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Foamular Metric XPS

External Insulated Cladding

High Thermal Performance, Long Term, Guaranteed!

- New Home Construction
- First Floor Addition
- Renovations

Foamular is the ideal energy efficient substrate for the new generation of PM Render Systems.

Foamular's combination of light weight and strength, plus outstanding moisture resistance offers long term thermal performance with improved energy efficiency.

Other benefits include:

- Quicker build time.
- External fixing minimises thermal bridging.
- Higher 'R' values 50mm = R1.78
- Impact Resistant
- 20 year Guarantee.



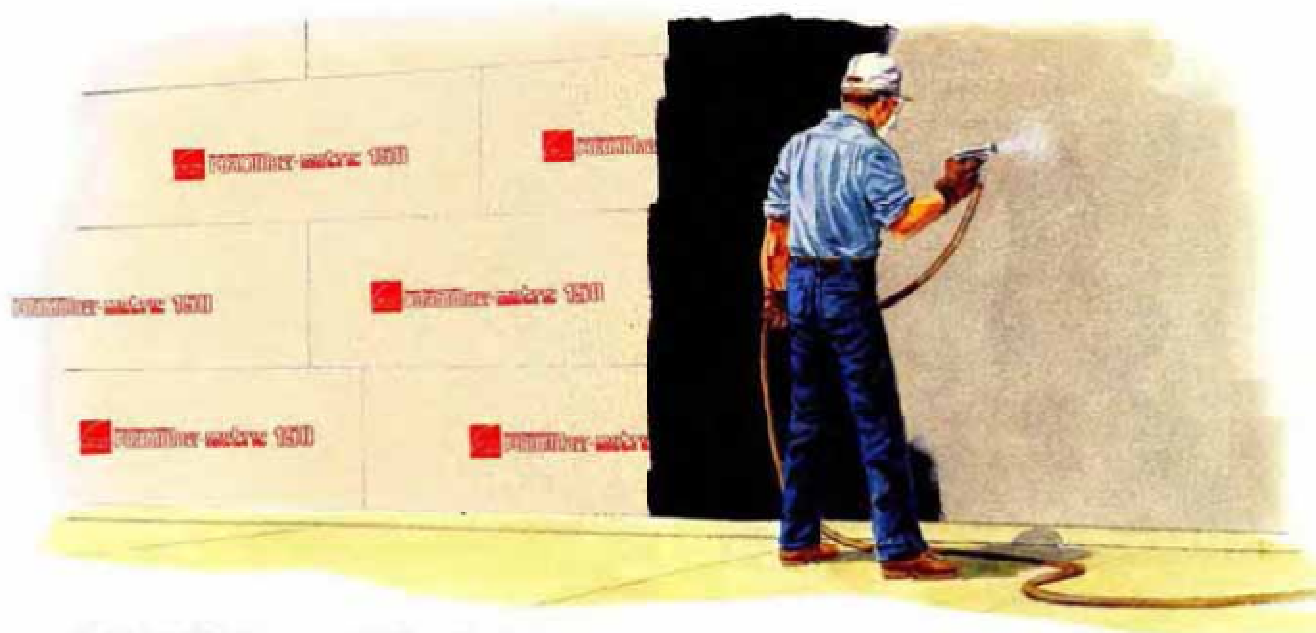
Supporting you with Smart Solutions

Extruded Polystyrene Insulation
Foamular[®]



Extruded Polystyrene Insulation
Foamular[®] - metric

... for use in exterior insulation and finish systems



Added Efficiency and Comfort

Foamular-Metric extruded polystyrene insulation, when used in an exterior insulation and finish system, can substantially upgrade the thermal performance of the exterior wall for increased energy savings and occupant comfort. Foamular-Metric also provides an even surface for the application of the exterior finish. An exterior insulation and finish system provides both beauty and durability to a structure's exterior wall. Foamular-Metric is suitable for use with mechanically attached systems in both new and retrofit applications.

Foamular-Metric 150 (150 kPa, min.) and Foamular-Metric 250 (250 kPa, min.) are most frequently recommended for this application, but higher strength Foamular-Metric products are available, as required.

Excellent Resistance to Moisture

The patented Hydrovac[™] process, by which Foamular-Metric extruded polystyrene is produced, gives the product a closed-cell structure and continuous skin surface, front and back, that make

it practically impervious to moisture absorption from many sources such as leakage, condensation, freeze/thaw cycling, etc.

High Thermal That Lasts

Foamular-Metric offers an λ value of 0.028 @ 24°C — substantially better than expanded polystyrene insulation (beadboard) products. And since Foamular-Metric resists moisture so effectively, its insulating performance will not significantly diminish over time. That means high, predictable performance, year after year.

Ease of Handling, Installation

Foamular-Metric is a rigid foam extruded polystyrene insulation that's tough and impact resistant, yet lightweight. This facilitates both handling and installation, and permits Foamular-Metric to be cut to shapes consistent with the structure's architectural design requirements.

Contents

<u>Subject</u>	<u>Detail</u>	<u>Page</u>
1. Installation	Installation and Fixing details	4
2. General Construction	G1.01 Framed Wall Application	4
	G2.01 Masonry Wall Application	4
3. Joining the Boards	G3.01 Extruded Polystyrene (XPS) Installation	5
4. Cutting Foamular-Metric XPS	G4.01 Diagonal Corner Reinforcements	5
5. Standard Building Practices	E3.01 Dissimilar Substrates	6
6 Windows	W2.01 Head with Drip Edge Track	6
7. Roof Line	R1.01 Parapet Flashing prior to Coating	6
8. Expansion Joints	E2.01 Building Isolation Joint	6
	E3.01 Dissimilar Substrates	6
9. Austech Render specifications		7
10. Foamular-Metric XPS Data Sheet		10
11. Foamular-Metric Insulation Physical Properties		11
12. Foamular Fire Test Report		12
13. Foamular Warranty letter		14

1. Installation

Foamular-Metric XPS is fastened directly to the timber or steel wall frame using Auslok 50mm nylon washers and appropriate fixing screws. •

- For timber use CSK galvanised 10 x 8mm chipboard or treated pine screws.
- For steel frame use Wingtek class 3 10 gauge screws

Screw length is dependent of Foamular thickness. Screws must be a minimum of 25mm longer for timber and 15mm longer for steel.

Auslok washers should be pulled in flush with the board's surface only.

A minimum of 12 washers should be used per board.

In cyclonic rated areas this should be increased to 24 minimum.

- For masonry fixing – FM202 Auslok masonry cannulas are available.

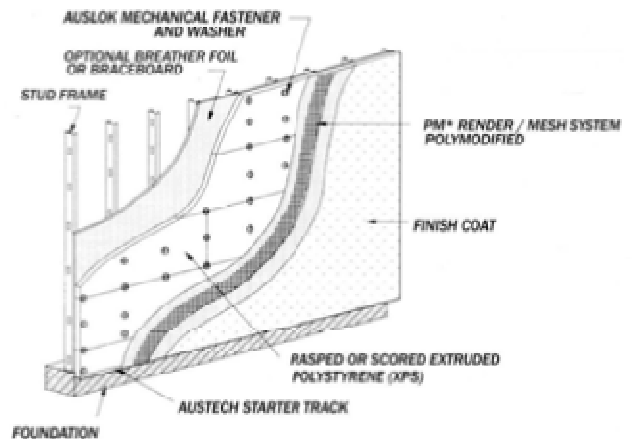
The boards are fixed horizontally in a brick bond fashion.

Note: Prior to commencing, any areas that will support fixtures, lighting, balustrades etc, should be braced, blocked or reinforced.

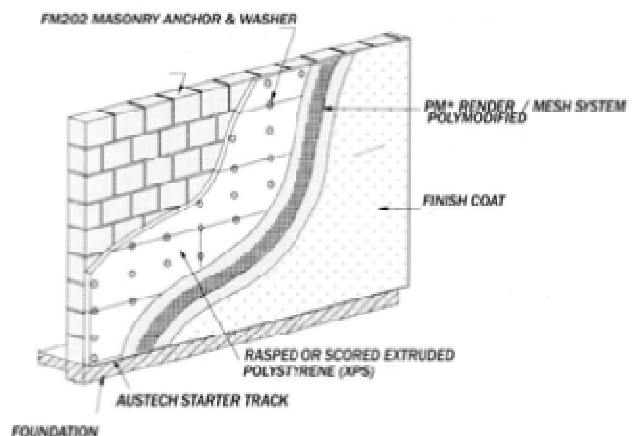
The use of a breather foil over the external walls is quite acceptable. For Foamular 25 and 30mm thick, brace board must be used.

The starter track should be fixed and the first row of boards cut in half-length wise to allow a flat surface to sit into starter track.

2. General Construction



G1.01 FRAMED WALL APPLICATION



G2.01 MASONRY WALL APPLICATION

1. Joining the Boards.

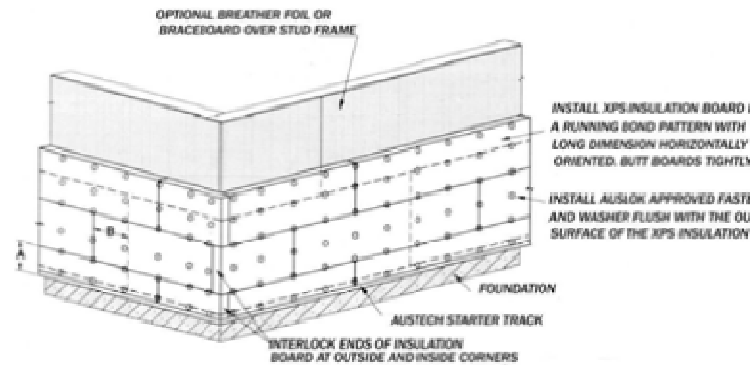
The boards should be fixed as tightly as possible.

If boards join off a stud additional noggins/blocking must be installed to ensure secure fixing.

Boards do not require gluing to frames or between joins.

This allows frame to flex with minimum stress to render finish.

Gaps wider than 3mm should have a sliver of Foamular inserted but not glued.



G3.01 EXTRUDED POLYSTYRENE (XPS) INSTALLATION

2. Cutting Foamular Metric XPS

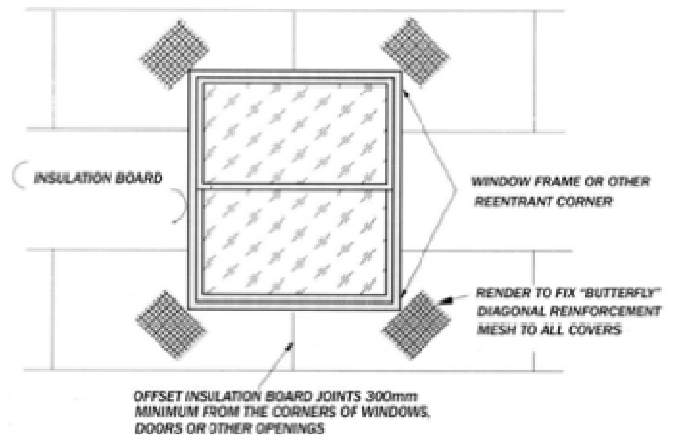
A power saw with standard wood blade, will give a clean flat cut.

Hand saw, stanley knife, and hot wire also give acceptable results.

PPE should always be worn.

Before render application the Foamular boards should be lightly scored with a stainless steel wire brush, rasp or notched trowel.

This is to allow render maximum key to the insulation board.



G4.01 DIAGONAL CORNER REINFORCEMENTS

4a. Before Render Application.

Before render application the Foamular boards must have a key coat applied. This is to allow the maximum adhesion of the render to the insulation substrate.

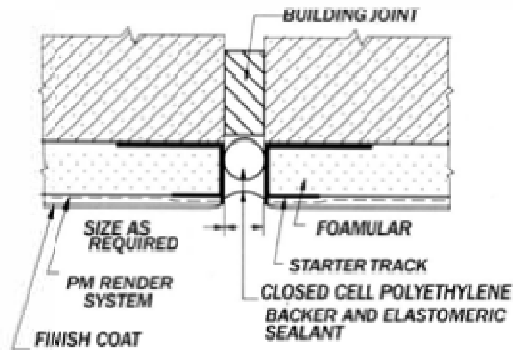
The keycoat should be a 50/50 mix of acrybond and water with pm100 render added to make a slurry. This slurry should then be applied by glove or sponge and allowed 24 hours to cure.

5. Standard Building Practices

Control / Expansion and Isolation joints should be installed as directed by architects/ engineer for individual projects.

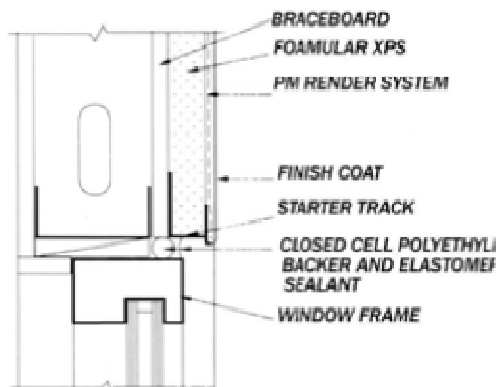
Included in this fixing guide are some details for basic applications.

Standard building practices should be applied in regard to flashings, termite protection, material handling etc.
When using Foamular XPS Insulation Board.

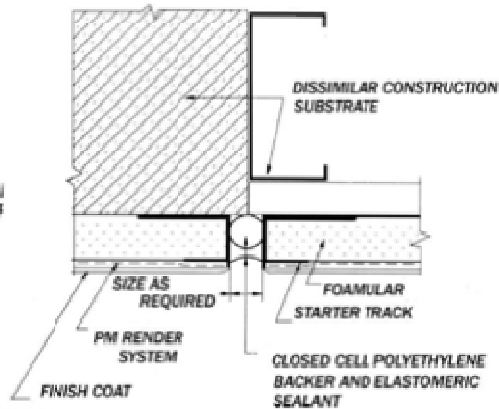


E2.01 BUILDING ISOLATION JOINT

6. Windows



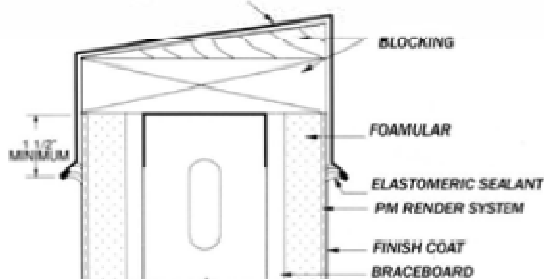
W2.01 HEAD WITH DRIP EDGE TRACK



E3.01 DISSIMILAR SUBSTRATES

7. Roof Line

METAL COPING / FLASHING



R1.01 PARAPET FLASHED PRIOR TO COATING

8. Expansion Joints.

ROCKCOTE Reinforced Render (RRR) System with Keycote & QRender PM100 over Extruded Polystyrene (XPS) - including Foamular Metric

Surface Preparation

Substrate must be dry, clean and free of dust, dirt, oil, salt, mould or any other contamination and fixed as per RRR System Installation Manual & manufacturers' specifications. Apply ROCKCOTE Keycote by trowelling or bagging leaving surface rough to provide suitable key for QRender PM100 application.

Colour

Only colours with a Light Reflectance Value (LRV) of 25% or higher are suitable for use over insulation board systems

Please read all relevant Technical Data Sheets & Material Safety Data Sheets prior to product use.

PERFORMANCE CODE 5

Finish	1st Step	2nd Step	3rd Step	4th Step	5th Step
Finecote	ROCKCOTE Keycote	4-8 mm QRender PM100 & Mesh	1mm Finecote *	Armour Plus	Armour Plus
Quicksand	ROCKCOTE Keycote	4-8 mm QRender PM100 & Mesh	Quicksand	Armour Plus	Armour Plus
Sandcote	ROCKCOTE Keycote	4-8 mm QRender PM100 & Mesh	Sandcote	Armour Plus	Armour Plus
Santa Fe	ROCKCOTE Keycote	4-8 mm QRender PM100 & Mesh	Santa Fe	Armour Plus	Armour Plus
Santini	ROCKCOTE Keycote	4-8 mm QRender PM100 & Mesh	1mm Santini *	Armour Plus	Armour Plus
Sponge Finish	ROCKCOTE Keycote	4-8 mm QRender PM100 & Mesh	Polymer Render	Armour Plus	Armour Plus
Trowel-On	ROCKCOTE Keycote	4-8 mm QRender PM100 & Mesh	Trowel-On	Armour Plus	Armour Plus

* ROCKCOTE Finecote & Santini may require two applications to achieve 1mm dry film build.

PERFORMANCE CODE 4

ROCKCOTE Performance Code 5 System is applicable for Extruded Polystyrene, due to the level of build required over the substrate.

PERFORMANCE CODE 3

Finish	1st Step	2nd Step	3rd Step	4th Step	5th Step
Finecote	ROCKCOTE Keycote	4-8mm QRender PM100 & Mesh	1mm Finecote *	Armour Flex	
Quicksand	ROCKCOTE Keycote	4-8mm QRender PM100 & Mesh	Quicksand	Armour Flex	
Sandcote	ROCKCOTE Keycote	4-8mm QRender PM100 & Mesh	Sandcote	Armour Flex	
Santa Fe	ROCKCOTE Keycote	4-8mm QRender PM100 & Mesh	Santa Fe	Armour Flex	
Santini	ROCKCOTE Keycote	4-8mm QRender PM100 & Mesh	1mm Santini *	Armour Flex	
Sponge Finish	ROCKCOTE Keycote	4-8mm QRender PM100 & Mesh	Polymer Render	Armour Flex	
Trowel On	ROCKCOTE Keycote	4-8mm QRender PM100 & Mesh	Trowel On	Armour Flex	

* ROCKCOTE Finecote & Santini may require two applications to achieve 1mm dry film build.

PERFORMANCE CODE 2

Finish	1st Step	2nd Step	3rd Step	4th Step **	5th Step
Finecote	ROCKCOTE Keycote	4-8 mm QRender PM100 & Mesh	Tinted Primer	1mm Finecote *	ROCKCOTE Repel or Clearcote
Quicksand	ROCKCOTE Keycote	4-8 mm QRender PM100 & Mesh	Tinted Primer	Quicksand	ROCKCOTE Repel or Clearcote
Sandcote	ROCKCOTE Keycote	4-8 mm QRender PM100 & Mesh	Tinted Primer	Sandcote	ROCKCOTE Repel or Clearcote
Santa Fe	ROCKCOTE Keycote	4-8 mm QRender PM100 & Mesh	Tinted Primer	Santa Fe	ROCKCOTE Repel or Clearcote
Santini	ROCKCOTE Keycote	4-8 mm QRender PM100 & Mesh	Tinted Primer	1mm Santini *	ROCKCOTE Repel or Clearcote
Trowel-On	ROCKCOTE Keycote	4-8 mm QRender PM100 & Mesh	Tinted Primer	Trowel-On	ROCKCOTE Repel or Clearcote

* ROCKCOTE Finecote & Santini may require two applications to achieve 1mm dry film build.

** This step is optional. For extra durability, the application of ROCKCOTE Clearcote or ROCKCOTE Repel is recommended. ROCKCOTE Clearcote provides a satin finish, whilst ROCKCOTE Repel provides a natural look.

PERFORMANCE CODE 1

Finish	1st Step	2nd Step	3rd Step	4th Step	5th Step
Render Paint Fine	ROCKCOTE Keycote	4-8mm QRender PM100 & Mesh	Polymer Render	Render Paint Fine	Render Paint Fine
Render Paint Flat	ROCKCOTE Keycote	4-8mm QRender PM100 & Mesh	Polymer Render	Render Paint Flat	Render Paint Flat
Santini	ROCKCOTE Keycote	4-8mm QRender PM100 & Mesh	Polymer Render	Texprime	1mm Santini *
Torino	ROCKCOTE Keycote	4-8mm QRender PM100 & Mesh	Polymer Render	Torino	Torino
Toscani	ROCKCOTE Keycote	4-8mm QRender PM100 & Mesh	Polymer Render	Toscani	Toscani

* ROCKCOTE Finecote & Santini may require two applications to achieve 1mm dry film build.

Indemnity

ROCKCOTE Enterprises Pty Ltd will not accept responsibility for any misuse of this product or if not applied by a skilled and experienced applicator and in accordance with our technical specifications. Due to our policy of continuing product improvement ROCKCOTE Enterprises Pty Ltd reserves the right to change these specifications without further notice.

Paintworks Specification CGS 171.14

Page 1 of 2
June 2006

System	GranoSkin® Membrane High Profile
Substrate	Exterior – New and uncoated Foamular® extruded polystyrene sheets.
Category	Premium Texture – Water Based

Product Features

GranoSkin® Membrane is a single-pack high performance elastomeric acrylic coating for waterproofing applications.

Surface Preparation

Substrate must be free from dirt, dust, oil, grease, mould or any other contaminants that may affect adhesion.

Ensure the sheets are securely fixed in accordance with manufacturer's current specifications. Examine sheets to ensure that there is no possibility of future sheet movement.

The success of any sheet system is very much dependent on the correct construction of the framing, the fixing of the sheeting and the application of the rendering materials themselves. Wattyl recommends, that it is the responsibility of the Applicator to ensure that the substrate is of an acceptable standard prior to the application of any Granosite coating system.

Thoroughly scour the face of the Foamular® panels with a stainless steel wire brush to facilitate mechanical adhesion of the rendering system. Remove any loose material resulting from the scouring process. Apply one coat of GranoBond® Keycoat (G1.01) to the entire surface. Allow to dry for 24 hours. Apply 4-6 mm of GranoRender® (1.10) and embed GranoMesh® into this application of GranoRender® overlap sheets of GranoMesh® by 100mm. Apply a second 4-6mm application of GranoRender® and allow 7 days to cure. The gauging water for both applications of GranoRender® must be a 4:1 blend of water and GranoBond®.

Application Details	Data Sheet	Coverage	Film Thickness (microns)		Dry Times	
			Wet	Dry	Touch	Topcoat
First Coat: GranoPrime® (equipment: roller or spray)	G1.02	0.08 L/M²	80	20	2 hours	6 hours
Second Coat: GranoSkin® Membrane (equipment: black texture roller)	G2.14	0.60 L/M²	600	300	4 hours	6 hours
Third Coat: GranoSkin® Membrane (equipment: 10 – 12mm pile roller)	G2.14	0.20 L/M²	200	100	4 hours	6 hours

Recommended Uses

For exterior or interior use.

For use on suitably prepared off-form concrete Class 2 (AS 1510) or equivalent, cement rendered fair-faced flush-jointed concrete block and brickwork (common, clay, concrete, Calsil, and extruded), tilt-up and pre-cast concrete, Autoclaved Aerated Concrete (AAC), CFC, Exotec™, fibre cement sheet, and extruded & expanded polystyrene sheets. See the appropriate system specification sheet for further details.

Additional Notes

Surface preparation is the responsibility of the Builder, Renovator or Main Contractor and the Applicator. To achieve the indicated performance, it must be carried out according to Wattyl's recommendations.

It is recommended that application be carried out by a skilled applicator, who is totally conversant with the Wattyl Granosite products and systems, to validate full material warranty conditions.

Caution

Provide adequate ventilation during use.

Application **should not** be carried out if the air temperature or the substrate temperature is below 10°C or above 35°C. The temperature must not fall below 10°C during the drying process.

Paintworks Specification CGS 171.14

Page 2 of 2
March 2006

Products	Material usage rate / M ²
GranoRender®	6.00 kg/M ² (per 2.5mm build)
GranoMesh™	Overlapping ends by 100mm
GranoRender®	6.00 kg/M ² (per 2.5mm build)

-
1. This information is provided with respect to the listed Watty products. Watty recommends that:
(a) you review the Technical Data Sheets (TDS) and Material Safety Data Sheets (MSDS) before you use or handle the product; (b) the product be used only in accordance with the information provided by Watty; (c) the product be transported, stored and handled in accordance with the information on the MSDS and relevant TDS; and (d) you thoroughly test the product, using the recommended application method on a sample of intended substrate, before using the product.
 2. The information in this specification sheet was prepared using information gathered during product development. While Watty endeavours to update this information and maintain the accuracy and currency of its contents, Watty cannot guarantee that the information provided is wholly comprehensive.
 3. Watty recommends that you conduct such additional investigations as may be necessary to satisfy yourself of the accuracy, currency and comprehensiveness of the information on which you rely in using and handling the product. If you require further information please contact your nearest Watty Office.
 4. To the full extent permitted by law, Watty's liability for breach of a condition or warranty implied into the contract for sale between Watty and you by law is limited at Watty's election to: (a) the replacement of the product; or (b) payment of the cost of replacing the product.

Foamular Metric 250 Gold Board Extruded Polystyrene

Product	Product Code	Pack Quantity	Sheet Size
Foamular Metric 250 Goldboard 25mm Shiplap Edge	FM250/25SL	20 Sheets / 29.4m ²	2450x600x25mm
Foamular Metric 250 Goldboard 30mm Shiplap Edge	FM250/30SL	16 Sheets / 23.5m ²	2450x600x30mm
Foamular Metric 250 Goldboard 50mm Shiplap Edge	FM250/50SL	10 Sheets / 14.7m ²	2450x600x50mm
Foamular Metric 250 Goldboard 75mm Straight or Shiplap Edge	FM250/75SE or SL	6 Sheets / 8.82m ²	2450x600x75mm
Foamular Metric 250 Goldboard 100mm Straight Edge	FM250/100SE	5 Sheets / 7.35m ²	2450x600x100mm
Accessories	Product Code	Pack Quantity	Size
Ausloks - Washers	AUSLOK	1000	
CSK Fixing Screw Galvanised (suit 50mm Board Only)	CSK7510	500	75mm x 10
CH Fixing Screw Galvanised (suit 75mm Board Only)	CHEG101005	500	100mm x 10
Masonry Fixing Screw (suit 25mm Board)	SCRFM75	100	75mm x 10
Masonry Fixing Screw (suit 30mm Board)	SCRFM85	100	85mm x 10
Masonry Fixing Screw (suit 50mm Board)	SCRFM100	100	100mm x 10
Masonry Fixing Screw (suit 75mm Board)	SCRFM120	120	120mm x 10
Austech Render Trims	See separate sheet		

* Products listed are stock Items



Foamular® - Metric Insulation Physical Properties

Property		Unit	Test Standard	Foamular Metric								
				FM150	FM250	FM300	FM350	FM400	FM450	FM500	FM550	FM650
Density		kg/m³	ASTM D1622	25-28	31-40	34-40	36-42	38-44	40-45	40-45	41-46	42-48
Compressive Strength		kpa	ASTM D1621	>=150	>=250	>=300	>=350	>=400	>=450	>=500	>=550	>=650
Water Absorption Rate		%(v/v)	ASTM C272	<0.1	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Water Vapor Permeance		ng/(pa.s. m²) @ 25.4mm	ASTM E96	<63	<63	<35	<35	<35	<35	<35	<35	<35
Thermal Conductivity		W/m.k @ 24°C	ASTM C518	U Value<=028 R Value 25mm/.89 30mm/1.07 50mm/1.78 75mm/2.67 100mm/3.57								
Flammability			ASTME84	§								
Dimension	Thickness		ASTM D1622	25, 30, 50	25, 30, 50, 75, 100	25, 30, 50, 75, 100	25, 30, 50, 75, 100	50, 75	50, 75	50, 75	50, 75	50
	Range											
				600 1200 Optional								
				2400								

Reference Document - Australian Standard AS1366.4 Rigid Cellular plastic sheets for thermal insulation. Part 4 Rigid Cellular Polystyrene Extruded RC/PS-E

Physical Properties - AS1366.4 Table 3.

Recommended Application - AS1366.4 Appendix B Table B1.

Fire rating as per AS1530.3 Ignitability 9 (0-20) Spread of flame 6 (0-10) Heat evolved 6 (0-10) Smoke developed 8 (0-10)

CFC free since 1992

Blowing agent used is ozone safe HCFC141B

Compressive strength @10% deflection

AWTA PRODUCT TESTING

Australian Wool Testing Authority Ltd - trading as AWTA Product Testing
A.B.N. 43 006 014 106
1st Floor, 191 Racecourse Road, Flemington, Victoria 3031
P.O. Box 240, North Melbourne, Victoria 3051
Phone (03) 9371 2400 Fax (03) 9371 2499

TEST REPORT

CLIENT : AUSTECH PTY LTD
1089 KINGSFORDSMITH DRIVE
EAGLE FARM QLD 4009

TEST NUMBER : 7-555788-CQ
DATE : 19/10/2007

SAMPLE DESCRIPTION Clients Ref: "Foamular FM 250 with 6mm polymer modified render coat"
Extruded polystyrene with a render coating
Approx total mass: 16.7kg/m2

THESE RESULTS MUST BE CONSIDERED IN CONJUNCTION
WITH THE COMMENTS ON THE FOLLOWING PAGE(S)

Material Specification provided by client:
Nominal composition: 50mm polystyrene foam, 6mm polymer modified rendercoat
Nominal total thickness: 56mm

AS/NZS 1530.3 - 1999 Simultaneous determination of Ignitability, Flame Propagation, Heat Release and Smoke Release

RESULTS:

Face tested: Face

Date tested: 18/10/2007

	Mean	min	Standard Error
Ignition time	Nil	Nil	Nil
Flame propagation time	Nil	s	Nil
Heat release integral	Nil	kJ/m2	Nil
Smoke release, log d	-2.0033		0.0801
Optical density, d	0.0107	/m	

Number of specimens ignited: 0

Number of specimens tested: 6

REGULATORY INDICES:		
Ignitability Index	0	Range 0-20
Spread of Flame Index	0	Range 0-10
Heat Evolved Index	0	Range 0-10
Smoke Developed Index	1	Range 0-10

164107

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(CONTINUED NEXT PAGE)

PAGE 1

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- Chemical Testing of Textiles & Related Products
- Mechanical Testing of Textiles & Related Products
- Heat & Temperature Measurement

Accreditation No. 983
Accreditation No. 985
Accreditation No. 1266

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AWTA PRODUCT TESTING

Australian Wool Testing Authority Ltd -- trading as AWTA Product Testing
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Phone (03) 9371 2400 Fax (03) 9371 2499

TEST REPORT

CLIENT : AUSTECH PTY LTD
1089 KINGSFORDSMITH DRIVE
EAGLE FARM QLD 4009

TEST NUMBER : 7-555788-CQ
DATE : 19/10/2007

Comments:

These results only apply to the specimen mounted, as described in this report.

The results of this fire test may be used to directly assess fire hazard, but it should be recognized that a single test method will not provide a full assessment of fire hazard under all fire conditions.

Each test specimen was clamped in four places.

164107

PAGE 2

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- Chemical Testing of Textiles & Related Products
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- Heat & Temperature Measurement

Accreditation No. 993
Accreditation No. 995
Accreditation No. 1356

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0204/11/06

APPROVED SIGNATORY

MICHAEL JACKSON B.Sc. (Hons)
MANAGING DIRECTOR

OWENS CORNING ASIA PACIFIC
2707-9, ISLAND PLACE TOWER
510 KING'S ROAD, NORTH POINT
HONG KONG
TEL: 852.2594.4777
FAX: 852.2511.2371



June 10, 2005

To Who It May Concern

Per your request, this will confirm that the Foamular Metric 250, 300 and 350 extruded foam polystyrene insulations have been manufactured to meet or exceed the requirements of ASTM C578-95.

Consequently, they are warranted to maintain the physical properties represented in Owens Corning's current printed literature for a period of twenty (20) years. Further, this material is warranted to maintain at least 90% of its represented thermal resistance (R-value) for a period of twenty (20) years.

Please note that our foamular products are listed in the Building Materials Directory of Underwriters Laboratories, Inc.; see Foamed Plastics (BRYX), Owens Corning, Toledo, Ohio, R8811 (N). Also, to assist building officials in confirming compliance of our products with building codes, we subscribe to UL's Factory Inspection and Follow-Up Service.

Should you have any questions, please contact us at the above referenced address.

Yours faithfully,

A handwritten signature in black ink, appearing to read "B. Lee".

Billy Lee
Sales Manager
Building Materials Products