



# R-WALL<sup>®</sup>

Insulating Concrete Formwork

## The Future of Building



[www.r-wall.co.uk](http://www.r-wall.co.uk) 01288 337377

R-WALL Ltd: Registered in England & Wales No. 11524972; VAT Registration No. 336792862; Registered Office: Week Orchard, Marhamchurch, Bude, Cornwall, EX23 0HT.

# R-WALL Modernising the way we Build

## What is R-WALL?

R-WALL is a New Insulated Concrete Formwork (ICF) build system. Outer layers of R-Board (Extruded polystyrene XPS) are bound together by R-Rails and R-Ties. Courses are formed to desired height and the shuttered cavity is filled with concrete and allowed to set. The resulting monolithic structure is then ready for render or cladding systems to be applied externally and plasterboard application/ first fix services internally.

**R-WALL** is designed to be climate conscious and design driven; combining exceptional energy, environmental and build efficiency with great versatility. **R-WALL** offers developers, architects and home owners an innovative new cutting edge build system with no compromise.

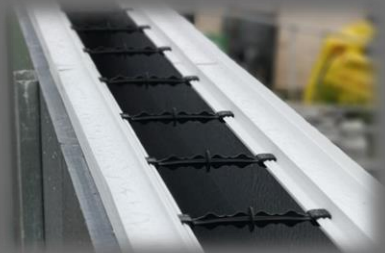
No longer must a home owner, builder or developer accept slow construction, build schedules hampered by poor weather, or soft wood timber frames with short life expectancy's. Take the complication out of building without compromising on the strength, versatility, longevity and performance. Produce Eco homes with exceptional Energy efficiency, saving costs and future proofing the home. Build sustainably now and preserve our precious resources for future generations.

R-WALL is not restricted by modularity. The system offers Architects and home owners the freedom to design what they envision and builders the flexibility to build without restriction. R-WALL is the leading ICF system for wall widths to U-Values! Delivering a U-Value as low as 0.10, lifespans in excess of 100 years, fire ratings of 4 hours + and exceptional sound proofing and healthier living environments.

## R-WALL in 6 easy steps



1. Prepare footings or Slab



2. Build formwork



3. Add alignment brace system



4. Pour concrete into formwork

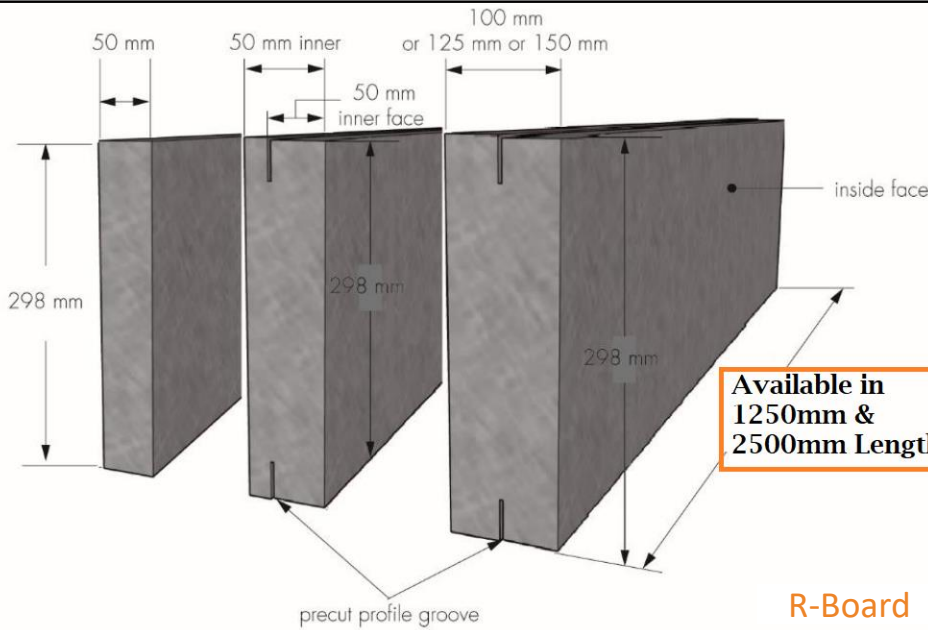


5. Install Roof, Electrics, Plumbing



6. Apply Claddings, render and plasterboard

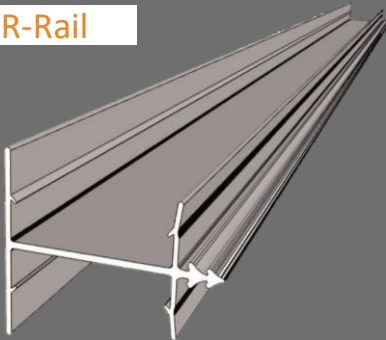
# Building with R-WALL – R-WALL Components



- ✓ R-Board insulation options **Eco (50mm)**, **Standard (75mm)**, **Supreme (100mm)** or **Ultimate (125mm)** (150mm/200mm R-Boards available by special order) or any combination. The thicker the insulation the better the U-Value. U-Values as low as 0.10.

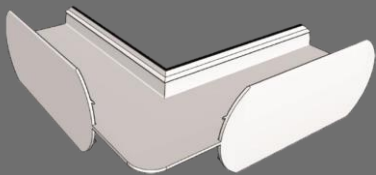
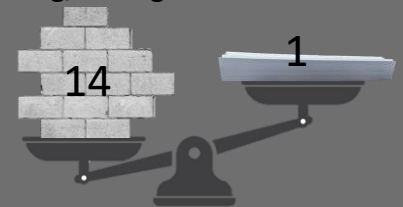
- ✓ Available in a **1250mm** or **2500mm** length

R-Rail



- ✓ **Quick, lightweight construction** - improving onsite Health and Safety, no need for heavy or specialist construction equipment, simple hand tools used for onsite modifications

**Build quicker Build easier!** Laying the lightweight R-WALL 2.5m block is **equivalent to laying 14 standard concrete blocks!** One 2.5m R-Board weighs approximately 1.8kg, 57x lighter than its equivalent in blocks!



R-Corner

**Simple and Versatile!**  
With only **4 components** R-WALL can **build anything!** Corners, Curves, Lintels, Openings, Door ways, gables etc



R-Tie's

- ✓ R-Tie length – **159mm (6")**, **212mm (8")**, **262mm (10")** or **313mm (12")** Alter the thickness of the concrete core by choosing the R-Tie length



R-WALL has been created and designed for the UK market!

- ✓ **Compatible with the UK standard metric system** – fixings always available, no need to cut plasterboard or batten off walls, reduce waste and increase build speed with R-WALL
- ✓ **Quality and Consistency**– The expected standard that comes with products manufactured in the UK!

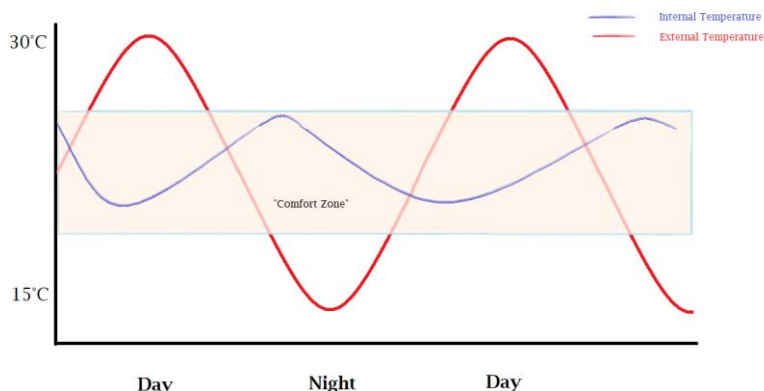
# R-WALL Technical Data

Board types / wall construction	Length (mm)	Height (mm)	XPS inner	XPS outer	Concrete core
					Nominal thickness (mm)
R-Wall ECO (50 mm)	1250 - 2500	298	50	50	All R-Tie lengths (159, 212, 262, 313)
R-Wall Standard (75 mm)	1250 - 2500	298	75	75	
R-Wall Supreme (100 mm)	1250 - 2500	298	100	100, 125	
R-Wall Ultimate (125 mm)	1250 - 2500	298	125 - 150	125 - 150	
R-Wall Superior (150 mm)	1250 - 2500	298	125 - 150	125 - 150	

## R-WALL Achievable U-Values\*

R-WALL ECO = 0.25  
 R-WALL STANDARD = 0.18  
 R-WALL SUPREME = 0.14  
 R-WALL SUPERIOR = 0.11  
 R-WALL ULTIMATE = 0.09

✓ **Advantages of Thermal Mass** The insulated panels and Solid Mass of R-WALL stores and releases heat which creates a self regulating environment preventing internal temperature fluctuations, reducing energy consumption, resulting in greater cost savings and a more comfortable living environments.



<b>Build Life Expectancy</b>	<b>100 Years +</b>
<b>Compressive Strength of R-Boards</b>	<b>300 KPa</b>
<b>Pull out strength per R-Tie</b>	<b>250 kg</b>
<b>Fire Rating</b>	<b>4 Hours</b>
<b>Sound Attenuation</b>	<b>STC rating 50+</b>
<b>Weight of R-Board (approximate)</b>	<b>900 grams</b>
<b>Wind Speeds</b>	<b>Up to 250 mph</b>

✓ **Zero cold bridging & Airtightness**— the continuous insulation created by R-WALL'S envelope ensures an airtight construction, preventing the mixing of cold and warm airs - "cold bridging" which creates condensation and mould growths resulting in a healthier living environment. **R-Wall has industry leading Psi values.**

✓ **Strength** — the strongest way to build, up to 10x stronger than standard construction.

✓ Not susceptible to **Rot or Infestation.**

✓ Build method with **Zero Cold Bridging!**



✓ **Can be built in all weathers!**  
 – all year round construction, preventing build delays.

\*U-Values Calculated in accordance with BS EN ISO 6946 calculated with plaster and plasterboard internally and timber softwood external clad. U-Values will vary with materials cladding the system.

## R-WALL's Superior Pour Strength and Fill Efficiency

R-WALL's specially designed R-Tie and **lack of core congestion** allows concrete to flow easily through the cavity resulting in a **outstanding Fill efficiency** and a **uniform concrete fill**.

R-WALL's **R-Board is 3 times stronger** than standard ICF insulation, resulting in impressive concrete pour performance

Its lack of congestion and specially designed **locators** allow the easy addition of reinforcement as required.

Lintels are created from the same R-WALL components and set during pour forming part of the monolithic structure. Standard forms of Intermediate floors – wooden, block and beam and cast structures are easily incorporated.



## R-WALL's Internal and External Finishes

R-WALL's choice of finishes are virtually **limitless**. They can include, Wood, Render, Stone, Brick, Steel/Zinc and the list goes on.

**Renderers are applied directly onto R-WALL** and other finishes are applied via battens secured to the R-Rails and occasional fixings to the concrete core for the heavier claddings. Any type of doors and windows can be incorporated.

R-WALL is **compatible with the UK Metric building materials** unlike many other imported ICF systems. This has huge advantages both in cost and speed when applying finishes.

**Plasterboard is applied directly onto the insulation, fixed to the R-Rails** no need for dot and dabbing, no need for battening off walls, no need for cutting plasterboard!

**Electrics are easily chased into the polystyrene** with a multitool or hot knife. R-WALL's insulation does not contain plastic webbing and therefore this process is extremely quick and easy.



## Approved

ICF was classed as a "standard" form of construction by the Council of mortgage lenders. This has since been merged to form UK Finance. R-Wall is accepted by various Warranty providers provided it is installed in accordance with BBA certificate 20/5809



## What makes R-WALL Unique?

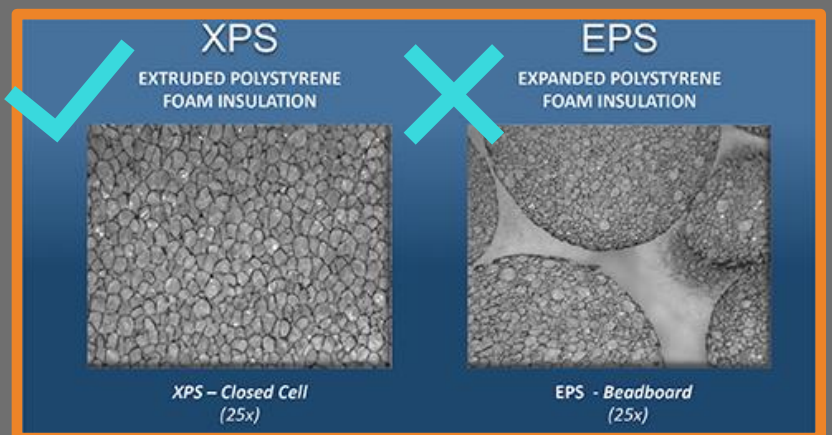
### R-WALL uses Extruded Polystyrene - XPS

R-WALL uses Extruded Polystyrene (XPS) NOT Expanded Polystyrene (EPS)

- XPS is closed cell (no voids between beads)
- EPS is open cell (voids between beads)

The difference is visually demonstrated in the image below. Modular ICF systems typically use Expanded Polystyrene (EPS). The closed cell structure brings major benefits including;

- ✓ Preventing passage of liquid or vapour – improved energy efficiency, stable U-Value performance, water resistant properties, creates optimum conditions for concrete curing.
- ✓ Strength – the formwork is rated at 300kpa, 3 times the strength of typical EPS formwork systems. Therefore increased pour strength and less on site damage.
- ✓ Increased energy efficiency – higher grade insulation, results in better U-Values and performance. R-WALL is the leading ICF system for wall widths to achievable U-Values.
- ✓ Improved airtightness – absence of voids means air cannot migrate so easily through the matrix.



### R-WALL is Non Modular

Being non-modular allows R-WALL to offer;

- ✓ Total design flexibility - build anything to exact measurements, without restrictions, no need for specialist architect drawings
- ✓ Space saving – reduced transportation, reduced carbon footprint, reduced on site storage
- ✓ Build versatility – easily adaptable during build, with just 4 components, can build anything - straight walls, curved walls, supporting walls, flats, bungalows, R-WALL basements, swimming pools and the list goes on
- ✓ Very little wastage and recyclable – Due to R-WALL's non-modular formation, off cuts can be re-used, reducing waste and saving costs. All components are individual & easily recycled

# R-WALL Climate Conscious and Low Carbon Footprint

With the demand to build energy efficient sustainable homes, and net zero carbon requirements, the building industry must adapt. R-WALL provides the answer and gives developers the solution for construction in an environmentally sustainable way without compromise.



# What can R-WALL Build?

## Residential



## Basements



## Commercial



## Pools & Ponds



## Retaining Walls



## Curve Walls



## Who Can Build with R-WALL?

We have a list of recommended R-WALL installers, details of which can be provided on request.

Do you want to Self Build or use a trusted Builder? Not a problem! R-WALL is a simple build system. Professionals or self builders with a knowledge of building can often be trained in just 1 day! The system has been successfully installed by non professional self-builders. We insist that all installers complete training with R-WALL, prior to installation until competency is reached. Training is often conducted on customers build site, at a cost of £200 + travel + VAT per day. R-WALL also provides unlimited telephone customer support, a written instruction manual and a library of YouTube demonstration videos.



## R-WALL Alignment System

R-WALL's Alignment system consists of a Strong back, adjustable turnbuckle Outrigger and foot plate.

The alignment braces are connected to one side of the formwork, at approximately 3 meter distances. The foot plate is secured to the floor and the strongback secured to the formwork. When the walls are poured with concrete the turnbuckle is adjusted to bring the walls to level prior to curing.



R-WALL's **Alignment System** is available for hire at **only £3.00 per brace per week!** (Subject to a Rental agreement)

R-WALL advises during quotation the number of props which will be required.

R-WALL has chosen an alignment system without a platform to aid construction speed and save cost to the customer. Having the additional scaffold aspect increases costs and time erecting. In line with Health and safety a build will require erection of external scaffold. Why build and pay twice?

### Corner Alignment Brace

R-WALL also provides customers with Corner Alignment Profile this aids the customer in formation of perfectly plumb corners!



## R-WALL's Insulated Floor System



### R-WALL sells the market leading Insulation for Flooring and basements!

Manufactured in the same environmentally friendly and sustainable way as R-WALL's formwork. The system is available in four compressive strength grades and suitable for those projects requiring Environmental accreditation, or just those individuals where sustainability and environmental considerations are important. This flooring combines perfectly with R-WALL's formwork.

### Green Guide Rating A+



Just like R-WALL's formwork, the flooring has attained a BREEAM Green Guide Rating of A+. The insulation is made using carbon dioxide as the main blowing agent, the insulation board has an Ozone Depletion Potential (ODP) of zero and a Global Warming Potential (GWP) of less than five.



### Available in a Range of Compressive Strengths and can be installed Above and Below Ground

The XPS Floor insulation is available in a range of compressive strengths to match the loading requirements of individual projects. These include 300 Kpa strength, suitable for Domestic floor applications, 500 Kpa for commercial use and 700 Kpa for heavy industrial.

The insulation can be installed under or over the slab in ground bearing concrete floors and is suitable for use with suspended beam and block and timber floors. Just like R-WALL's formwork with negligible water absorption, it has natural resistance to rain, snow, frost and water vapour which makes it an exceptionally stable material. It retains its initial insulation performance and physical integrity in exposed conditions over a very long term. The board has high strength and rigidity, and good dimensional stability. It can be cut easily and accurately using hand tools, offering simple and quick installation with minimal waste. The insulation has a low susceptibility to rot, minimising mould or fungal growth.

# R-WALL Testing's and Approvals



R-WALL is fully tested and BBA approved



BBA stands for British Board of Agrément and is a certification within the construction industry, indicating a high quality, experienced and reliable company or product. A BBA status is highly regarded and used by manufacturers in the industry as a symbol of product superiority.

R-WALL has been designed tested and approved to meet or exceed compliance bench marks for use in loadbearing and non-loadbearing internal or external and separating walls, in domestic and non-domestic buildings subject to structural and fire considerations and building use.

Certified by the BBA (if installed, used and maintained in accordance with their Certificate) to satisfy or contribute to satisfying the relevant requirements of the Building Regulations 2010 England and Wales, Building (Scotland) Regulations 2004, The Building Regulations (Northern Ireland) 2012 (See BBA Cert. 20/5809)

CE marking: Extruded polystyrene (XPS) CE marked in accordance with harmonised European Standard BS EN 13164 : 2012.

Formwork: Tested to meet requirements of ETAG 009 : 2002 (BBA Cert. 20/5809)

Steel Reinforcement: Not required as standard, but can be installed to structural engineers specifications where required —should comply with BS 4449 : 2005

NHBC Standards 2020: In the opinion of the BBA, the R-WALL Insulating Concrete Formwork (ICF) System, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to NHBC Standards

R-Board XPS:

Properties	Value		Unit	Standard	CE Code
Thermal Conductivity Declared	0.030	< 60mm	W/m.K	EN 13164	λD
	0.031	≥ 60mm	W/m.K		
Compressive stress or compressive strength@ 10% deformation	300		kPa	EN 826	CS(10)Y
Compressive Creep max after 50 years < 2% deformation under stress σC	130		kPa	EN 1606	CC(2/1.5/50)σ
Water vapour diffusion resistance factor μ (tabulated value)	100		-	EN 12086	MU
Long term water absorption by total immersion	< 0.7		%	EN 12087	WL(T)
Water pick-up by diffusion	< 2	50 < 80mm	%	EN 12088	WD(V)
	< 1	≥ 80mm			
Water pick up after Freeze Thaw	< 1		%	EN 12091	FTCD
Dimensional stability under specified temperature (70°C) and humidity conditions (90%rh)	< 5		%	EN 1604	DS(70,90)
Deformation under specified compressive load (40kPa) and temperature (70°C) conditions	< 5		%	EN 1605	DLT(2)5
Coefficient of linear thermal expansion (typical value)	0.07		mm/(m.K)	-	-
Fire Performance	E		Euroclass	EN 13501-1	
Temperature limits	-50/+75		°C	-	

## What our Customers say

*Brilliant product and exceptional customer service from Matt. So quick and easy to build and incredibly strong. This has got to be the future of building.*

*Mr Cummins*

*We wouldn't hesitate to recommend R Wall. Fantastic service from start to finish with excellent on site assistance. This system is the future of building!*

*Mr Curtis*



Endorsed by:



Find us on:



  
**R-WALL**®  
Insulating Concrete Formwork



**www.r-wall.co.uk 01288 337377**

**R-WALL Ltd: Registered in England & Wales No. 11524972; VAT Registration No. 336792862; Registered Office: Week Orchard, Marhamchurch, Bude, Cornwall, EX23 0HT.**

This brochure or any information provided by R-WALL or any of its representatives, should not be used as a substitute for professional structural engineering consultation which should always be sought prior to use. R-WALL does not supply any warranties as to the applicability of the product, to all or any situation, for which a designer has designated to use it. Build modifications or amendments to the product, is the responsibility of the project designer. As R-WALL has no control over installation or assembly of its product, R-WALL will not be held responsible or liable for any direct, indirect, consequential damage, special, general, or those damages, including but not limited to physical harm and/or damages of any kind suffered by any person or their property, including and not limited to the home, building or land owner, installer, contractor, architect, any member of the general public or service provider, due to installation, use, or assembly of R-WALL products. Claims with respect to "fire resistance" ratings taken from BS EN 1992-1-2 : and based on a 262mm + thickness concrete core with wall fire exposure one side. Claims regarding "sound attenuation" are based on standard expected from a 6" (150mm+) ICF concrete core with ½" (12.5mm) gypsum board on both sides as stated by ICFMA in CICFI Design Guide for Multi-Story Construction and ICF. Claims with respect to "wind speed" resistance are based on test conducted at the Wind Engineering Research Centre, Texas, for a concrete core wall of 158mm + thickness. Claims with regard to "lifespan" or "longevity" are approximate and cannot be guaranteed, quoted from "Maria Saxton – ICF Construction "Everything you need to know". Pull out strength tests conducted in house. R-WALL must be installed by a trained R-WALL installer in accordance with R-WALL instructions. Pouring concrete and constructing R-WALL on building sites can be hazardous, appropriate safety measures must be adopted at all times. R-WALL components are patent protected under Intellectual Property Design protection. R-WALL is a registered Trade Mark of R-WALL Ltd.