

# Wi BEAM™ SYSTEM DATASHEET

The Wi Beam System by Wembley Innovation is designed to provide lateral support to blockwork infill panels in lieu of structural windposts, without thickening the wall or adversely impacting on its appearance.

The patented Wi Beam U-blocks allow the construction of integral reinforced concrete beams within the blockwork construction, which eliminate the need for traditional windposts and lintels.

## Appearance and Configuration

The Wi Beam U-blocks are Paint Grade blocks manufactured from specially selected and prepared lightweight aggregates, giving a grey, close-textured finish.



## Material Properties

Properties	100	140	190	215
Mean compressive strength of U-block	7.3 N/mm <sup>2</sup>			
Net dry density of U-block	1450 kg/m <sup>3</sup>			
U-block Unit weight (kg)	10.7	12.4	16.6	18.4
U-block Unit weight (kg)	40 N/mm <sup>2</sup>			
Dry weight of C40 Wi Mortar required (kg/m)	17	23	31	49
H16 B500C rebar yield stress	500 N/mm <sup>2</sup>			
Wi Beam built weight (kg/m)	46.3	61.2	85.5	97.0
Reaction to fire	Classification to EN 13501-1: A1			

Note: unit and laid weights are approximate and calculated based on the specified dry density and moisture content.

## Sizes and Tolerances

The Wi Beam U-blocks are available in the Standard UK format sizes. Face dimensions are 440mm x 215mm; widths are: 100mm, 140mm, 190mm and 215mm.

The Wi Beam U-blocks comply with Tolerance Category D1 of EN 771-3.

## Authority

The Wi Beam U-block range is manufactured under a Quality Management System complying with ISO 9001. The blocks meet Category 1, Manufacturing Control, as specified in BS EN 1996-1-1: 2005.

## Fire Performance

Typical fire resistance for the Wi Beam are based on the National Annex to BS EN 1996: (Parts 1 & 2)

Block Size	Loadbearing wall	Non-loadbearing wall
100	2 hrs	4 hrs
140	3 hrs	4 hrs
190	6 hrs	6 hrs
215	6 hrs	6 hrs

Note: the application of plaster will extend the period of fire resistance.

## Sound Reduction

The estimated sound reduction of the Wi Beam construction has been assessed and indicated in the table below:

Block Size	Decibels (dB)
100	47 (estimated)
140	53
190	58
215	60

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## Design

Design of the Wi Beams should be in accordance with recommendations of the "Design Guide for Masonry Reinforced by Bond Beams and Columns to Resist Lateral Load", based on BS EN1996-1 and Lucideon's test results.

Wi Beams are designed as simply supported beams, spanning horizontally between primary structure. Refer to Wembley Innovation Wi System Standard Details for further information.

Block Size	Moment of Resistance (kNm)	Maximum factored lateral load (UDL) for length of Wi Beam (kN)													
		3.5 m	4.0 m	4.5 m	5.0 m	5.5 m	6.0 m	6.5 m	7.0 m	7.5 m	8.0 m	8.5 m	9.0 m	9.5 m	10 m
<b>100</b>	<b>15.0</b>	34.2	30.0	26.6	24.0	21.8	20.0	18.4	17.1	16.0	**	**	**	**	**
<b>140</b>	<b>30.0</b>	68.5	60.0	53.3	48.0	43.6	40.0	36.9	34.2	32.0	30.0	28.2	26.6	25.2	24.0
<b>190</b>	<b>40.0</b>	91.4	80.0	71.1	64.0	58.1	53.3	49.2	45.7	42.6	40.0	37.6	35.5	33.6	32.0
<b>215</b>	<b>40.0</b>	91.4	80.0	71.1	64.0	58.1	53.3	49.2	45.7	42.6	40.0	37.6	35.5	33.6	32.0

\*\* Maximum length for 100mm thk Wi Beams should be limited to 7.5m.

## Installation

Wi Beams are constructed in situ using the patented Wi Beam U-blocks, C40 Wi Mortar concrete, H16 B500C rebars, Wi Transfer Rods and Wi End Cleats.

The construction of walls and Wi Beams should be in accordance with BS EN 1996: (1-1: 2005, 1-2: 2005) and 2: 2006) as well normal good practice. Refer to Wembley Innovation's Wi System User Manual for detailed installation guidance.

## Key Benefits

- Uniquely designed U-blocks and standardised components provide maximum versatility during design and construction.
- Effective replacement for traditional windposts and concrete/steel lintels.
- No fire-boarding or paint treatments required – 4hr fire-rated
- Improved architectural performance and aesthetic appearance of walls
- Compliant with CDM manual handling guidelines
- Up to 23.6% Carbon reduction

## Sustainability and Environment

By working closely with our suppliers and manufacturers, Wembley Innovation constantly strive to improve our approach to sustainability. This includes employing rail transport wherever possible thus minimising lorry movements, reducing dependency on quarried virgin aggregates and maximising the use of waste, reclaimed or recycled materials.

Wembley Innovation seek to increase the recycled content of their products, without comprising quality, when feasible.

Wi Beam components are REACH compliant.

Contact us for more information

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