CI/SfB (21) Gn7+Eq4
April 2008

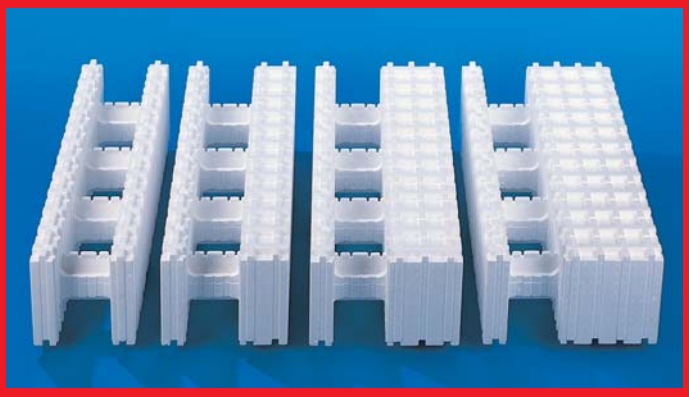
BecoWallform

INSULATING CONCRETE FORMWORK SYSTEM

- **A modern building system** which provides extra performance to satisfy current and future building standards
- **Structure and insulation incorporated** in the same practical building process
- **Fast-track construction** - time and cost benefits

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 14/5083

BecoWallform



Fast, practical construction system

Design flexibility

Superior energy efficiency

Long durability

High levels of occupant comfort

In-built quality assurance

BecoWallform

Practical, energy efficient construction to accommodate our future needs - Beco**Wallform** is designed to offer a range of design standards to suit all building applications.

The monolithic, insulated concrete system of building is quick to construct, yet offers levels of performance significantly better than available from slower, more traditional approaches to building.

An Insulating Concrete Formwork (ICF) system, Beco**Wallform** is based on large hollow lightweight block components which lock together without intermediate bedding materials to provide a formwork system into which concrete is poured. Once set, the concrete becomes a high strength structure and the formwork remains in place as thermal insulation, with U-values ranging from 0.30 W/m^{2}K down to 0.11 W/m^{2}K - ideal for zero energy buildings.

The building process is quick, tidy and precise, with lower labour and equipment requirements than alternative methods.

Creative design (without compromising performance) is encouraged by the availability of a comprehensive range of components, which is further enhanced by the built-in option to incorporate reinforcement for basement and multi storey projects.

The flexibility of building with insitu concrete makes it more practical to co-ordinate other products and material systems - different types of floors, roofs, windows etc - with Beco**Wallform** and the need for specialised accessories is minimised.

Originally developed and patented by isorast in the 1970's, the system has been progressively developed to satisfy the very best worldwide standards of energy efficiency and the recognised need for improved building techniques. Isorast constructions (aka **Wallform**) in the United Kingdom have an established track record of high performance and low maintenance costs.

As a highly insulated structure, Beco**Wallform** may be clad internally and externally with a wide range of finishes, including plaster, masonry, curtain walling and render systems.

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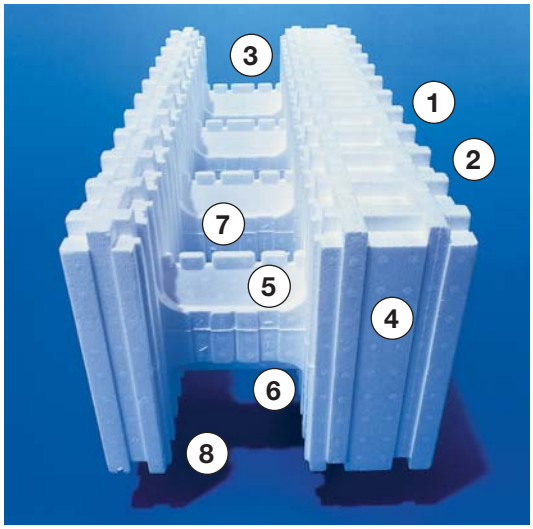


Wallform components have tongues on the top and grooves on the bottom, arranged so that they will interlock in parallel or at right angles in a modular grid of 62.5mm. This means the designer can realise any plan layout to dimensions which are a multiple of 62.5mm. Smaller site dimensions may be cut exactly to size within the thickness of polystyrene once the concrete is cured.

Features of **Wallform** components

1. The tongues on the top and grooves on the bottom of components are arranged to interlink and crosslink in a modular grid of 62.5mm.
2. The tongues and grooves have a positive interlock so that the elements cannot be carried away by a gust of wind.
3. The hollow core of the components is calculated to optimise economy of design and building processes.
4. All faces have grooves 2.5mm deep and 17.5mm wide in a pattern repeated every 62.5mm to eliminate thermal bridging. These grooves have a dovetail profile to provide a mechanical key for the application of plaster.
5. Location detail for horizontal reinforcement.
6. End sets are inserted above and below the bridges to make a closure when forming corners, reveals and wall ends.
7. The bridges are tapered at the top and bottom to avoid trapping air during concreting.
8. The endpiece is used to form the closure where this does not coincide with the bridge.

The **Building Process**

1. The lightweight Wallform elements simply fit together in a modular grid of 62.5mm.

2. With the Wallform saw or hot wire cutter, components are easily cut to size.

3. Openings at wall ends, corners and T-junctions are closed with the end pieces.

4. 135° corners fit together without thermal bridging using the Wallform corner block.

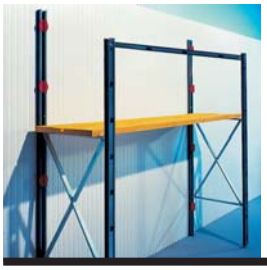
5. Curved walls in any radius and in all thicknesses are possible with Wallform curved blocks.

6. The Wallform lintel or roller shutter is placed over window or door openings.

7. Arches are formed by cutting the shape of the opening and inserting a metal sheet to act as a curved shutter.

8. Wallform stair trays are inset into the wall and concreted when the wall is filled. Risers are also available.

9. The Wallform floor edge block eliminates thermal bridging.



10. With the Wallform prop and screw support system, the wall is held in the vertical position.

11. Concreting with the Wallform nozzle and ready-mix concrete or dry concrete from the silo.

12. Floors are formed using lightweight steel beams and insulation infill panels with insitu concrete overlay.

13. Forming service chases in minutes is possible with the Wallform hot wire cutter.

14. Lightweight fixings with the isodübel plug into insulation foam; heavyweight fixings into concrete.

15. Interior tiles are applied directly to the face of the Wallform without prior plastering.

Beco Wallform

Wallform Technical Data

Width
Length

Material

Wall panel:

Bridges:

Weight

Weight per unit, approx.
Weight per unit, sq.m.
Weight of wall, dense concrete fill, unfinished, sq.m.

Quantity of concrete, sq.m.

Thermal insulation U-value W/m²K

15mm internal plaster, 10mm proprietary render

Wall surface temperature -

Internal room temperature +20°C
Outside temperature -10°C
Outside temperature -15°C

Carbon dioxide emissions based on heat loss/sq.m. of

Dewpoint analysis:

Theoretical max. condensation during winter
Recorded figures
Drying out in summer

Fire performance: (DIN 4102)
Wall plastered internally, proprietary render externally

Sound reduction: both sides plastered
Calculated
Measured

STANDARD SYSTEMS				FIREWALLS				ACOUSTIC	
250 1000mm	**313 1125mm**	**375 750mm**	**438 750mm**	**250 1250mm**	**313 1250mm**	**375 1250mm**	**438 1250mm**	**250 soundstop 500mm**	**313 super soundstop 500mm**
Moulded expanded polystyrene, fire retardant grade, density c. 30 g/l.									
Moulded expanded polystyrene				Galvanised steel, 5mm ø					
800 g 3,200 g 320 kg	1,400 g 5,170 g 297 kg	1,280 g 6,820 g 299 kg	1,590 g 8,000 g 300 kg	2,100 g 6,720 g 343 kg	2,620 g 8,380 g 344 kg	3,140 g 10,050 g 346 kg	3,660 g 11,710 g 347 kg	840 g 6,720 g 343 kg	1,050 g 8,320 g 344 kg
132 L	121.5 L	121.5 L	121.5 L	140 L	140 L	140 L	140 L	140 L	140 L
0.30	0.19	0.14	0.11	0.33	0.21	0.15	0.12	0.33	0.25
18.9°C 18.7°C	19.3°C 19.1°C	19.5°C 19.4°C	19.6°C 19.5°C	18.7°C 18.5°C	19.2°C 19.0°C	19.4°C 19.3°C	19.5°C 19.5°C	18.7°C 18.5°C	19.0°C 18.9°C
96 g/m² 0 g/m²	43 g/m² 0 g/m²	32 g/m² 0 g/m²	23 g/m² 0 g/m²	~105 g/m² 0 g/m²	~43 g/m² 0 g/m²	~32 g/m² 0 g/m²	~23 g/m² 0 g/m²	~105 g/m² 0 g/m²	~80 g/m² 0 g/m²
F30 - AB	F30 - AB	F30 - AB	F30 - AB	F90 - AB	F90 - AB	F90 - AB	F90 - AB	F90 - AB	F90 - AB
33 dB 35 dB	~42 dB ~44 dB	~42 dB ~44 dB	~42 dB ~44 dB	~41 dB ~43 dB	~41 dB ~43 dB	~41 dB ~43 dB	~41 dB ~43 dB	51 dB 53 dB	53 dB 55 dB

BECO PRODUCTS

Beco Products Ltd

Albert Street • Brigg • North Lincolnshire • DN20 8HQ

Tel: 01652 653 844

info@becowallform.co.uk

www.becowallform.co.uk

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Build It AWARDS 2012 WINNER BEST USE OF ICF

Insulating Concrete Formwork Association

THE Basement INFORMATION CENTRE

isorast Energiebewußte Bausysteme.

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