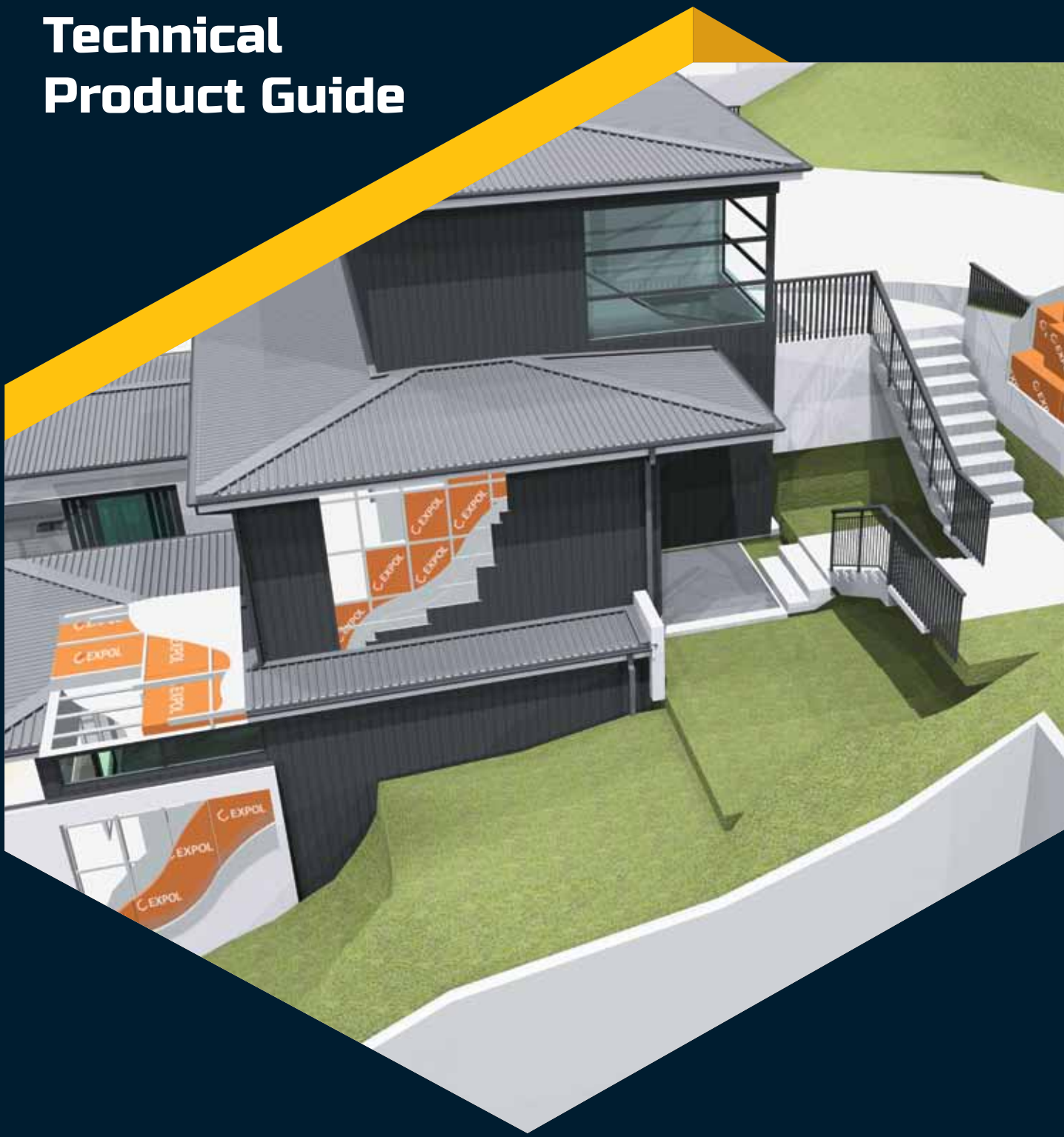
EXPOL

Guaranteed Performance

Technical Product Guide



SOLID INSULATION AND LIGHTWEIGHT POLYSTYRENE CONSTRUCTION SOLUTIONS

Go NZ Business

NEW ZEALAND OWNED & MANUFACTURED

EXPOL
Guaranteed Performance

SOLID INSULATION AND LIGHTWEIGHT POLYSTYRENE CONSTRUCTION SOLUTIONS

EXPOL supplies a responsibly manufactured range of polystyrene products that provides solutions for insulation and lightweight construction.

EXPOL has a wide range of solutions made possible by the dynamic nature of Expanded Polystyrene and Extruded Polystyrene (XPS) foams. All EXPOL products are tested by a variety of institutions, including BRANZ and OPUS, to ensure quality and reliability.

Our products are so efficient they can save up to 200 times their own resource in thermal energy savings.

EXPOL's seven New Zealand-based manufacturing facilities and recycling plants ensure that our customers get fast, reliable service at the lowest price possible.

Our expanded polystyrene recycling plants are among the largest in New Zealand and allow us to manufacture highly sustainable polystyrene products.

Go NZ Business
NEW ZEALAND OWNED & MANUFACTURED

AUSTRALIA
Sydney
Melbourne
Adelaide
Tasmania

NEW ZEALAND
Auckland
Tauranga
Wellington
Blenheim
Christchurch
- Belfast
- Rolleston

Cromwell

Disclaimer: whilst every care has been taken to confirm the accuracy of the information presented in this document and to describe generally accepted practises and data in the general document and tables; neither the authors, editors or publishers can be responsible for errors or omissions or for any consequences from application of the information given. Application of this information in a professional setting remains the professional responsibility of the practitioner. For technical questions and more detailed information please contact tech@expol.co.nz

WHY SPECIFY EXPOL?

Insulation

EXPOL produces and supplies some of the country's most efficient insulation materials. Products include Expanded Polystyrene which has a long established reputation for its exceptionally high insulation qualities. EXPOL Platinum Board (a variation of Expanded Polystyrene) can achieve an insulation efficiency of 0.032 W/mK while EXPOL-X (XPS) boasts as much as 0.028 W/mK. All EXPOL products have been tested for thermal performance by a variety of institutions, including BRANZ and OPUS, to ensure all products are manufactured to specification.

Rigid

EXPOL provides insulation solutions that cannot be achieved by other insulation products. Expanded Polystyrene and Extruded Polystyrene (XPS) are both rigid foams that hold their shape, which means their insulation performance does not diminish over time. EXPOL UnderFloor Insulation is one of the only insulation products on the market that is suitable for use with exposed timber floors without the need for lining. This is backed by a BRANZ appraisal and shows the advantages of rigid foam products.

Lightweight

Expanded Polystyrene offers an exceptionally lightweight solution to many applications in construction. This is not surprising when you consider that, as a result of advanced manufacturing technologies, Expanded Polystyrene is effectively 98% air captured within a 2% cellular matrix. The advantages in on-site handling and transportation bring significant economic benefits whilst considerably reducing health and safety risks associated with the lifting of heavier materials. It is therefore an excellent substitute for infill materials and ballast where it also brings load and fill times down in time-critical build projects.

High Strength and Structural Stability

In spite of its light weight, the unique matrix structure of Expanded Polystyrene brings the benefits of exceptional compressive strength and block rigidity. This means it is ideal for use in many construction and civil engineering applications, particularly as a structural base infill, for example in road, railway and bridge infrastructure. Strength tests performed on Expanded Polystyrene which was first placed in the ground almost 30 years ago show that it is just as strong today, the tested strength routinely exceeding the original minimum design strength of 100kPa. Expanded Polystyrene bridge foundations, which have been subject to many years of sustained loading, show 'creep' deformation of less than 1.3% - only half as much as had been theoretically predicted. Most importantly, Expanded Polystyrene stability does not deteriorate with age.

Resistance to Water Ingress

After almost 30 years in the ground, samples of Expanded Polystyrene retrieved from locations as little as 200mm above the groundwater level all have less than 1% water content by volume, whilst blocks which are periodically entirely submerged show less than 4% water content. This performance is notably superior to other foamed plastic materials.

Recycling Initiatives

Commercial Building Site Polystyrene Waste Collection.

Call 0800 86 33 73 to find out more.

6 EPS

Consumer Residential/ Household Polystyrene Waste.

We collect this through our polystyrene cube initiative in selected hardware stores nationwide.
www.expol.co.nz/enviro

WE RECYCLE OVER
350 TONS OF POLYSTYRENE EVERY YEAR THROUGH SEVEN RECYCLING PLANTS NATIONWIDE.

Polystyrene Recycling and Sustainability Credentials

EXPOL have invested in and operate dedicated recycling plants in their seven manufacturing facilities. At every stage of its life cycle, from production to recovery or recycling, Expanded Polystyrene offers exceptional eco-credentials and is therefore ideally suited to the new generation of eco-friendly building projects. All manufacturing processes comply with current environmental regulations. It is environmentally and chemically non-aggressive and it can be – and is – easily recycled into long-life products through an expanding nationwide network of collection points.

BRANZ Appraised
Appraisal No.256 [2020]

OPUS

6 EPS
RECYCLABLE

FIRE RETARDANT

HIGH STRENGTH

MOISTURE RESISTANT

NEW ZEALAND OWNED / MANUFACTURED

EXPOL
Guaranteed Performance

SOLID INSULATION AND LIGHTWEIGHT

CONTENTS

POLYSTYRENE CONSTRUCTION SOLUTIONS

CLADDING INSULATION
Page 20

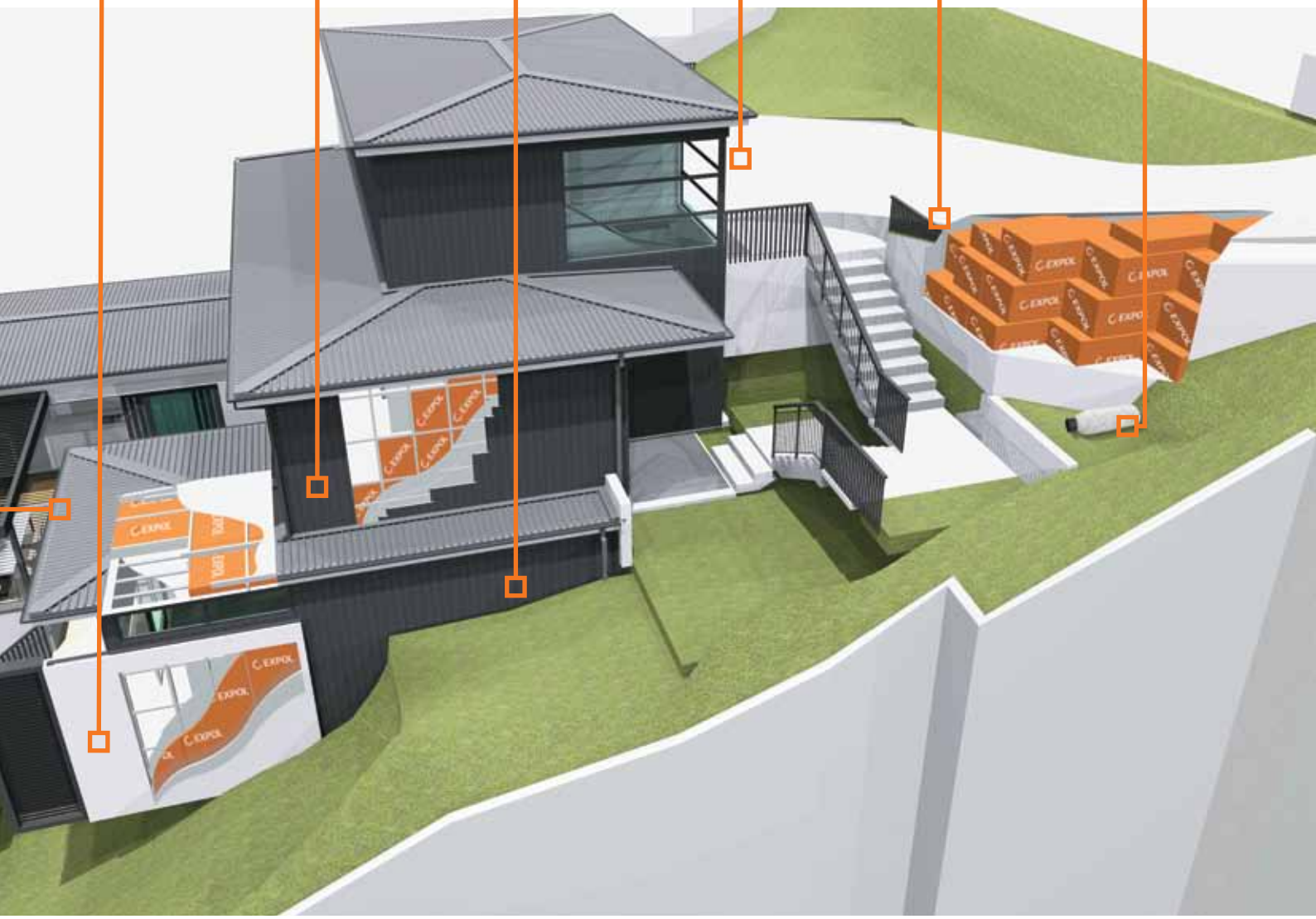
WALL INSULATION
Page 22

SPECIALISED ENVIRONMENTS
Page 30

GARAGE DOOR INSULATION
Page 32

LIGHTWEIGHT FILL
Page 24

DRAINAGE SOLUTIONS
Page 26
Page 28



RETAINING WALLS

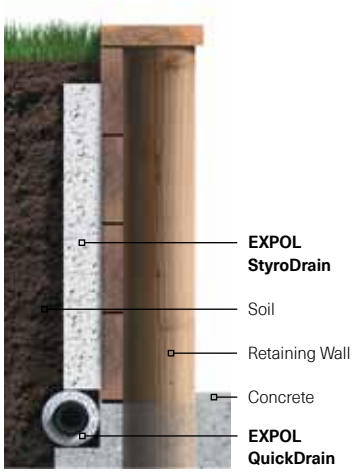
EXPOL membrane protection, drainage and insulation for concrete, block and wooden structures.

EXPOL ThermaSlab offers protection for waterproof membranes when using gravel or scoria for drainage. EXPOL generally recommends 25mm or 40mm sheet thickness though the product is also available in a range of thicknesses.

EXPOL-X is the ideal solution for insulating retaining walls. Its waterproof qualities provide an excellent exterior insulation solution.

EXPOL StyroDrain offers a lightweight alternative solution to traditional drainage materials for most retaining walls and is specifically designed for situations with limited access.

EXPOL QuickDrain has been designed as a no-scoria drainage solution and can be used in conjunction with StyroDrain.



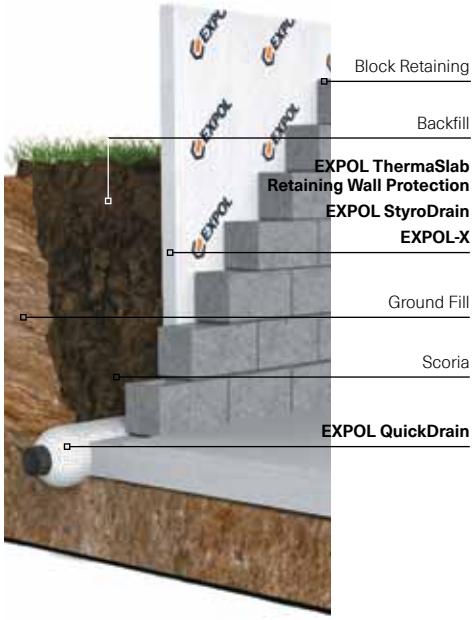


Table 1.1

PRODUCT OPTIONS & SIZES

	Length (mm)	Width (mm)
EXPOL ThermaSlab S	2400	1200
	Other sizes on request	
EXPOL-X	2500	600
EXPOL StyroDrain	2400	1200

	Length (mm)	Product Diameter (mm)	Pipe External Diameter (mm)
EXPOL QuickDrain	2500	200	110

THE PRODUCTS

EXPOL ThermaSlab (protection) is standard Expanded Polystyrene and is available in a range of thicknesses to suit your specific requirements. 25mm is common practice for most retaining walls, whereas 40mm is recommended for retaining walls higher than 1.2 metres or where the gravel / scoria is more likely to damage the waterproof membrane.

EXPOL-X (protection & insulation) is extruded polystyrene (XPS) and is available in full sheets only (see Table 1.1). EXPOL-X is highly water resistant and has an extremely high compressive strength.

EXPOL StyroDrain (protection & drainage) is a permeable light-weight drainage material manufactured from 100% recycled Expanded Polystyrene material, offering drainage and protection to the water-proofing membrane used on retaining walls. A double layer of EXPOL StyroDrain may be required if the retaining wall is higher than 1.8 metres or in special circumstances. StyroDrain comes in easy to handle sheets 90mm thick and can be cut with a sharp knife or hand saw.

EXPOL QuickDrain (drainage) is an engineered drainage solution and provides a scoria-free alternative to traditional scoria drainage solutions, cutting installation time in half.

QuickDrain incorporates a recycled polystyrene aggregate that provides enhanced drainage performance, strength, filtration and longevity.

SYSTEM COMPONENTS

CONSTRUCTION ADHESIVE

Sabre Fix is an advanced single component polyurethane-based construction adhesive. This powerful adhesive is developed especially for the construction industry and will bond most types of construction materials including timber (damp and dry), concrete, plasterboard, polystyrene and many other porous and non-porous substrates.

Table 1.2

PRODUCT PROPERTIES

Property	Unit	EXPOL ThermaSlab S	EXPOL-X - Exterior	EXPOL StyroDrain	EXPOL QuickDrain	Test Reference
Material		Expanded Polystyrene	XPS	Expanded Polystyrene	Recycled Polysytrene • HDPE Pipe • Polyester Filter	
Density	kg/m3	16	30	11	n/a	
Thickness / R Value	m2K/W					ASTM C518-04
	10mm	-	R 0.36	-	L 2500mm	
	20mm	-	-	-	D 200mm	
	25mm	-	-	-		
	30mm	-	R 1.10	-		
	40mm	-	R 1.45	-		
	50mm	-	R 1.80	-		
	75mm	-	R 2.70	n/a		
	100mm	-	R 3.60	-		
Compressive Resistance	KPA at 1%	34	-	-	-	AS 2498.3
Compressive Resistance	KPA at 2%	59	-	-	-	
Compressive Resistance	KPA at 5%	74	-	-	-	
Compressive Resistance	KPA at 10%	84	250	-	-	
Youngs Modulus	(MPA)	3.8	-	-	-	
Cross breaking strength	KPA	165	-	-	-	AS 2498.4
Determination of flame propagation surface ignition						
Medium flame duration (max)	sec	2	-	2	-	AS2122.1-1993
Eighth value	sec	3	-	3	-	
Fire behaviour - Spread of Flame Index	(0-10)	0	0	0	-	AS/NZS
- Smoke Developed Index	(0-10)	5	3	5	-	1530.3:1999
Dimensional stability of length, width & thickness (max) at 70 deg C for 7 days	%	1	-	1	-	AS2498.6
Recycled content	%	0	0	100	75	
Rate of water vapour transmission (max) measured parallel to rise at 23°C	mg/m2s	520	-	-		AS 2498.5
Permeability	m/s	-	-	4.18×10^{-3}	-	
Long term water absorption by immersion	% v/v	-	0.028	-	-	ASTM C272
Flow rate	l/s/m	-	-	-	0.186	OPUS

FURTHER INFORMATION

For further detailed information on all products refer page 34 or contact EXPOL 0800 86 33 73.
For Expanded Polystyrene Densities and Colour Coding refer page 35.

EXPOL StyroDrain has been tested by Opus International Consultants Ltd. OPUS INTERNATIONAL CONSULTANTS Job No. 169402.00. Refer to www.expol.co.nz/styrodrain
Reference No. 02/402/001 Permeability Tests: EXPOL StyroDrain Test References: Permeability as per "Constant Head Permeability of Aggregate, Based on Soil Laboratory Testing" by E.H.Head, Density by Mass/Volume calculation.

EXPOL QuickDrain has been tested by Opus International Consultants Ltd

MANUFACTURING STANDARD
All products and grades of Expanded Polystyrene EXPOL supplies for retaining wall solutions comply with manufacturing standard AS 1366 Part 3 1992.

For miproducts
Details www.miproducts.co.nz

OPUS

Quotes / Technical
E: tech@expol.co.nz

EXPOL Product Training
T: 0800 86 33 73
www.expolexpert.co.nz

Website www.expol.co.nz

Contact EXPOL
T: 0800 86 33 73
E: sales@expol.co.nz

MASONRY WALL INSULATION

EXPOL provides high performing solid insulation solutions for both interior and exterior masonry walls.

EXPOL Platinum Board is best suited for interior applications, while **EXPOL-X**, with its water-tight qualities, is designed more for exterior applications.

Also see Cladding Page 20 and Retaining Wall solutions Page 6 for more exterior options.

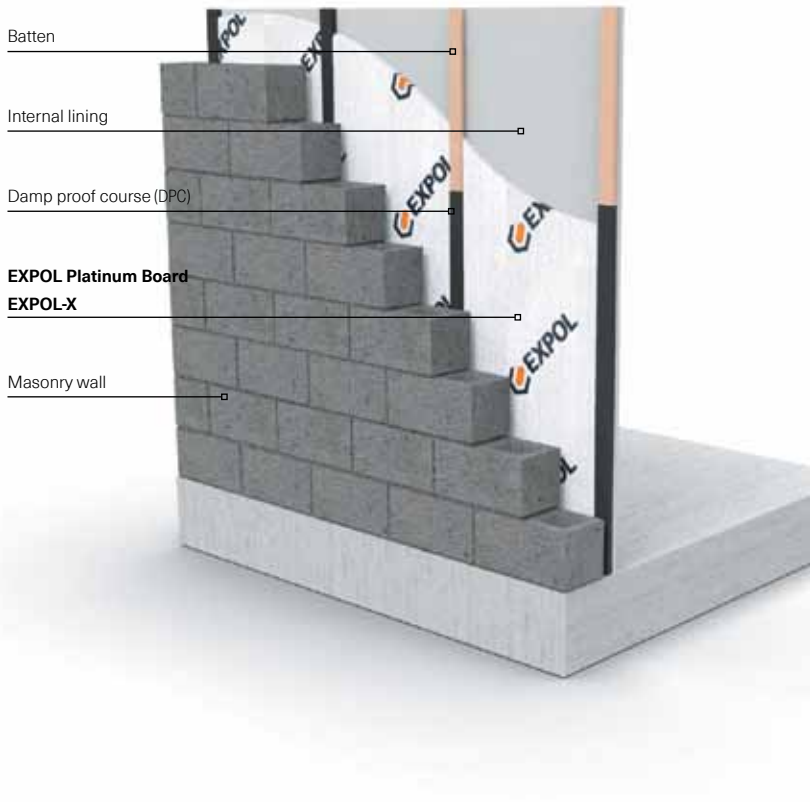


Table 2.1

PRODUCT OPTIONS & SIZES

	Length (mm)	Width (mm)
EXPOL Platinum Board	2400	1200
	Other sizes on request	
EXPOL-X	2500	600

THE PRODUCTS

EXPOL masonry wall insulation solutions utilise cutting edge innovations in solid insulation boards. Both products achieve substantially higher R values (for the relative thickness) than other insulating materials.

EXPOL Platinum Board is graphite infused Expanded Polystyrene, supplied in full sheets or cut to suit. EXPOL Platinum Board is a premium product which achieves superior R values relative to thickness.

EXPOL-X is extruded polystyrene (XPS) available in full sheets only (see Table 2.1). EXPOL-X is highly water resistant and has an extremely high compressive strength.

SYSTEM COMPONENTS

WIREGUARD

EXPOL Wireguard is a waxed paper strip used to separate exposed electrical cables from EXPOL insulation. Expanded Polystyrene in some cases reacts with the plasticiser and degrades the elastic properties of some electrical cables over a prolonged period.

CONSTRUCTION ADHESIVE

Sabre Fix is an advanced single component polyurethane-based construction adhesive. This powerful adhesive is developed especially for the construction industry and will bond most types of construction materials including timber (damp and dry), concrete, plasterboard, polystyrene and many other porous and non-porous substrates.

Table 2.2

PRODUCT PROPERTIES

Property	Unit		EXPOL Platinum Board - Interior	EXPOL-X - Exterior	Test Reference
Material			Expanded Polystyrene with Graphite	XPS	
Density	kg/m3		18	30	
Thickness / R Value		m2K/W			ASTM C518-04
		10mm	R 0.30	R 0.36	
		20mm	R 0.63	-	
		25mm	R 0.78	-	
		30mm	R 0.94	R 1.10	
		35mm	R 1.09	-	
		40mm	R 1.25	R 1.45	
		45mm	R 1.41	-	
		50mm	R 1.56	R 1.80	
		55mm	R 1.72	-	
		60mm	R 1.88	-	
		65mm	R 2.03	-	
		70mm	R 2.19	-	
		75mm	R 2.34	R 2.70	
		80mm	R 2.50	-	
		85mm	R 2.66	-	
		90mm	R 2.81	-	
		95mm	R 2.97	-	
		100mm	R 3.13	R 3.60	
		110mm	R 3.44	-	
		120mm	R 3.75	-	
Compressive Resistance		KPA at 1%	-	-	AS 2498.3
Compressive Resistance		KPA at 2%	-	-	
Compressive Resistance		KPA at 5%	-	-	
Compressive Resistance		KPA at 10%	105	250	
Youngs Modulus		(MPA)	-	-	
Cross breaking strength		KPA	200	-	AS 2498.4
Determination of flame propagation surface ignition					
Medium flame duration (max)		sec	2	-	AS2122.1-1993
Eighth value		sec	3	-	
Fire behaviour - Spread of Flame Index		(0-10)	0	0	AS/NZS
- Smoke Developed Index		(0-10)	5	3	1530.3:1999
Dimensional stability of length, width & thickness (max) at 70 deg C for 7 days		%	1	-	AS2498.6
Recycled content		%	0	0	
Rate of water vapour transmission (max) measured parallel to rise at 23°C		mg/m2s	520	-	AS 2498.5
Permeability		m/s	-	-	
Long term water absorption by immersion		% v/v	-	0.028	ASTM C272

FURTHER INFORMATION

For further detailed information on all products refer page 34 or contact EXPOL 0800 86 33 73.
For Expanded Polystyrene Densities and Colour Coding refer page 35.

MANUFACTURING STANDARD

All products and grades of Expanded Polystyrene supplied by EXPOL for masonry wall insulation comply with manufacturing standard AS 1366 Part 3 1992.

For
miproducts
Details www.miproducts.co.nz

Quotes / Technical
E: tech@expol.co.nz

EXPOL Product Training
T: 0800 86 33 73
www.expolexpert.co.nz

Website www.expol.co.nz

Contact EXPOL
T: 0800 86 33 73
E: sales@expol.co.nz

CONCRETE FLOOR INSULATION

EXPOL supplies both **Expanded Polystyrene** and **XPS** for under-concrete slab insulation. Depending on the application, one product will be more suitable than the other.

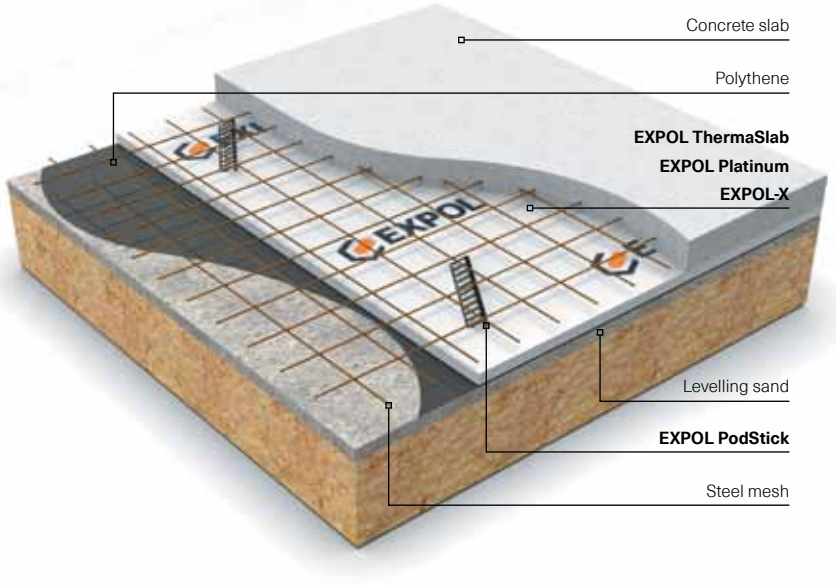


Table 3.1

PRODUCT OPTIONS & SIZES

	Length (mm)	Width (mm)
EXPOL ThermaSlab (S, H, VH)	2400	1200
	Other sizes on request	
EXPOL Platinum Board	2400	1200
	Other sizes on request	
EXPOL-X	2500	600

THE PRODUCTS

EXPOL ThermaSlab S and H are the most cost-effective products for insulating under a concrete slab. These densities will suit most residential floors and will achieve R values above building regulations.

EXPOL ThermaSlab VH would normally be required in commercial applications where very high loads are probable. Also see EXPOL-X for these situations.

EXPOL Platinum Board is graphite infused Expanded Polystyrene supplied in sheets suitable for insulating under a concrete slab. EXPOL Platinum Board is a premium product which achieves superior R values relative to thickness, commonly used when thickness is an issue or high R values are required.

EXPOL-X is extruded polystyrene (XPS) available in full sheets only (see Table 3.1). EXPOL-X is highly water resistant and has an extremely high compressive strength. See Table 3.2 for specifications.

SYSTEM COMPONENTS

EXPOL PODSTICK

Used as an alternative to Mesh / Bar Chairs. Provides more support for steel mesh over polystyrene

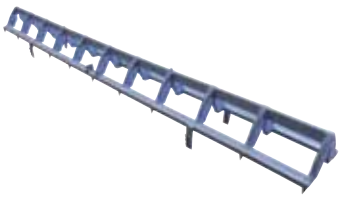


Table 3.2

PRODUCT PROPERTIES

Property	Unit	EXPOL ThermaSlab S	EXPOL ThermaSlab H	EXPOL ThermaSlab VH	EXPOL-X - Exterior	EXPOL Platinum Board	Test Reference
Material		Expanded Polystyrene	Expanded Polystyrene	Expanded Polystyrene	XPS	Expanded Polystyrene with Graphite	
Density	kg/m3	16	24	28	30	18	
Thickness / R Value	m2K/W						ASTM C518-04
	10mm	-	-	-	R 0.36	-	
	20mm	R 0.53	R 0.56	R 0.57	-	R 0.63	
	25mm	R 0.66	R 0.69	R 0.71	-	R 0.78	
	30mm	R 0.79	R 0.83	R 0.86	R 1.10	R 0.94	
	35mm	R 0.92	R 0.97	R 1.00	-	R 1.09	
	40mm	R 1.05	R 1.11	R 1.14	R 1.45	R 1.25	
	45mm	R 1.18	R 1.25	R 1.29	-	R 1.41	
	50mm	R 1.32	R 1.39	R 1.43	R 1.80	R 1.56	
	55mm	R 1.45	R 1.53	R 1.58	-	R 1.72	
	60mm	R 1.58	R 1.67	R 1.71	-	R 1.88	
	65mm	R 1.71	R 1.81	R 1.86	-	R 2.03	
	70mm	R 1.84	R 1.94	R 2.00	-	R 2.19	
	75mm	R 1.97	R 2.08	R 2.20	R 2.70	R 2.34	
	80mm	R 2.11	R 2.22	R 2.29	-	R 2.50	
	85mm	R 2.24	R 2.36	R 2.43	-	R 2.66	
	90mm	R 2.37	R 2.50	R 2.57	-	R 2.81	
	95mm	R 2.50	R 2.64	R 2.72	-	R 2.97	
	100mm	R 2.63	R 2.78	R 2.86	R 3.60	R 3.13	
	110mm	R 2.89	R 3.06	R 3.14	-	R 3.44	
	120mm	R 3.16	R 3.33	R 3.43	-	R 3.75	
Compressive Resistance	KPA at 1%	34	64	88	-	-	AS 2498.3
Compressive Resistance	KPA at 2%	59	108	142	-	-	
Compressive Resistance	KPA at 5%	74	133	172	-	-	
Compressive Resistance	KPA at 10%	84	146	189	250	105	
Youngs Modulus	(MPA)	3.8	6.2	8	-	-	
Cross breaking strength	KPA	165	260	320	-	200	AS 2498.4
Determination of flame propagation surface ignition							
Medium flame duration (max)	sec	2	2	2	-	2	AS2122.1-1993
Eighth value	sec	3	3	3	-	3	
Fire behaviour - Spread of Flame Index	(0-10)	0	0	0	0	0	AS/NZS
- Smoke Developed Index	(0-10)	5	5	5	3	5	1530.3:1999
Dimensional stability of length, width & thickness (max) at 70 deg C for 7 days	%	1	1	1	-	1	AS2498.6
Recycled content	%	0	0	0	0	0	
Rate of water vapour transmission (max) measured parallel to rise at 23°C	mg/m2s	520	460	400	-	520	AS 2498.5
Permeability	m/s	-	-	-	-	-	
Long term water absorption by immersion	% v/v	-	-	-	0.028	-	ASTM C272

FURTHER INFORMATION

For further detailed information on all products refer page 34 or contact EXPOL 0800 86 33 73.
For Expanded Polystyrene Densities and Colour Coding refer page 35.

MANUFACTURING STANDARD

All products and grades of Expanded Polystyrene supplied by EXPOL for concrete floors comply with manufacturing standard AS 1366 Part 3 1992.

For miproducts
Details www.miproducts.co.nz

For masterspec
Details www.masterspec.co.nz

Quotes / Technical
E: **tech@expol.co.nz**

EXPOL Product Training
T: **0800 86 33 73**
www.expolexpert.co.nz

Website **www.expol.co.nz**

Contact EXPOL
T: **0800 86 33 73**
E: **sales@expol.co.nz**

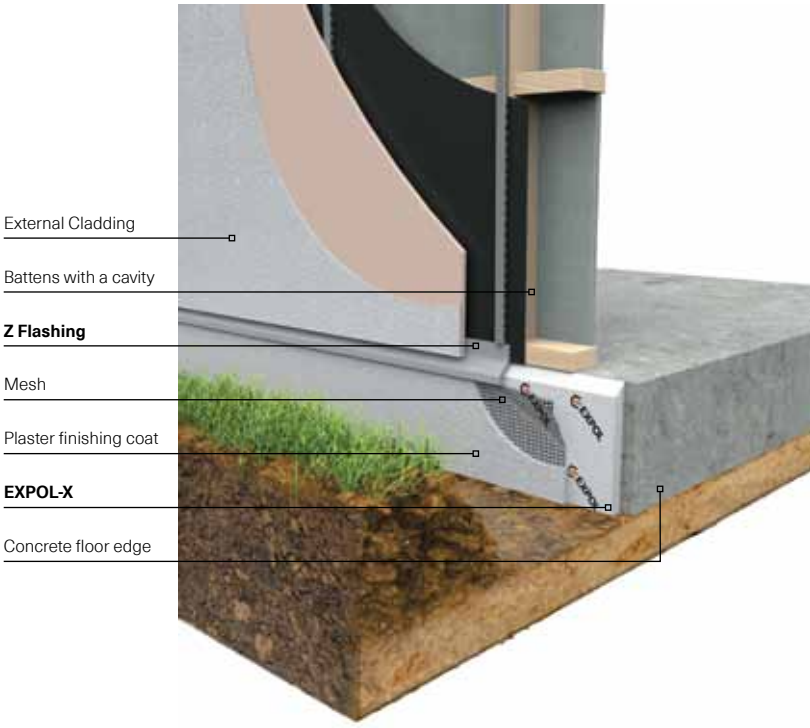
CONCRETE FLOOR EDGE INSULATION

EXPOL concrete floor edge insulation is a proven method to significantly increase your building's overall thermal performance.

EXPOL-X sheets are installed vertically against the outside face of a concrete floor slab or foundation wall to create a thermal barrier in an area where there is significant heat loss.

Once fixed, a top layer of plaster will finish to create a modern clean look.

EXPOL concrete floor edge insulation can be retrofitted or incorporated into the planning detail of the wall cladding and concrete slab foundation.



THE PRODUCT

Product thickness is 30mm (+ plaster) and can achieve a respectable R-value of 1.0 to greatly improve your overall construction rating (see Table 4.2).

The EXPOL concrete floor edge insulation system has been designed to include the 'Z' flashing to guarantee water tightness.

EXPOL-X is extruded polystyrene (XPS) and is available in different thicknesses (see Table 4.1). EXPOL-X is highly water resistant and has an extremely high insulation value.

Table 4.1

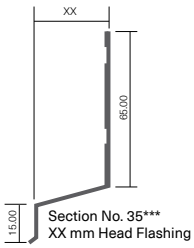
PRODUCT OPTIONS & SIZES

	Length (mm)	Width (mm)
EXPOL-X	2500	300

SYSTEM COMPONENTS

PERIMETER EDGE FLASHINGS

The 'Z' flashing has been specifically designed to ensure water tightness. Flashings should be used in circumstances that would normally require the cladding material to overhang the foundation edge.



CONSTRUCTION ADHESIVE

Sabre Fix is an advanced single component polyurethane-based construction adhesive. This powerful adhesive is developed especially for the construction industry and will bond most types of construction materials including timber (damp and dry), concrete, plasterboard, polystyrene and many other porous and non-porous substrates.

Table 4.2

R-VALUES FOR A VARIETY OF FLOORING SYSTEMS

		Area-to-perimeter ratio						
		1.3	1.9	2.2	2.5	2.8	3.1	4.0
		Total construction R-Value						
Without edge insulation								
Slab on Ground	90mm deep wall frame	0.8	1.0	1.1	1.2	1.4	1.5	1.8
	140mm wall frame or 150mm masonry	0.8	1.1	1.2	1.3	1.5	1.6	1.9
	200mm masonry	0.9	1.2	1.3	1.4	1.5	1.7	2.1
	250mm masonry	1.0	1.2	1.4	1.5	1.5	1.8	2.2
POD Floor	90mm deep wall frame	1.0	1.2	1.3	1.5	1.6	1.7	2.1
	140mm wall frame or 150mm masonry	1.0	1.3	1.4	1.5	1.7	1.8	2.2
	200mm masonry	1.1	1.4	1.6	1.7	1.9	2.0	2.4
	250mm masonry	1.3	1.6	1.8	1.9	2.1	2.2	2.6
R1.0 EXPOL Concrete floor edge insulation								
Slab on Ground	90mm deep wall frame	1.2	1.5	1.7	1.9	2.0	2.2	2.7
	140mm wall frame or 150mm masonry	1.3	1.6	1.8	1.9	2.1	2.3	2.8
	200mm masonry	1.3	1.6	1.8	2.0	2.1	2.3	2.8
	250mm masonry	1.3	1.7	1.9	2.0	2.2	2.4	2.9
POD Floor	90mm deep wall frame	1.4	1.8	1.9	2.1	2.3	2.4	2.9
	140mm wall frame or 150mm masonry	1.5	1.8	2.0	2.1	2.3	2.5	3.0
	200mm masonry	1.6	1.9	2.1	2.3	2.5	2.6	3.1
	250mm masonry	1.7	2.1	2.2	2.4	2.6	2.8	3.3
R1.0 EXPOL Concrete floor edge and R1.2 under concrete slab insulation *(see page 10)*								
Slab on Ground	90mm deep wall frame	1.7	2.1	2.3	2.5	2.7	2.9	3.5
	140mm wall frame or 150mm masonry	1.8	2.2	2.4	2.7	2.9	3.1	3.7
	200mm masonry	1.9	2.4	2.6	2.8	3.0	3.2	3.8
	250mm masonry	2.0	2.5	2.7	2.9	3.2	3.4	4.0

The table of R-values is taken from the BRANZ House Insulation Guide

FURTHER INFORMATION

For further detailed information on all products refer page 34 or contact EXPOL 0800 86 33 73.
For Expanded Polystyrene Densities and Colour Coding refer page 35.

Quotes / Technical
E: **tech@expol.co.nz**

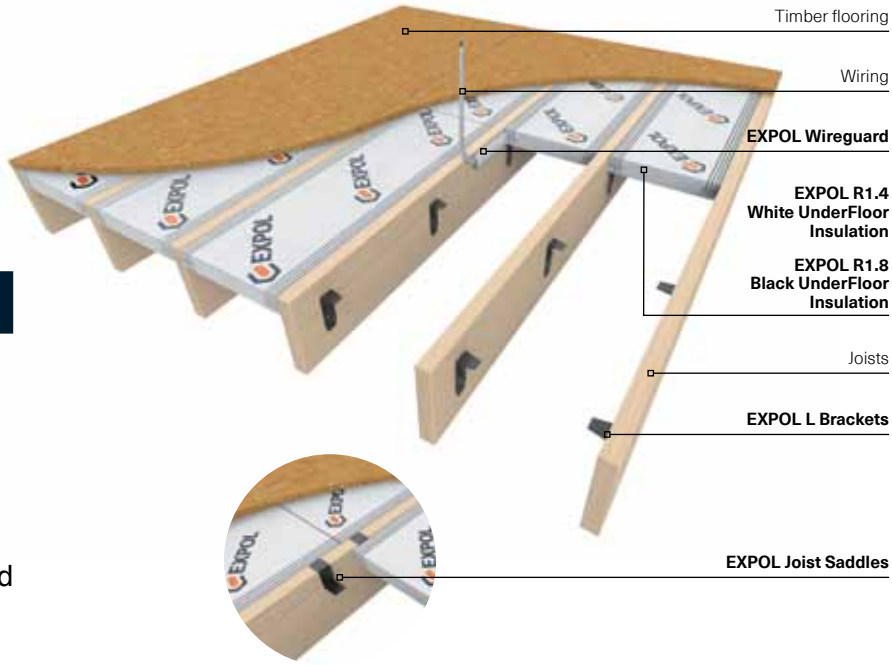
EXPOL Product Training
T: **0800 86 33 73**
www.expolexpert.co.nz

Website **www.expol.co.nz**

Contact EXPOL
T: **0800 86 33 73**
E: **sales@expol.co.nz**

TIMBER FLOOR INSULATION

EXPOL provides comprehensive solutions for insulating underfloor between the joists of a timber floor construction and is specifically designed for both **new** and **existing** floors.



THE PRODUCTS

EXPOL Premium UnderFloor Insulation solutions are made from a fire retardant Expanded Polystyrene. In most situations floor insulation is exposed to the elements (as opposed to wall and ceiling insulation in a cavity) and so it is vital that the materials used will stand the test of time. EXPOL's solid insulation products are not affected by moisture and will not degrade over time. Both products are 60mm in thickness with concertina cuts on either side for easy installation. All fixing components are supplied by EXPOL and when used according to EXPOL's installation instructions, will ensure the system lasts the life time of the construction.

EXPOL R1.4 White UnderFloor Insulation is appraised by BRANZ and has a 50 year warranty.

EXPOL UNDERFLOOR INSULATION

EXPOL R1.4 White UnderFloor Insulation is a rigid white panel manufactured from Expanded Polystyrene material, 1200mm in length manufactured in four standard widths (see Table 5.1). This proven solution for timber floor insulation has been on the market for over 25 years and contains recycled content.

EXPOL R1.8 Black UnderFloor Insulation is graphite infused Expanded Polystyrene supplied in the same sizes as the standard white Underfloor insulation. EXPOL BLACK is a premium product which achieves superior R values.

Table 5.1

PRODUCT OPTIONS & SIZES

	Length (mm)	Width (mm)
EXPOL R1.4 White UnderFloor Insulation	1200	360
	1200	410
	1200	470
	1200	560
EXPOL R1.8 Black UnderFloor Insulation	1200	360
	1200	410
	1200	470
	1200	560

SYSTEM COMPONENTS

WIREGUARD

EXPOL Wireguard is a waxed paper strip used to separate exposed electrical cables from EXPOL insulation. Expanded Polystyrene in some cases reacts with the plasticiser and degrades the elastic properties of some electrical cables over a prolonged period.

FIXINGS

There are two types of fixings specific to existing floors and new floors. They are made from non-corrosive nylon and are used to fix the EXPOL panels in place.

- **Existing Floors:** EXPOL L Brackets are designed to fit under the panel (supplied with stainless steel nails).
- **New Floors:** EXPOL Joist Saddles are designed to slip over the joist to support and secure the panel.

CONSTRUCTION ADHESIVE

Sabre Fix is an advanced single component polyurethane-based construction adhesive. This powerful adhesive is developed especially for the construction industry and will bond most types of construction materials including timber (damp and dry), concrete, plasterboard, polystyrene and many other porous and non-porous substrates.

Table 5.2

PRODUCT PROPERTIES

Property	Unit	EXPOL R1.4 White UnderFloor Insulation	EXPOL R1.8 Black UnderFloor Insulation	Test Reference
Material		Expanded Polystyrene	Expanded Polystyrene	
Density	kg/m3	12	18	
Thickness / R Value	m2K/W			ASTM C518-04
	60mm	R 1.40	R 1.80	
	120mm (Double Layer)	R 2.80	R 3.60	
Compressive strength at 10% deformation (min)	KPA	70	105	AS 2498.3
Cross breaking strength	KPA	135	200	AS 2498.4
Determination of flame propagation surface ignition				
Medium flame duration (max)	sec	2	2	AS2122.1-1993
Eighth value	sec	3	3	
Fire behaviour - Spread of Flame Index	(0-10)	0	0	AS/NZS
- Smoke Developed Index	(0-10)	5	5	1530.3:1999
Dimensional stability of length, width & thickness (max) at 70 deg C for 7 days	%	1	1	AS2498.6
Recycled content	%	30	0	
Rate of water vapour transmission (max) measured parallel to rise at 23°C	mg/m2s	630	520	AS 2498.5
Long term water absorption by immersion	% v/v	-	-	ASTM C272

INSTALLATION

For detailed installation instructions, please refer to EXPOL's technical literature or BRANZ appraisal, both available on our website www.expol.co.nz.

FURTHER INFORMATION

For further detailed information on all products refer page 34 or contact EXPOL 0800 86 33 73.
For Expanded Polystyrene Densities and Colour Coding refer page 35.

SPECIFIERS, ARCHITECTS AND PLANNERS

For all specifying information, relevant product testing and other detailed information please refer to MasterSpec documents on www.masterspec.co.nz or contact EXPOL for an electronic copy.

BRANZ APPRAISAL

EXPOL R1.4 UnderFloor has a BRANZ appraisal.
See BRANZ certificate number 256.

INSULATION STANDARD

All EXPOL timber floor insulation solutions comply with the Australian and New Zealand Standard AS/NZS 4859.1:2002.

MANUFACTURING STANDARD

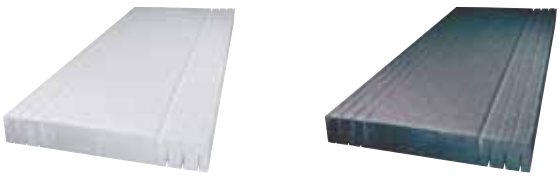
All panels have a yellow stripe down one edge to confirm compliance with manufacturing standard AS 1366 Part 3 1992 for SL grade.

For
miproducts
Details www.miproducts.co.nz

For
masterspec
Details www.masterspec.co.nz

EXPOL R1.4 White UnderFloor

EXPOL R1.8 Black UnderFloor



BRANZ Appraised
Appraisal No.256 [2020]

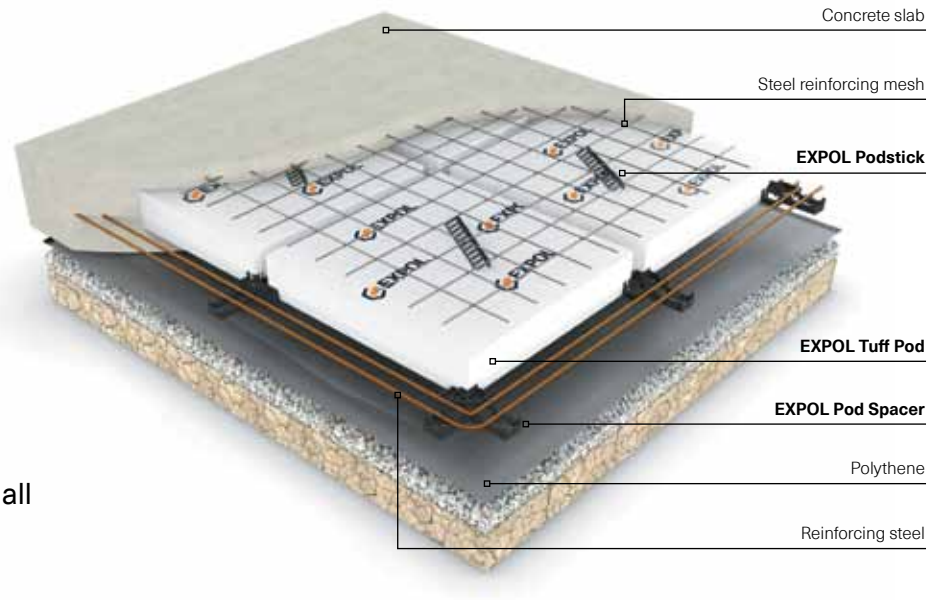
Quotes / Technical
E: tech@expol.co.nz

EXPOL Product Training
T: 0800 86 33 73
www.expolexpert.co.nz

Website www.expol.co.nz

Contact EXPOL
T: 0800 86 33 73
E: sales@expol.co.nz

POD FLOOR SYSTEMS



EXPOL manufactures a variety of polystyrene **Tuff Pods** which contain recycled material and are suitable for all raft / floating floor slab systems throughout New Zealand.

EXPOL Tuff Pods are a component used to create 100mm concrete ribs throughout the floor, providing additional strength and superior insulating qualities.

THE PRODUCTS

EXPOL Tuff Pods are manufactured from standard Expanded Polystyrene material. Tuff pods are shape moulded and incorporate a waffle design.

To suit the many different pod floor systems, EXPOL supplies a variety of sizes to suit the specific design and contains recycled content.

Table 6.1

PRODUCT OPTIONS & SIZES

	Length (mm)	Width (mm)	Thickness (mm)
Expol Tuff Pods Moulded	1100	1100	220
	1100	1100	300
Solid Pods made from Recycled Material - Non Structural	1200	1200	200
	1200	1200	300
	1800	1200	200

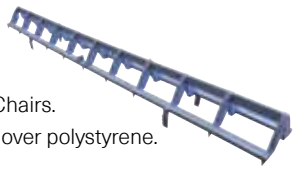
SYSTEM COMPONENTS

EXPOL supplies spacers to align the Tuff Pods, and PODSTICKS for mesh support.
EXPOL's range of available components is listed below:

EXPOL 100mm Spacer
Only suitable for 220mm PODS for internal ribs.

EXPOL 300mm Spacer
Only suitable for 220mm PODS for slab edge beam and thickenings.

EXPOL PODSTICK
Used as an alternative to Mesh / Bar Chairs.
Provides more support for steel mesh over polystyrene.



UNIMAX Spacer
The spacer sits on the ground between the pods and is suitable for use with any size Tuff Pod. The spacer cleverly clips together to form any size spacing required. EXPOL Unimax spacers can be used in conjunction with any other spacer type.

EXPOL Centre Spacer
Used internally and externally throughout the Pod floor.

EXPOL Clip on Spacer
This spacer clips onto the centre spacer for edge beams and internal thickenings.

STANDARD POD CONSTRUCTION DETAILS

Fig 6.1 **Masonry Wall**

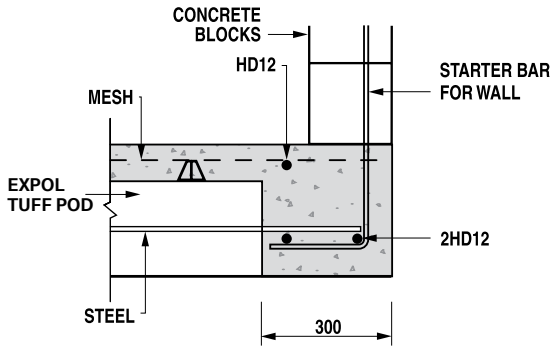


Fig 6.2 **Timber Frame**

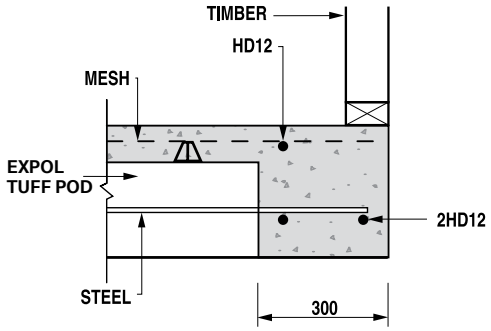


Fig 6.3 **Brick Veneer**

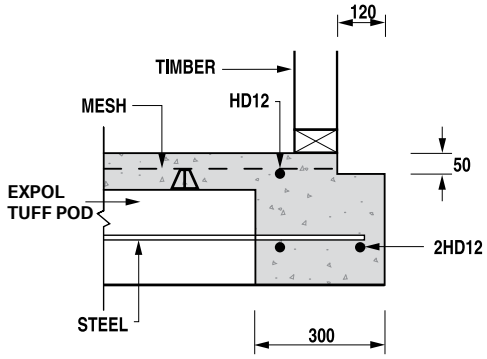


Fig 6.4 **300mm Rib**

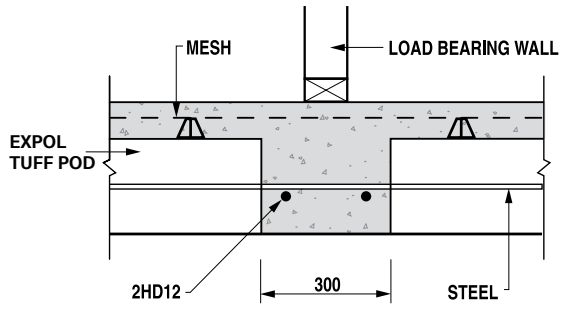
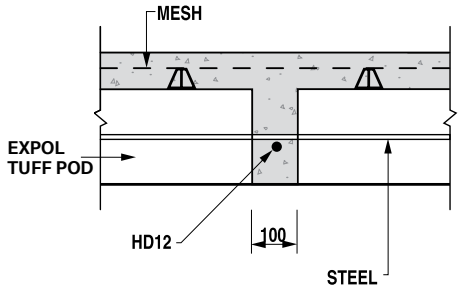


Fig 6.5 **100mm Rib**



FURTHER INFORMATION

For further, detailed information on all products refer page 34 or contact EXPOL 0800 86 33 73.

For Expanded Polystyrene Densities and Colour Coding refer page 35.

MANUFACTURING STANDARD

All products and grades of Expanded Polystyrene supplied by EXPOL for pod floors comply with manufacturing standard AS 1366 Part 3 1992.

Quotes / Technical
E: **tech@expol.co.nz**

EXPOL Product Training
T: **0800 86 33 73**
www.expolexpert.co.nz

Website **www.expol.co.nz**

Contact EXPOL
T: **0800 86 33 73**
E: **sales@expol.co.nz**

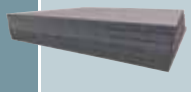
SKILLION ROOF INSULATION

EXPOL provides solid insulation solutions to solve the difficulties in achieving high R values in narrow roof spaces. EXPOL skillion roof solutions are panels cut to suit a variety of purlin / rafter spacings.

EXPOL Platinum Board is a premium product with superior insulating qualities, whereas **EXPOL ThermaSlab** is a cost-effective alternative for areas that are not restricted by space.

Table 7.1

PRODUCT OPTIONS & SIZES

		Length (mm)	Width (mm)
EXPOL ThermaSlab (S,M,H)		1200 1200 1200	555 855 1155
EXPOL Platinum Board		1200 1200 1200	555 855 1155

All sizes above are examples of some standard situations

NOTE: Other widths available

THE PRODUCTS

EXPOL ThermaSlab is standard Expanded Polystyrene available in a variety of grades to suit the application, supplied in full sheets or cut to suit purlin / rafter spacings (see Table 7.1).

EXPOL Platinum Board is graphite infused Expanded Polystyrene, supplied in full sheets or cut to suit purlin / rafter spacings (see Table 7.1). EXPOL Platinum Board is a premium product which achieves superior R values relative to thickness.

SYSTEM COMPONENTS

WIREGUARD

EXPOL Wireguard is a waxed paper strip used to separate exposed electrical cables from EXPOL insulation. Expanded Polystyrene in some cases reacts with the plasticiser and degrades the elastic properties of some electrical cables over a prolonged period.

CONSTRUCTION ADHESIVE

Sabre Fix is an advanced single component polyurethane-based construction adhesive. This powerful adhesive is developed especially for the construction industry and will bond most types of construction materials including timber (damp and dry), concrete, plasterboard, polystyrene and many other porous and non-porous substrates.

Table 7.2

PRODUCT PROPERTIES

Property	Unit		EXPOL ThermaSlab S	EXPOL ThermaSlab M	EXPOL ThermaSlab H	EXPOL Platinum Board	Test Reference
Material			Expanded Polystyrene	Expanded Polystyrene	Expanded Polystyrene	Expanded Polystyrene with Graphite	
Density	kg/m3		16	20	24	18	
Thickness / R Value		m2K/W					ASTM C518-04
		10mm	-	-	-	-	
		20mm	R 0.53	R 0.54	R 0.56	R 0.63	
		25mm	R 0.66	R 0.68	R 0.69	R 0.78	
		30mm	R 0.79	R 0.81	R 0.83	R 0.94	
		35mm	R 0.92	R 0.95	R 0.97	R 1.09	
		40mm	R 1.05	R 1.08	R 1.11	R 1.25	
		45mm	R 1.18	R 1.22	R 1.25	R 1.41	
		50mm	R 1.32	R 1.35	R 1.39	R 1.56	
		55mm	R 1.45	R 1.49	R 1.53	R 1.72	
		60mm	R 1.58	R 1.62	R 1.67	R 1.88	
		65mm	R 1.71	R 1.76	R 1.81	R 2.03	
		70mm	R 1.84	R 1.89	R 1.94	R 2.19	
		75mm	R 1.97	R 2.03	R 2.08	R 2.34	
		80mm	R 2.11	R 2.16	R 2.22	R 2.50	
		85mm	R 2.24	R 2.30	R 2.36	R 2.66	
		90mm	R 2.37	R 2.43	R 2.50	R 2.81	
		95mm	R 2.50	R 2.57	R 2.64	R 2.97	
		100mm	R 2.63	R 2.70	R 2.78	R 3.13	
		110mm	R 2.89	R 2.97	R 3.06	R 3.44	
		120mm	R 3.16	R 3.24	R 3.33	R 3.75	
Compressive Resistance		KPA at 1%	34	49	64	-	AS 2498.3
Compressive Resistance		KPA at 2%	59	96	108	-	
Compressive Resistance		KPA at 5%	74	111	133	-	
Compressive Resistance		KPA at 10%	84	126	146	105	
Youngs Modulus		(MPA)	3.8	4.1	6.2	-	
Cross breaking strength		KPA	165	200	260	200	AS 2498.4
Determination of flame propagation surface ignition							
Medium flame duration (max)		sec	2	2	2	2	AS2122.1-1993
Eighth value		sec	3	3	3	3	
Fire behaviour - Spread of Flame Index		(0-10)	0	0	0	0	AS/NZS
- Smoke Developed Index		(0-10)	5	5	5	5	1530.3:1999
Dimensional stability of length, width & thickness (max) at 70 deg C for 7 days		%	1	1	1	1	AS2498.6
Recycled content		%	0	0	0	0	
Rate of water vapour transmission (max) measured parallel to rise at 23°C		mg/m2s	520	520	460	520	AS 2498.5
Permeability		m/s	-	-	-	-	
Long term water absorption by immersion		% v/v	-	-	-	-	ASTM C272

FURTHER INFORMATION

For further detailed information on all products refer page 34 or contact EXPOL 0800 86 33 73.
For Expanded Polystyrene Densities and Colour Coding refer page 35.

MANUFACTURING STANDARD

All products and grades of Expanded Polystyrene supplied by EXPOL for skillion roof insulation comply with manufacturing standard AS 1366 Part 3 1992.

Quotes / Technical
E: **tech@expol.co.nz**

EXPOL Product Training
T: **0800 86 33 73**
www.expolexpert.co.nz

Website **www.expol.co.nz**

Contact EXPOL
T: **0800 86 33 73**
E: **sales@expol.co.nz**

CLADDING INSULATION

EXPOL supplies both **Expanded Polystyrene** and **XPS** sheets for EIFS cladding systems.
EXPOL's Expanded Polystyrene sheets have been tested and satisfy all the requirements necessary to be listed as a preferred provider for all EIFS systems.

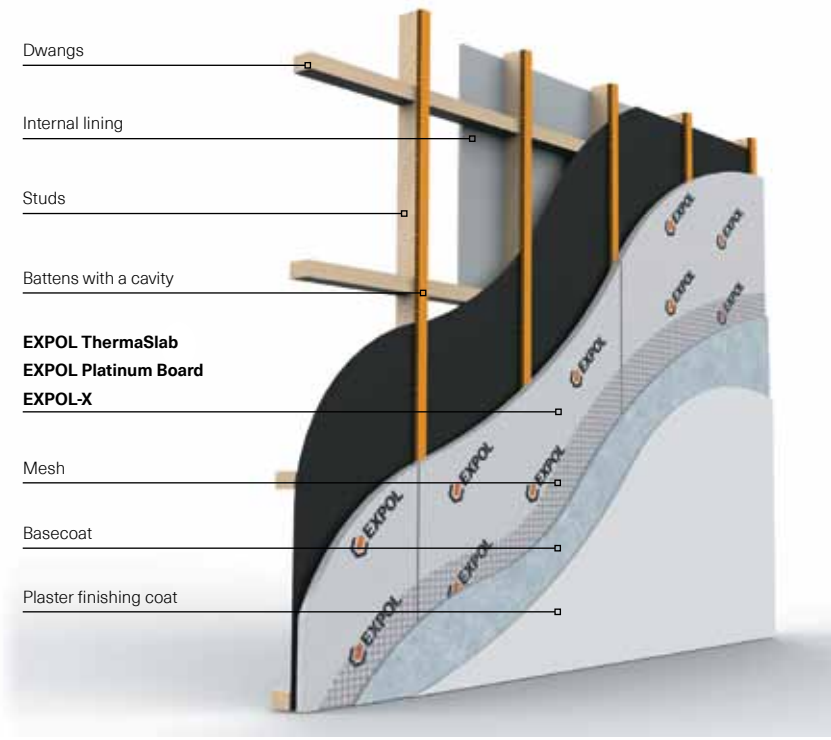


Table 8.1

PRODUCT OPTIONS & SIZES

	Length (mm)	Width (mm)
EXPOL ThermaSlab (S, H)	2400	1200
	2450	1200
	2700	1200
	3600	1200
	4800	1200
	Special sizes on request	
EXPOL Platinum Board	2400	1200
	2450	1200
	2700	1200
	3600	1200
	4800	1200
	Special sizes on request	
EXPOL-X	2500	600

THE PRODUCTS

EXPOL offers a wide range of products to compliment exterior cladding solutions.

EXPOL ThermaSlab sheets have been tested and approved for the use in EIFS systems. EXPOL ThermaSlab for cladding solutions has been kiln dried and stabilised to ensure minimal shrinkage.

EXPOL Platinum Board is graphite infused Expanded Polystyrene, supplied in full sheets (see Table 8.1). EXPOL Platinum Board is a premium product which achieves superior R values relative to thickness.

EXPOL-X is extruded polystyrene (XPS) and is available in different thicknesses (see Table 8.1). EXPOL-X is highly water resistant and has an extremely high insulation value.

SYSTEM COMPONENTS

BATTENS

EXPOL supplies a range of polystyrene batten sizes to suit all cladding systems.

WASHERS

EXPOL supplies 40mm plastic washers designed to increase the surface area of nail fixings.

CONSTRUCTION ADHESIVE

Sabre Fix is an advanced single component polyurethane-based construction adhesive. This powerful adhesive is developed especially for the construction industry and will bond most types of construction materials including timber (damp and dry), concrete, plasterboard, polystyrene and many other porous and non-porous substrates.

Table 8.2

PRODUCT PROPERTIES

Property	Unit		EXPOL ThermaSlab S	EXPOL ThermaSlab H	EXPOL Platinum Board	EXPOL-X - Exterior	Test Reference
Material			Expanded Polystyrene	Expanded Polystyrene	Expanded Polystyrene with Graphite	XPS	
Density	kg/m3		16	24	18	30	
Thickness / R Value		m2K/W					ASTM C518-04
		10mm	-	-	-	R 0.36	
		20mm	R 0.53	R 0.56	R 0.63	-	
		25mm	R 0.66	R 0.69	R 0.78	-	
		30mm	R 0.79	R 0.83	R 0.94	R 1.10	
		35mm	R 0.92	R 0.97	R 1.09	-	
		40mm	R 1.05	R 1.11	R 1.25	R 1.45	
		45mm	R 1.18	R 1.25	R 1.41	-	
		50mm	R 1.32	R 1.39	R 1.56	R 1.80	
		55mm	R 1.45	R 1.53	R 1.72	-	
		60mm	R 1.58	R 1.67	R 1.88	-	
		65mm	R 1.71	R 1.81	R 2.03	-	
		70mm	R 1.84	R 1.94	R 2.19	-	
		75mm	R 1.97	R 2.08	R 2.34	R 2.70	
		80mm	R 2.11	R 2.22	R 2.50	-	
		85mm	R 2.24	R 2.36	R 2.66	-	
		90mm	R 2.37	R 2.50	R 2.81	-	
		95mm	R 2.50	R 2.64	R 2.97	-	
		100mm	R 2.63	R 2.78	R 3.13	R 3.60	
		110mm	R 2.89	R 3.06	R 3.44	-	
		120mm	R 3.16	R 3.33	R 3.75	-	
Compressive Resistance		KPA at 1%	34	64	-	-	AS 2498.3
Compressive Resistance		KPA at 2%	59	108	-	-	
Compressive Resistance		KPA at 5%	74	133	-	-	
Compressive Resistance		KPA at 10%	84	146	105	250	
Youngs Modulus		(MPA)	3.8	6.2	-	-	
Cross breaking strength		KPA	165	260	200	-	AS 2498.4
Determination of flame propagation surface ignition							
Medium flame duration (max)		sec	2	2	2	-	AS2122.1-1993
Eighth value		sec	3	3	3	-	
Fire behaviour - Spread of Flame Index		(0-10)	0	0	0	0	AS/NZS
- Smoke Developed Index		(0-10)	5	5	5	3	1530.3:1999
Dimensional stability of length, width & thickness (max) at 70 deg C for 7 days		%	1	1	1	-	AS2498.6
Recycled content		%	0	0	0	0	
Rate of water vapour transmission (max) measured parallel to rise at 23°C		mg/m2s	520	460	520	-	AS 2498.5
Permeability		m/s	-	-	-	-	
Long term water absorption by immersion		% v/v	-	-	-	0.028	ASTM C272

FURTHER INFORMATION

For further detailed information on all products refer page 34 or contact EXPOL 0800 86 33 73.
For Expanded Polystyrene Densities and Colour Coding refer page 35.

PRODUCER STATEMENTS

EXPOL can provide a producer statement for all cladding insulation material on request.

MANUFACTURING STANDARD

All products and grades of Expanded Polystyrene supplied by EXPOL for cladding insulation comply with manufacturing standard AS 1366 Part 3 1992.

Quotes / Technical
E: **tech@expol.co.nz**

EXPOL Product Training
T: **0800 86 33 73**
www.expolexpert.co.nz

Website **www.expol.co.nz**

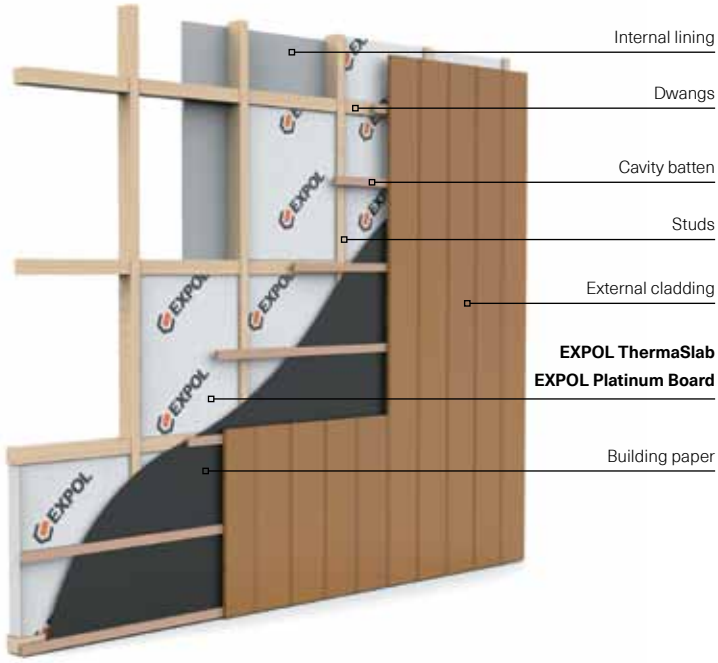
Contact EXPOL
T: **0800 86 33 73**
E: **sales@expol.co.nz**

WALL INSULATION

EXPOL provides high performance fire retardant solid insulation solutions for insulating timber and steel framed buildings.

EXPOL ThermaSlab is the economical choice to achieve Building Code requirements while **EXPOL Platinum Board** is a premium product offering high insulation values.

Both products can be cut to a standard width as specified by the customer.



THE PRODUCTS

EXPOL offers a range of products to suit your requirements when installing wall insulation. Products are cut to standard widths and EXPOL can cut special sizes on request (see Table 9.1).

All EXPOL wall insulation products are resistant to moisture often found in wall cavities. The products are rigid polystyrene so will not slump or sag over time.

EXPOL ThermaSlab SL panels are manufactured from Expanded Polystyrene material and are available in various thicknesses - (see Table 9.2)

EXPOL Platinum Board is graphite infused Expanded Polystyrene and is a premium product which achieves superior R values relative to thickness.

Table 9.1

PRODUCT OPTIONS & SIZES

	Length (mm)	Width (mm)
EXPOL ThermaSlab SL	1200 1200	355 555
	Special sizes on request	
EXPOL Platinum Board	1200 1200	355 555
	Special sizes on request	

SYSTEM COMPONENTS

WIREGUARD

EXPOL Wireguard is a waxed paper strip used to separate exposed electrical cables from EXPOL insulation. Expanded Polystyrene in some cases reacts with the plasticiser and degrades the elastic properties of some electrical cables over a prolonged period.

Table 9.2

PRODUCT PROPERTIES

Property	Unit	EXPOL ThermaSlab SL	EXPOL Platinum Board	Test Reference
Material		Expanded Polystyrene	Expanded Polystyrene with Graphite	
Density	kg/m3	12	18	
Thickness / R Value	m2K/W			ASTM C518-04
	10mm	-	-	
	20mm	-	R 0.63	
	25mm	-	R 0.78	
	30mm	-	R 0.94	
	35mm	-	R 1.09	
	40mm	-	R 1.25	
	45mm	-	R 1.41	
	50mm	-	R 1.56	
	55mm	-	R 1.72	
	60mm	R 1.46	R 1.88	
	65mm	R 1.59	R 2.03	
	70mm	R 1.71	R 2.19	
	75mm	R 1.83	R 2.34	
	80mm	R 1.95	R 2.50	
	85mm	R 2.07	R 2.66	
	90mm	R 2.20	R 2.81	
	95mm	R 2.32	R 2.97	
	100mm	R 2.44	R 3.13	
	110mm	R 2.68	R 3.44	
	120mm	R 2.93	R 3.75	
Compressive Resistance	KPA at 1%	-	-	AS 2498.3
Compressive Resistance	KPA at 2%	-	-	
Compressive Resistance	KPA at 5%	-	-	
Compressive Resistance	KPA at 10%	70	105	
Youngs Modulus	(MPA)	-	-	
Cross breaking strength	KPA	135	200	AS 2498.4
Determination of flame propagation surface ignition				
Medium flame duration (max)	sec	2	2	AS2122.1-1993
Eighth value	sec	3	3	
Fire behaviour - Spread of Flame Index	(0-10)	0	0	AS/NZS
- Smoke Developed Index	(0-10)	5	5	1530.3:1999
Dimensional stability of length, width & thickness (max) at 70 deg C for 7 days	%	1	1	AS2498.6
Recycled content	%	30	0	
Rate of water vapour transmission (max) measured parallel to rise at 23°C	mg/m2s	630	520	AS 2498.5
Permeability	m/s	-	-	
Long term water absorption by immersion	% v/v	-	-	ASTM C272

FURTHER INFORMATION

For further detailed information on all products refer page 34 or contact EXPOL 0800 86 33 73.
For Expanded Polystyrene Densities and Colour Coding refer page 35.

MANUFACTURING STANDARD

All products and grades of Expanded Polystyrene supplied by EXPOL for wall insulation comply with manufacturing standard AS 1366 Part 3 1992.

Quotes / Technical
E: **tech@expol.co.nz**

EXPOL Product Training
T: **0800 86 33 73**
www.expolexpert.co.nz

Website **www.expol.co.nz**

Contact EXPOL
T: **0800 86 33 73**
E: **sales@expol.co.nz**

LIGHTWEIGHT FILL

Expanded Polystyrene Foam is used extensively for lightweight fill in problematic situations such as expansive soils and soft substrates.

EXPOL GeoFoam is supplied in a range of densities and sizes to suit the engineering design.

Choosing the correct density of **EXPOL GeoFoam** will depend on the compressive loads applied during its service life. All blocks can be cut to suit different project specifications, including angles and 2 dimensional profiles.

THE PRODUCT

EXPOL GeoFoam is manufactured from standard Expanded Polystyrene foam and is available in a variety of grades to suit different construction conditions (see Table 10.2). Typical densities range from 12kg/m3 to 32kg/m3. EXPOL GeoFoam will absorb small volumes of water, however this will not have a significant effect on its mechanical properties or performance.

Table 10.1

PRODUCT OPTIONS & SIZES

	Length (mm)	Width (mm)	Thickness (mm)
EXPOL GeoFoam (S, M, H, VH)	Standard Sizes		
	2450	1220	620
	4900	1220	620

Any size can be cut from these blocks

EXPOL GEOFOAM ADVANTAGES

- Lightweight
- High compressive strength
- Cost effective
- Durable
- Weighs 1% of conventional fill
- Eliminates lateral pressure and vertical movement
- All clean waste can be recovered for recycling

APPLICATIONS

- Construction
- Road embankments
- Bridge abutments
- Causeways
- Retaining wall fill
- Replacement of poor soils
- Landscaping
- Geotechnical fill
- Frost heave protection
- Sites with limited access

CHEMICAL RESISTANCE

Expanded Polystyrene block is resistant to soaps and inorganic substances such as dilute acids, alkalis and salt solutions. It is attacked by organic solvent, including hydrocarbon fuels and lubricants.

For further information see **EXPOL GeoFoam Technical Manual**

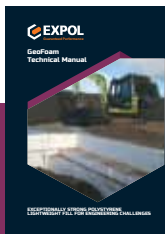


Table 10.2

PRODUCT PROPERTIES

Property	Unit		RECYCLED	EXPOL GeoFoam S	EXPOL GeoFoam M	EXPOL GeoFoam H	EXPOL GeoFoam VH	Test Reference
Material			Expanded Polystyrene	Expanded Polystyrene	Expanded Polystyrene	Expanded Polystyrene	Expanded Polystyrene	
Density	kg/m3		14	16	20	24	28	
Compressive Resistance		KPA at 1%	17	34	49	64	88	
Compressive Resistance		KPA at 2%	34	59	96	108	142	
Compressive Resistance		KPA at 5%	48	74	111	133	172	
Compressive Resistance		KPA at 10%	57	84	126	146	189	AS 2498.3.1993
Youngs Modulus		(MPA)	2.2	3.8	4.1	6.2	8	
Cross breaking strength		KPA	90	165	200	260	320	AS 2498.4
Determination of flame propagation surface ignition								
Medium flame duration (max)		sec	2	2	2	2	2	AS2122.1-1993
Eighth value		sec	3	3	3	3	3	
Fire behaviour - Spread of Flame Index		(0-10)	0	0	0	0	0	AS/NZS
- Smoke Developed Index		(0-10)	5	5	5	5	5	1530.3:1999
Dimensional stability of length, width & thickness (max) at 70 deg C for 7 days		%	1	1	1	1	1	AS2498.6
Rate of water vapour transmission (max) measured parallel to rise at 23°C		mg/m2s	750	520	520	460	400	AS 2498.5

EXPOL GeoFoam as lightweight fill under a concrete floor

FURTHER INFORMATION

For further detailed information on all products refer page 34 or contact EXPOL 0800 86 33 73.
For Expanded Polystyrene Densities and Colour Coding refer page 35.

PRODUCER STATEMENT

EXPOL can provide a producer statement for all EXPOL GeoFoam material on request.

MANUFACTURING STANDARD

All products and grades of Expanded Polystyrene supplied by EXPOL for lightweight fill comply with manufacturing standard AS 1366 Part 3 1992.

FURTHER TECHNICAL RESEARCH

For further information refer our **EXPOL GeoFoam Technical Manual** or visit www.expol.co.nz.

Quotes / Technical
E: **tech@expol.co.nz**

EXPOL Product Training
T: **0800 86 33 73**
www.expolexpert.co.nz

Website **www.expol.co.nz**

Contact EXPOL
T: **0800 86 33 73**
E: **sales@expol.co.nz**

DRAINAGE SOLUTIONS

EXPOL StyroDrain (protection & drainage) is a permeable lightweight drainage material manufactured from 100% recycled Expanded Polystyrene material, offering drainage, and protection to the water-proofing membrane used on retaining walls.

A double layer of EXPOL StyroDrain may be required if the retaining wall is higher than 1.8 metres or in special circumstances. StyroDrain comes in easy-to-handle sheets 90mm thick and can be cut with a sharp knife or hand saw.

Also see Page 6 for more exterior options.

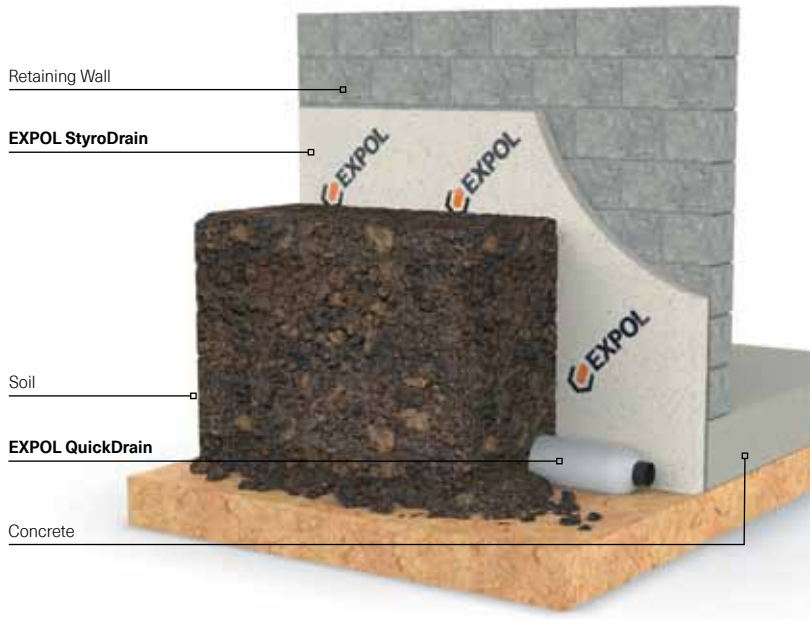


Table 11.1

PRODUCT OPTIONS & SIZES

	Length (mm)	Width (mm)
EXPOL StyroDrain	2400	1200

THE PRODUCT

EXPOL StyroDrain is and engineered drainage solution providing a scoria-free alternative to traditional scoria drainage solutions, cutting installation time in half.

StyroDrain is 100% recycled polystyrene aggregate that provides protection, enhanced drainage performance, strength, filtration and longevity.

SYSTEM COMPONENTS

CONSTRUCTION ADHESIVE

Sabre Fix is an advanced single component polyurethane-based construction adhesive. This powerful adhesive is developed especially for the construction industry and will bond most types of construction materials including timber (damp and dry), concrete, plasterboard, polystyrene and many other porous and non-porous substrates.

Table 11.2

PRODUCT PROPERTIES

Property	Unit		EXPOL StyroDrain	Test Reference
Material			Expanded Polystyrene	
Density	kg/m3		11	
Thickness / R Value		m2K/W		ASTM C518-04
		90mm	n/a	
Compressive Resistance		KPA at 1%	-	AS 2498.3
Compressive Resistance		KPA at 2%	-	
Compressive Resistance		KPA at 5%	-	
Compressive Resistance		KPA at 10%	-	
Youngs Modulus		(MPA)	-	
Cross breaking strength		KPA	-	AS 2498.4
Determination of flame propagation surface ignition				
Medium flame duration (max)		sec	2	AS2122.1-1993
Eighth value		sec	3	
Fire behaviour - Spread of Flame Index		(0-10)	0	AS/NZS
- Smoke Developed Index		(0-10)	5	1530.3:1999
Dimensional stability of length, width & thickness (max) at 70 deg C for 7 days		%	1	AS2498.6
Recycled content		%	100	
Rate of water vapour transmission (max) measured parallel to rise at 23°C		mg/m2s	-	AS 2498.5
Permeability		m/s	4.18×10^{-3}	
Long term water absorption by immersion		% v/v	-	ASTM C272

EXPOL **StyroDrain** is made from 100% Recycled Polystyrene

EXPOL **StyroDrain** in use

FURTHER INFORMATION

For further detailed information on all products refer page 34 or contact EXPOL 0800 86 33 73.
For Expanded Polystyrene Densities and Colour Coding refer page 35

EXPOL StyroDrain has been tested by Opus International Consultants Ltd. OPUS INTERNATIONAL CONSULTANTS Job No. 169402.00. Refer to www.expol.co.nz/styrodrain
Reference No. 02/402/001 Permeability Tests: EXPOL StyroDrain Test References: Permeability as per "Constant Head Permeability of Aggregate, Based on Soil Laboratory Testing" by E.H.Head, Density by Mass/Volume calculation.

MANUFACTURING STANDARD
All products and grades of Expanded Polystyrene EXPOL supplies for retaining wall solutions comply with manufacturing standard AS 1366 Part 3 1992.

For miproducts
Details www.miproducts.co.nz

OPUS

Quotes / Technical
E: **tech@expol.co.nz**

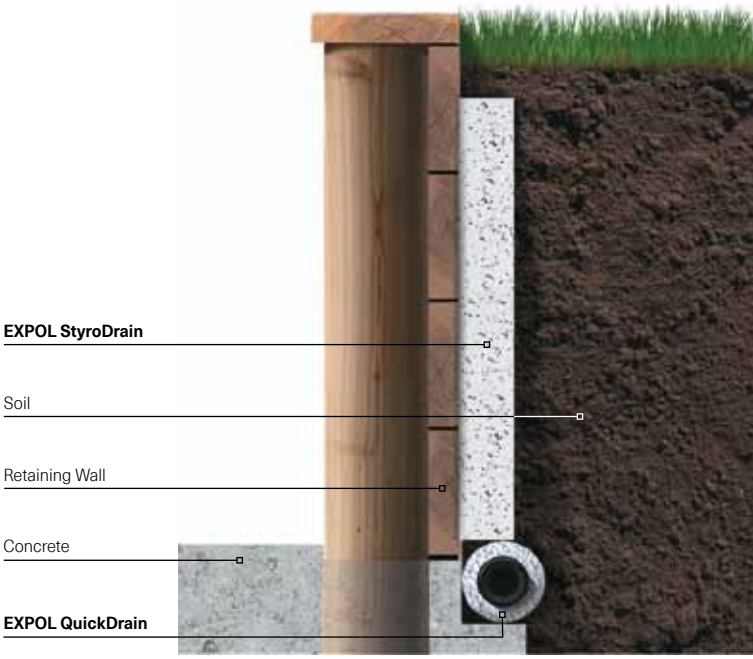
EXPOL Product Training
T: **0800 86 33 73**
www.expolexpert.co.nz

Website **www.expol.co.nz**

Contact EXPOL
T: **0800 86 33 73**
E: **sales@expol.co.nz**

DRAINAGE SOLUTIONS

EXPOL QuickDrain is a manufactured high performance drainage solution that incorporates recycled polystyrene. It is ideal for the removal of excess water from retaining walls and water logged areas.



QuickDrain's engineered drainage solution provides a scoria-free alternative to traditional scoria drainage solutions, cutting installation time in half.

The QuickDrain solution incorporates a recycled polystyrene aggregate that provides enhanced drainage performance, strength, filtration and longevity.

QuickDrain is faster and easier to install than traditional drainage solutions and is used in retaining walls, water logged back yards and perimeter drainage around commercial and residential buildings and houses. It is designed to be used where it is not exposed to high loads.

Table 12.1

PRODUCT SIZE

	Length (mm)	Product Diameter (mm)	Pipe External Diameter (mm)
EXPOL QuickDrain	2500	200	110

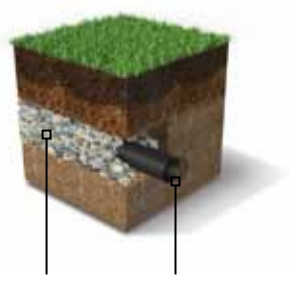
SYSTEM COMPONENTS

EXPOL supplies joiners to connect one length of QuickDrain to another. EXPOL's range of available components is listed below:

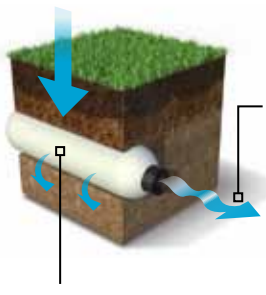
Straight Joiner
1 x straight joiner comes with every length of QuickDrain.

Y Joiner
Where you need to change direction and join one length of QuickDrain with two you can use a Y joiner.

Traditional drainage using scoria



New drainage solution using **QuickDrain**



QuickDrain efficiently filters out sediment

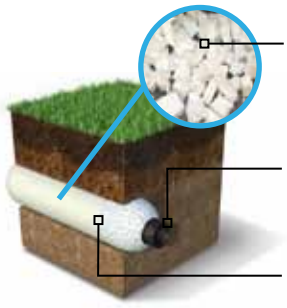


Table 12.3

PRODUCT PROPERTIES

Property	Unit	EXPOL QuickDrain	Test Reference
Material		Recycled Polysytrene - HDPE Pipe - Polyester Filter	
Length		2500mm	
Diameter		200mm	
Recycled content	%	75	
Flow rate l/s/m		0.186	OPUS

EXPOL **QuickDrain** includes 75% Recycled content

INSTALLATION

- **QuickDrain** comes in easy-to-handle 2.5 metre lengths. Each length comes with a **QuickDrain** Joiner and cable tie.
- Dig your trench the same width as your **QuickDrain** and deep enough to allow a minimum of 200mm of soil coverage.
- Simply clip the length together to achieve the required length for your project. Once the **QuickDrain** has been laid in the trench you are ready to start covering the **QuickDrain**.

Once **QuickDrain** is buried it will last 50+ years as it is produced from HDPE plastic, recycled polystyrene and PET fibre, however the drainage performance will be dependent on the overall design.

When laying **QuickDrain** please ensure it has a fall. Make sure it is directed to the lowest point of your property and is connected to a stormwater outlet. Exposure of **QuickDrain** to sunlight for prolonged periods should be avoided.

Position **QuickDrain**

Join **QuickDrain**

Lay **QuickDrain**

Fill in with soil

FURTHER INFORMATION

For further detailed information on all products refer page 34 or contact EXPOL 0800 86 33 73.
For Expanded Polystyrene Densities and Colour Coding refer page 35.

EXPOL QuickDrain has been tested by Opus International Consultants Ltd.

MANUFACTURING STANDARD
All products and grades of Expanded Polystyrene EXPOL supplies for retaining wall solutions comply with manufacturing standard AS 1366 Part 3 1992.

6 EPS

OPUS

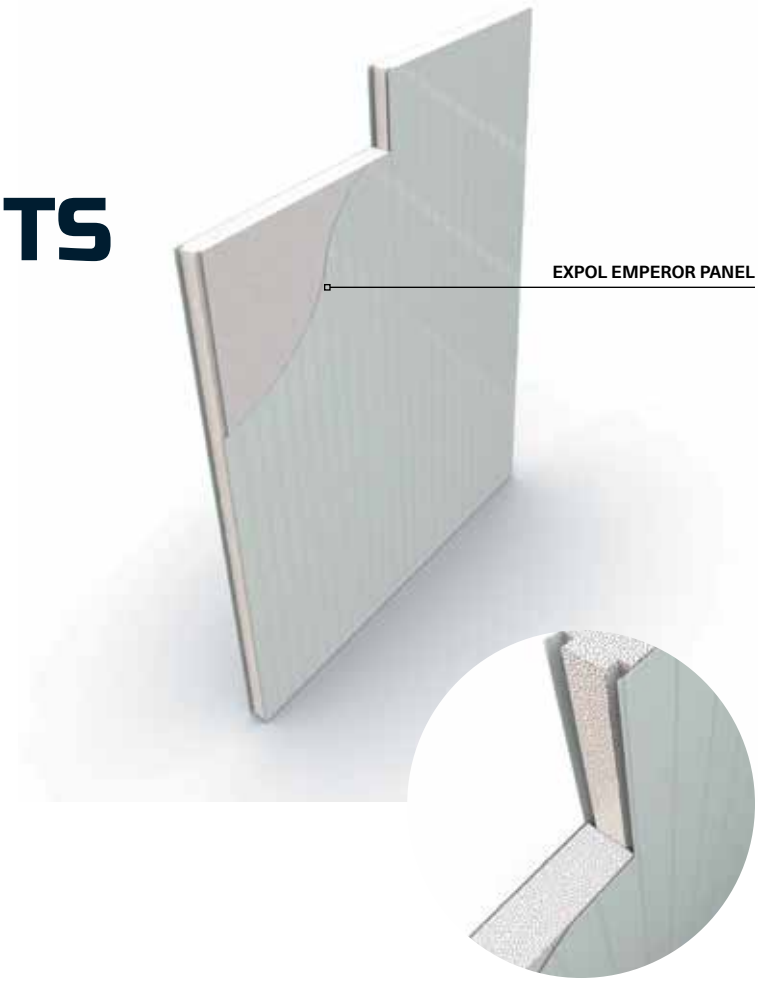
Quotes / Technical
E: **tech@expol.co.nz**

EXPOL Product Training
T: **0800 86 33 73**
www.expolexpert.co.nz

Website **www.expol.co.nz**

Contact EXPOL
T: **0800 86 33 73**
E: **sales@expol.co.nz**

SPECIALISED ENVIRONMENTS



EXPOL Emperor Panel is used in buildings or areas where specialised environments are required to provide efficiencies or create sterile and precise climate-controlled environments such as:

- Cool and cold stores
- Freezers
- Food processing units
- Supermarkets
- Leisure centres
- Laboratories
- Shopping malls
- Agribusinesses and wineries
- Conservatory roofs
- Portable insulated buildings

THE PRODUCT

EXPOL Emperor Panel is a versatile insulated building panel made from Expanded Polystyrene Sheet with a tongue and grove joining system, roll formed along the edge.

Insulated panel comprises outer skins of 0.59BMT pre-painted Colorsteel produced by NZ Steel, with a core of CFC-free expanded polystyrene foam containing flame retardant. Nominal panel width is 1200mm, with the length being produced to order.

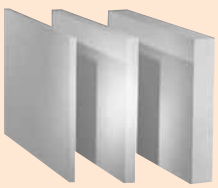
KEY BENEFITS:

- Cost effective construction and fast build time
- Optimum energy efficient environment
- Hygenic environment for food processing industries
- Durable material resistant to most forms of surface deterioration
- Modern appeal and functionality

Table 13.1

Product Details

EXPOL Emperor Panel Thickness	Standard Weights (kg per M²)	Thermal Resistance (R Value at 15°C)	Recommended Thickness for Chillers & Freezers
(mm)	kg per M²	R Value	Operating Temperature (°C)
50mm	11.6	R 1.31	–
75mm	12.0	R 1.96	7 down to 3
100mm	12.3	R 2.62	3 down to -3
150mm	13.1	R 3.92	-3 down to -18
175mm	13.5	R 4.58	-18 down to -23
200mm	13.9	R 5.23	-23 down to -30
250mm	14.7	R 6.54	–



The length is made to order

Table 13.2

LOAD SPAN

This table provides the approximate limits (in metres) for uniformly distributed loads on simply supported EXPOL Panels. To derive the correct load, the shelf-weight of the panel must be included. Two sets of data are included in the table.
The light numbers are "Ultimate Limit State Strength Loading" (kPa). Maximum design load is 5kPa. Minimum design load is 0.5 kPa.

Panel Thickness (mm)	SPAN (m) 1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00
50		3.2	2.0	1.4	1.0	0.8	0.6	0.5						
		2.0	1.4	1.0	0.8	0.6	0.4	0.3						
75		4.7	3.0	2.1	1.5	1.2	0.9	0.7	0.6	0.5				
		3.2	2.3	1.7	1.3	1.0	0.8	0.7	0.5	0.4				
100			3.9	2.8	2.0	1.6	1.2	1.0	0.8	0.7	0.6			
			3.3	2.6	2.0	1.6	1.3	1.1	0.9	0.7	0.6			
125			5.0	3.5	2.6	1.9	1.5	1.2	1.1	0.9	0.8	0.7	0.6	
				3.4	2.6	2.1	1.7	1.5	1.2	1.0	0.9	0.7	0.6	
150				4.1	3.1	2.4	1.8	1.5	1.2	1.1	0.9	0.8	0.7	0.6
					3.3	2.7	2.2	1.9	1.6	1.3	1.1	1.0	0.8	0.7
175				5.0	3.6	2.7	2.1	1.7	1.5	1.2	1.1	0.9	0.8	0.7
						3.4	2.7	2.3	1.9	1.7	1.4	1.2	1.1	0.9
200					4.1	3.1	2.5	2.0	1.6	1.4	1.2	1.0	0.9	0.8
							3.3	2.8	2.4	2.0	1.7	1.5	1.3	1.1
225					4.7	3.6	2.8	2.3	1.9	1.6	1.3	1.2	1.0	0.9
								3.3	2.8	2.4	2.1	1.8	1.6	1.4
250					5.0	3.9	3.0	2.5	2.1	1.7	1.5	1.3	1.1	1.0
									3.2	2.7	2.4	2.1	1.8	1.6

The shaded numbers are "Servicability Limit State Loading" (kPa) corresponding to deflection limit of span/200.

FURTHER INFORMATION

For further detailed information on all products refer page 34 or contact EXPOL 0800 86 33 73.
For Expanded Polystyrene Densities and Colour Coding refer page 35.

MANUFACTURING STANDARD

Expanded Polystyrene cored EXPOL insulation panel is tested to ISO 9705 and NZBC verification method C/VM2 appendix A, giving a New Zealand Building Code classification group number 1–5.

Quotes / Technical
E: **tech@expol.co.nz**

EXPOL Product Training
T: **0800 86 33 73**
www.expolexpert.co.nz

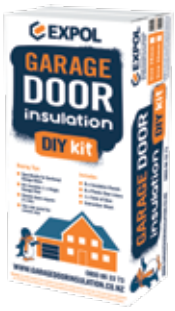
Website **www.expol.co.nz**

Contact EXPOL
T: **0800 86 33 73**
E: **sales@expol.co.nz**

GARAGE DOOR INSULATION

EXPOL Garage Door Insulation is an innovative, DIY product that improves the insulation value of garages. Once installed, it creates a warmer, dryer garage in winter and a cooler garage in summer. It will improve the internal appearance of the garage door and create a quieter space. This product is easy to install and you will be amazed at the results.

Available in 28mm or 35mm panel thickness



THE PRODUCT

The **EXPOL Garage Door Insulation Kit** is easy to install and is designed to be used in single or multiple sectional garage doors. One pack will insulate a single garage door (5.762 sqm) and will fit either flat or embossed panels.

KEY BENEFITS:

- Enhances the appearance of your sectional garage door
- Keeps your garage warm in winter/cool in summer
- Reduces noise
- Easy to clean smooth surfaces
- From single to multiple garage doors

Table 14.1

PRODUCT OPTIONS & SIZES

Polystyrene Panel Thickness	Thermal Resistance (R Value)	Pack Inclusions
28mm for Embossed Panel Garage Doors	0.65	8 x Polystyrene Insulation Panels, 8 x Plastic Corflute Door Liners, 1 x Tube of Glue 1 x Instruction Sheet
35mm for Flat Panel Garage Doors	0.85	8 x Polystyrene Insulation Panels, 8 x Plastic Corflute Door Liners, 1 x Tube of Glue 1 x Instruction Sheet

Product Notes:

- Specifically for sectional garage doors
- Kit insulates 1 single garage door / 5.76m^2
- Enhances the appearance of your garage door
- Double doors require 2 kits
- Panel and liner size 1200mm x 600mm

Table 14.2

PRODUCT PROPERTIES

Panel Thickness Polystyrene	**Thermal Resistance** (R Value)	**Pack Inclusions**
28mm for **Embossed** Panel Garage Doors	0.65	8 x Polystyrene Insulation Panels, 8 x Plastic Corflute Door Liners, 1 x Tube of Glue 1 x Instruction Sheet
35mm for **Flat** Panel Garage Doors	0.85	8 x Polystyrene Insulation Panels, 8 x Plastic Corflute Door Liners, 1 x Tube of Glue 1 x Instruction Sheet

DETERMINING THE PACK REQUIRED

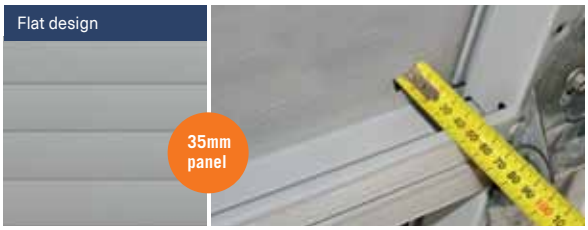
Embossed panel doors use 28mm and flat panels doors use 35mm

OPTION ONE: 28mm panel

Embossed panel design doors have a smaller depth for the panel to sit in. To allow for this place a ruler vertically against the protruding design and measure as shown in the photo (right); it should suit the 28mm product.

OPTION TWO: 35mm panel

Flat panel design doors generally have a deeper depth, measure this from the back of the panel to the front of the profile. This should suit the 35mm product.



INSTALLATION


Tools & materials


1. Cut


2. Fit


3. Finish

WARNING: The added weight of the insulation may affect the spring tension in your door. This may require adjustment by a qualified service technician. For your nearest service technician phone **EXPOL on 0800 86 33 73**

FURTHER INFORMATION

For further detailed information on all products refer page 34 or contact EXPOL 0800 86 33 73.
For Expanded Polystyrene Densities and Colour Coding refer page 35.

Quotes / Technical
E: **tech@expol.co.nz**

EXPOL Product Training
T: **0800 86 33 73**
www.expolexpert.co.nz

Website **www.expol.co.nz**

Contact EXPOL
T: **0800 86 33 73**
E: **sales@expol.co.nz**

EXPOL
Guaranteed Performance

SOLID INSULATION AND

EXPOL R1.4 White UnderFloor Insulation

A flame retardant, rigid, Expanded Polystyrene panel, designed to fit between the joists under a timber floor. The product offers excellent insulation values, can be installed easily, is resistant to moisture, and has no nutritional value for vermin, birds, or animals.

The panels are 1.2 metres in length and 60mm in thickness, and are produced in four standard widths to fit between most standard joists.

All panels are concertina cut on both sides to allow for a compression of up to 20mm for ease of installation, and are ideal for both retro-fit applications and new floors.

EXPOL UnderFloor is BRANZ Appraised and comes with a 50 year product warranty.
www.expol.co.nz
www.branz.co.nz/appraisals
www.miproducts.co.nz

EXPOL R1.8 Black UnderFloor Insulation

EXPOL BLACK has the same physical characteristic as EXPOL UnderFloor, and offers a greater insulation value with the addition of graphite infused into the raw material, hence the charcoal colour of the product.

EXPOL BLACK offers a superior R value for home owners who require the highest grade of insulation and warmth.
www.expol.co.nz
www.miproducts.co.nz
www.plasticsportalasia.net (see product info for NEOPOR)

EXPOL ThermaSlab

Expanded Polystyrene ThermaSlab sheet is available in a range of sizes and thicknesses, for insulating concrete slab floors, waterproof protection for block walls and roof insulation. ThermaSlab has excellent thermal properties, is water resistant, easy to cut and lightweight, making it the first choice when choosing insulation materials.
www.expol.co.nz
www.miproducts.co.nz

EXPOL Platinum Board

Platinum Board has the same physical characteristics as ThermaSlab, with the addition of graphite to the raw material. It is a superior material, offering supreme R values for maximum insulation for floors, walls, and roofs. Platinum Board comes in a range of sizes and thicknesses suitable for all applications.
www.expol.co.nz
www.miproducts.co.nz
www.plasticsportalasia.net (see product info for NEOPOR)

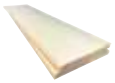
EXPOL Tuff Pods

Tuff Pods are Expanded Polystyrene blocks 1100mm or 1200mm square and between 200mm and 300mm thick. They are laid equally spaced separated by a plastic spacer, to create 100mm ribs of concrete. Steel reinforcing is laid between the Tuff Pods and around the perimeter before the concrete pad is poured over the entire area.

Tuff Pods provide a quick method for creating a concrete slab floor without the need to dig footings or build concrete block perimeters.
www.expol.co.nz

EXPOL StyroDrain

EXPOL StyroDrain is processed from 100% recycled Expanded Polystyrene, fused lightly to allow water to migrate easily through it. The material is cut into sheets which can be placed behind a block wall providing protection for water proofing, and to act as a drainage material for water to flow to the drain coil and away from the wall.
www.expol.co.nz
www.miproducts.co.nz



EXPOL-X

EXPOL–X is extruded rigid polystyrene foam (XPS).
It provides optimum insulation for high and low temperatures and reduces energy consumption.
EXPOL–X features a high compressive strength, low water absorption and outstanding thermal insulation.
www.expol.co.nz
www.miproducts.co.nz

EXPOL Garage Door Insulation Kit

EXPOL Garage Door Insulation Kit is easy to install and is designed to be used in single or multiple sectional garage doors. One pack will insulate a single garage door (5.762 sqm) and will fit either flat or embossed panels.
www.expol.co.nz

EXPOL Emperor Panel

EXPOL Emperor Panel is used in buildings or areas where specialised environments are required to provide efficiencies or create sterile and precise climate-controlled environments such as: Cool and cold stores, freezers, food processing units, supermarkets, leisure centres, laboratories, shopping malls, agribusinesses and wineries, conservatory roofs, portable insulated buildings.
www.expol.co.nz
www.miproducts.co.nz

EXPOL GeoFoam Lightweight Fill

GeoFoam is a lightweight material, manufactured from Expanded Polystyrene beads and moulded into blocks. Used on construction sites, roads, bridges, and other areas where soft substrates occur over a building site requiring lightweight fill.
For further information see our EXPOL GeoFoam Technical Manual or visit:
www.expol.co.nz
www.miproducts.co.nz

EXPOL QuickDrain

EXPOL QuickDrain's engineered drainage solution provides a scoria-free alternative to traditional scoria drainage solutions, cutting installation time in half. The QuickDrain solution incorporates a recycled polystyrene aggregate that provides enhanced drainage performance, strength, filtration and longevity.
www.expol.co.nz

miproducts
Details www.miproducts.co.nz

masterspec
Details www.masterspec.co.nz

Notes

Expanded Polystyrene Densities and Colour Coding

Grade	Density	Colour
SL	12kg/m3	Yellow
S	16kg/m3	Brown
M	20kg/m3	Black
H	24kg/m3	Green
VH	28kg/m3	Red

Quotes / Technical
E: tech@expol.co.nz

EXPOL Product Training
T: 0800 86 33 73
www.expolexpert.co.nz

Website www.expol.co.nz

Contact EXPOL
T: 0800 86 33 73
E: sales@expol.co.nz

EXPOL
Guaranteed Performance

EXPOL LTD
105 Captain Springs Road
Onehunga, Auckland
PO Box 13 560, Onehunga,
Auckland, New Zealand.

www.expol.co.nz

NEW ZEALAND
Auckland
Tauranga
Wellington
Blenheim
Christchurch
- Belfast
- Rolleston
Cromwell

AUSTRALIA
Sydney
Melbourne
Adelaide
Tasmania

Go NZ Business
NEW ZEALAND OWNED & MANUFACTURED
airpop® engineered air
6 EPS

Contact EXPOL
P: +64 9 634 3449
F: +64 9 634 0756
T: 0800 86 33 73
E: sales@expol.co.nz

Quotes / Technical
E: tech@expol.co.nz

EXPOL Product Training
T: 0800 86 33 73
www.expolexpert.co.nz

Website
www.expol.co.nz

ETD10/2020