

TECHNICAL PRODUCT GUIDE



solid insulation

lightweight construction

SOLID INSULATION AND LIGHTWEIGHT CONSTRUCTION SOLUTIONS

EXPOL supplies a range of products that provide solutions for insulation and lightweight construction, so you can focus on the things you do best.



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

The manufacturing of EXPOL products uses no CFC's or HCFC's. These products are so efficient they can save up to 200 times their own resource in thermal energy savings. EXPOL also runs one of the country's biggest EPS recycling plants, ensuring the sustainability of EPS building products.

EXPOL operates five facilities in New Zealand to ensure our customers get fast and reliable service at the lowest possible price. EXPOL also has manufacturing partners throughout Australia.



WHY SPECIFY EXPOL?



Insulation

EXPOL produces and supplies some of the country's most efficient insulation materials. Products include EPS which has a long established reputation for its exceptionally high insulation qualities. EXPOL Platinum Board (a variation of EPS) can achieve an insulation efficiency of 0.032 W/mK while EXPOL-X (XPS) boasts as much as 0.031 W/mK. All EXPOL products have been tested for thermal performance by a variety of institutions, including BRANZ, to ensure all products are manufactured to specification.

Rigid

EXPOL provides insulation solutions that cannot be achieved by other insulation products. Expanded Polystyrene (EPS) 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 in exposed timber floor situations without the need for lining. This is backed by a BRANZ appraisal and shows the advantages of rigid foam products.

Lightweight

EPS 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, EPS 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.

Sustainability Credentials

At every stage of its life cycle, from production to recovery or recycling, EPS 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 chemically and environmentally non-aggressive and it can be – and is – easily recycled into long-life products through an expanding nationwide network of collection points.

High Strength and Structural Stability

In spite of its lightweight, the unique matrix structure of EPS 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 infrastructures. Strength tests performed on EPS 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. EPS 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, EPS stability does not deteriorate with age.

Resistance to Water Ingress

After almost 30 years in the ground, samples of EPS 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 – performance notably superior to other foamed plastic materials.



RECYCLABLE



HIGH STRENGTH



FIRE RETARDANT



MOISTURE RESISTANT



100% NZ OWNED



BRANZ Appraised
Appraisal No.256

06

RETAINING WALLS

08

MASONRY WALL INSULATION

10

CONCRETE FLOOR INSULATION

12

CONCRETE FLOOR EDGE INSULATION

14

TIMBER FLOOR INSULATION

16

POD FLOOR SYSTEMS





18

SKILLION ROOF
INSULATION

20

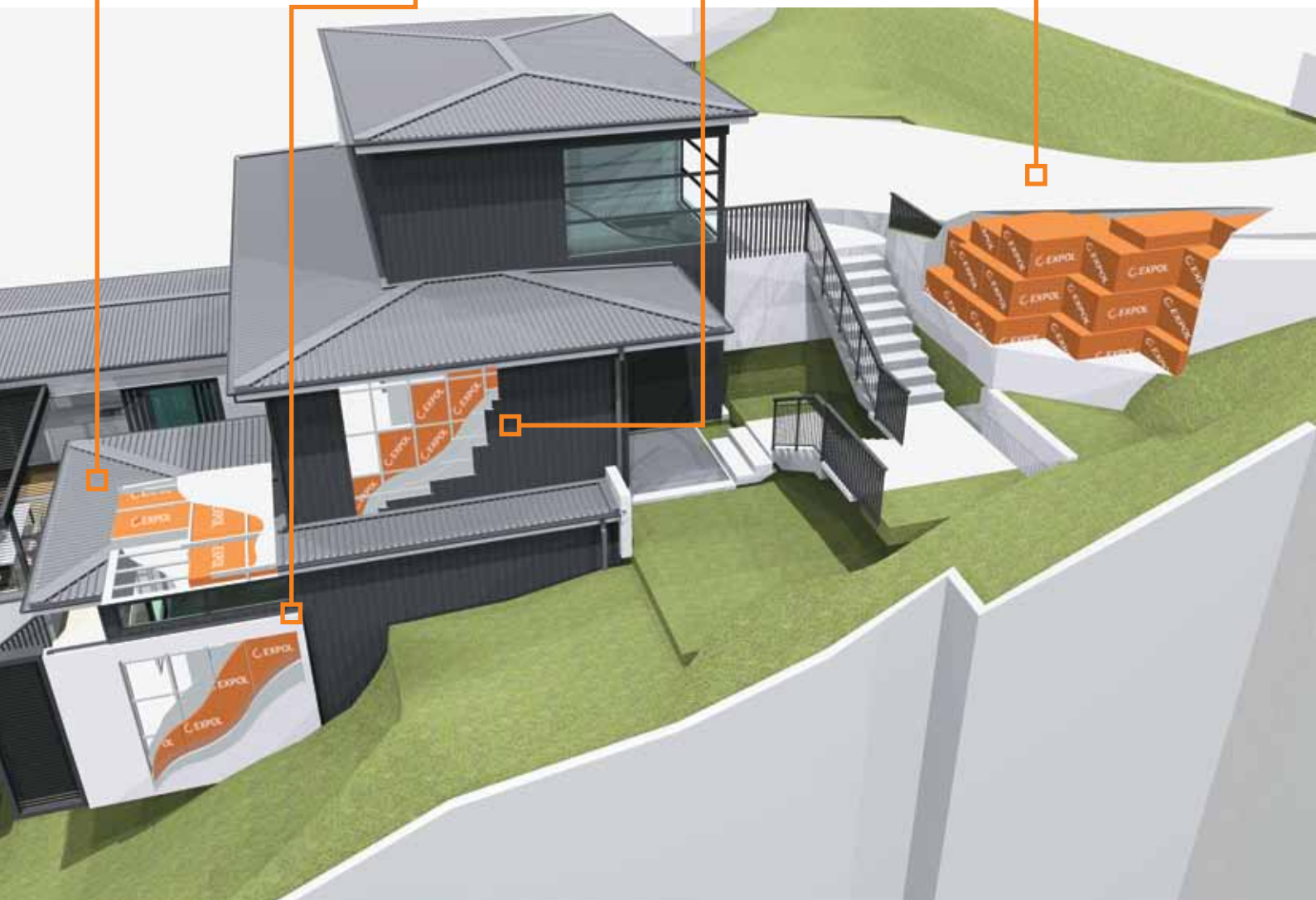
CLADDING
INSULATION

22

WALL
INSULATION

24

LIGHTWEIGHT
FILL



RETAINING WALLS

Membrane protection, drainage, insulation

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

For protection of the waterproof membrane when using gravel / scoria for drainage, EXPOL supplies **ThermaSlab** sheets in a range of thicknesses, but recommends 20mm or 40mm depending on the situation.

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

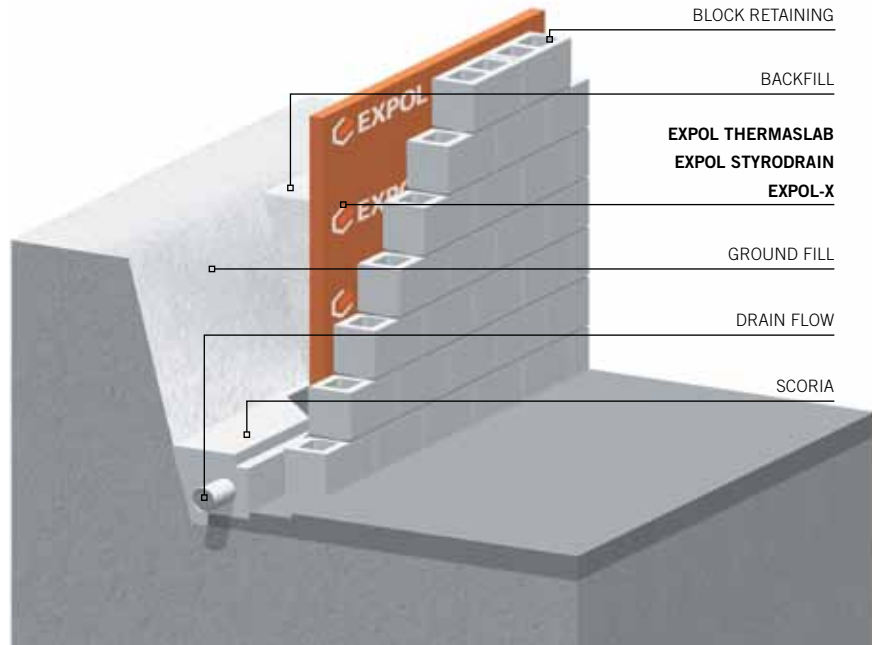


Table 1.1

PRODUCT OPTIONS & SIZES		Length (mm)	Width (mm)
EXPOL ThermaSlab S		2400	1200
		2450	1200
		2700	1200
		3600	1200
		4900	1200
		Special sizes on request	
EXPOL StyroDrain		1800	1200
EXPOL-X		2500	600

SYSTEM COMPONENTS

CONSTRUCTION ADHESIVE

EXPOL supplies a low solvent glue designed to adhere polystyrene to most surfaces. EXPOL retaining wall solutions can be glued in place using this adhesive as an alternative or in combination with other fixing methods.



THE PRODUCTS

EXPOL ThermaSlab (Protection) is standard EPS available in a range of thicknesses to suit the specific requirements. 20mm is common practice for most retaining walls, whereas 40mm is recommended when the retaining wall is higher than 1.2 metres or where the gravel / scoria will be more likely to damage the waterproof membrane.

EXPOL StyroDrain (Protection & Drainage)

is a permeable light-weight drainage material manufactured from 100% recycled EPS material, offering drainage, and protection to the waterproofing membrane used on retaining walls. A double layer of EXPOL StyroDrain may be required if the retaining wall is higher than 1.2 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-X (Protection & Insulation) is extruded polystyrene (XPS) available in full sheets only (see Table 1.1). Unlike some XPS products, EXPOL-X is manufactured without the use of harmful HCFC's. EXPOL-X is highly water resistant and has an extremely high compressive strength.

Table 1.2 Product Properties

Property	Unit	EXPOL StyroDrain	EXPOL ThermaSlab S	EXPOL-X	Test Reference
Material		EPS	EPS	XPS	
Density	kg/m ³	11	16	30	
Thickness / R Value	m ² /KW				AS 2464.5 or AS 2464.6
	20mm	-	R 0.53	-	
	25mm	-	R 0.66	-	
	30mm	-	R 0.79	R 0.81	
	40mm	-	R 1.05	R 1.48	
	50mm	-	R 1.32	R 1.85	
	60mm	-	R 1.58	-	
	70mm	-	R 1.84	-	
	80mm	-	R 2.11	-	
	90mm	n/a	R 2.37	-	
	100mm	-	R 2.63	-	
	110mm	-	R 2.89	-	
	120mm	-	R 3.16	-	
Compressive strength at 10% deformation (min)	KPA	-	85	250	AS 2498.3
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	-	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	%	100	0	0	
Rate of water vapour transmission (max) measured parallel to rise at 23°C	mg/m ² s	-	520	-	AS 2498.5
Permeability	m/s	4.18 x 10 ⁻³	-	-	
Long term water absorption by immersion	% v/v	-	-	0.2	DIN EN 12087

FURTHER INFORMATION

For further, detailed information on all of these products, refer to the product page on page 26 which provides links to product data sheets and technical brochures.

EXPOL StyroDrain has been tested by Opus International Consultants Ltd. OPUS INTERNATIONAL CONSULTANTS Job No. 169402.00 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 EPS EXPOL supplies for retaining wall solutions comply with manufacturing standard AS 1366 Part 3 1992.

MASONRY WALL INSULATION

EXPOL provides high performance, solid insulation solutions for insulating 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 and Retaining wall solutions for more exterior options.*

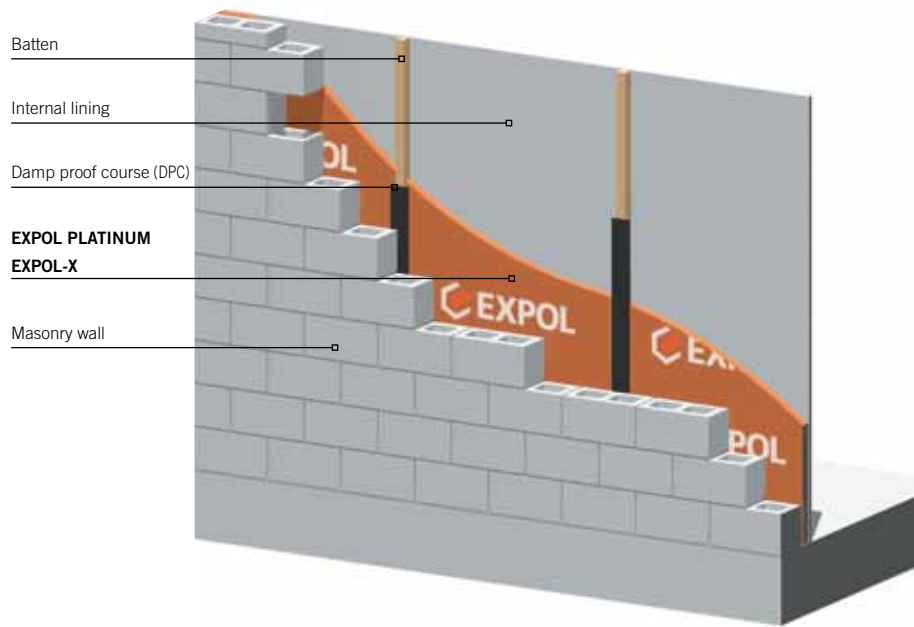
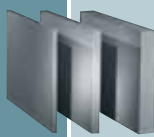



Table 2.1

PRODUCT OPTIONS & SIZES		Length (mm)	Width (mm)
EXPOL Platinum Board 		2400	1200
		2450	1200
		2700	1200
		3600	1200
		4900	1200
Special 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 EPS, 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). Unlike some XPS products, EXPOL-X is manufactured without the use of harmful HCFC's. EXPOL-X is highly water resistant and has an extremely high compressive strength.

SYSTEM COMPONENTS

WIRE GUARD

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



CONSTRUCTION ADHESIVE

EXPOL supplies a low solvent glue designed to adhere polystyrene to most surfaces. Masonry insulation panels can be glued in place using this adhesive as an alternative or in combination with other fixing methods.



Table 2.2 Product Properties

Property	Unit	EXPOL Platinum Board - interior	EXPOL-X - exterior	Test Reference
Material		EPS (with graphite)	XPS	
Density	kg/m3	18	30	
Thickness / R Value	m2KW			AS 2464.5 or AS 2464.6
	20mm	R 0.63	-	
	25mm	R 0.78	-	
	30mm	R 0.94	R 0.81	
	35mm	R 1.09	-	
	40mm	R 1.25	R 1.48	
	45mm	R 1.41	-	
	50mm	R 1.56	R 1.85	
	55mm	R 1.72	-	
	60mm	R 1.88	-	
	65mm	R 2.03	-	
	70mm	R 2.19	-	
	75mm	R 2.34	-	
	80mm	R 2.50	-	
	85mm	R 2.66	-	
	90mm	R 2.81	-	
	95mm	R 2.97	-	
	100mm	R 3.13	-	
	110mm	R 3.44	-	
	120mm	R 3.75	-	
Compressive strength at 10% deformation (min)	KPA	105	250	AS 2498.3
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	-	AS/NZS 1530.3:1999
- Smoke Developed Index (0-10)		5	-	
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
Long term water absorption by immersion	% v/v	-	0.2	DIN EN 12087

FURTHER INFORMATION

For further, detailed information on both of these products, refer to product information on page 26 which provides links to product data sheets and technical brochures.

MANUFACTURING STANDARD

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

CONCRETE FLOOR INSULATION

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

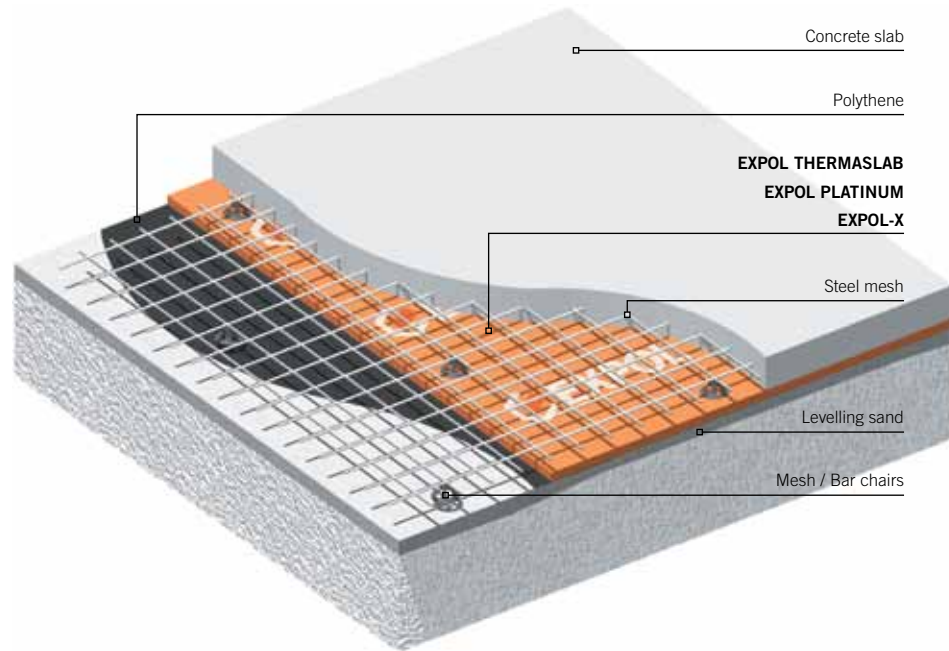


Table 3.1

PRODUCT OPTIONS & SIZES		Length (mm)	Width (mm)
EXPOL ThermaSlab (S, H, VH) 		2400	1200
		2450	1200
		2700	1200
		3600	1200
		4900	1200
Special sizes on request			
EXPOL Platinum Board 		2400	1200
		2450	1200
		2700	1200
		3600	1200
		4900	1200
Special 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 EPS 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). Unlike some XPS products, EXPOL-X is manufactured without the use of harmful HCFC's. EXPOL-X is highly water resistant and has an extremely high compressive strength. See Table 3.2 for specifications.

SYSTEM COMPONENTS

MESH / BAR CHAIRS 25/40

EXPOL supplies bar chairs for steel mesh support



EXPOL Pod Stick

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

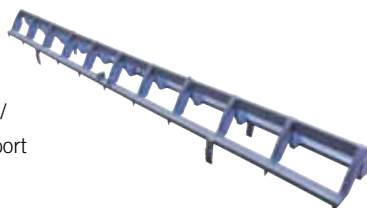


Table 3.2 Product Properties

Property	Unit	EXPOL ThermaSlab S	EXPOL ThermaSlab H	EXPOL ThermaSlab VH	EXPOL Platinum Board	EXPOL-X	Test Reference
Material		EPS	EPS	EPS	EPS (with graphite)	XPS	
Density	kg/m3	16	24	28	18	30	
Thickness / R Value	m2KW						AS 2464.5 or AS 2464.6
	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 0.94	R 0.81	
	40mm	R 1.05	R 1.11	R 1.14	R 1.25	R 1.48	
	50mm	R 1.32	R 1.39	R 1.43	R 1.56	R 1.85	
	60mm	R 1.58	R 1.67	R 1.71	R 1.88	-	
	70mm	R 1.84	R 1.94	R 2.00	R 2.19	-	
	80mm	R 2.11	R 2.22	R 2.29	R 2.50	-	
	90mm	R 2.37	R 2.50	R 2.57	R 2.81	-	
	100mm	R 2.63	R 2.78	R 2.86	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 strength at 10% deformation (min)	KPA	85	135	165	105	250	AS 2498.3
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	-	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	0	
Rate of water vapour transmission (max) measured parallel to rise at 23°C	mg/m2s	520	460	400	520	-	AS 2498.5
Long term water absorption by immersion	% v/v	-	-	-	-	0.2	DIN EN 12087

FURTHER INFORMATION

For further, detailed information on all of these products, refer to product information on page 26 which provides links to product data sheets and technical brochures.

MANUFACTURING STANDARD

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

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 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.

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

EXPOL supplies a low solvent glue designed to adhere polystyrene to most surfaces. EXPOL-X can be glued in place using this adhesive in combination with other fixing methods.

External Cladding

Battens with a cavity

Flashing

EXPOL-X

Plaster finishing coat

Mesh

Concrete floor edge



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).

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 only available in one size (see Table 4.1). Unlike some XPS products, EXPOL-X is manufactured without the use of harmful HCFC's. EXPOL-X is highly water resistant and has an extremely high insulation value.



Table 4.2 R-Values for a variety of flooring systems

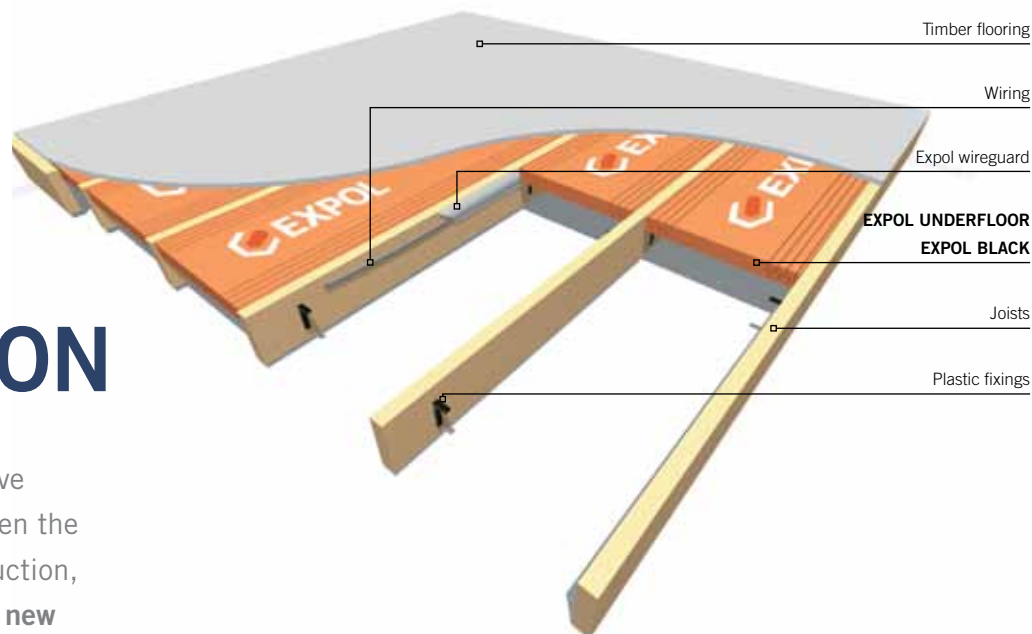
		Area-to-perimeter ratio						
		1.3	1.9	2.2	2.5	2.8	3.1	4.0
		Total construction R-Value						
Without edge insulation								
Slab on Ground	90mm deep wall frame	0.8	1.0	1.1	1.2	1.4	1.5	1.8
	140mm wall frame or 150mm masonry	0.8	1.1	1.2	1.3	1.5	1.6	1.9
	200mm masonry	0.9	1.2	1.3	1.4	1.5	1.7	2.1
	250mm 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


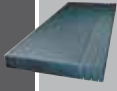
For further, detailed information on all of these products, refer to product information on page 26 which provides links to product data sheets and technical brochures.

TIMBER FLOOR INSULATION



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

Table 5.1

PRODUCT OPTIONS & SIZES		Length (mm)	Width (mm)
EXPOL UnderFloor 		1200	360
		1200	410
		1200	470
		1200	560
EXPOL BLACK 		1200	360
		1200	410
		1200	470
		1200	560

THE PRODUCTS

EXPOL timber floor insulation solutions are made from a fire retardant Expanded Polystyrene (EPS). In most situations floor insulation is exposed to the elements (as opposed to wall and ceiling insulation in a cavity) therefore, 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 UnderFloor Insulation is appraised by BRANZ and has a 50 year warranty.

SYSTEM COMPONENTS

WIRE GUARD

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



FIXINGS

Non corrosive nylon fixings with a stainless steel nail are used to fix EXPOL panels in place, designed to suit both new and existing floor installations.

CONSTRUCTION ADHESIVE

EXPOL supplies a low solvent glue designed to adhere polystyrene to most surfaces. UnderFloor panels can be glued in place using this adhesive as an alternative or in combination with the nylon fixings.

EXPOL UnderFloor is a rigid white panel manufactured from EPS material, 1200mm in length manufactured in four standard widths (see Table 5.1). This product is a proven solution for timber floor insulation and has been on the market for over 20 years.

EXPOL BLACK is graphite infused EPS supplied in the same sizes as the standard white UnderFloor insulation. EXPOL BLACK is a premium product which achieves superior R values.

Table 5.2 Product Properties

Property	Unit	EXPOL UnderFloor	EXPOL BLACK	Test Reference
Material		EPS	EPS	
Density	kg/m ³	12	18	
Thickness / R Value	m ² K/W			AS 2464.5 or
	60mm	R 1.40	R 1.80	AS 2464.6
	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/m ² s	630	520	AS 2498.5
Long term water absorption by immersion	% v/v	-	-	DIN EN 12087



BRANZ Appraised
Appraisal No.256

INSTALLATION

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

RECOGNISED INSTALLERS

EXPOL have installation partners throughout the country. Refer to our website for an installer near you or phone 0800 UnderFloor (863 373).

FURTHER INFORMATION

For further, detailed information on both of these products, refer to product information on page 26 which provides links to product data sheets and technical brochures.

SPECIFIERS, ARCHITECTS AND PLANNERS

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

BRANZ APPRAISAL

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

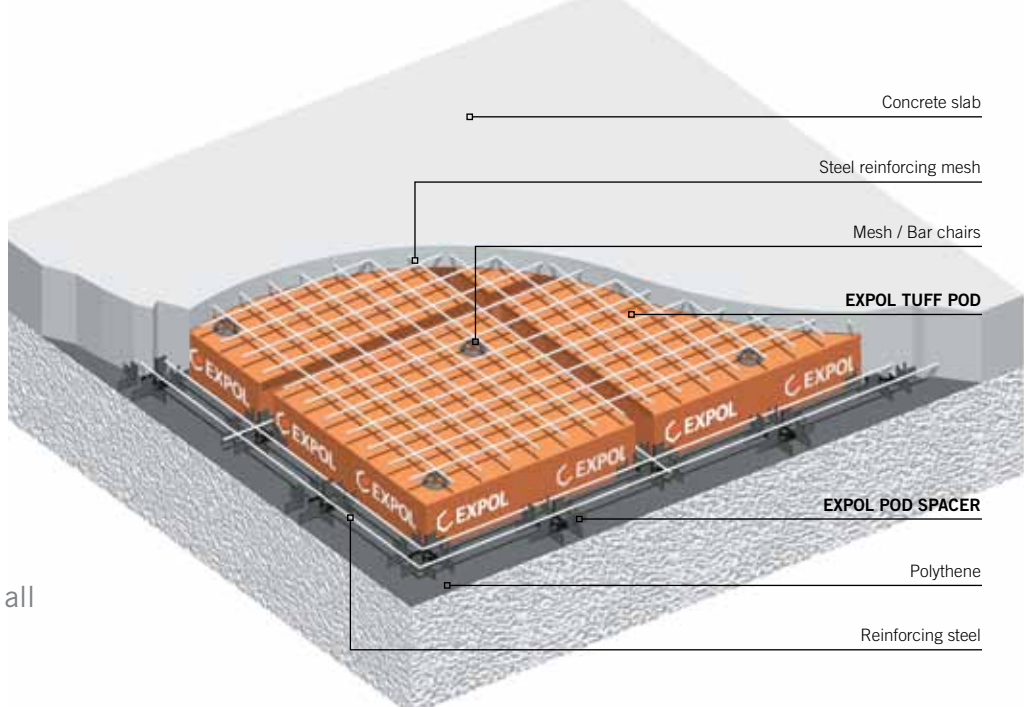
INSULATION STANDARD

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.

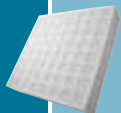
POD FLOOR SYSTEMS



EXPOL manufactures a variety of polystyrene **Tuff Pods** 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.

Table 6.1

PRODUCT OPTIONS & SIZES	Length (mm)	Width (mm)	Thickness (mm)
 Expol Tuff Pods	1100	1100	220
	1100	1100	300
	1200	1200	200
	1200	1200	300*
	1800	1200	200*

* Solid Pods only - not shape moulded

THE PRODUCTS

EXPOL Tuff Pods are manufactured from standard EPS 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.

SYSTEM COMPONENTS

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

EXPOL 100mm Spacer

only suitable for 220mm Tuffpod system



UNIMAX Spacer



EXPOL 300mm Spacer

only suitable for 220mm Tuffpod system



Wilton Joubert

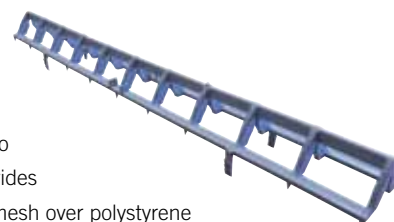
Spacer available on request

Mesh / Bar Chairs 25/40



EXPOL Pod Stick

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



STANDARD POD CONSTRUCTION DETAILS

Fig 6.1 Masonry Wall

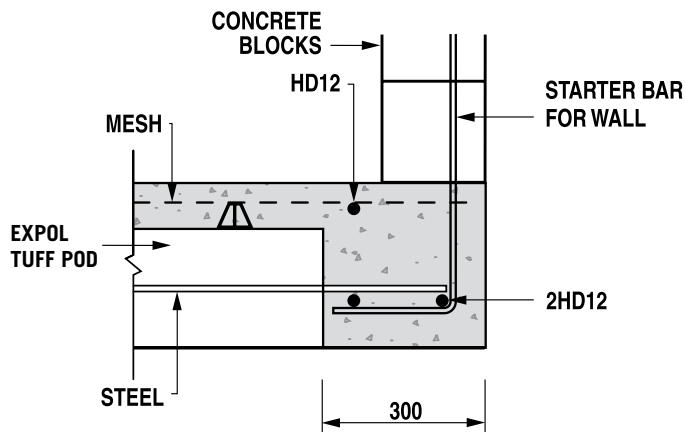


Fig 6.2 Timber Frame

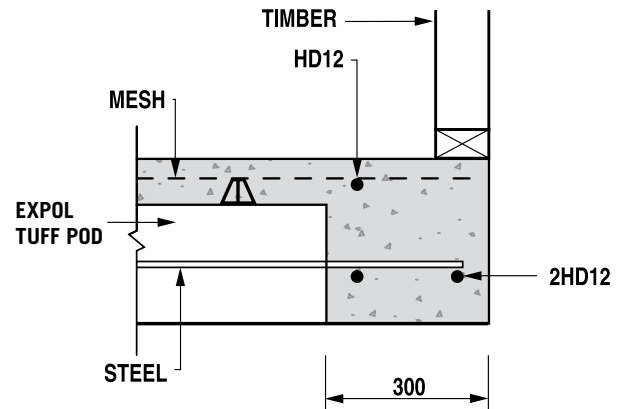


Fig 6.3 Brick Veneer

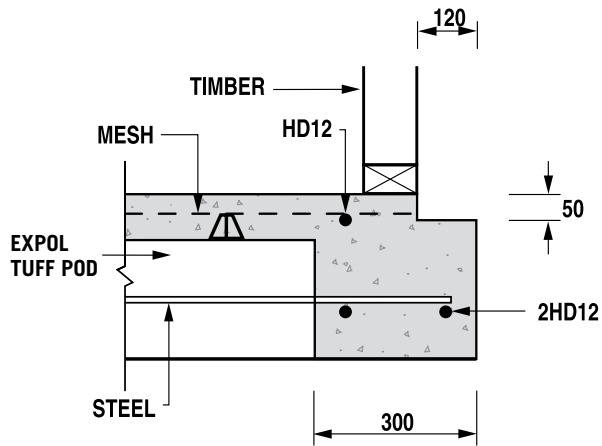


Fig 6.4 300mm Rib

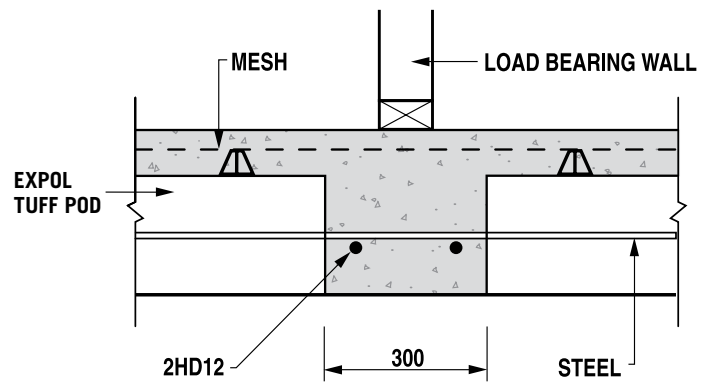
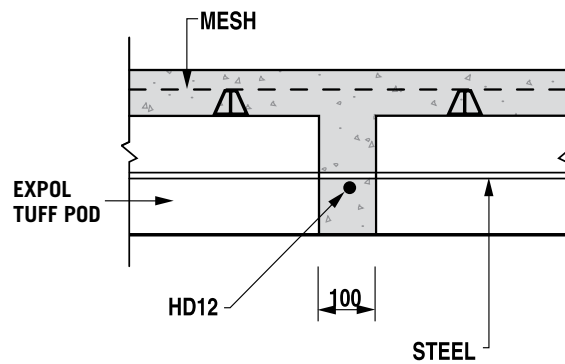


Fig 6.5 100mm Rib



FURTHER INFORMATION

For further, detailed information on all of these products, refer to product information on page 26 which provides links to product data sheets and technical brochures.

MANUFACTURING STANDARD

All products and grades of EPS supplied by Expol for Pod floors comply with manufacturing standard AS 1366 Part 3 1992.

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.

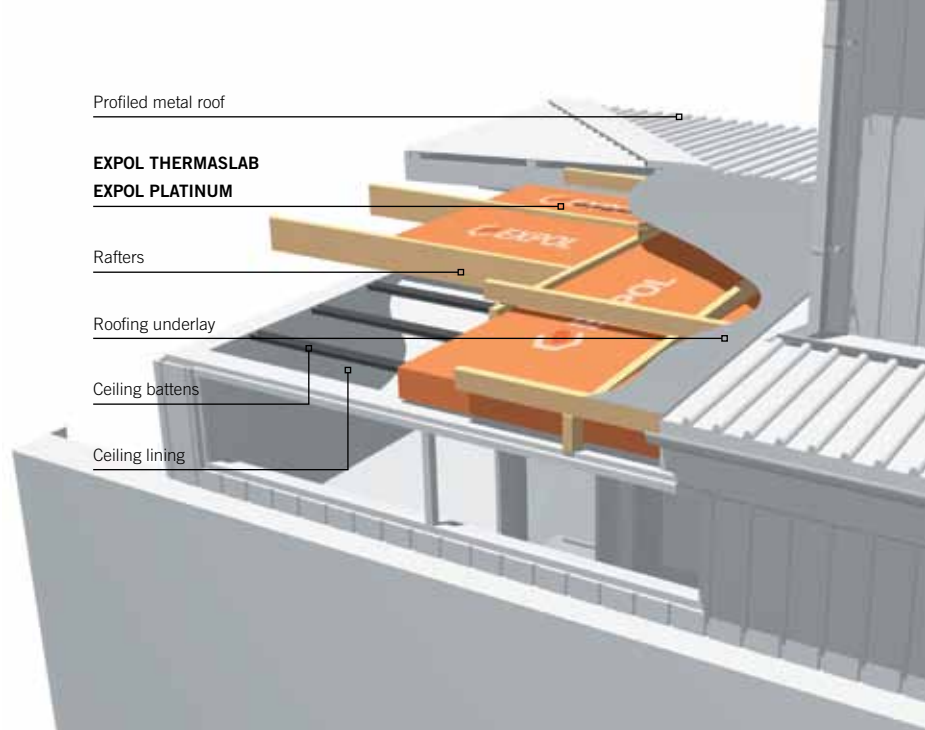
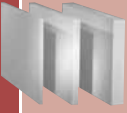
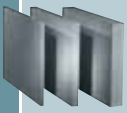


Table 7.1

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

All sizes above are examples of some standard situations
NOTE: Other widths available

THE PRODUCTS

EXPOL ThermaSlab is standard EPS 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 EPS, 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

WIRE GUARD

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



CONSTRUCTION ADHESIVE

EXPOL supplies a low solvent glue designed to adhere polystyrene to most surfaces. EXPOL skillion roof insulation panels can be glued in place using this adhesive.



Table 7.2 Product Properties

Property	Unit	EXPOL ThermaSlab S	EXPOL ThermaSlab M	EXPOL ThermaSlab H	EXPOL Platinum Board	Test Reference
Material		EPS	EPS	EPS	EPS (with graphite)	
Density	kg/m ³	16	20	24	18	
Thickness / R Value	m ² /KW					AS 2464.5 or
	20mm	R 0.53	R 0.54	R 0.56	R 0.63	AS 2464.6
	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 strength at 10% deformation (min)	KPA	85	105	135	105	AS 2498.3
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/m ² s	520	520	460	520	AS 2498.5
Long term water absorption by immersion	% v/v	-	-	-	-	DIN EN 12087

FURTHER INFORMATION

For further, detailed information on all of these products, refer to product information on page 26 which provides links to product data sheets and technical brochures.

MANUFACTURING STANDARD

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

CLADDING INSULATION

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

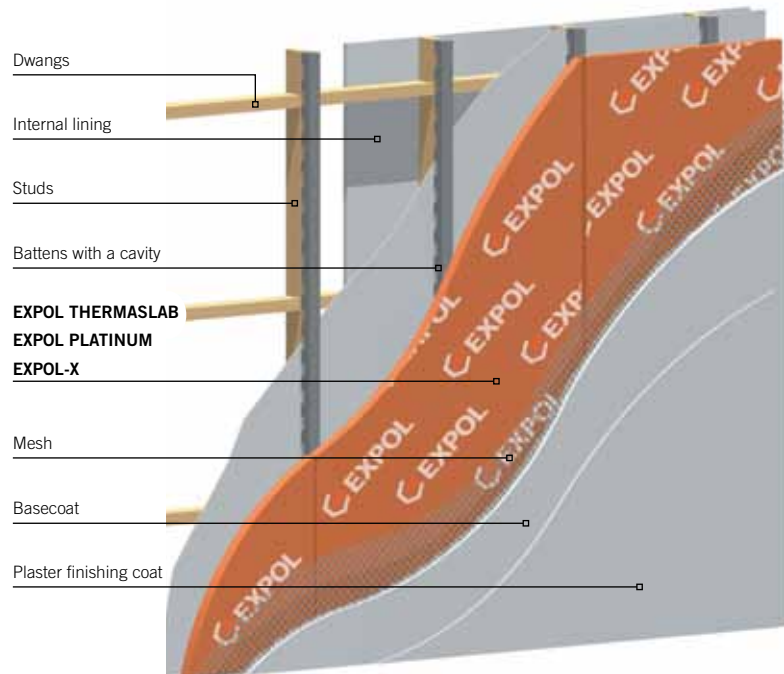


Table 8.1

PRODUCT OPTIONS & SIZES		Length (mm)	Width (mm)
EXPOL ThermaSlab (S, H) 		2400	1200
		2450	1200
		2700	1200
		3600	1200
		4900	1200
Special sizes on request			
EXPOL Platinum Board 		2400	1200
		2450	1200
		2700	1200
		3600	1200
		4900	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 EPS, 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) available in full sheets only (see Table 8.1). Unlike some XPS products, EXPOL-X is manufactured without the use of harmful HCFC's. EXPOL-X is highly water resistant and has an extremely high compressive strength.

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

EXPOL supplies a low solvent glue designed to adhere polystyrene to most surfaces. Cladding insulation sheets can be glued in place using this adhesive in combination with other fixing methods.



Table 8.2 Product Properties

Property	Unit	EXPOL ThermaSlab S	EXPOL ThermaSlab H	EXPOL Platinum Board	EXPOL Platinum Board H	EXPOL-X	Test Reference
Material		EPS	EPS	EPS (with graphite)	EPS (with graphite)	XPS	
Density	kg/m ³	16	24	18	24	30	
Thickness / R Value	m ² /KW						AS 2464.5 or
	20mm	R 0.53	R 0.56	R 0.63	R 0.65	-	AS 2464.6
	25mm	R 0.66	R 0.69	R 0.78	R 0.81	-	
	30mm	R 0.79	R 0.83	R 0.94	R 0.97	R 0.81	
	40mm	R 1.05	R 1.11	R 1.25	R 1.29	R 1.48	
	50mm	R 1.32	R 1.39	R 1.56	R 1.61	R 1.85	
	60mm	R 1.58	R 1.67	R 1.88	R 1.94	-	
	70mm	R 1.84	R 1.94	R 2.19	R 2.23	-	
	80mm	R 2.11	R 2.22	R 2.50	R 2.58	-	
	90mm	R 2.37	R 2.50	R 2.81	R 2.90	-	
	100mm	R 2.63	R 2.78	R 3.13	R 3.23	-	
	110mm	R 2.89	R 3.06	R 3.44	R 3.55	-	
	120mm	R 3.16	R 3.33	R 3.75	R 3.87	-	
Compressive strength at 10% deformation (min)	KPA	85	135	105	135	250	AS 2498.3
Cross breaking strength	KPA	165	260	200	260	-	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	0	
Rate of water vapour transmission (max) measured parallel to rise at 23°C	mg/m ² s	520	460	520	460	-	AS 2498.5
Long term water absorption by immersion	% v/v	-	-	-	-	0.2	DIN EN 12087

FURTHER INFORMATION

For further, detailed information on all of these products, refer to product information on page 26 which provides links to product data sheets and technical brochures.

PRODUCERS STATEMENT

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

MANUFACTURING STANDARD

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

WALL INSULATION

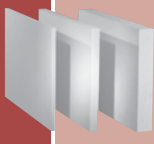
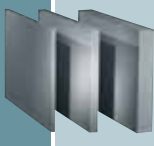
EXPOL provides high performance solid insulation solutions for insulating timber and steel framed buildings.

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.



Table 9.1

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

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 EPS material and are available in various thicknesses - (see Table 9.2)

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

SYSTEM COMPONENTS

WIRE GUARD

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



HOT KNIFE

EXPOL stock a hot knife to simplify installation. With a maximum blade length of 200mm this tool improves accuracy and reduces the time to install EXPOL products.



Table 9.2 Product Properties

Property	Unit	EXPOL ThermaSlab SL	EXPOL Platinum Board	Test Reference
Material		EPS	EPS (with graphite)	
Density	kg/m3	12	18	
Thickness / R Value	m2K/W			AS 2464.5 or AS 2464.6
	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 2.65	
	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 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 1530.3:1999
- Smoke Developed Index (0-10)		5	5	
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	-	-	DIN EN 12087

FURTHER INFORMATION

For further, detailed information on all of these products, refer to product information on page 26 which provides links to product data sheets and technical brochures.

MANUFACTURING STANDARD

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

LIGHTWEIGHT FILL

Expanded Polystyrene (EPS) 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.

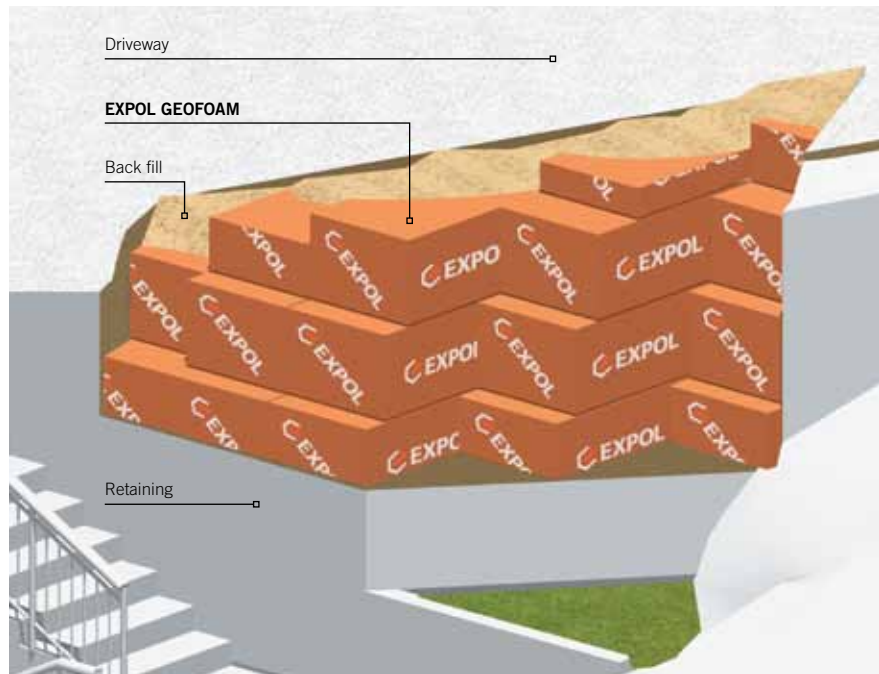


Table 10.1

PRODUCT OPTIONS & SIZES	Length (mm)	Width (mm)	Thickness (mm)
EXPOL GeoFoam	2450	1220	620
(SL, S, M, H, VH)	4900	1220	620

Any size can be cut from these blocks

THE PRODUCT

EXPOL GeoFoam is manufactured from standard EPS 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 28kg/m³. EXPOL GeoFoam will absorb small volumes of water, however this will not have a significant effect on its mechanical properties or performance.

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

EPS 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.

Table 10.2 **Product Properties**

Property	Unit	EXPOL GeoFoam SL	EXPOL GeoFoam S	EXPOL GeoFoam M	EXPOL GeoFoam H	EXPOL GeoFoam VH	Test Reference
Material		EPS	EPS	EPS	EPS	EPS	
Density	kg/m3	12	16	20	24	28	
Compressive strength at 10% deformation (min)	KPA	70	85	105	135	165	AS 2498.3
Cross breaking strength	KPA	135	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	630	520	520	460	400	AS 2498.5



EXPOL GeoFoam as lightweight fill under a concrete floor

FURTHER INFORMATION

For further, detailed information on EXPOL GeoFoam's properties and applications, refer to product information on page 26 which provides links to product data sheets and technical brochures.

PRODUCERS STATEMENT

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

MANUFACTURING STANDARD

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

FURTHER TECHNICAL RESEARCH

Product Resources - www.expol.co.nz/pdfs/EPSTechnicalData.pdf



EXPOL UnderFloor

A flame retardant, rigid, Expanded Polystyrene (EPS) 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

EXPOL BLACK

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.plasticsportalasia.net (see product info for NEOPOR)

EXPOL ThermaSlab

EPS 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

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.plasticsportalasia.net (see product info for NEOPOR)

EXPOL Tuff Pods

Tuff Pods are EPS blocks 1100mm or 1200mm square and between 200mm and 300mm in thickness. 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 EPS, 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

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.plasticsportalasia.net (see product info for STYRODUR)

EXPOL GeoFoam

GeoFoam is a lightweight material, manufactured from EPS 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.

www.expol.co.nz

www.expol.co.nz/pdfs/EPSTGeofoamApplications&TechnicalData.pdf



RECYCLABLE



HIGH STRENGTH



FIRE RETARDANT



MOISTURE RESISTANT



100% NZ OWNED



BRANZ Appraised
Appraisal No.256



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