

A range of high density, robust, loadbearing units, suitable for internal and external walls. For total design flexibility select from a range of sizes, strengths and finishes.



General Properties - Table 1

Face Size	440mm x 215mm ⁽¹⁾		
Dimensional Tolerances	Category: D1		
Mean Unit Strength ⁽²⁾	7.3, 10.4, 17.5, 22.5, 30N/mm ²		
Net Dry Density	Blocks <20.0N/mm ² : 2000 kg/m ³ Blocks >20.0N/mm ² : 2100 kg/m ³		
Thermal Conductivity	1.33 W/mK at 3% moisture content (internal use)		
	1.43 W/mK at 5% moisture content (external use)		
Moisture Movement	<0.8mm/m		
Reaction to Fire	Class A1		
Air Tightness		Paint one side	Paint both sides
		(m ³ /hr/m ²)	
	100mm solid	-	0.48
	140mm solid	1.17	0.97
Configuration	Solid Blocks: Group 1, Cellular & Hollow Blocks: Group 2		
Specific Heat Capacity	1000J/kg/K		
Water Vapour Diffusion Coefficient	$\mu = 5/15$ (Tabulated value from BS EN 1745)		



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Note:

⁽¹⁾ Some products have an alternative face size as described in this Data Sheet

⁽²⁾ Cellular and hollow blocks are produced in 7.3 and 10.4N/mm² strengths

⁽³⁾ Blocks finished using an emulsion paint

- High strength blocks from 7.3 to 30N/mm²
- Standard, Paint Grade and Fair Faced finishes
- For use internally and externally above and below ground
- High levels of air tightness, sound insulation and fire resistance.

Lignacrete dense blocks are suitable for a wide range of applications. They have excellent levels of sound insulation and high strength capability, making them especially suitable for use in separating and partition walls. They can also be used as infill blocks in beam and block flooring systems.

Lignacrete dense blocks generally have a face size of 440mm x 215mm. Certain products are produced in an alternative size. For example, Midi blocks are solid 140mm units with a face size of 290mm x 215mm and have been developed for ease of handling whilst providing all the performance associated with conventional size solid blocks. Lignacrete PW blocks have a thickness of 195mm, and a face size of 440mm x 65mm.

Appearance

Lignacrete blocks are medium grey to buff in colour with a texture, depending on grade suitable for plastering, rendering, directly painted or fair face. Fair Faced products are natural in colour and made to order.

Blocks are available in cellular, hollow or solid form.

Standards

Lignacrete blocks are BSI Kitemarked approved to BS EN 771-3. They are Category 1 masonry units manufactured under a BSI certified Quality System complying with BS EN 9001.

Applications

Lignacrete can be considered for use in the following locations:

- The inner and outer leaves of external cavity walls,
- Internal walls including fire break walls
- Separating walls including those conforming to Robust Detail specifications
- High strength, loadbearing walls - blocks up to 30N/mm² available
- External and internal walls below ground
- Infill units to beam and block flooring
- Hollow blocks to construct reinforced retaining walls



Thermal insulation

U-values for wall constructions using Lignacrete blocks to satisfy the requirements of Part L of the Building Regulations can be found in Section 9 of Lignacrete's Design Guidance document. This can be viewed at www.lignacrete.co.uk, via the 'Technical' tab.



Thermal Bridging

A significant factor in thermal assessments is the heat loss through thermal bridges (known as non-repeating or linear thermal bridges).

These occur at junctions between elements or where the continuity of the external fabric insulation is interrupted (e.g. at junctions with external walls, floors and roof). Assessors will need to apply a PSI (ψ) value to the particular junction being measured.

The Concrete Block Association (CBA) have developed a comprehensive set of junctions that have been independently assessed. The results clearly demonstrate that constructions using Lignacrete aggregate blocks can be assigned improved performance when compared to the Government's Accredited Construction Details and Default values shown in Appendix K of SAP 2012.

As a member of the CBA, Lignacrete Ltd is able to advocate the use of these enhanced bridging details. This information will be of interest to designers and SAP assessors as well as builders who will have the responsibility for correctly constructing the various junctions. Junction details and PSI (ψ) values can be accessed at www.cba-blocks.org.uk

Sound Insulation

Lignacrete blockwork provides excellent levels of sound insulation between buildings and adjoining rooms. It can be used in cavity and solid party wall constructions in dwellings, satisfying the specifications for dense blockwork in accordance with Approved Document E to the Building Regulations. It can also be used to construct party walls meeting Robust Detail specifications eg. Robust Details E-WM-1, 3, 16, 18 and 19.

Sustainability

Responsible sourcing - Lignacrete Ltd operates its manufacturing plants to a BSI certified Environmental Management System (EMS) complying with ISO 14001. Lignacrete Ltd. complies with the requirements of BES 6001 - Framework Standard for the Responsible Sourcing of Construction Products, Certificate No: BES 580823. This independently confirmed Responsible Sourcing Certification provides re-assurance to our customers that they are procuring products responsibly and sustainably. Credits can also be gained under environment assessment schemes such as BREEAM and the Code for Sustainable Homes.

Environmental ratings - Summary green guide ratings applicable to Lignacrete blocks can be obtained from the BRE Green Guide to Specification.

Design

The design of walls incorporating Lignacrete blocks should be in accordance with relevant design standards including BS 8103: Part 2, BS EN 1996-1-1 and the requirements of the Building Regulations.

Surface Finish Recommendations

Drylining - Application to be as manufacturer's recommendations.

Dense Plaster - Apply either 1:1:6 cement:lime:sand or 1:4 ½ Masonry cement:sand or 1:5 ½ cement; sand and plasticiser. Alternatively: Thistle Bonding or Thistle Hardwall or Knauf Ultimate backing plaster.

Finishing Coats - Thistle plaster finish or Thistle multi-finish or Knauf Multi cover.

External Rendering - Rendering to be in accordance with BS EN 13914-1. Avoid over strong mixes. Ensure the first coat of render is applied to a greater thickness than successive coats. An initial spatterdash coat is advisable, consisting of 1 part cement, 1 part sand, gauged with a proprietary bonding agent (SBR).

Builders considering the use of proprietary render systems must exercise caution to accurately adhere to the render manufacturers' design and specification instructions. Detailed guidance is also published in the NHBC Standards, *Chapter 6.11- Render*.

Strictly adhere to the specific application instructions, paying particular attention to prevailing weather conditions and the minimum recommended thickness of single coat renders.

Movement Control

Movement joints should be considered in accordance with PD 6697 at approximately 6.0 metre spacings. In areas of concentrated stress, such as those above and below openings, consideration should be given to the use of bed joint masonry reinforcement.

Mortar

The mortar type for work above ground level should be designation (iii) / Compressive Class M4. Stronger mixes may be used only with the permission of the designer. Stronger mixes may also be required for work below ground in accordance with PD 6697.

Fire

The fire resistance periods of Lignacrete loadbearing and non-loadbearing walls are shown in Tables 5a and 5b.

This data is only valid for walls complying with BS EN 1996 Part 1-1, Part 2 and Part 3. For walls designed in accordance with BS 5628, fire resistance values can be confirmed with our Technical Department.

The thicknesses given in Tables 5a and 5b are for masonry alone, excluding finishes. For the fire resistance of walls with finishes, refer to the Lignacrete Design Guide - Fire Resistance.

Block Weights - Table 2

Width (mm)	Form	Unit Weight (kg)	Laid Weight (kg/m ²)
75	Solid	14.4	149
90	Solid	17.0	179
100	Solid	18.9	198
140	Solid	26.5	278
140	Solid Midi	17.5	279
140	C/H	20.0	214
190	Solid	35.9	377
190	Hollow	25.0	269
215	Solid	40.7	427
215	Hollow	27.5	297

Note: For blocks above 20N/mm², the unit and laid weights will be approximately 5% greater than those indicated. Weights are based on 3% moisture content by weight.

Thermal Resistances - Table 3

Width (mm)	Form	Thermal Resistance (m ² K/W)	
		3% m/c	5% m/c
90	Solid	0.068	0.063
100	Solid	0.075	0.070
140	Solid	0.105	0.098
140	Solid Midi	0.105	0.098
140	C/H	0.162	0.155
190	Solid	0.143	0.133
190	Hollow	0.195	0.187
215	Solid	0.162	0.150
215	Hollow	0.207	0.199

Note: 3% moisture content (m/c) should be used for protected locations such as the inner leaf, and 5% for exposed locations such as the outer leaf when rendered.

Sound Reduction - Table 4

Width (mm)	Form	Sound Reduction Index Rw (dB)			
		L/tweight Plaster	Dry Lined	Paint Finish	Fair Faced
75	Solid	48	46	41	40
90	Solid	50	48	43	42
100	Solid	51	49	44	43
140	Solid	55	53	53	52
140	Solid Midi	55	53	53	52
140	C/H	52	50	48	47
190	Solid	57	56	56	55
190	Hollow	55	55	53	52
215	Solid	58	57	58	57
200-215	2x100m leaves ⁽¹⁾	56	55	53-55	52-54
215	Hollow	55	54	53	53

⁽¹⁾ 2 leaves of 100mm solid blocks laid back to back and tied together.

Note: 1. The above values are based on technical assessments and tests to BS EN ISO 140-3.

2. Surface finishes are assumed to be applied to both wall faces.

Fire resistance of Non-loadbearing separating walls (criteria E1); minimum Lignacrete wall thickness - Table 5a

Non-loadbearing wall	Minimum wall thickness t _F (mm) for fire resistance classification E1 for time t _{fi,d} (mins) of :				
	60	90	120	180	240

Group 1 units - **Lignacrete solid blocks**

Mortar: general purpose

Wall (mm) - no finishes	75	90	90	100	140
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Group 2 units - **Lignacrete cellular and hollow blocks**

Mortar: general purpose

Wall (mm) - no finishes	100	140	140	140	140
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Note:

1. Criteria E1 refers to walls with a separating function
2. This Table is derived on data from the National Annex to EC6 Part 1-2.
3. The blockwork minimum wall thickness have in some cases been rounded up to suit the block sizes available.

Fire resistance of loadbearing separating single-leaf walls (criteria RE1); minimum Lignacrete wall thickness - Table 5b

Loadbearing wall	Minimum wall thickness t _F (mm) for fire resistance classification RE1 for time t _{fi,d} (mins) of :				
	60	90	120	180	240

Group 1 units - **Lignacrete solid blocks**

Mortar: general purpose

Wall (mm) - no finishes	a ≤ 1.0	90	100	100	140	150
	a ≤ 0.6	90	90	90	100	140

Group 2 units - **Lignacrete cellular and hollow blocks**

Mortar: general purpose

Wall (mm) - no finishes	a ≤ 1.0	100	140	140	140	190
	a ≤ 0.6	100	100	140	140	150

Note:

1. Criteria RE1 refers to walls with a separating and loadbearing function
2. This Table is based on data from the National Annex to EC6 Part 1-2
3. The blockwork minimum wall thickness have in some cases been rounded up to suit the block sizes available.
4. a ≤ 0.6 applies when the vertical load capacity is only 0.6 of the permitted design vertical resistance being used.
5. a ≤ 1.0 applies when more than 0.6 of the permitted capacity is being used

Accreditations

