

# Extensions & Refurb

Meeting  $0.18\text{W/m}^2\text{K}$   
in Cavity Walls

Our solutions to Regulations  
Part L Volume 1 Dwellings  
Conservation of fuel & power  
in existing dwellings



# The Issue

On 15th June 2022, the revised Part L to the Building Regulations came into force in England. This is supported by new ADL (ADL 2021).

U-Value  
**0.18 W/m<sup>2</sup>K**

This publication relates to the guidance given in Approved Document L Dwellings Volume 1 : Conservation of fuel and power regarding existing dwellings.

A target U-Value of 0.18 W/m<sup>2</sup>K is now required as indicated in Part L - Dwellings Volume 1, Building regulations when building new walls for:

- Elements in extensions to existing dwellings
- New or replacement elements in existing dwellings

**Table 4.2** Limiting U-Values for new fabric elements in existing dwellings

Element Type	Maximum U-Value(1) W/(m <sup>2</sup> K)
Roof(2)	0.15
<b>Wall(2)(3)</b>	<b>0.18</b>
Floor(4)(5)	0.18

# Your Options

Your insulation choice is dependent on space restrictions, the block type used and the exposure to wind driven rain. These factors will determine your insulation choice for the overall wall thickness and performance. High performance foam insulation will meet the new regulation requirements within a maximum 150mm cavity where traditional fibrous insulation materials don't.

## Unilin Insulation Solutions to 0.18W/m<sup>2</sup>K

					Block Lambda				Total Cavity Width
					0.15	0.31	0.57	1.13	
Insulation	Product Code	Type	Residual Cavity	U-Value (W/m²K)					
CavityTherm 110mm	CT/PIR 110	Full Fill	5mm	0.16	0.17	0.17	0.18	110mm	
CavityTherm 125mm	CT/PIR 125	Full Fill	5mm	0.15	0.15	0.15	0.16	125mm	
Cavity Wall Plus T&G 90mm	XT/CWP T&G	Partial Fill	50mm	0.17	0.17	0.18	0.18	140mm	
Xtroliner Cavity Wall T&G 90mm	XO/CW T&G	Partial Fill	50mm	0.17	0.17	0.18	0.18	140mm	
Safe-R Cavity Wall 100mm	SR/CW	Partial Fill	50mm	0.15	0.16	0.16	0.16	150mm	
Thin-R Cavity Wall 100mm	XT/CW	Partial Fill	50mm	0.16	0.17	0.17	0.17	150mm	

## Traditional fibrous insulation materials to achieve a 0.18W/m<sup>2</sup>K U-Value

					Block Lambda		
					0.31	0.57	1.13
Insulation	Type	Thickness (Cavity Width)					
Fibrous Insulation (0.037 W/mK)	Full Fill	180mm*	185mm*	190mm*			
Fibrous Insulation (0.032 W/mK)	Full Fill	160mm*	165mm*	165mm*			

\*Calculation based on 5 wall ties per m<sup>2</sup> for cavity width greater than 150mm. Engineers calculations for cavity width greater than 150mm should be sought.

## Your choice of block matters!

The Concrete block Association gives advice on the thermal performance of different types of blocks. Your choice will impact on the thickness of insulation needed to meet the new targets. We have given results based on four different block types from Aerated to Dense. The calculations are based on a dot and dab finish to the inside. You can see the issue of very wide cavities being required if choosing fibre type insulation products. Wider cavities may mean bigger and more wall ties that will affect the overall U-Value.

Contact our Unilin Insulation Technical Support for bespoke calculations.

# The Solution

Build to a cavity width of either:

## Full Fill Option

Required Cavity width

**110mm**  
Cavity

Using **CavityTherm**

**125mm**  
Cavity

Using **CavityTherm** to  
achieve Passive U-Values

### CAVITYTHERM

U-Value =  
0.15 to 0.18 W/m<sup>2</sup>K



## Partial Fill Options

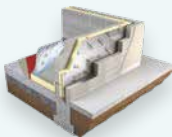
Required Cavity width

**140mm**  
Cavity

Using **Cavity Wall  
Plus (T&G)** or **XtroLiner  
Cavity Wall (T&G)**

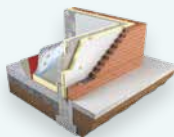
### CAVITY WALL PLUS (T&G)

U-Value = 0.17 to 0.18 W/m<sup>2</sup>K



### XTROLINER CAVITY WALL (T&G)

U-Value = 0.17 to 0.18 W/m<sup>2</sup>K

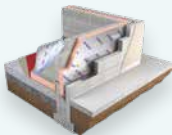


**150mm**  
Cavity

Using **Safe-R Cavity Wall**  
or **Thin-R Cavity Wall**

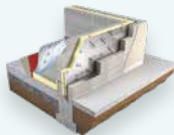
### SAFE-R CAVITY WALL

U-Value = 0.15 to 0.16 W/m<sup>2</sup>K



### THIN-R CAVITY WALL (T&G)

U-Value = 0.16 to 0.17 W/m<sup>2</sup>K



A SINGLE SOLUTION FOR ALL BLOCK TYPES WITHIN A: **110MM CAVITY**

# CAVITYTHERM

BUILT IN FULL FILL  
WALL INSULATION

Unilin Insulation CavityTherm wall insulation board is a high performance composite board of PIR core with a lambda value of 0.021W/mK.

The boards have gas tight facings with one face bonded to a profiled HIPS skin during manufacture to provide a drainage plane.



- ✓ Engineered HIPs facer provides wind driven rain protection
- ✓ Moisture redirected to outer surface
- ✓ Prepositioned slots for sloping wall ties - no creep
- ✓ Fully engineered jointing - no reliance on taping
- ✓ Full range of accessory pieces build continuous system
- ✓ Excellent thermal bridging values

Cavity Type	100mm Full Fill	110mm Full Fill
Airspace	5mm	5mm
Block Thickness	100mm	100mm
Dot & Dab Plasterboard	✓	✓

## U-Value

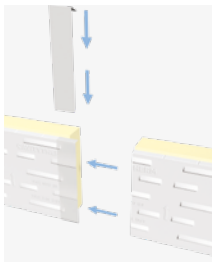
Aerated 0.15	<b>0.18</b>	<b>0.16</b>
Medium 0.31	<b>0.18</b>	<b>0.17</b>
Medium 0.57	<b>X 0.19*</b>	<b>0.17</b>
Dense 1.13	<b>X 0.19*</b>	<b>0.18</b>

\*X does not meet the target value of 0.18





✓ Integral Rain Barrier



✓ Jointing Strip



✓ Service Void Panels



✓ Preformed Corner Panels



✓ Hockey Stick Insulation



✓ Cavity Tray Channel

**0.15**  
**W/m<sup>2</sup>K**

125mm Full Fill CavityTherm  
will achieve Passive and  
Future Home Standard  
U-Value of 0.15W/m<sup>2</sup>K



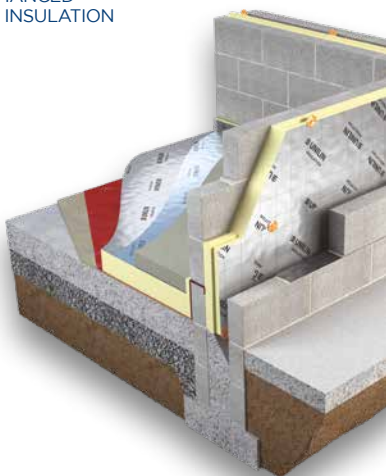
A SINGLE SOLUTION FOR ALL BLOCK TYPES WITHIN A: **140MM CAVITY**

# THIN-R PLUS ENHANCED PIR INSULATION

## XT/CWP T&G

Unilin Insulation Cavity Wall Plus XT/CWP Tongue and Groove builds to a system thanks to its engineered tongue and grooved joints and pre-formed corners, ensuring insulation continuity and minimisation of thermal bridging.

The Cavity Wall Plus Tongue and Groove jointing offers a practical on-site solution that results in a more robust continuous layer of insulation, minimising the threat of thermal bridging and improving the overall U-Value of the wall.



- ✓ Improved Lambda Value of 0.021 W/mK
- ✓ Robust Tongue & Groove Jointing
- ✓ Corner Panels & Cavity Closers: Reduced Thermal Bridging
- ✓ Clear Cavity Maintained
- ✓ No Exposure Restrictions

Cavity type      140mm Partial Fill

Airspace      50mm

Insulation Thickness      90mm

### U-Value

Aerated 0.15      **0.17**

Medium 0.31      **0.17**

Medium 0.57      **0.18**

Dense 1.13      **0.18**





# XTROLINER<sup>®</sup> SUPERIOR PERFORMANCE PIR INSULATION

## XO/CW T&G

XO/CW Tongue and Groove is an innovative partial fill wall cavity insulation system incorporating robust facings, engineered jointing details, preformed corners and a certified lambda of 0.021 W/mK.

Unilin Insulation XO/CW Tongue and Groove jointing offers a practical on-site solution that results in a more robust continuous layer of insulation, minimising the threat of thermal bridging and improving the overall U-value of the wall.



- ✓ Engineered Jointing
- ✓ Corner Panels & Cavity Closers: Reduced Thermal Bridging
- ✓ Clear Cavity Maintained
- ✓ Lower Lambda Value for Improved U-Values
- ✓ Robust Textured Foil

Cavity type      140mm Partial Fill

Airspace      50mm

Insulation Thickness      90mm

### U-Value

Aerated 0.15      **0.17**

Medium 0.31      **0.17**

Medium 0.57      **0.18**

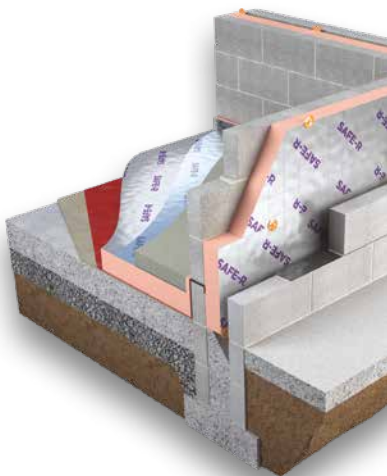
Dense 1.13      **0.18**

A SINGLE SOLUTION FOR ALL BLOCK TYPES WITHIN A: **150MM CAVITY**

## **SAFE-R** PHENOLIC INSULATION

### **SR/CW**

Safe-R SR/CW Partial Fill cavity insulation for traditional masonry walls, achieves excellent U-Values whilst maintaining a residual cavity, offering protection from wind driven rain.



- ✓ Phenolic Insulation
- ✓ Euroclass D -s1, d0 Fire Classification
- ✓ Clear Cavity Maintained
- ✓ Lower Lambda values for improved U-Values

Cavity type      150mm Partial Fill

Airspace      50mm

Insulation Thickness      100mm

#### **U-Value**

Aerated 0.15      **0.15**

Medium 0.31      **0.16**

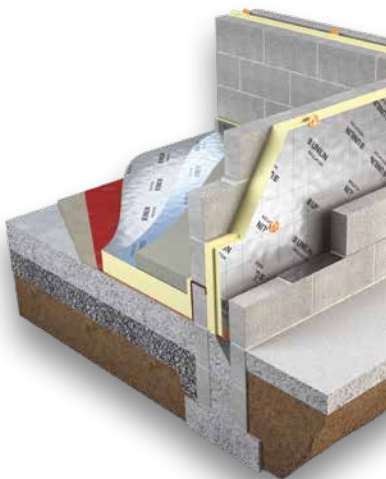
Medium 0.57      **0.16**

Dense 1.13      **0.16**

# THIN-R<sup>PIR</sup> INSULATION

## XT/CW (T&G)

Thin-R Partial Fill Cavity Wall (T&G) builds to a system thanks to its engineered tongue and grooved joints and pre-formed corners, ensuring insulation continuity and minimisation of Thermal Bridging.



XT/CW is available with a straight edge board finish.

- ✓ Robust Tongue & Groove Jointing
- ✓ Corner Panels & Cavity Closers: Reduced Thermal Bridging
- ✓ Clear Cavity Maintained
- ✓ No Exposure Restrictions
- ✓ Low Emissivity Foil Facings

Cavity type	150mm Partial Fill	
Airspace	50mm	50mm
Insulation Thickness	90mm	100mm

### U-Value

Aerated 0.15	<b>0.17</b>	<b>0.16</b>
Medium 0.31	<b>0.18</b>	<b>0.17</b>
Medium 0.57	<b>0.18</b>	<b>0.17</b>
Dense 1.13	<b>X 0.19</b>	<b>0.17</b>

\*X does not meet the target value of 0.18



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