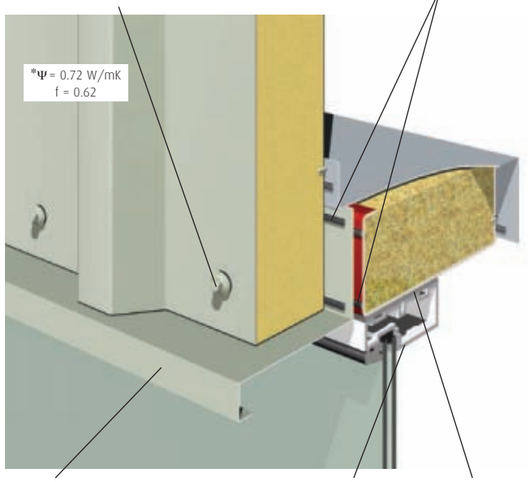
See page 4 for ψ and f permissible values.

Roof to Brick Wall Abutment

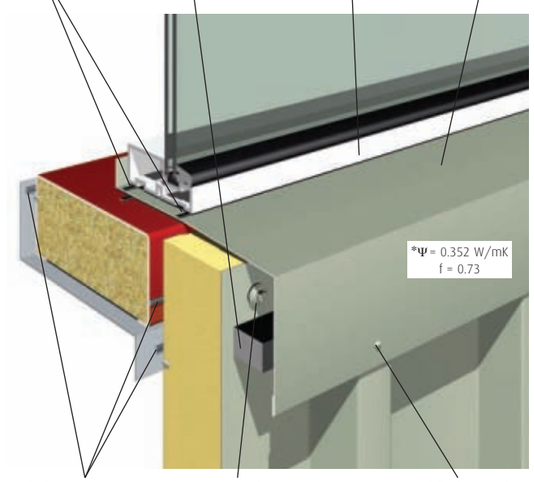


Construction Details - Trisomet®

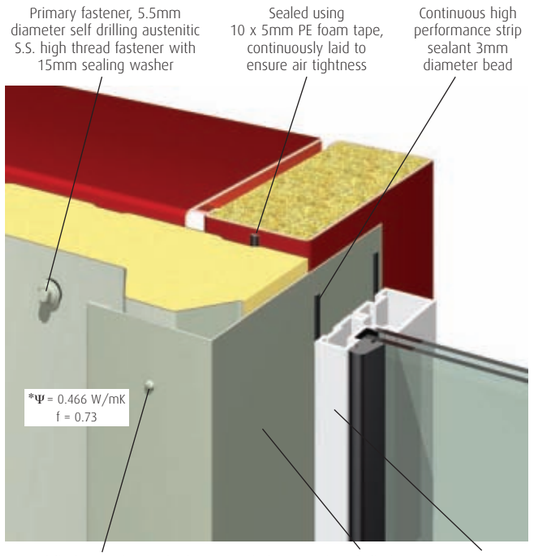
Window/Door Head



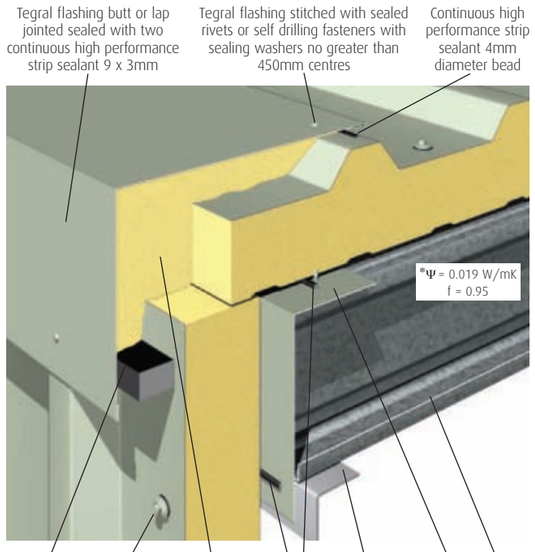
Window Cill



Window Jamb



Verge Detail

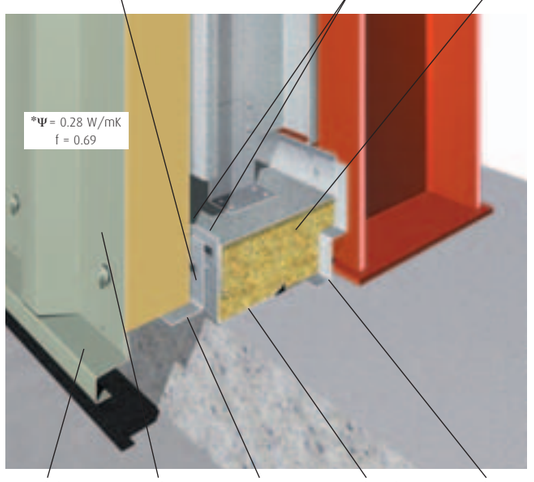


*See page 4 for Ψ and f permissible values.

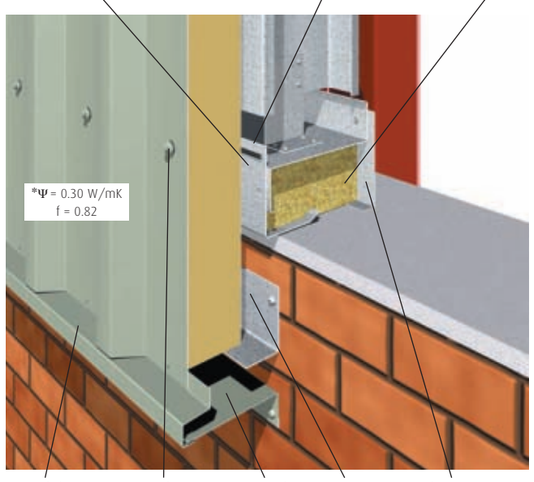
INSULATED PANELS FROM TEGRAL Trisomet®

Construction Details - Trisomet®

Wall Base Support Detail



Dado Wall Support Detail



*See page 4 for Ψ and f permissible values.

Trisomet® Firewall Systems

Firewall System

There are 2 options for the construction of firewall systems (External fire resistance, Ref: Building Regulations TGD B - Fire Safety) using Tegral Composite Panel.

15 minutes Insulation 1 Hour Integrity (see illustration A)

30 minutes Insulation 1 Hour Integrity (see illustration B)

Tegral Metal Forming firewall system is a non-loadbearing fully insulated fire resistant wall cladding system available to meet Building Regulation requirements and has a four hour rating.

This system is intended for use as an external wall with vertical application and the panel sited at least 1 metre from a relevant boundary. It is not suitable for partitions. Using a composite panel reduces the overall thickness of the system.

Installation of this system to be in accordance with the Building Regulations TGD B - Fire Safety.

System assessment to comply with BS476 part 22.1987 in relation to internal fire.

Stability = 240 minutes

Integrity = 240 minutes

Insulation = 15 minutes

Warrington fire test certification No131145

Illustration **A**

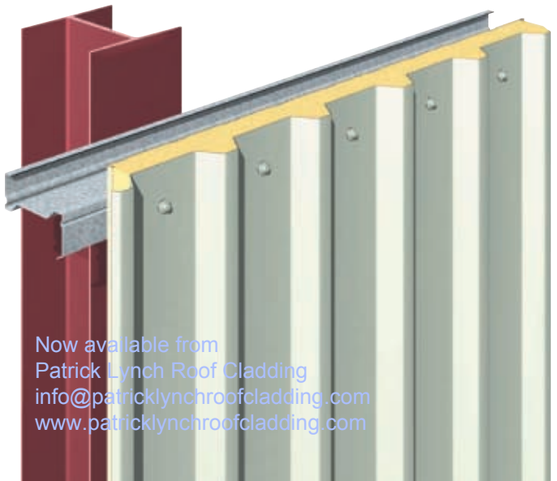
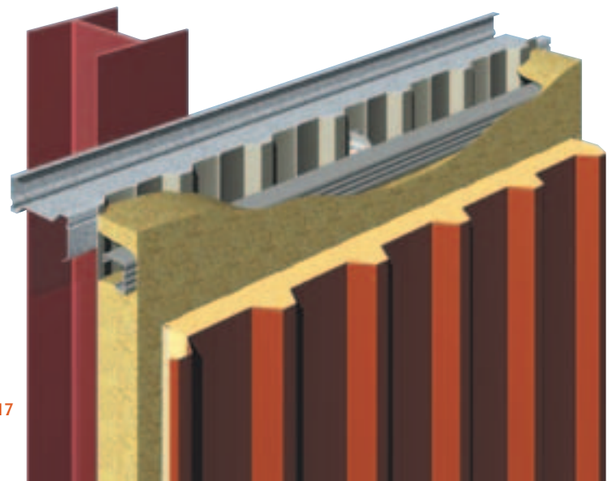


Illustration **B**



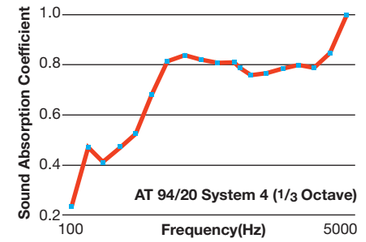
Trisomet® Acoustic Systems

Acoustic System

Acoustic performance is an increasingly important functional area for steel roof and wall cladding systems. Whether it be reducing noise levels within a factory environment or eliminating nuisance from sound in residential areas, acoustic control is a significant aspect of steel cladding design.

This system is particularly suited to applications where sound absorption is required for the ceiling or roof.

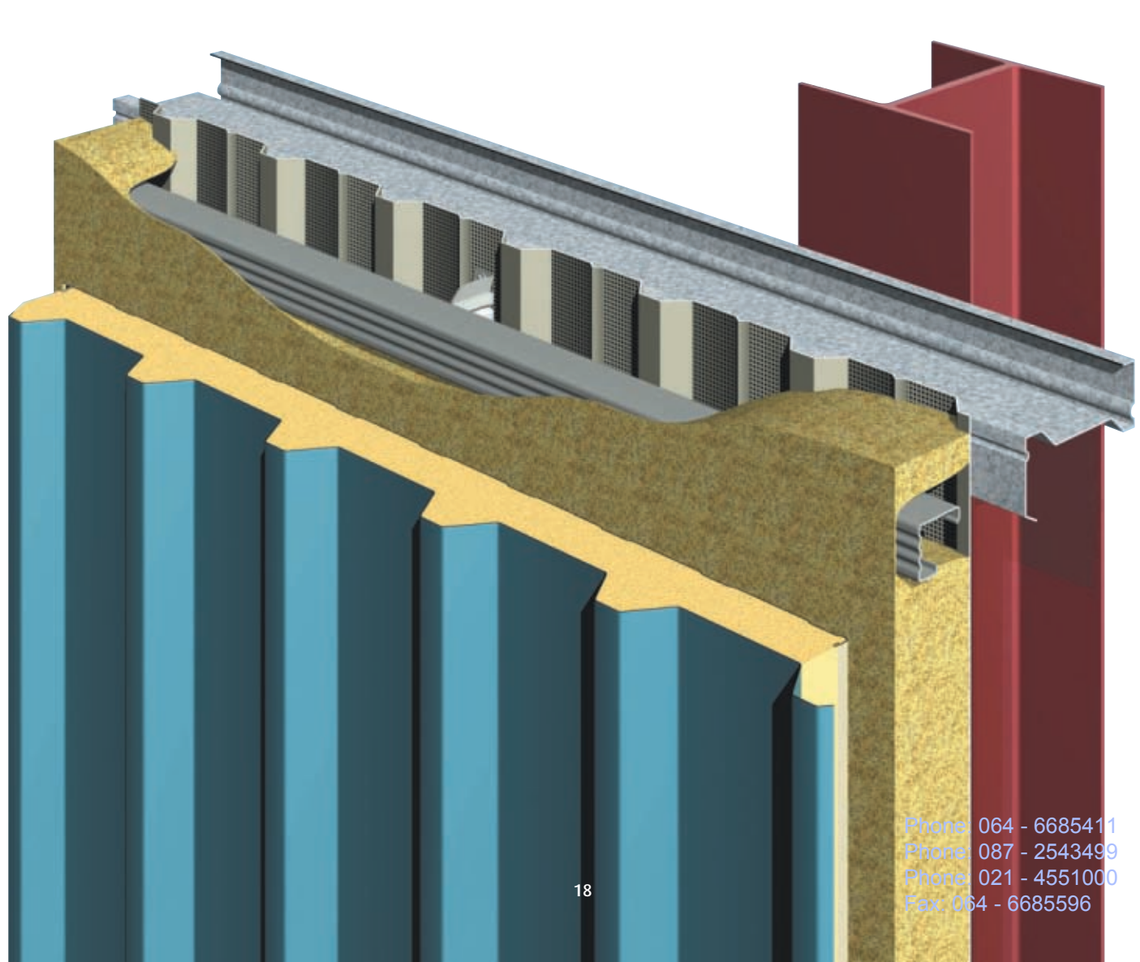
Tegral Metal Forming have the system to meet sound reduction and sound absorption standards frequently specified by industry today.



Test reference AT/94/19(20) System 4.
Weighted SRI, Rw 30.3 dB (predicted)

Note

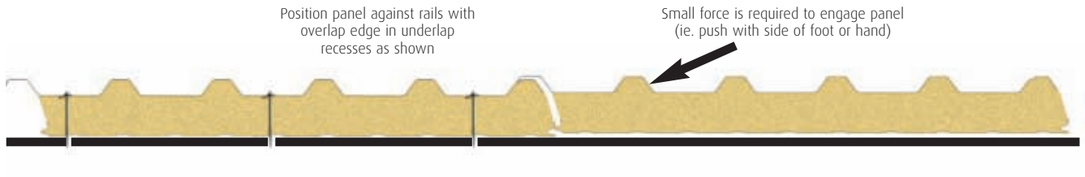
Refer to page 8 for Trisomet panel acoustic properties.

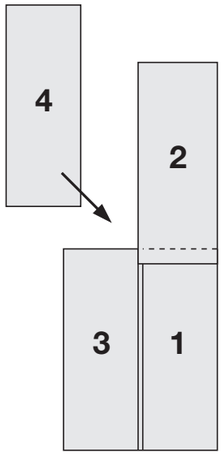


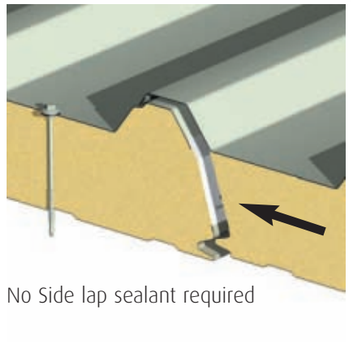
Sheet Fixing Guide - Trisomet®

The new Trisomet® panel is simple to fit in roof and wall applications and no site applied side lap sealant is required.

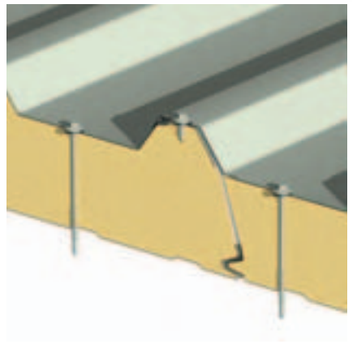
If you require any further assistance, please contact Technical Services department on + 353 (0) 59 86 40750 or email metaltech@tegral.com



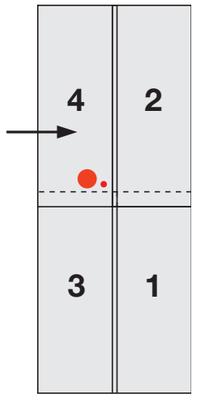




No Side lap sealant required

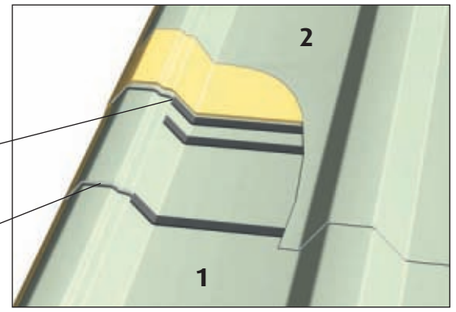


When end lapping the panel some inward pressure may be required at the point indicated by the red dot shown below to engage the panel as it is moved into place



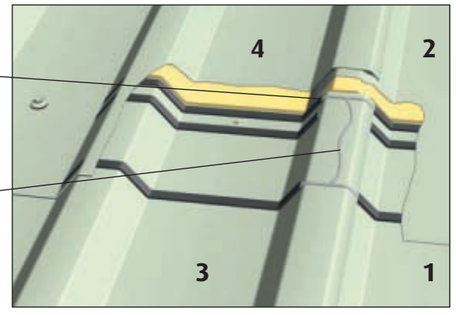
End lap sealant stopped short at under/overlap crown to avoid material build up

Gun applied silicon mastic



End lap sealant stopped short at under/overlap crown to avoid material build up

Gun applied silicon mastic



Load Span Tables - Trisomet®

Imposed Loads

Core Thickness		40mm	
Steel Gauge		0.55/0.4mm	
Self Weight		10.53kg/m²	
Span Condition	Single kN/m²	Double kN/m²	Multi kN/m²
1.6m	*4.12*	*4.12*	*4.12*
2.0m	*2.95*	*2.95*	*2.95*
2.4m	*2.2*	*2.2*	*2.2*
2.8m	*1.42*	*1.69*	*1.69*
3.2m	*0.91*	*1.33*	*1.33*
3.6m	*0.67*	*1.06*	*1.06*

Suction Loads

Core Thickness		40mm	
Steel Gauge		0.55/0.4mm	
Self Weight		10.53kg/m²	
Span Condition	Single kN/m²	Double kN/m²	Multi kN/m²
1.6m	*4.27*	*4.27*	*4.27*
2.0m	*3.14*	*3.14*	*3.14*
2.4m	*2.41*	*2.41*	*2.41*
2.8m	*1.91*	*1.91*	*1.91*
3.2m	*1.55*	*1.55*	*1.55*
3.6m	*1.28*	*1.28*	*1.28*

Trimapanel®

Trimapanel®

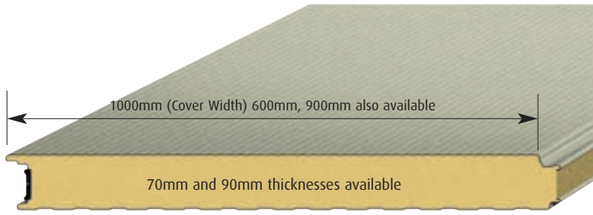
Features

- Micro-rib or planked external finish – aesthetically pleasing and economically efficient.
- Improved thermal efficiency.
- Reduced air permeability.
- HCFC/CFC free core.
- Platinum System Warranty available.
- The panel is HCFC and CFC free
- Option to be supplied with pre-formed single-skin flashing accessories to facilitate detailing.
- The panel carries LPCB and FM approval for vertical and horizontal applications.
- Flat panel cladding systems reflect any inaccuracies in supporting structure alignment. It is, therefore, recommended that all secondary structural supports to which Trimapanel® are connected, be capable of adjustment during erection to give a true line and level.

Trimapanel® Specification

Application	*Wall (Vertical & Horizontal)*
External Sheet	*Corus Colorcoat HPS200®, Colorcoat Armacor®, Colorcoat Prisma®*
Internal Sheet	*Smooth Bright White Polyester*
External Face	*Micro-rib or planked*
Internal Face	*Planked*
Standard Width	*1000mm*
Non-standard Width	*600mm, 900mm*
Max Length	*10000mm*
External Gauge	*0.5mm Steel, 0.7mm Steel*
Internal Gauge	*0.4mm Steel*
*Thickness 'U' Value	*70mm - 0.33W/m²K, 90mm - 0.25W/m²K*
Weight	*70mm - 10.42kg/m², 90mm - 11.17kg/m²*
Insulant	*PIR (HCFC and CFC free, LPCB Approved)*
Acoustic Properties	*Sound transmission class rating - 28db (for sound transmission loss tabulated from frequency range 100-5000 Hz)*

*Assuming 1000mm module

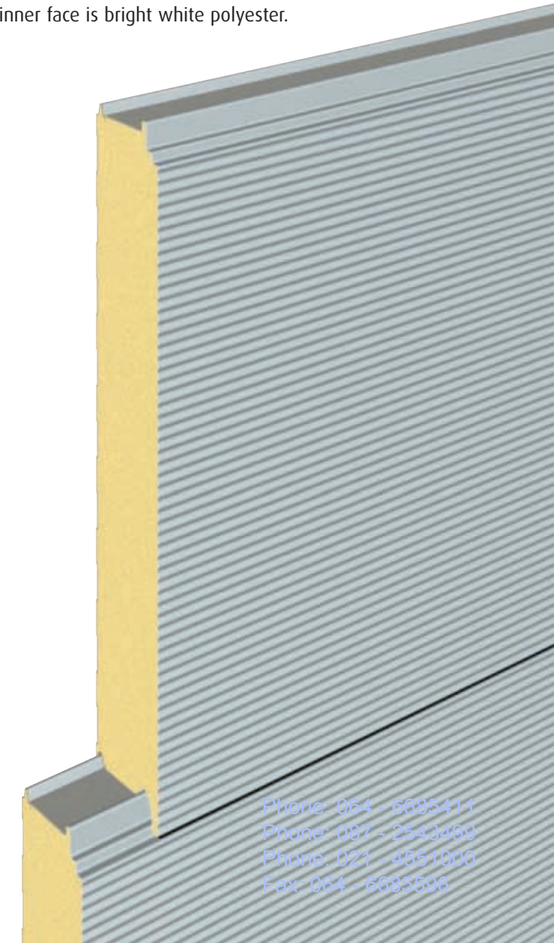


Trimapanel® is available in panel thicknesses of 70mm and 90mm. Panels have a standard width of 1000mm with 600mm and 900mm widths available on request.

Lengths of up to 10000mm are available.

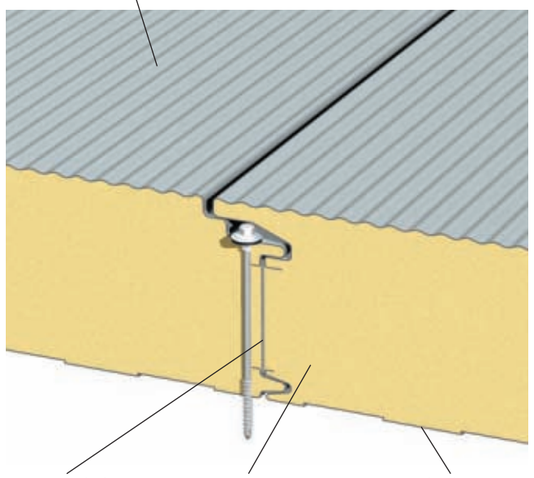
Trimapanel® is available in a wide range of pre-finished steel products including the new Colorcoat Prisma® and Colorcoat HPS200®, the most specified pre-finished steel in Europe.

The inner face is bright white polyester.

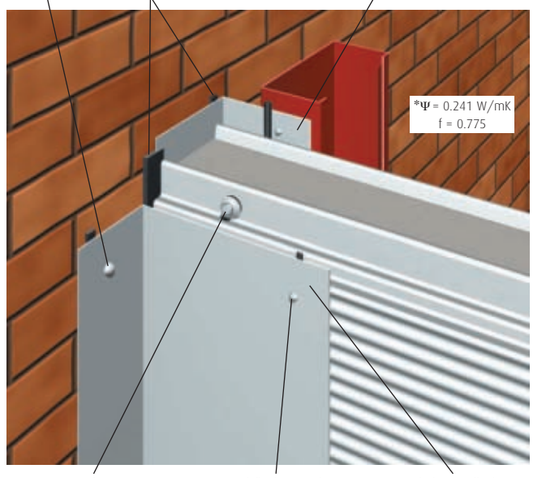


Construction Details - Trimapanel®

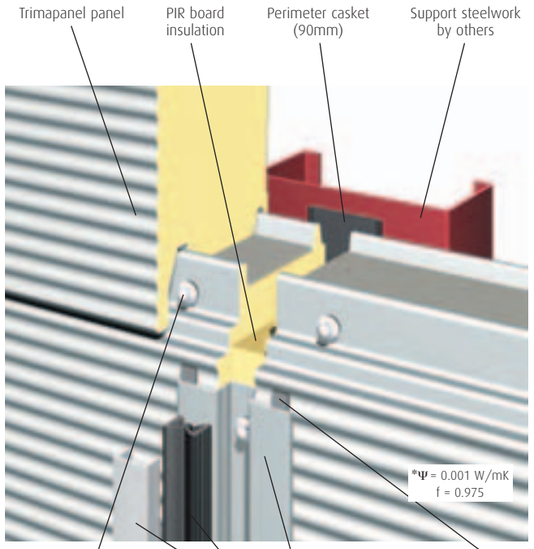
Horizontal Joint Detail



Wall Abutment

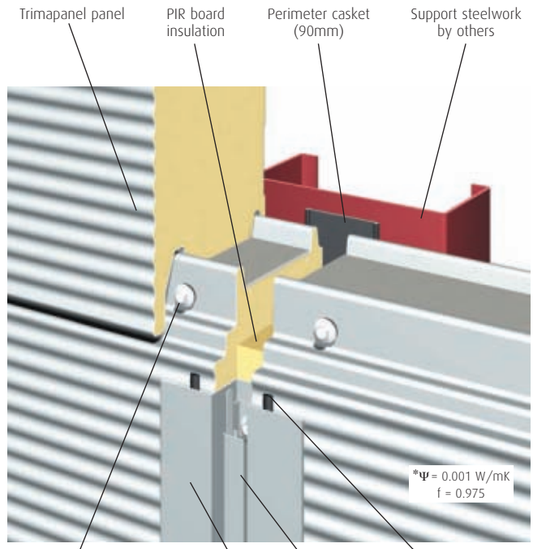


Vertical Joint



*See page 4 for Ψ and f permissible values.

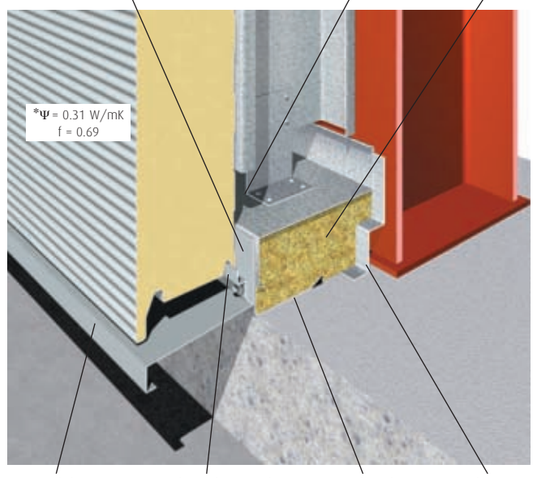
Vertical Joint Option 2



INSULATED PANELS FROM TEGRAL Trimapanel®

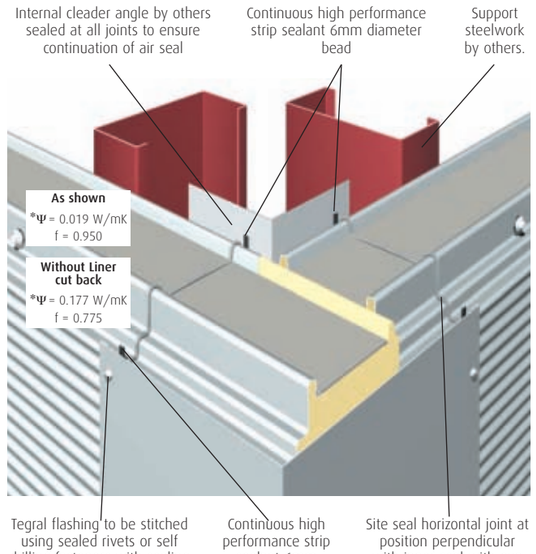
Construction Details - Trimapanel®

Base Detail



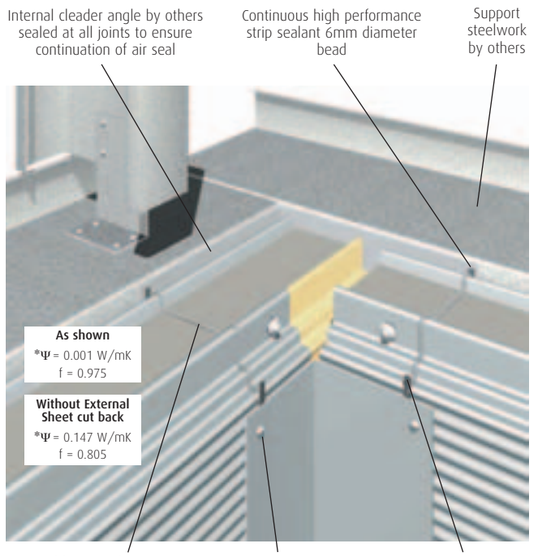
Dado Wall Detail

External Corner



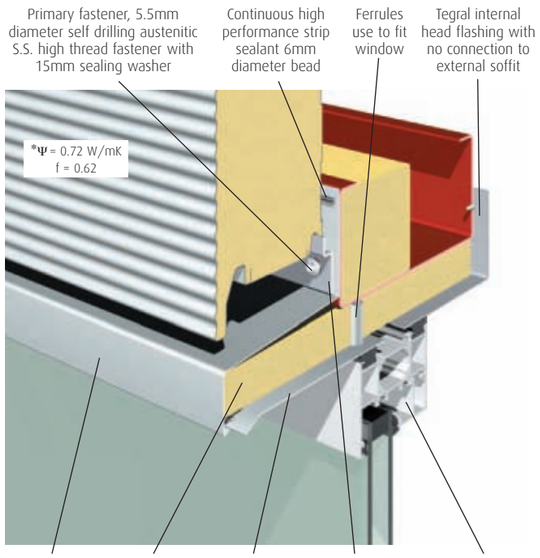
*See page 4 for Ψ and f permissible values.

Internal Corner

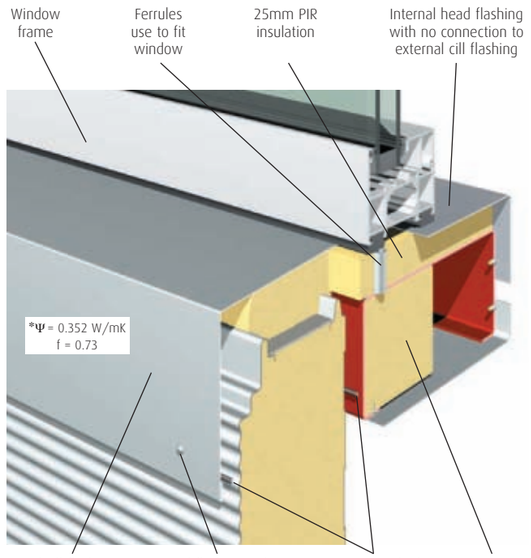


Construction Details - Trimapanel®

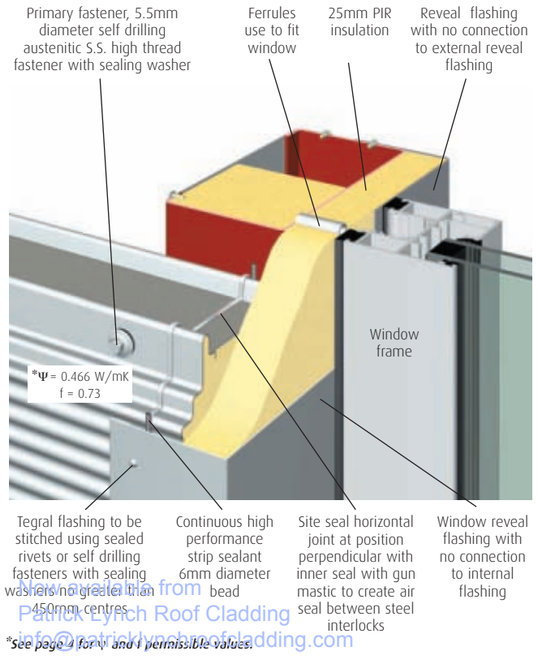
Window/Door Head



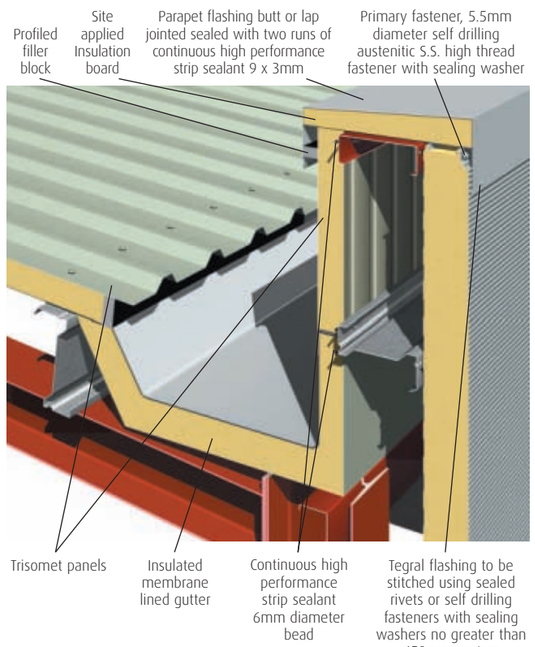
Window Cill



Window Jamb



Parapet



*See page 4 for Ψ and f permissible values.

INSULATED PANELS FROM TEGRAL Trimapanel®

Load Span Tables - Trimapanel®

Imposed Loads (Dead Loads & Positive Wind Loads)

Thickness	70mm			90mm		
Steel Gauge	0.5/0.4mm			0.5/0.4mm		
Self Weight	10.79kg/m²			11.54kg/m²		
Span Condition	Single kN/m²	Double kN/m²	Multi kN/m²	Single kN/m²	Double kN/m²	Multi kN/m²
1.0m	*7.67*	*8.12*	*8.12*	*9.05*	*9.58*	*9.58*
1.2m	*6.99*	*7.39*	*7.39*	*8.25*	*8.73*	*8.73*
1.4m	*6.31*	*6.67*	*6.67*	*7.45*	*7.87*	*7.87*
1.6m	*5.63*	*5.95*	*5.95*	*6.65*	*7.02*	*7.02*
1.8m	*4.95*	*5.23*	*5.23*	*5.84*	*6.17*	*6.17*
2.0m	*4.27*	*4.51*	*4.51*	*5.04*	*5.32*	*5.32*
2.2m	*3.87*	*4.21*	*4.21*	*4.57*	*4.97*	*4.97*
2.4m	*3.47*	*3.92*	*3.92*	*4.10*	*4.63*	*4.63*
2.6m	*3.08*	*3.63*	*3.63*	*3.63*	*4.28*	*4.28*
2.8m	*2.68*	*3.34*	*3.34*	*3.16*	*3.94*	*3.94*
3.0m	*2.28*	*3.04*	*3.04*	*2.69*	*3.59*	*3.59*
3.2m	*2.06*	*2.78*	*2.78*	*2.43*	*3.28*	*3.28*
3.4m	*1.84*	*2.51*	*2.51*	*2.17*	*2.96*	*2.96*
3.6m	*1.62*	*2.24*	*2.24*	*1.91*	*2.64*	*2.64*
3.8m	*1.40*	*1.97*	*1.97*	*1.65*	*2.33*	*2.33*
4.0m	*1.18*	*1.71*	*1.71*	*1.39*	*2.01*	*2.01*

Negative Loads (Wind Suction Loads)

Thickness	70mm			90mm		
Steel Gauge	0.5/0.4mm			0.5/0.4mm		
Self Weight	10.79kg/m²			11.54kg/m²		
Span Condition	Single kN/m²	Double kN/m²	Multi kN/m²	Single kN/m²	Double kN/m²	Multi kN/m²
1.0m	*3.36*	*3.43*	*3.43*	*3.82*	*4.06*	*4.06*
1.2m	*3.11*	*3.23*	*3.23*	*3.62*	*3.55*	*3.55*
1.4m	*2.86*	*3.03*	*3.03*	*3.42*	*3.24*	*3.24*
1.6m	*2.62*	*2.82*	*2.82*	*3.22*	*2.84*	*2.84*
1.8m	*2.37*	*2.43*	*2.43*	*3.02*	*2.43*	*2.43*
2.0m	*2.12*	*2.03*	*2.03*	*2.82*	*2.03*	*2.03*
2.2m	*1.98*	*1.88*	*1.88*	*2.61*	*1.98*	*1.98*
2.4m	*1.85*	*1.76*	*1.76*	*2.40*	*1.76*	*1.76*
2.6m	*1.71*	*1.62*	*1.62*	*2.19*	*1.62*	*1.62*
2.8m	*1.58*	*1.49*	*1.49*	*1.98*	*1.49*	*1.49*
3.0m	*1.44*	*1.35*	*1.35*	*1.77*	*1.35*	*1.35*
3.2m	*1.33*	*1.28*	*1.28*	*1.70*	*1.28*	*1.28*
3.4m	*1.22*	*1.22*	*1.22*	*1.62*	*1.22*	*1.22*
3.6m	*1.11*	*1.15*	*1.15*	*1.55*	*1.15*	*1.15*
3.8m	*0.99*	*1.08*	*1.08*	*1.47*	*1.08*	*1.08*
4.0m	*0.88*	*1.01*	*1.01*	*1.40*	*1.01*	*1.01*

Enviropanel®

Features

- Fire resistant.
- LPCB approved system.
- Weather-tight and thermally efficient construction.
- Acoustically efficient.
- Building regulations L2 compliant.
- Aesthetically pleasing appearance
- Comprehensive and robust warranties.
- Quality assured manufacture.

Enviropanel® is non combustible and fully recyclable

For roofing applications requiring mineral wool core composite panels, contact Tegral Metal Forming Technical Services on + 353 (0) 59 86 40750 or email: metaltech@tegral.com

Enviropanel® is the mineral wool cored panel from Tegral Metal Forming, complimenting the foam panels to provide a composite panel solution for any application.

The experience in composite panel manufacture has been developed over the past 20 years by utilising the prodigious research and development teams of key suppliers to maximum benefit, including a specialist fire engineering department.

The in-house testing and research resource available to Tegral from our suppliers plants in 6 countries ensures that we are at the forefront of composite panel manufacturing technology.

The strict quality control regime that Tegral insist is applied at all stages of manufacture, from iron ore smelting, to the production of the finished product, ensures a consistent quality product that is backed with a complete process audit trail.

Access also to the latest developments in pre-finished steel technology ensures that our customers constantly receive products that are truly fit for purpose.

The Enviropanel® panels are available in a variety of pre-finished steel products, including Colorcoat Prisma® and Colorcoat HPS200®, the most specified pre-finished steel in Europe which is now maintenance free.

INSULATED PANELS FROM TEGRAL Enviropanel®

Enviropanel®

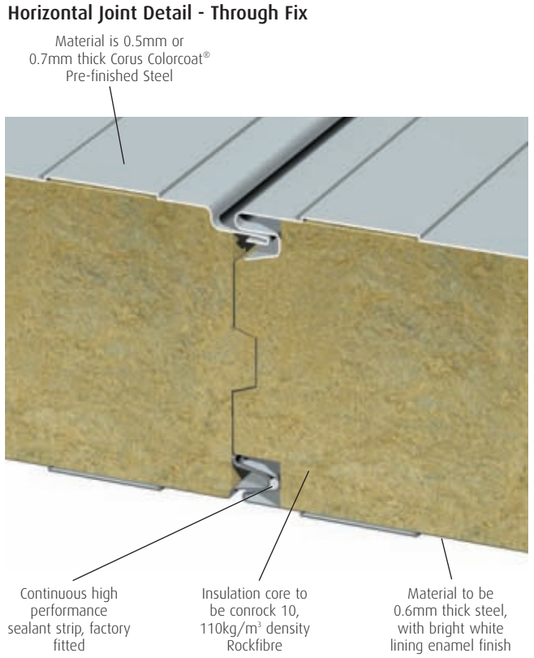
Product	Enviropanel® SF		Enviropanel® TF	
Thickness	*120mm*	*135mm*	*120mm*	*135mm*
Application	*Wall (Vertical & Horizontal)*	*Wall (Vertical & Horizontal)*	*Wall (Vertical & Horizontal)*	*Wall (Vertical & Horizontal)*
External Sheet *Internal Sheet*	*Colorcoat Prisma®, Colorcoat HPS200®, Colorcoat Celestia®, Smooth Bright White Polyester*	*Colorcoat Prisma®, Colorcoat HPS200®, Colorcoat Celestia®, Smooth Bright White Polyester*	*Colorcoat Prisma®, Colorcoat HPS200®, Colorcoat Celestia®, Smooth Bright White Polyester*	*Colorcoat Prisma®, Colorcoat HPS200®, Colorcoat Celestia®, Smooth Bright White Polyester*
External Face	*Microrib or Planked*	*Microrib or Planked*	*Microrib or Planked*	*Microrib or Planked*
Internal Face	*Planked*	*Planked*	*Planked*	*Planked*
Standard Width	*1000mm*	*1000mm*	*1150mm*	*1150mm*
Non-Standard Width(mm)	*600mm or 900mm*	*600mm or 900mm*	*1000mm*	*1000mm*
Max Standard Length	*9000mm*	*9000mm*	*9000mm*	*9000mm*
*External Metal Gauge***	*0.7mm*	*0.7mm*	*0.7mm*	*0.7mm*
Internal Metal Gauge	*0.6mm*	*0.6mm*	*0.6mm*	*0.6mm*
Thermal Conductivity	*0.35W/m²K*	*0.30W/m²K*	*0.35W/m²K*	*0.30W/m²K*
Weight	*24.88kg/m²*	*26.53kg/m²*	*24.88kg/m²*	*26.53kg/m²*
Insulant	*Mineral Wool*	*Mineral Wool*	*Mineral Wool*	*Mineral Wool*
Acoustic Properties				
*Fire Performance***	*60 minutes insulation and integrity LPS 1181 Grade A*	*60 minutes insulation and integrity LPS 1181 Grade A*	*60 minutes insulation and integrity LPS 1181 Grade A*	*60 minutes insulation and integrity LPS 1181 Grade A*

* *Calculated figures.*
** *Warrington Fire Test Report No 130592 conducted in accordance with BS476, Part 22 (Non Loadbearing Walls) LPCB certificate number 460a/10. LPS 1181 Grade A.*

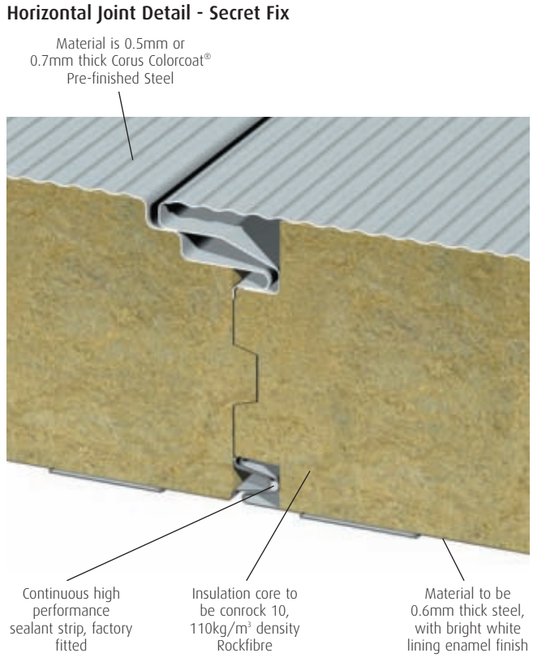
Enviropanel® TF

Construction Details - Enviropanel®

Horizontal Joint Detail - Through Fix

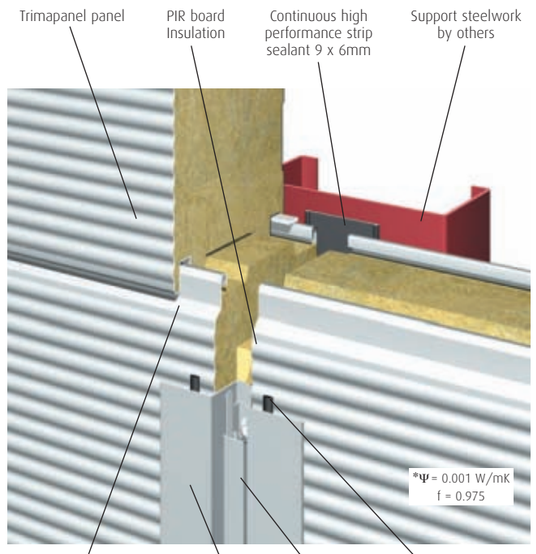


Horizontal Joint Detail - Secret Fix



Wall Abutment

Vertical Joint

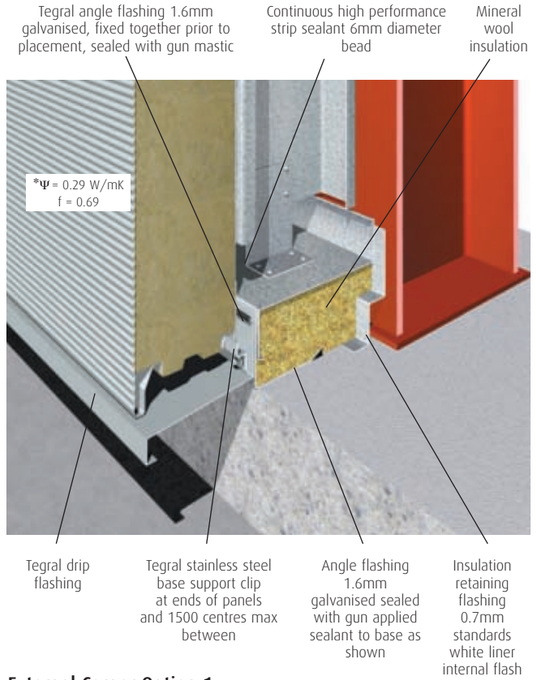


*See page 4 for Ψ and f permissible values.

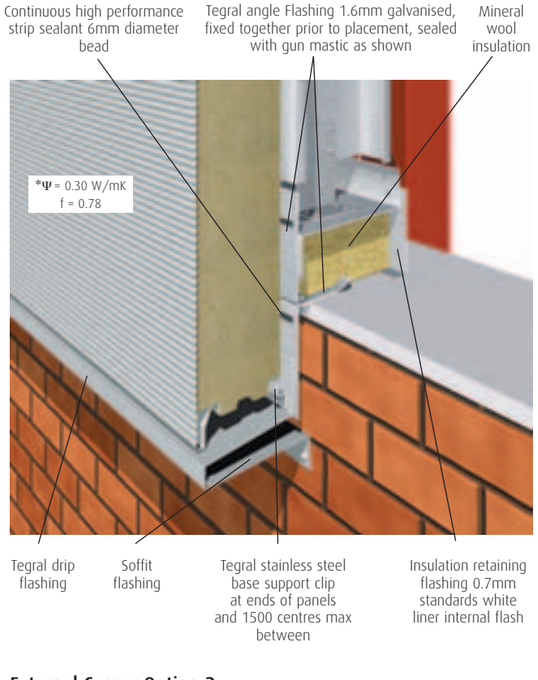
INSULATED PANELS FROM TEGRAL Enviropanel®

Construction Details - Enviropanel®

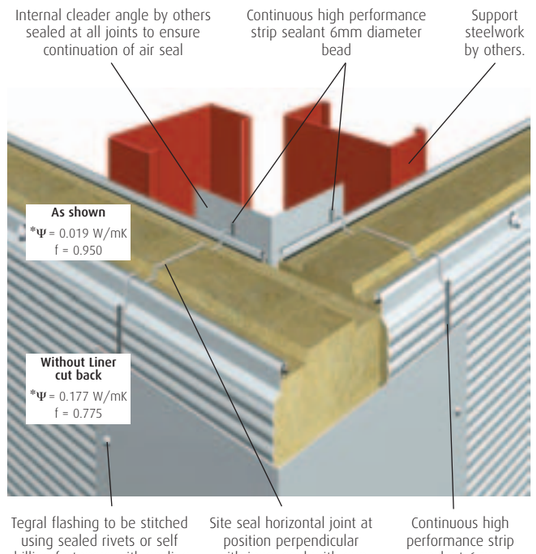
Base Detail



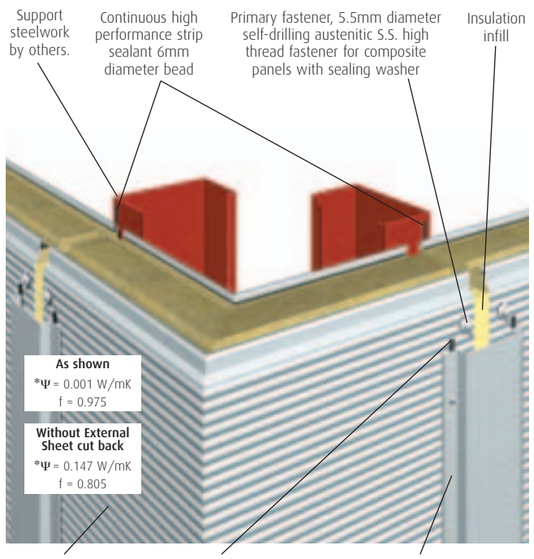
Dado Wall Detail



External Corner Option 1



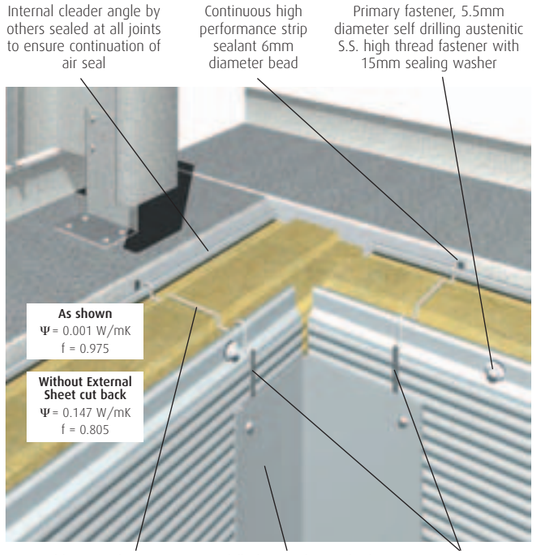
External Corner Option 2



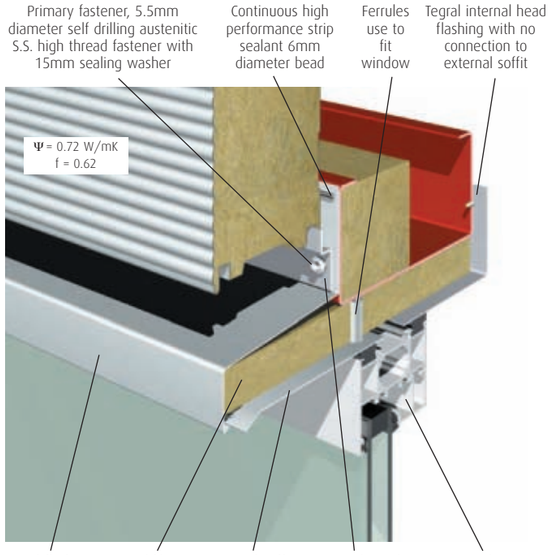
*See page 4 for Ψ and f permissible values.

Construction Details - Enviropanel®

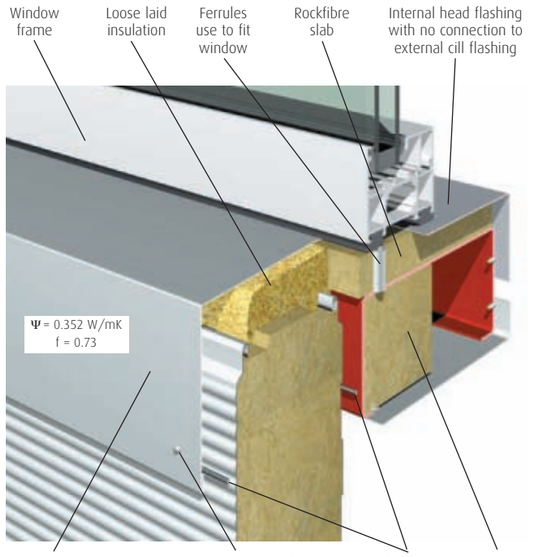
Internal Corner



Window/Door Head

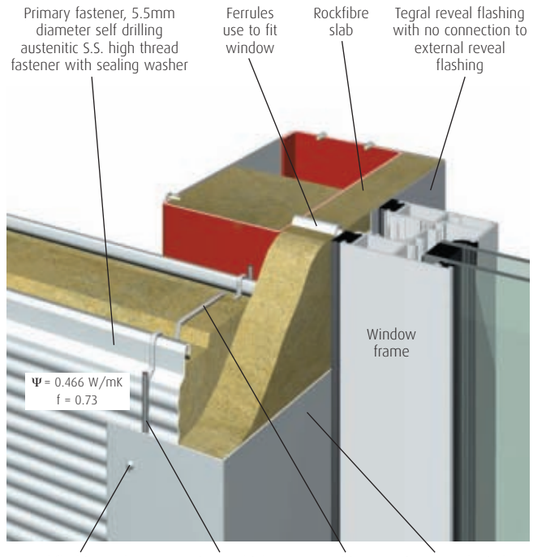


Window Cill



*See page 4 for Ψ and f permissible values.

Window Jamb



Load Span Tables - Enviropanel®

Span tables Enviropanel® TF 120mm thick

Imposed Loads

Span (m)	*Loads kN/m² Single Span L/150*	*Double Span L/150*	*Multi Span L/150*
2.0	*4.07*	*3.85*	*3.60*
2.5	*3.90*	*3.26*	*2.88*
3.0	*3.27*	*2.31*	*2.35*
3.5	*2.39*	*1.72*	*NA*
4.0	*1.81*	*1.31*	*NA*
4.5	*1.40*	*1.03*	*NA*
5.0	*1.11*	*0.82*	*NA*
5.5	*0.89*	*0.40*	*NA*
6.0	*0.71*	*0.30*	*NA*
6.5	*0.58*	*0.24*	*NA*
7.0	*0.47*	*0.19*	*NA*

Load Safety Factor 1.5
Deflection limit L/150

Suction Loads

Span (m)	*Loads kN/m² Single Span L/150*	*Double Span L/150*	*Multi Span L/150*
2.0	*4.07*	*3.85*	*3.60*
2.5	*3.90*	*3.26*	*2.88*
3.0	*3.27*	*2.31*	*2.35*
3.5	*2.39*	*1.72*	*NA*
4.0	*1.81*	*1.31*	*NA*
4.5	*1.40*	*1.03*	*NA*
5.0	*1.11*	*0.82*	*NA*
5.5	*0.89*	*0.40*	*NA*
6.0	*0.71*	*0.30*	*NA*
6.5	*0.58*	*0.24*	*NA*
7.0	*0.47*	*0.19*	*NA*

Load Safety Factor 1.5
Deflection limit L/150

Thermal Performance

For Tegral roofing and cladding systems, the calculation procedure as set out in Appendix D of TGD Part L Section 2 is followed.

Details should be assessed in accordance with the methods described in **I.S. EN ISO 10211-1:1996** and **I.S. EN 10211-2:2001**. This assessment should establish the temperature factor (f_{Rsi}) and linear thermal transmittance (ψ). The temperature factor (f_{Rsi}) is defined as follows:
$f_{Rsi} = (T_{si} - T_e) / (T_i - T_e)$ where:
T_{si} = minimum internal surface temperature,
T_e = external temperature, and
T_i = internal temperature.

The linear thermal temperature (ψ) is the calculated correction factor for heat loss per unit length of a linear thermal bridge.

In order to facilitate compliance with this requirement Tegral Metal Forming can provide specification details which:

- are designed to reduce thermal bridging (i.e. have a low ψ value)
- are designed to reduce the risk of internal condensation (i.e. have a high f value)
- have been thermally modelled to produce known values of ψ and f, which are then used in the whole building calculation.

Permissible values for f & ψ

The temperature factor (f_{Rsi})

For dwellings, Technical Guidance Document Part L gives a minimum value f_{Rsi} of 0.75, however there is no specific guidance given for other buildings. Designers have to ensure however, that any thermal bridge should not pose a risk of surface or interstitial condensation. Although not mandatory, the following guidance may be helpful to this end: (Reference) Guidance for the Design of Metal Roofing and Cladding to Comply with L2 : 2001 - MCRMA Technical Guidance Paper No 14.

Humidity Class	Building Type	Min. f value
1	Storage Areas	0.30
2	Offices, Retail outlets	0.50
3	Dwellings with low occupancy	0.65
4	Sports Halls kitchens, canteens, buildings heated with un-flued gas heaters. Dwellings with high occupancy	0.80
5	Swimming pools, laundries, breweries	0.90

Additional heat loss (sum of ψ)

Elemental Heat Loss Method:

The additional heat loss associated with thermal bridges should be limited to less than 16% of the total calculated heat loss through the plane building elements

Overall Heat Loss Method:

Where the Overall Heat Loss method is used to show compliance, any additional heat loss above this level (16%) should be explicitly taken into account in calculating the Overall Heat Loss and the associated average U-value.

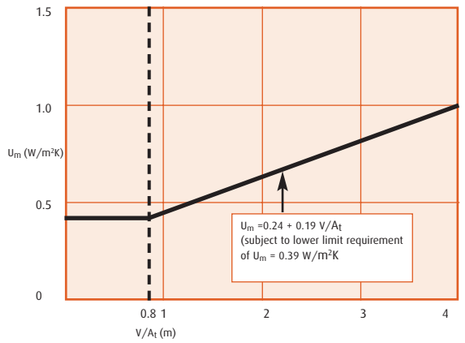
Air infiltration

Infiltration of cold outside air should be limited by reducing unintentional air paths as far as is practicable. A reasonably continuous air barrier should be provided over the whole thermal envelope, including elements separating the building from adjoining heated or unheated areas.

All Tegral roofing and cladding products and systems are designed to minimise air leakage, and enable air sealing criteria to be met, provided they are constructed correctly and that all other junctions and openings in the building are sealed properly. Regardless of the cladding material or system chosen, it is essential that contractors take considerable care over air sealing.

Thermal Performance

Maximum average U-value (U_m) in relation to building volume (V) and total area of heat loss elements (A_t)



Elemental Heat Loss Method

To demonstrate acceptable transmission heat loss by this method, maximum average U-values for individual building elements should not exceed those set out in the table below.

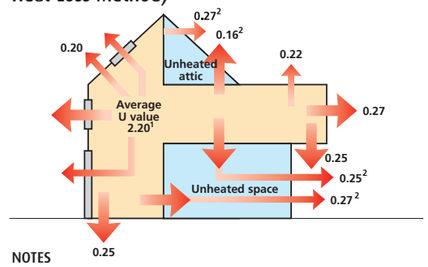
Maximum average elemental U-Value (W/m²K) (Elemental Heat Loss Method)

Fabric Elements	New Buildings & Extensions to Existing Buildings	Material Alteration to or Material Changes of Use of Existing Buildings
Pitched roof, insulation horizontal at ceiling level	0.16	0.35
Pitched roof, insulation on slope	**0.20**	**0.35**
Flat roof	0.22	0.35
Walls	**0.27**	**0.60**
Ground floors	0.25	
Other exposed Floors	0.25	0.60
External personnel doors, windows and rooflights	2.20[1]	2.20
Vehicle access and similar large doors	0.7	

NOTE 1: Permitted average U-value of of external personnel doors.windows and rooflights in building other than dwellings may vary as described in Paragraph 2.1.3.2 of TGD.

Figures in bold are the most relevant to Tegral roofing and cladding.

Summary of elemental U-values (Elemental Heat Loss Method)



NOTES

1. Windows, doors and rooflights should have maximum U-value of 2.2 W/m²K and maximum opening area as set out below. However areas and U-values may be varied provided the total heat loss through these elements is not increased.
2. The U-value includes the effect of unheated voids or other spaces.

Areas of Windows, Doors and Rooflights (Elemental Heat Loss Method only)

As part of using the elemental method, these areas must be limited. The combined area of window, door and rooflight openings should not exceed the values given in the table below when the average U-value is 2.2 W/m²K. However, this area may be varied provided the total heat loss through these elements is not increased.

Maximum area of openings for average U-value of 2.2 (W/m²K) (Elemental Heat Loss Method):

Building Type	Windows and doors as % of the area of exposed wall	Rooflights as % of area of roof
Industrial & storage buildings	15%	20%
Places of assembly offices & shops	40%	20%
Residential Buildings	30%	20%

Extensions

Draft TGD Part L Section 2 also contains detailed guidance as to how this table is applied to extensions.

Thermal Bridging

To avoid excessive heat losses and local condensation problems, provision should be made to limit local thermal bridging, e.g. around windows, doors and other wall openings, at junctions between elements and at other locations. Any thermal bridge should not pose a risk of surface or interstitial condensation and any excessive increase in heat loss associated with the thermal bridge should be taken account of in the calculation of average U-value.

Handling

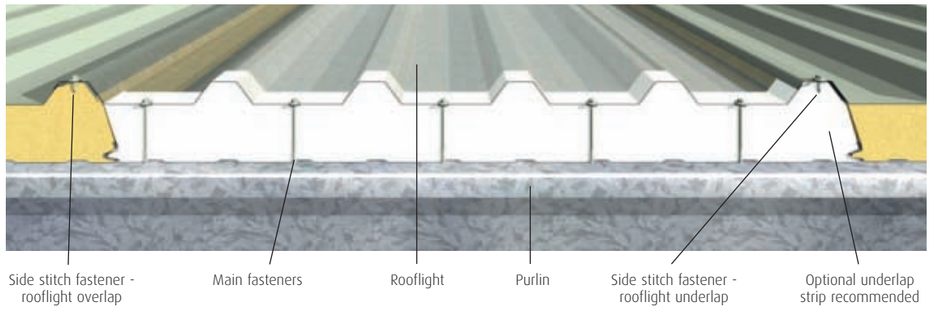
Tegral Metal Forming are leading exponents of current reforms within the construction industry and are continually trying to improve Health and Safety on site and curb losses that are caused by damage to materials.

It is therefore of great importance to Tegral that Tegral Panels can be fixed efficiently and safely, saving both time and money.

For more information, please contact our Technical Services department on 00 + 353 (0) 59 86 40750.

Factory Assembled Rooflights

Cross section of factory assembled in plane rooflight



GRP v Polycarbonate

Safety
Both can be specified to provide non-fragile rooflight installations - rooflights constructed from both materials can achieve Class B non-fragility to ACR(M)001:2000. Trilite Ultra and Safelight offer higher safety margins and increased resistance to damage from foot traffic.

Light Transmission
GRP provides diffused light, limiting glare giving an even distribution of light at ground level, with few shadows. A single skin of 2.44kg/m^2 sheet will provide a light transmission of 76%. Special coatings are available to provide surface protection to limit harmful UV rays.

Clear polycarbonate offers direct light transmission of almost 90% whilst tints offer solar control.The outer skin also had UV protection which limits UV radiation.

Fire Performance
GRP is available with a range of fire ratings, does not soften and is effective in containing flames, smoke and hot gases.

Polycarbonate softens at relatively low temperatures allowing fire, smoke and hot gases to escape. it is a self-venting material.

Longevity
GRP can be specified with a life expectancy of over 30 years.

Polycarbonate provides high light transmission levels for a least 10 years and weatherability for over 15 years.

Service Temperature
Both can withstand both high and low service temperatures - GRP from -20°C to +80°C, polycarbonate from -40°C to +100°C.

Impact Resistance
GRP rooflights can be specified to match the non-fragility rating of the surrounding roof when new and also be specified to retain this non-fragility for 25 years, whilst many of our heavier GRP rooflights have greater safety margins and will greatly exceed this performance.

Polycarbonate has exceptional shatter resistance of up to two hundred times greater than glass.

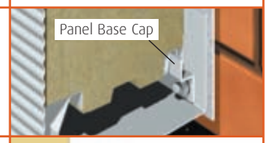
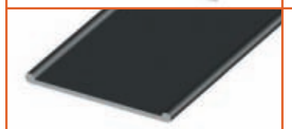
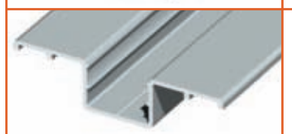
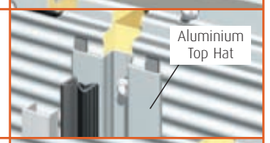
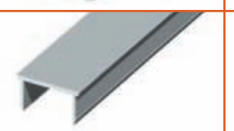
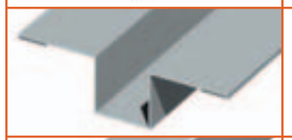
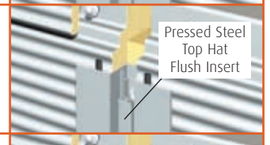
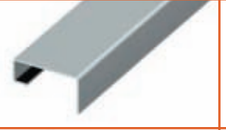
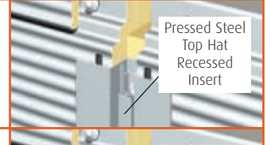
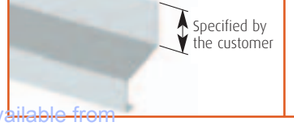
Both materials are available in a range of weights and thickness to enable specifications to be written to Class B non-fragility ("Test for fragility of Roofing Assemblies" ACR(M)001:2000).

Available from Tegral

	Factory Assembled Trisomet Rooflight	*Factory Assembled Trisomet Rooflight*	*Factory Assembled Triple Skin Trisomet Rooflight*
Material	***Polycarbonate***	***GRP***	***GRP***
Light Transmission	60%	70% - 75% overall	65% overall
U Value	Minimum 2.0W/m^{2}k. Contact Tegral Technical Services for details		
Fire Rating	*See Note	SAA TO BS476 Pt 3 & Class 3 to BS476	Outer - JAB TO BS476 Pt 3 Liner - Class 1 to BS476 Pt 7

*Note:
Polycarbonate Rooflights are not tested to BS476 Part 1 or BS476 Part 3 as the latter is inappropriate for thermoplastics materials. Polycarbonate Rooflights are tested to the harmonised European fire test methods of EN13823 and EN11925-1 resulting in a classification of B, s1, d0 according to Classifaction Standard EN13501-1.

Trimapanel/Enviropanel Accessories Schedule

Items	Part Number	Description	Drawing
	PD-FAB1005	**Panel Base Cap** One at each end and at minimum 1500mm centre.	
	PS 90	**Perimeter Seal** Applied continuously to vertical support steel at joint centres. **Total Linear Metres Vertical Joint** Supplied in rolls.	
	119515	**Aluminium Top Hat** Applied to vertical joints. Supplied PPC to required colour. Available in 6 metre lengths.	
	19514	**Aluminium Top Hat Flush Cap** Insert as cap to aluminium top hat section. Supplied in 6 metre lengths.	
	PD-FAB 1003A	**Pressed Steel Top Hat** Applied to vertical joints. Supplied to required colour. Available in 3 metre lengths as standard.	
	PD-FAB 1003B	**Pressed Steel Top Hat Flush Insert** Applied to vertical joints. Supplied to required colour. Available in 3 metre lengths as standard.	
	PD-FAB 1002	**Pressed Steel Top Hat Flush Insert Clip** At head cill and each butt joint. Supplied 0.9mm galve.	
	PD-FAB 1004	**Pressed Steel Top Hat Recessed Insert** Applied to vertical joints. Supplied to required colour. Available in 3 metre lengths.	
	PD-FAB 1001	**Pressed Steel Top Hat Recessed Insert Clip** At head cill and each butt joint. Supplied 0.9mm galve.	
	PD-FAB 1006	**Pressed Steel Standard Drip Flashing** Applied to drip or cill. Supplied 0.7mm coated steel in required colour. Available in 3 metre lengths.	

Fastener recommendations

Fastener Types

Fasteners are either considered as primary or secondary. Primary fasteners are designed to transfer the relevant loads to the support structure and, in the case of external sheet fixings, provide a weathertight seal. They are usually positioned in the valley of the sheet profile, and come complete with a 16mm or 19mm diameter EPDM/metal combination sealing washer, and integral or push-on colour matched p.v.c. caps.

Secondary fasteners are used to stitch side laps, flashings etc. The main function of secondary fixings is to provide a weathertight seal. However they also transfer load from sheet to sheet and are critical in stressed skin design.

Fastener Frequency

The table indicates satisfactory fixing arrangements for Tegral panels. However there may be a requirement for more fixings than indicated here if the fastener limits are exceeded. The limits are exceeded if either the pull out value or the pull over value of the fastener in question is less than the actual load acting on the fixing, multiplied by the load factor (usually 2).

Long span sheets used in high wind load areas are especially subject to fastener limitations and the fasteners should always be checked.

Roof Panels

Profile	Main fixings at sheet ends	Main Fixings (intermediate)	Side lap fixings
Enviropanel® RF	5 per sheet	3 per sheet	450mm
Trisomet	5 per sheet	3 per sheet	450mm

Wall Panels

Profile	Main fixings at sheet ends	Main Fixings (intermediate)	Side lap fixings
Enviropanel® RF	Refer to Technical Services Department		
Trimapanel	1 fixing per support		
Trisomet	5 per sheet	3 per sheet	600 mm

NOTE: Certain Firewall assemblies may require side lap stitching at closer centres - please refer to Fire Performance Section ???????

Reputable manufacturers such as SFS Intec and EJOT will supply pull out and pull over figures. Note that the pull out value of a fastener is dependent on the material and thickness of material of the support and the specification of the fixing. The pull over value is dependent on the material and thickness of material of the profile and the washer type and diameter

Fasteners are available in either plated carbon steel or stainless steel.

EJOT **00 44 113 247 0880**

SFS Intec **00 44 113 208 5500**

For further guidance refer to MCRMA Technical Paper No. 12: Fasteners for Metal Roof and Wall Cladding: Design, Detailing and Installation Guide.

General practice

Composite Panels
Profiled Roof Panels

- A pre erection check should be carried out prior to fixing the panels. Check that the steelwork is at the correct spacing and is within tolerance on both planes.
- Carry out preparation work on cill, internal ridge, internal eaves trims etc, ensuring these are lined and levelled and sealed as specified.
- Position and fix the eaves (or bottom) corner panel, ensuring it is correctly aligned and lapping in the right direction. The panels should be laid wherever possible with the exposed joints of the side laps away from the prevailing wind.
- The fasteners and sealant should be installed as specified. Make certain that the fasteners are not over tightened by using a drill gun with torque control and clean any drilling swarf from the joint.

Wall Cladding Panels
Horizontally laid panels

- A pre erection check should be carried out prior to fixing the panels. Check that the steelwork is at the correct spacing and is within tolerance on both the horizontal and vertical planes.
- Carry out preparation work on cill trims and panel bearers for first panel, ensuring these are lined and levelled and sealed as specified.
- Sit the first panel on the panel bearers and fix the top edge with 1 or 2 fasteners per vertical support. Make certain that the fastener is not over tightened and clean any drilling swarf from the joint. Check that the ends of the panel have the correct land on the vertical support, and are leaving enough room for the next panel and specified vertical joint gap.
- Sit the second panel onto the first ensuring a good fit so that the side joint gap is consistent and the ends of the panel are in alignment.
- Continue this procedure to the top of the wall. If the top panel requires cutting, fix back to an eaves support at a maximum of 500 mm centres (a cover flashing would normally be used to conceal these fixings).
- Start the second run of panels ensuring the correct spacing for the vertical joint between the panels.
- Fix the vertical joint detail as specified.

Vertically laid panels

- Carry out pre erection checks as above.
- Fix the panel bearers and cill flashing to the bottom rail, making certain it is lined and levelled, and the specified seals are in position.
- Hoist and position the first panel with the female edge running adjacent with the corner. Temporarily clamp the panel to the cladding rails at lips only.
- Before inserting any fasteners, ensure that:
  i) Setting out dimensions are observed. Failure to comply with these may lead to problems later in the erection.
  ii) Panel is plumb, by using plumb line.
  iii) Position of panel relative to bottom and top, or intermediate rails is correct. Check this with erection drawings.
- At each horizontal rail position fix the panel using a concealed fixing at the male edge and a through fix at the female edge. Use 1 or 2 fasteners depending on panel span and loading. Make certain that the fastener is not over tightened and clean any drilling swarf from the joint.
- Hoist subsequent panels into position and engage lips into adjacent panels. Maintain a uniform side joint to meet panel cover width and setting out dimensions. Continue until the wall is complete.
- If another layer of panels is required above prepare the stack joint detail as specified and start procedure again

Corus Colorcoat® Products and Services

To ensure the long-term performance and appearance of the building, it is important that the pre-finished steel product is specified alongside the cladding system.

The Colorcoat® brand provides the recognised mark of quality and metal envelope expertise exclusively from Corus. Over the course of 40 years, Corus has developed a range of technically leading Colorcoat® pre-finished steel products which have been comprehensively tested and are manufactured to the highest quality standards. These are supported by a range of services such as comprehensive guarantees, colour consultancy and technical support and guidance.

Colorcoat HPS200®
Exclusive coating technology, superior performance and the unique Confidex® Guarantee make Colorcoat HPS200® the most specified pre-finished steel product in Europe for roof and wall cladding. Now maintenance free for up to 30 years.

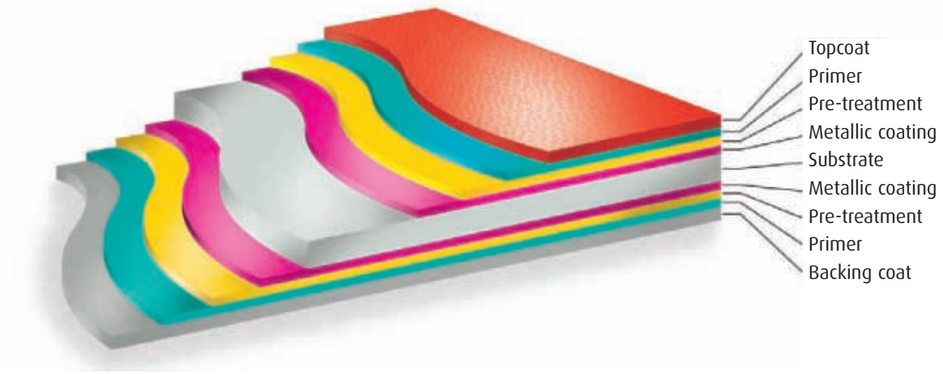
Colorcoat Prisma®
The ideal choice to deliver eye-catching buildings that will stand the test of time. Technically and aesthetically superior to PVDF (PVF2), Colorcoat Prisma® is readily available in the most popular solid and metallic colours.

All backed up with the unique Confidex® Guarantee providing cover for up to 25 years on walls.

Colorcoat Celestia®
Offers the creative scope of a metallic effect combined with superior durability and performance all backed up with the Confidex® Guarantee.

Colorcoat Armacor®
Colorcoat Armacor® is a high-build pre-finished steel product with a tough and attractive textured top-coat.

As a medium term building envelope solution, Colorcoat Armacor® offers a price competitive durable alternative to leathergrain plastisols.



30 year maintenance free Confidex® Guarantee from Corus with Colorcoat HPS200®

Corus Colorcoat® Products and Services

Repertoire® colour consultancy
The Repertoire® colour consultancy can advise on colours and colour strategies using a range of standard shades, as well as discussing individual bespoke colour requirements.

Corus can match almost any shade from physical swatches to commonly used references such as RAL, NCS and British Standard and more unusual standards.

Confidex® Guarantee
Evolved from 40 years' experience that Corus has in pre-finished steel development and manufacture.

Available with Colorcoat HPS200®, Colorcoat Celestia® and Colorcoat Prisma®, the Confidex® Guarantee is clear and simple to register, can easily be transferred if building ownership changes and provides peace of mind and reduced risk for the supply chain.

Colorcoat Connection® helpline
For more information about Corus Colorcoat® products and services visit www.colorcoat-online.com or call the Colorcoat Connection® helpline on +353 (0)1 631 0615.

Guide to Insurer requirements and approvals

The attitude of insurance companies to the use of composite panels on the buildings depends on a risk assessment process. Polyurethane and polyisocyanurate foam core used externally on buildings have an excellent safety record. However, increasingly insurance companies will demand compliance with their own particular standards, and this is a factor the designer must be aware of at the design stage.

Loss Prevention Certification Board LPS 1181
Most UK insurance companies accept the Loss Prevention Council Design Guide for the Fire Protection of Building 2000.

The LPS 1181 test involves a small room (10m x 4.5m x 3m) with three walls, a roof and one open end.

A standard timber crib is positioned in the corner of the room and ignited. The test lasts for approximately 30 minutes, after which the panel system is assessed on the following basis:

- Distance of fire spread from the crib.
- Amount of damage sustained by the core material.
- Break-through of the fire to the outside of the building.
- Average air temperature inside the building (which must not exceed flashover temperature of 600ºC).

A panel system will be approved to LPS 1181 Grade B if it passes this test. However, if the panel system has also been tested to BS 476 part 22 and has achieved at least 30 mins integrity and 15 mins insulation, it can be approved to LPS 1181 Grade A.

Tegral compliance with LPCB requirements
All Tegral Composite Panels have been tested by the LPCB (Loss Prevention Certification Board) to LPS 1181, giving a EXT-B Approval.

LPS1181:2003
Certificate No. 460A/07, 08, 09, 10, 11, 12 & 13

Both Trisomet® & Enviropanel® panels also achieve EXT-A with Standard Construction Methods.

Factory Mutual
An alternative option to LPC approval can be Factory Mutual (FM) approval, which is internationally well known.

FM require that composite panels with foam cores must have FM Certification, if a building constructed with them is to be insured with a FM company.

Tegral compliance with FM requirements
Only products containing combustible materials require FM Approval, which means that FM Approval is not required for Enviropanel® rockfibre core panels for them to be used in FM insured buildings.

FM Approval Report 3020416 covers:

- Trisomet® Wall and Roof Panels
- Trimapanel® Wall Panels

The report specifies that Trisomet® in thickness up to 80mm meet the Approval requirements of the Standards listed above for Class 1 insulated wall and roof/ceiling panels for installation to the maximum height of 30ft (9.1m) and Class 1 panel roofs. All cover widths for all panels up to and including 1200mm are certified. Wall panels can be laid horizontally or vertically.

The Flammability Test showed that the foam blend we are using is one of the best they have ever tested with the actual performance figure being less than 50% of the Class 1 pass limit.

In the UBC 26-3 Room Fire Test the test house (BRE) found "no charring of the Polyisocyanurate foam panel cores at the extremities of the test panel area".

The Trisomet® test samples also met the FM requirements in the following areas:

- The class 1-75 windstorm requirement in the simulated wind uplift pressure tests. In UK terms the result is satisfactory for a general loading on UK buildings. A direct quote from the consultant employed as liaison with FM was that "A 75 rating will be OK for 99% for projects in the UK with a building height less than 15-m with an open country exposure. It will also be OK for 99% of projects on the continent. It will also be OK for locations in the centre and east coast of Ireland. Areas which maybe a problem are NW coast of Scotland; SW corner of Wales, NW corner of France, west coast of Ireland and Norway. There will not be many industrial projects in these areas.

Thus a 75 rating should not create many (if any) problems."

Guide to Insurer requirements and approvals

• The FM requirements for Foot Traffic. In UK terms this test equates to the minimum imposed load on a roof with no access other than necessary for maintenance and cleaning a concentrated load of 0.9kN.

• The FM requirements for Hail damage in the simulated hail impact test where " No damage to the sample roof panel was observed after each drop of the simulated hail impactor.

With regard to the need for additional Sprinkler protection in buildings constructed with these panels the FM report comments – "Tests show1) that the panels in and of themselves would not create a need for automatic sprinklers and 2) that the panels would be acceptable in a combustible occupancy protected by automatic sprinklers as defined by FM Global Loss Prevention Standards".

Use of Tegral Composite Panels as Fire Walls
For a composite panel to be used as a fire resisting wall as defined in the Building Regulations it must be successfully tested to BS 476 Part 22: Methods for the determination of the Fire Resistance of non-load bearing elements of Construction.

Trisomet® 60mm and 80mm.

When tested at the Warrington Fire Research Centre, the panel achieved a 15 minute insulation and 67 minute integrity rating (standard fixing method was used - no need for any extra stitching internally, only difference is that the external over lap needs stitching at 300mm). This allows both 60 and 80mm panel to be used as a boundary wall (firewall) condition, i.e. where the boundary is between 1 and 15 metres from the building envelope.

Enviropanel® SF & TF
The Enviropanel® panels were tested at the Warrington Fire Research Centre and achieved a minimum
60 minutes integrity and insulation. This performance makes Enviropanel® panels suitable for use either as a boundary wall or as a fire rated partition.

Class 0 as defined in the Building Regulations
All Tegral Composite Panels satisfy this requirement.

Health and safety information

Tegral Insulated Roof & Wall Panels

Uses
Used as roof and wall cladding in commercial and industrial buildings.
To be used in accordance with building regulations and approved practices. For use refer to installation instructions. Tegral Technical Services Department can advise on any other use being considered.

Panel composition
Coated steel or aluminium outer and liner sheets are autohesively bonded to a mineral wool or urethane core.

Health Hazards
In normal use panels do not present a health hazard. The reaction of the core has no known toxic effects.

Fire Hazards
Take precautions against ignition, fire and smoke hazard. In the event of fire beware of poor visibility due to soot and avoid smoke inhalation. Smoke contains carbon monoxide and other gases which can be a danger to health if inhaled. If fumes or smoke is inhaled seek fresh air and medical assistance immediately. Panels may lose their normal strength when exposed to very high temperatures.
The urethane core in some panels is combustible when exposed to an intense direct flame and should be handled accordingly.

Storage
1. Store away from ignition hazards such as cutting and welding torches, high surface temperatures, electric heaters, other forms of direct radiant heat and open flames.

2. Do not stack more than 2.5 metres in height, provide adequate access between stacks and ensure stack stability.

3. To ensure any water that may penetrate the packaging drains away, store packs on a slope and off the ground.

4. Packs should be supported with bearers spaced evenly every 2m. When stacking place bearers directly above one another.

Installation precautions
1. Whilst handling and during the fixing operation protective clothing and in particular gloves should be worn to avoid skin lacerations from the edge of the sheet.

2. Eye protection should be worn when cutting as flying swarf could injure skin or eyes. Care should be taken not to inhale dust caused by cutting as it can cause irritation.

3. To avoid injury which could result from incorrect lifting or handling of heavy bundles work in accordance to HSE recommendations.

4. Do not use flame cutting equipment, blow lamps or any high temperature process near the panels. If hot work must be done near exposed urethane core, protect with heat resistant material.
Ensure adequate ventilation if the panel is subjected to abnormally high temperatures. Breathing apparatus should be worn in the event of a fire.

Occupation Exposure Standards
Employers must ensure that there are measures in place that will limit or control the exposure of their employees to any substance hazardous to health.

'Refer to 2002 Code of Practice for the Safety, Health and Welfare at Work (chemical agents) Regulations 2001' published by the Health and Safety Authority of Ireland.

Waste disposal precautions
Dispose of waste foam regularly in a designated location in accordance with the requirements of Local Authorities and the Environmental Protection Act 1991. The accumulation of waste foam should be avoided to prevent wind dispersal.
Packaging material is combustible and should be stored away from sources of ignition prior to disposal. Ensure polythene wrapping/packaging is kept away from children. Observe usual precautions associated with polythene bags.

Data references
• Consumer Protection Act 1987
• Health and Safety at work Act 1974
•2002 Code of Practice for the Safety, Health and Welfare at Work (chemical agents) Regulations 2001
•Environmental Protection Act 1991