

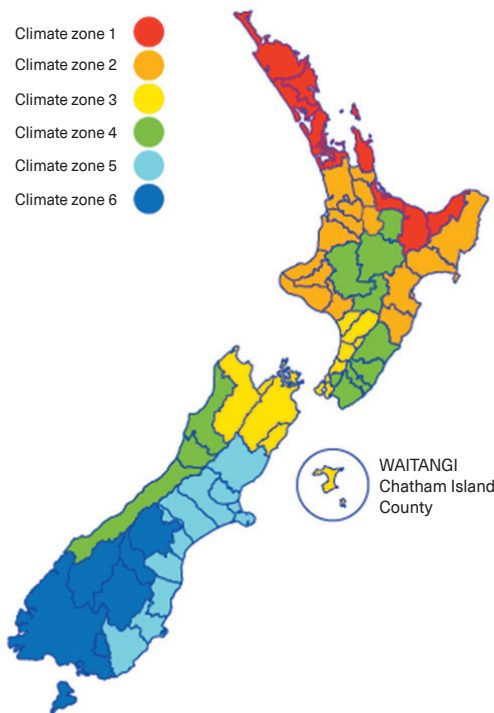
CONCRETE FLOOR INSULATION SOLUTIONS

EXPOL has a range of solutions to help you comply with the New Zealand Building Code. The H1 Clause has been updated and came into effect 1st May 2023.

The update to Clause H1 aims to help make new buildings warmer, drier and healthier and therefore reduce the energy and environmental impact needed to heat them. The changes are the biggest energy efficiency updates to the acceptable solutions and verification methods in more than a decade.

The H1 Clause of the Building Code regulates the energy efficiency of the built environment – covering wall, floor and ceiling insulation, as well as the thermal performance of windows and doors. There are major increases in thermal performance requirements across the building envelope, indicated through higher construction R-values for different building elements.

New Climate Zones and required construction R-values.



	Climate Zone					
	1	2	3	4	5	6
Minimum from 1 May 2023 (for Housing)						
Unheated slab floors	R1.5			R1.6		R1.7
Heated slab floors	R2.5		R2.8		R3.0	

Please note these construction R-values relate to foundation slabs that are less than 300m².

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



CONTENTS

EXPOL Solutions:

Standard Slab on Grade

SLABX200 for Slab on Grade	4
SLABX200 + Edge Insulation for Slab on Grade	4
Slab on Grade Construction R-value Table	5

Standard Pod Floor

Tuff Pods + EXPOL Edge Insulation for Pod Floors	6
Tuff Pods + SLABX200 for Pod Floors	6
Tuff Pods + SLABX200 for Pod Floors + EXPOL Edge Insulation	6
Standard Pod Floor Construction R-value Table	7

High Performance Slab

MAXRaft / MAXSlab Construction R-value Table	8
MAX85	9
MAXRaft	9
MAXRaft Plus	9
MAXSlab	9

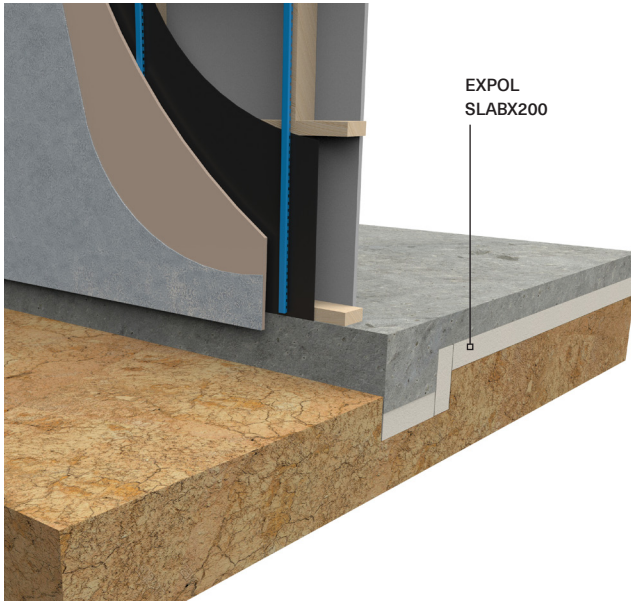
EXPOL Products:

MaxEdge	10
ThermaSlab Edge	10
SLABX200	11
Tuff Pods	11

EXPOL PRODUCT MATRIX

with approximate range of expected construction R-values.

	SLAB ON GRADE	POD FLOORS
GOOD	<ul style="list-style-type: none"> ● SLABX200 <p>Construction R-values R1.5 – R2.5</p>	<ul style="list-style-type: none"> ● Tuff Pods + Edge Insulation ● Max85 <p>Construction R-values R1.29 – R2.48</p>
BETTER	<ul style="list-style-type: none"> ● SLABX200 + Edge Insulation <p>Construction R-values R1.64 – R3.69</p>	<ul style="list-style-type: none"> ● Tuff Pods + SLABX200 <p>Construction R-values R1.64 – R3.35</p>
BEST	<ul style="list-style-type: none"> ● MAXSlab <p>Construction R-values R2.77 – R5.25</p>	<ul style="list-style-type: none"> ● Tuff Pods + Edge Insulation + SLABX200 ● MAXRaft ● MAXRaft PLUS <p>Construction R-values R1.82 – R4.17</p>



SLABX200 for Slab on Grade Floors

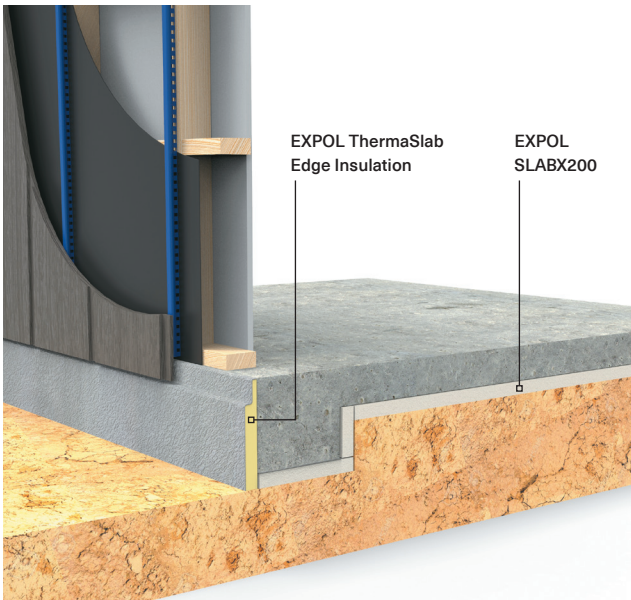
SLABX200 is EXPOL's new generation high performance Expanded Polystyrene Board specifically designed to deliver high compressive strength and improve insulation under concrete slabs.

It delivers an uncompromised compressive strength of 200kPa @ 10% deformation and exceptional insulation values. Specifically engineered for residential and commercial projects, its high performance gives engineers and specifiers peace of mind while increasing the thermal performance of a building.

See P11 for more details on **SLABX200**.



Edge Insulation



SLABX200 for Slab on Grade Floors

SLABX200 is EXPOL's new generation high performance Expanded Polystyrene Board specifically designed to deliver high compressive strength and improve insulation under concrete slabs.

See P11 for more details on **SLABX200**.

EXPOL Edge Insulation for Slab on Grade Floors

MAXEdge and **EXPOL ThermaSlab Edge** won't degrade over time, meaning thermal insulation performance is maintained for the life of the building. **EXPOL** concrete floor edge insulation is suitable for both residential and commercial building projects.

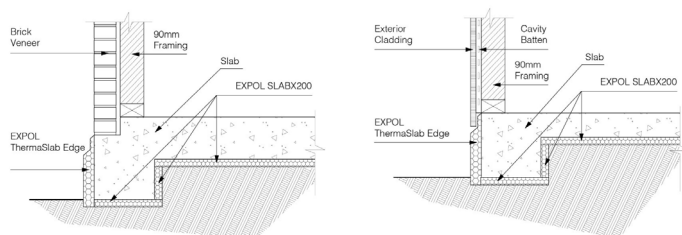
See P10 for more details on **MAXEdge** and **EXPOL ThermaSlab Edge**.



Slab on Grade Insulation Solutions with EXPOL SLABX200 & Edge Insulation for Slabs less than 300m² 26/10/23

Ratio	50mm SLABX200	85mm SLABX200	50mm SLABX200 Under Slab Insulation	75mm SLABX200 Under Slab Insulation	100mm SLABX200 Under Slab Insulation	120mm SLABX200 Under Slab Insulation
	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing	plus	plus	plus	plus
			R1.0 ThermaSlab Edge or R1.0 MAXEdge Insulation	R1.0 ThermaSlab Edge or R1.0 MAXEdge Insulation	R1.0 ThermaSlab Edge or R1.0 MAXEdge Insulation	R1.0 ThermaSlab Edge or R1.0 MAXEdge Insulation
Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing
1	0.90	1.00	1.23	1.39	1.50	1.65
1.2	1.00	1.10	1.37	1.50	1.69	1.84
1.4	1.10	1.20	1.50	1.63	1.88	2.03
1.6	1.20	1.30	1.64	1.78	2.08	2.23
1.8	1.30	1.40	1.77	1.91	2.28	2.43
2	1.40	1.50	1.91	2.04	2.47	2.62
2.2	1.50	1.60	2.00	2.18	2.59	2.74
2.4	1.50	1.70	2.09	2.31	2.71	2.86
2.6	1.60	1.80	2.18	2.45	2.82	2.97
2.8	1.70	1.90	2.27	2.59	2.94	3.09
3	1.80	2.00	2.36	2.73	3.05	3.20
3.2	1.90	2.10	2.44	2.82	3.15	3.30
3.4	2.00	2.20	2.52	2.90	3.25	3.40
3.6	2.10	2.30	2.60	2.99	3.35	3.50
3.8	2.20	2.40	2.68	3.08	3.44	3.59
4	2.30	2.50	2.76	3.17	3.54	3.69
4.2	2.40	2.60	2.83	3.25	3.63	3.78
4.4	2.50	2.70	2.91	3.33	3.72	3.87
4.6	2.60	2.80	2.98	3.42	3.81	3.96
4.8	2.70	2.90	3.05	3.50	3.90	4.05
5	2.80	3.00	3.13	3.58	3.99	4.14

To download PDF & DWG cad files visit: www.expol.co.nz



Need a hand calculating your Area to Perimeter Ratio?

Simply divide the area of the slab (in m²)
by the perimeter of the slab (in m).
This will give you Area to Perimeter Ratio.

For example if your Slab Area is 100m² and
your Slab Perimeter is 40m then your
Area to Perimeter Ratio will be 100/40 = 2.5



The R-value tables above have been calculated in accordance with Verification Method H1/VM2 Appendix F, please note these tables relate to concrete floors that are less than 300m². Note the above table are thermally engineered, it is important that a structural engineer approves the use of the products provided in the table on each foundation to ensure bearing loads are acceptable.

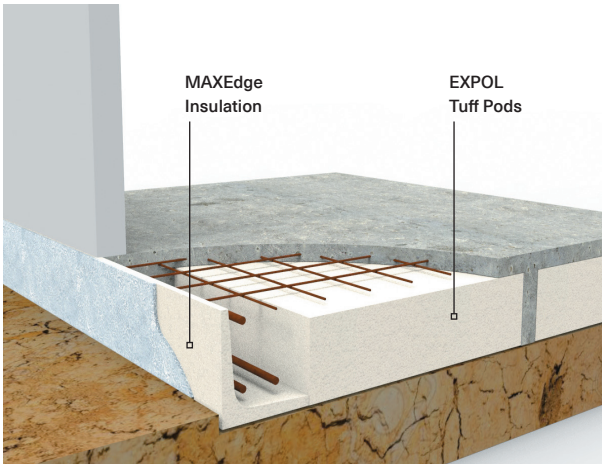
The recommended solution in this pdf document can be used as part of a Building Consent application however, EXPOL Ltd accepts no liability for Building Code compliance or thermal performance of the house or building. EXPOL Ltd also accepts no liability through misrepresentation or improper use of this Construction R-value table to obtain or prove Building Code compliance.

**Scan the code for
more information**

www.expol.co.nz/concrete-floor-edge-insulation



Tuff-POD + Edge Insulation



EXPOL Tuff Pods for Standard Pod Floors

EXPOL Tuff Pods are extremely strong expanded polystyrene (EPS) blocks designed to provide a quick method for creating a concrete slab floor without the need to dig footings or build concrete block perimeters.

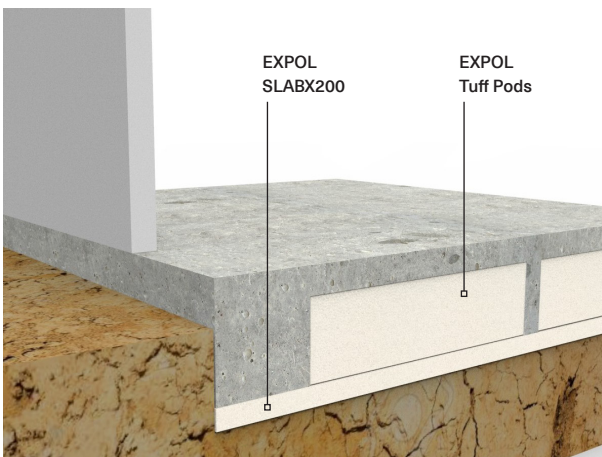
See P11 for more details on EXPOL Tuff Pods.

EXPOL Edge Insulation for Standard Pod Floors

MAXEdge and EXPOL ThermaSlab Edge won't degrade over time, meaning thermal insulation performance is maintained for the life of the building. EXPOL concrete floor edge insulation is suitable for both residential and commercial building projects.

See P10 for more details on MAXEdge and EXPOL ThermaSlab Edge.

Tuff-POD + **SLABX200**
EXPANDED POLYSTYRENE BOARD



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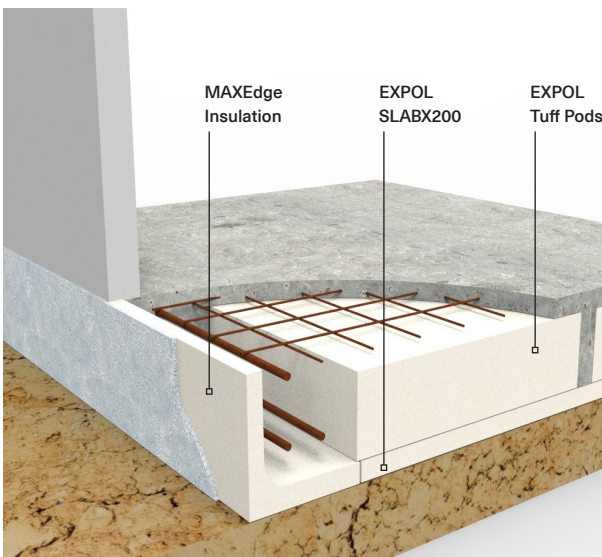
See P11 for more details on EXPOL Tuff Pods.

SLABX200 for Standard Pod Floors

SLABX200 is EXPOL's new generation high performance Expanded Polystyrene Board specifically designed to deliver high compressive strength and improve insulation under concrete slabs.

See P11 for more details on SLABX200.

Tuff-POD + **SLABX200**
EXPANDED POLYSTYRENE BOARD
+ Edge Insulation



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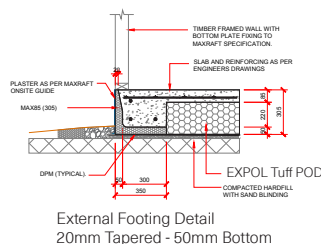
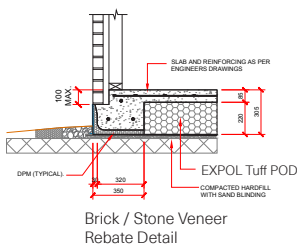
See P10 for more details on MAXEdge and EXPOL ThermaSlab Edge.



Waffle Pod Floor H1 Construction R-value Solutions for Slabs less than 300m2 26/10/23

Ratio	220mm & 300mm Pod Floor with EXPOL Tuff Pods	220mm & 300mm Pod Floor with ThermaSlab Edge or MAXEdge R1.0 Edge Insulation	220mm & 300mm Pod Floor with 50mm SLABX200 Under Slab Insulation	220mm & 300mm Pod Floor with 75mm SLABX200 Under Slab Insulation	220mm & 300mm Pod Floor with 100mm SLABX200 Under Slab Insulation	220mm & 300mm Pod Floor with 120mm SLABX200 Under Slab Insulation	220mm & 300mm Pod Floor with 150mm SLABX200 Under Slab Insulation	220mm & 300mm Pod Floor with 50mm SLABX200 Under Slab Insulation	220mm & 300mm Pod Floor with 75mm SLABX200 Under Slab Insulation	220mm & 300mm Pod Floor with 100mm SLABX200 Under Slab Insulation
	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing	Construction R-Value width 90mm - 140mm Framing
1	-	1.01	1.23	1.29	1.33	1.37	1.40	1.33	1.39	1.43
1.2	-	1.10	1.36	1.44	1.50	1.55	1.60	1.50	1.54	1.60
1.4	-	1.20	1.50	1.59	1.67	1.73	1.80	1.65	1.69	1.77
1.6	1.20	1.29	1.64	1.75	1.84	1.90	1.97	1.82	1.85	1.94
1.8	1.30	1.38	1.78	1.91	2.01	2.07	2.16	1.99	2.01	2.11
2	1.30	1.48	1.91	2.06	2.17	2.25	2.35	2.15	2.16	2.27
2.2	1.40	1.56	2.02	2.18	2.30	2.39	2.50	2.25	2.28	2.40
2.4	1.50	1.63	2.12	2.29	2.43	2.52	2.64	2.36	2.39	2.53
2.6	1.60	1.71	2.23	2.41	2.55	2.66	2.79	2.46	2.51	2.65
2.8	1.70	1.79	2.33	2.53	2.68	2.80	2.94	2.56	2.63	2.78
3	1.70	1.87	2.44	2.64	2.81	2.93	3.09	2.66	2.74	2.91
3.2	1.80	1.94	2.53	2.74	2.92	3.04	3.21	2.75	2.84	3.02
3.4	1.90	2.01	2.62	2.84	3.03	3.16	3.33	2.84	2.94	3.13
3.6	2.00	2.08	2.71	2.94	3.13	3.27	3.45	2.93	3.04	3.23
3.8	2.00	2.16	2.80	3.04	3.24	3.38	3.57	3.02	3.14	3.34
4	2.10	2.23	2.89	3.14	3.35	3.50	3.70	3.10	3.24	3.45
4.2	2.20	2.30	2.98	3.23	3.44	3.59	3.80	3.19	3.33	3.54
4.4	2.30	2.37	3.05	3.31	3.53	3.68	3.88	3.28	3.41	3.63
4.6	2.30	2.44	3.14	3.40	3.63	3.80	4.01	3.36	3.50	3.73
4.8	2.40	2.51	3.22	3.49	3.72	3.90	4.12	3.44	3.59	3.82
5	2.50	2.58	3.30	3.58	3.82	4.01	4.24	3.52	3.68	3.92

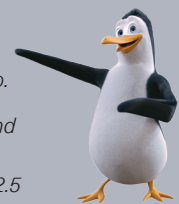
To download PDF & DWG cad files visit: www.expol.co.nz



Need a hand calculating your Area to Perimeter Ratio?

Simply divide the area of the slab (in m²) by the perimeter of the slab (in m). This will give your Area to Perimeter Ratio.

For example if your Slab Area is 100m² and your Slab Perimeter is 40m then your Area to Perimeter Ratio will be 100/40 = 2.5



The R-value tables above have been calculated in accordance with Verification Method H1/VM2 Appendix F, please note these tables relate to concrete floors that are less than 300m2. Please note the above table are thermally engineered, it is important that a structural engineer approves the use of the products provided in the table on each foundation to ensure bearing loads are acceptable.

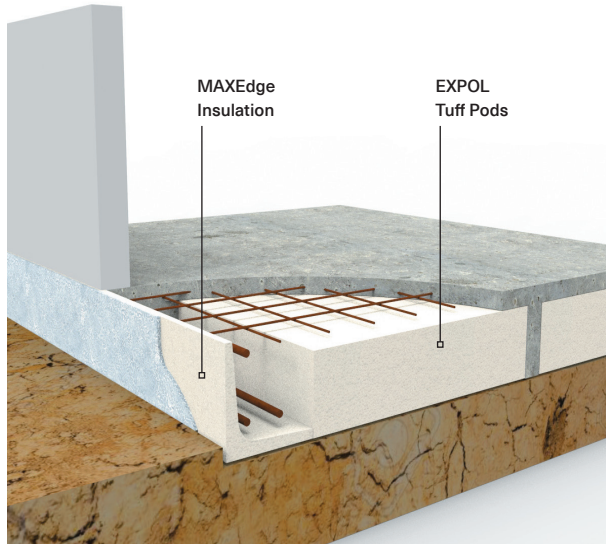
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Scan the code for more information

www.expol.co.nz/concrete-floor-edge-insulation



EXPOL MAXRaft®



The **EXPOL MAXRaft** comprehensive suite of systems delivers uncompromised performance for residential and commercial projects.

With Waffle Pod foundations becoming a preferred building method, **EXPOL** has multiple solutions to increase the insulation of a standard Waffle Pod Floor design.

We offer **EXPOL MAX85**, **EXPOL MAXRaft** and **EXPOL MAXRaft Plus+** to suit your build.


If your project requires the very best Concrete Slab Insulation, then high performing **EXPOL MAXSlab** will provide the solution. This engineered design encases the entire slab with insulation providing a superior thermal performance.

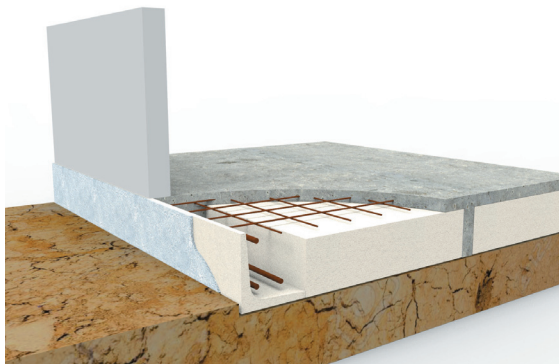
EXPOL MAXRaft Construction R-value Summary

Product	Area-to-perimeter ratio									
	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.6	4
1. MAXSlab 300	2.77	2.99	3.22	3.38	3.54	3.7	3.86	4.02	4.49	4.81
2. MAXSlab 350	2.96	3.25	3.53	3.69	3.85	4.01	4.17	4.33	4.87	5.23
3. MAXSlab 400	2.89	3.17	3.45	3.65	3.84	4.04	4.23	4.43	4.92	5.25
4. MAXSlab 300 Brick Rebate	2.27	2.48	2.68	2.83	2.99	3.14	3.29	3.44	3.95	4.29
5. MAXRaft 320	1.86	1.97	2.07	2.16	2.25	2.33	2.42	2.5	2.74	2.9
6. MAXRaft 320	1.68	1.81	1.93	2.01	2.1	2.18	2.27	2.35	2.59	2.74
7. MAXRaft 320 Brick	1.62	1.73	1.85	1.93	2.02	2.11	2.2	2.29	2.53	2.69
8. MAXRaft 400 Brick	1.56	1.68	1.79	1.87	1.96	2.05	2.14	2.23	2.46	2.62
9. MAX85 305	1.46	1.54	1.62	1.7	1.77	1.85	1.92	2	2.21	2.36
10. MAX85 385	1.52	1.62	1.72	1.8	1.88	1.96	2.03	2.11	2.33	2.48
11. MAXRaft Plus+ 320	2.38	2.54	2.7	2.86	3.02	3.18	3.35	3.51	3.81	4.02
12. MAXRaft Plus+ 400	2.44	2.62	2.81	2.97	3.13	3.29	3.46	3.62	3.95	4.17
13. MAXRaft Plus+ 320 Brick	2.18	2.38	2.59	2.71	2.83	2.95	3.07	3.19	3.5	3.71
14. MAXRaft Plus+ 400 Brick	2.11	2.29	2.47	2.6	2.73	2.86	2.99	3.12	3.57	3.87




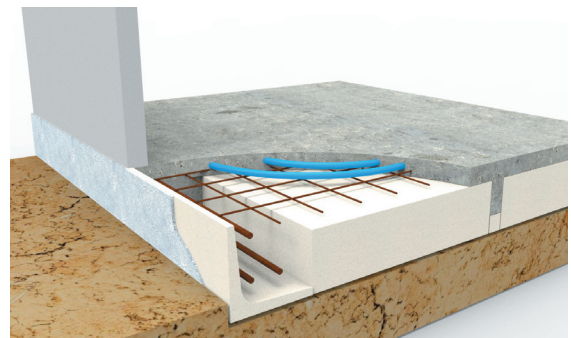
THE PRODUCTS

 **EXPOL MAX85** is a traditional waffle slab design with a high-density polystyrene edge profile. In most instances **MAX85** will meet the requirements of the NZ building code.




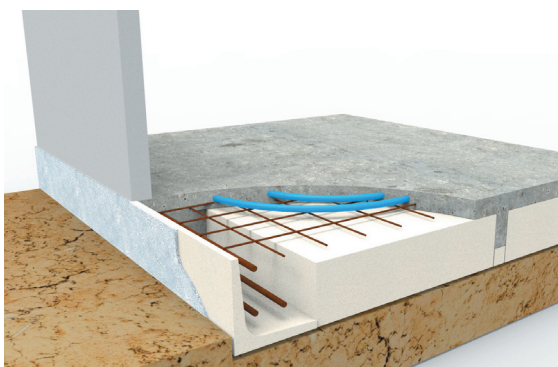
Heights | 305mm / 385mm
● Bespoke options available

 **EXPOL MAXRaft** is usually a thicker concrete slab than **Max85** to incorporate a high-density polystyrene insulation beneath the concrete ribs. This provides superior insulation benefits that easily meets the requirements of the NZ building code.




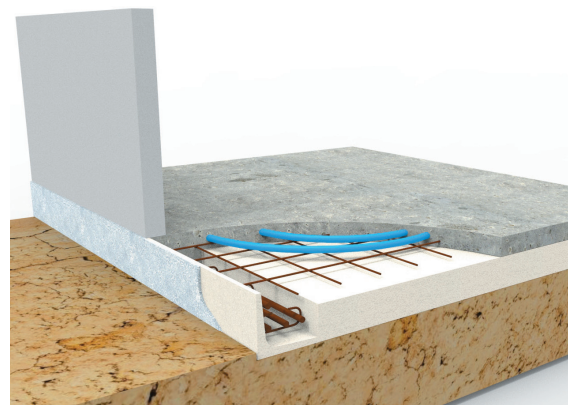
Slab Heights | 320mm / 340mm / 400mm / 420mm
● Bespoke heights available

 **EXPOL MAXRaft Plus** adds even more insulation than the standard **MAXRaft** design. Solid PODS made from recycled polystyrene substantially increase the thermal performance of the concrete slab. This solution is required when underfloor heating is used, or high insulation values are required on soft ground.



Slab Heights | 320mm / 340mm / 400mm / 420mm
● Bespoke heights available

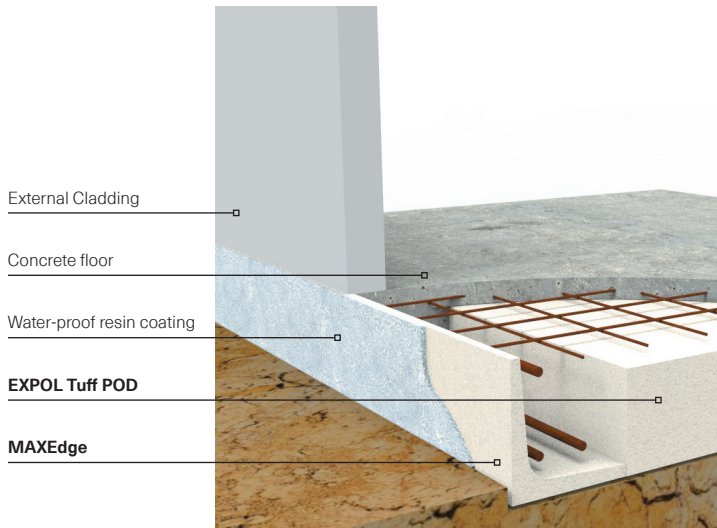
 **EXPOL MAXSlab** is the highest performing solution on good ground. The entire slab is encased in high performance polystyrene insulation providing the most effective solution for a concrete slab design.



Heights | 300mm / 320mm / 350mm / 400mm
● Bespoke options available

MAXEdge®

Patented Technology



EXPOL's range of concrete floor (slab) edge insulation products provide thermal insulation and strength where it counts. Up to 10% of heat loss from a building is through the concrete slab. A building with slab edge insulation provides a warm, dry and healthy indoor environment for occupants, and reduces heating and cooling costs.

Compared to other insulation, EPS offers superior resistance to the ingress of water. Samples of EPS retrieved after 30 years in the ground showed less than 1% water content by volume. Boards periodically submerged over the same amount of time showed less than 4% water content.

MAXEdge won't degrade over time, meaning thermal insulation performance is maintained for the life of the building. EXPOL concrete floor edge insulation is suitable for both residential and commercial building projects.

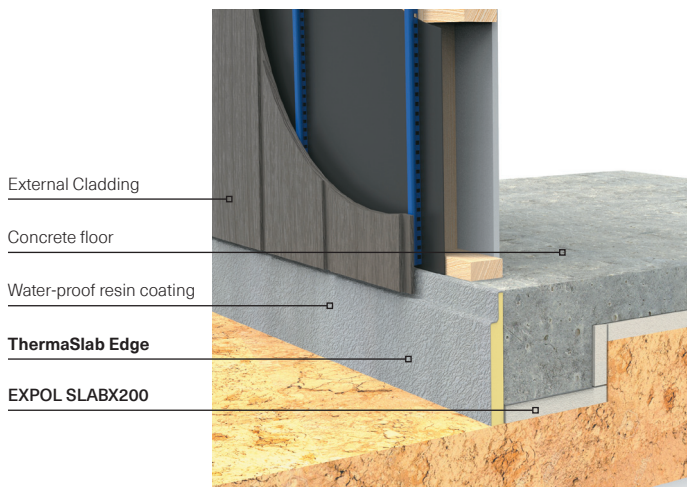
BENEFITS:

- MAXEdge is a simple solution for your concrete slab perimeter that exceeds H1 requirements
- Standard heights: 305, 320, 340, 385, 400 & 420mm to suit any raft slab, bespoke heights are available
- MAXEdge perimeter insulation comes in lengths of 2.4m
- Fast and Easy: Pre-made L-shaped perimeter insulation that fits inside the formwork
- MAXEdge perimeter insulation is also available in pre-made corners of 600 x 600mm
- Suitable with any frame size

HIGH PERFORMANCE SLAB EDGE INSULATION SYSTEM

PRE-COATED - With a water-proof resin coating that does not require painting, saving time and money.

CLEAN INSULATION - Also available as clean insulation, requiring plastering after the concrete pour.



THERMASLAB/EDGE

SLAB EDGE INSULATION

ThermaSlab Edge is EXPOL's new generation Slab Edge Insulation System specifically designed to meet new Building Code standards for Concrete Slab Insulation.

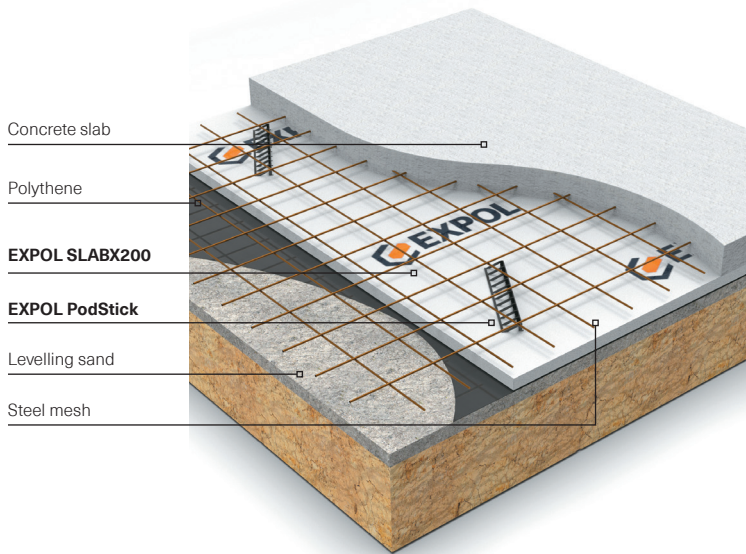
ThermaSlab Edge is suitable for retrofit applications. Specifically, engineered for residential and commercial projects, it's high performance gives engineers and specifiers peace of mind while increasing the thermal performance of the building.

ThermaSlab Edge's durable nature means it will not degrade over time, keeping its integrity for the life of the structure.

BENEFITS:

- Increases the thermal performance of a building
- Designed to meet new H1 standards
- High water resistance
- A simple, cost-effective slab edge insulation system
- No painting required, saving time and money
- Lightweight and easy to handle
- Exceptional insulation values

SLABX200



SLABX200 is EXPOL's new generation high performance Expanded Polystyrene Board specifically designed to deliver high compressive strength and improve insulation under concrete slabs.

It delivers an uncompromised compressive strength of 200kPa @ 10% deformation and exceptional Insulation Values. Specifically engineered for residential and commercial projects, its high performance gives engineers and specifiers peace of mind while increasing the thermal performance of a building.

EXPOL – SLABX200's durable nature means it will not degrade over time keeping its integrity for the life of the structure.

BENEFITS:

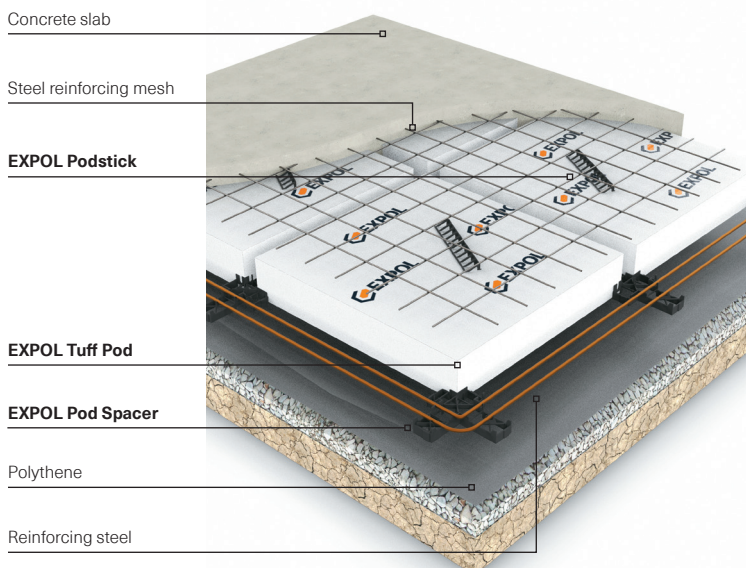
- Uncompromised compressive strength 200kPa @ 10% deformation
- Exceptional Insulation Values
- High water resistance
- Lightweight and easy to handle
- Various thicknesses from 50mm to 600mm
- SLABX200 waste is actively recycled into other EXPOL products



At EXPOL we've made a commitment to the environment and take responsible manufacturing seriously. We are focused on a true closed-loop recycling process – 75% of the products (by volume) we make use recycled content, and we have plans and concepts in place to do even better.

Scan the code for more information

www.expolearth.co.nz



Tuff-POD

EXPOL Tuff Pods are extremely strong expanded polystyrene (EPS) blocks designed to provide a quick method for creating a concrete slab floor without the need to dig footings or build concrete block perimeters.

Suitable for all raft or floating pod floor systems used in New Zealand, EXPOL Tuff Pods reduce preparation work, construction time and concrete needed for foundations.

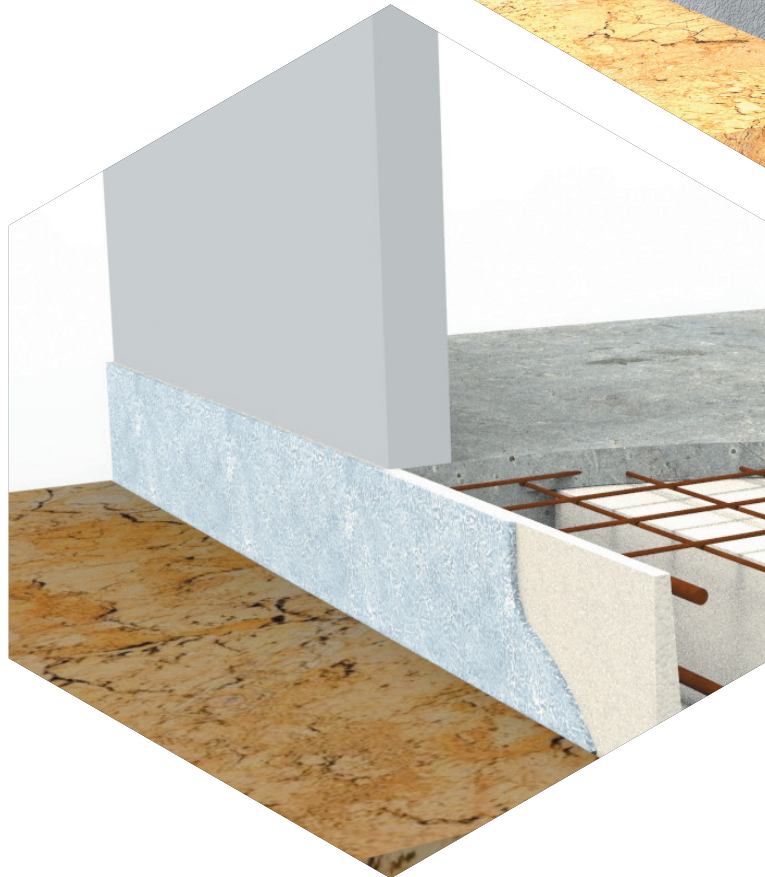
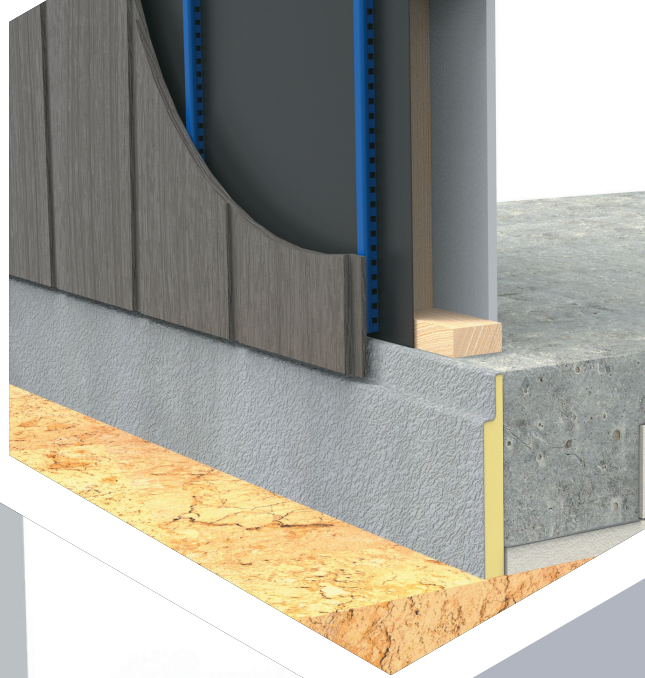
Used to create 100mm concrete ribs throughout concrete floors.

Made from environmentally safe expanded polystyrene (EPS), EXPOL Tuff Pods help reduce the energy consumption of a building by protecting the concrete floor from heat loss.

Using EXPOL Tuff Pods significantly reduces slab construction time. This insulation method is suitable for barrowed or pumped concrete.

BENEFITS:

- Strong & Lightweight
- Quick to install
- No need to dig footings or build concrete block perimeters
- Superior insulating qualities
- A variety of sizes to suit specific designs



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Learn about our recycling initiatives



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