

**FOAMULAR METRIC 250 FOR USE IN
CONCRETE ROOF, DECK AND BALCONY INSULATION APPLICATIONS.**



Commonly referred to as “ upside down , *irma* or *prma* roofs ” this method of insulated roofing simply means the insulation is placed above the waterproofing membrane and held in place by a specified ballast usually gravel or cement pavers.

Foamular Metric xps insulation maintains its ability to insulate in the presence of water. This, plus its high strength, makes it excellent insulation for all roofing applications.

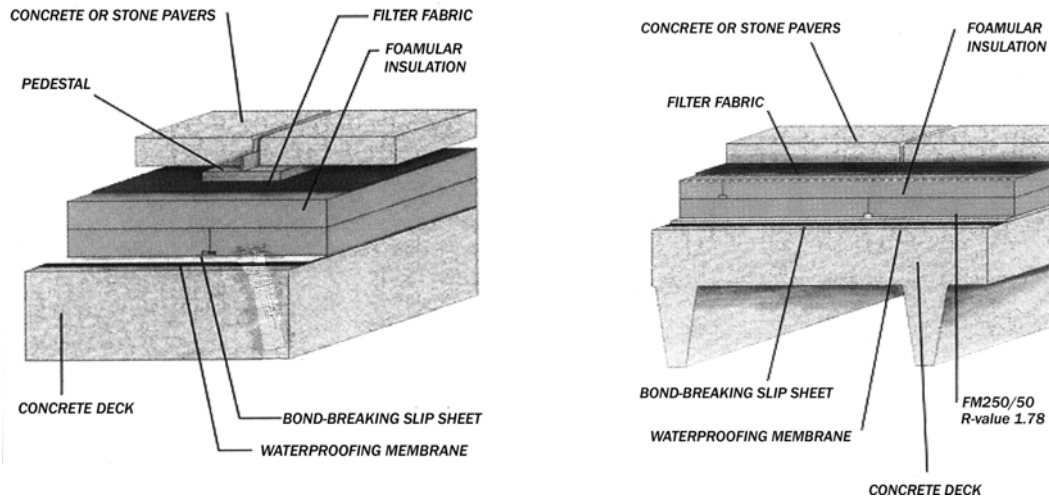
Guaranteed to maintain its physical properties and a minimum 90% R value for a period of 20 years Foamular Metric has superior performance to expanded polystyrene ensuring long term cost and insulation efficiency.

Foamular Metric thermal resistance (R value) are as follows:

FM250/25 mm R 0.89
FM250/30 mm R 1.03
FM250/50 mm R 1.78
FM250/75 mm R 2.67

These R values are for the Foamular Metric insulation material only.

In a common roofing application using FM250/50 the total R value of the roofing assembly would be approximately R 2.2



Lightweight yet tough and durable Foamular metric boards are easy to hoist, handle and install. The boards add little weight to the overall roof structure while providing long term protection to the waterproofing membrane.

The Application is simple, quick, cost effective and energy efficient.

- Step 1** The specified membrane is laid over the concrete slab and covered by a bond breaking slip-sheet.
- Step 2** Foamular metric extruded insulation boards are loose laid over the membrane and slip-sheet. The insulation boards protect the membrane from degradation and weathering as well as insulating the concrete slab.
- Step 3** Suitable filter fabric is laid over the insulation to prevent fines and grit being washed down damaging the membrane.
- Step 4** The specified ballast is spread over the roof. The ballast may be clean round river pebbles, concrete pavers placed directly on the insulation or pavers supported on spacer pads to allow additional drainage.

The above application is a very basic explanation of the procedure. Individual projects will have design requirements specific to that project however certain procedure must be followed in all cases in respect to the insulation boards.

These procedures are:

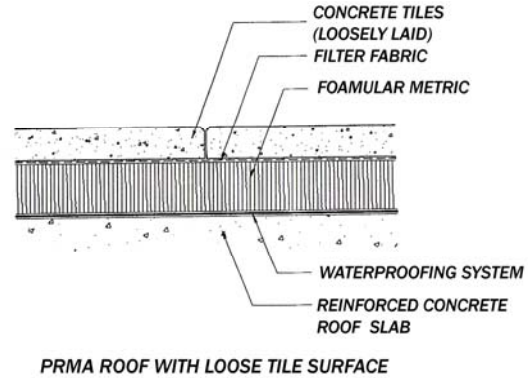
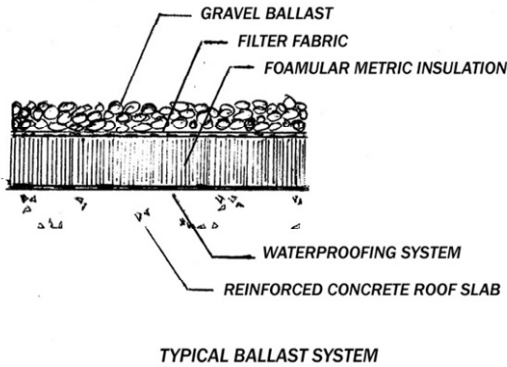
Prior to laying, insulation boards and membrane must be checked for compatibility.

Insulation must be covered with filter fabric and ballast directly after laying.

The material must not be left exposed to direct sunlight especially during the summer months. Damage to the boards will result.

Unused material should be stored in an under cover area away from direct sunlight.

The maximum continuing operational temperature for FM250 is 75 °C.



BALLAST

Ballast will be specified by architect / engineer but generally the gravel will be clean rounded river pebbles 20-40 mm. Thickness of 50mm for insulation up to and including 50mm, 75mm thick for 75mm insulation. Concrete Pavers should be a 40-50mm thick as a minimum.

ACOUSTIC AND THERMAL COMBINATIONS

Building design is now incorporating both acoustic and thermal insulation for roofs, decks and balconies. What this requires is the use of a sound absorbing material, eg regupol, to be included in the membrane, insulation and ballast system. A number of combinations may be specified sometimes with waterproofing both below and above the insulation materials.

ROOF TRAFFIC

Foamular metric 250kpa has adequate compressive strength suitable for use on roofs, balconies and decks limited to foot traffic and maintenance. For projects where vehicular traffic will use area, such as parking or plaza decks, Foamular metric is available in higher compressive strengths to meet those specifications.

COMPARISONS OF SIMILAR INSULATION

Foamular metric 250kpa is a closed cell extruded polystyrene. This closed cell structure gives Foamular superior physical and thermal properties that guarantee ongoing long term performance.

Tech Data	Compressive Strength	Water vapour Transmission	Thermal resistance R-Value - 50mm
Foamular Metric 250	250kpa minimum	100 ug/m	R 1.78
Expanded Polystyrene Grades SL-M	70 - 105kpa	630-520 ug/m	R1.20



Foamular® - Metric Insulation Physical Properties

Property	Unit	Test Standard	Foamular Metric								
			FM150	FM250	FM300	FM350	FM400	FM450	FM500	FM550	FM650
Density	kg/m ³	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. m ²) @ 25.4mm	ASTM E96	<63	<63	<35	<35	<35	<35	<35	<35	<35
Thermal Conductivity	W/m.k @ 24°C	ASTM C518	U Value <=0.28 R Value 25mm/.89 30mm/1.07 50mm/1.78 75mm/2.67 100mm/3.57								
Flammability		ASTME84	5								
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	Width		600 1200 Optional								
	Length		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 0 (0-10) Heat evolved 1 (0-10) Smoke developed 4 (0-10) CFC free since 1992 Blowing agent used is ozone safe HCFC141B Compressive strength @10% deflection											

Foamular Metric – Other Applications

- Under slab / under floor insulation – commercial and residential.
- Render substrate – external insulation perfect for render coat.
- Cold storage and Cool room insulation.
- Wine cellars, chicken sheds and model making.

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Extruded Polystyrene Insulation
Foamular

