

Wi COLUMN™ SYSTEM DATASHEET

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

The patented hollow column blocks allow the construction of integral reinforced concrete columns within the blockwork construction, which eliminates the need for traditional windposts.

Appearance and Configuration

The Wi Column hollow blocks are Paint Grade blocks manufactured from specially selected and prepared lightweight aggregates, giving a grey, close-textured finish. Wi Columns can be built as stack bonded or stretcher bonded columns.



Sizes and Tolerances

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

The Wi Column hollow blocks comply with Tolerance Category D1 of EN 771-3.

Authority

The Wi Column hollow 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.

Material Properties

Properties	100	140	190	215
Mean compressive strength of Hollow block	7.3 N/mm ²			
Net dry density of concrete Hollow block	1450 kg/m ³			
Hollow block Unit weight (kg)	9.0	11.4	12.1	14.6
C40 Wi Mortar infill compressive strength	40 N/mm ²			
Dry weight of C40 Wi Mortar required (kg/m)	47	60	89	91
H16 B500C rebar yield stress	500 N/mm ²			
Wi Column built weight (kg/m of height)	98.4	137.0	187.5	213.2
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.

Fire Performance

Typical fire resistance for the Wi Column 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 Column 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 Columns 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 test results.

Wi Columns are designed as simply supported columns, spanning vertically between floors, with base and head restrained into 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 height of Wi Column (kN)									
		2.5m	3.0m	3.5m	4.0m	4.5m	5.0m	5.5m	6.0m	6.5m	7m
100	12.0	38.4	32.0	27.4	24.0	21.3	19.2	**	**	**	**
140	18.0	57.6	48.0	41.1	36.0	32.0	28.8	26.1	24.0	22.1	20.5
190	26.0	70.4	58.6	50.2	44.0	39.1	35.2	32.0	29.3	27.0	25.1
215	30.0	96.0	80.0	68.5	60.0	53.3	48.0	43.6	40.0	36.9	34.2

** Maximum height for 100mm thk Wi Columns should be limited to 5m.

Installation

Wi Columns are constructed in situ using the patented Wi Column hollow blocks, C40 Wi Mortar concrete, H16 B500C socketed rebars and Wi Head Cleats.

The construction of walls and Wi Columns 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 guidance.

Key Benefits

- Uniquely designed hollow blocks and standardised components provide maximum versatility during design/construction.
- Effective replacement for traditional windposts.
- 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.

All Wi Column components are REACH compliant.

Contact us for more information

0208 903 4527

info@wembleyinnovation.co.uk

www.wembleyinnovation.co.uk

Wembley Innovation, Unit 5 Fourth Way, Wembley, HA9 0LH