LIGNACRETE
HIGH STRENGTH BLOCK

Product data updated: 14th Sep 2026

Lignacrete 17.5, 22.5 and 30N/mm² are high strength dense concrete blocks that are ideal for walls needing exceptional loadbearing capacity. Manufactured to BS EN 771-3, these blocks are also extremely robust and durable with a technical performance that will meet most applications.

Generally, 100mm and 140mm blocks have a face size of 440mm x 215mm. Lignacrete 140mm Midi blocks have a face size of 290mm x 215mm and have been developed for easier handling while maintaining all of the performance of conventional size solid units.



Specification & Application

Standards

Lignacrete High Strength blocks are BSI Kitemarked and certified to BS EN 771-3. They are Category 1 masonry units manufactured under a BSI certified Quality Management System, which is BS EN 9001 compliant.

Appearance

Lignacrete High Strength blocks are medium grey to buff in colour. They are capable of being finished with all recognised treatments, including plaster, drylining and render, as well as cladding treatments.

Application

Their primary use is in walls that need high loadbearing capacity or enhanced levels of robustness. Walls of 215mm thickness are recommended to be constructed using 100mm blocks laid flat.

Typical locations include:

- The inner and outer leaves of external cavity walls
- Internal walls, including fire break walls
- Separating walls, including those conforming to Robust Detail party wall specifications
- Below ground

Specification

Face Size	440mm x 215mm. 290mm x 215mm (Midi blocks).
Thickness	100mm, 140mm
Mean Unit Strength	17.5N/mm², 22.5N/mm², 30.5N/mm²
Configuration	Group 1, solid blocks
Dimensional Tolerances	Category D1
Net Dry Density	2000 kg/m³ (17.5N/mm²) 2100 kg/m³ (22.5N/mm² 30.5N/mm²)
Thermal Conductivity	1.33 W/mK (blocks 17.5N/mm²). 1.43 W/mK (blocks 22.5 & 30N/mm²) at 3% moisture content, internal use.
Reaction to Fire	Class A1
Moisture Movement	<0.6mm/m
Durability Against Freezing/Thawing	Frost resistance in accordance with PD 6697, Table 15.

Weights & Pack Sizes

All weights are approximate and subject to normal variations in raw materials.

Table 1 – Block Weights and Pack Sizes

Size mm nominal (mm) (L x W x H)	Unit weight (kg)	Laid weight inc. mortar (kg/m²)	No. of blocks per pack
440 x 100 x 215	18.9	198	64
440 x 140 x 215	26.5	278	48
290 x 140 x 215 (Midi size)	17.5	279	72

Table 1 Notes:
(1) The weights shown are for 17.5N/mm² blocks. For blocks of 22.5 and 30N/mm², the weights are approximately 5% greater than those indicated.
(2) Pack sizes may vary depending on the plant (Brandon or Nazeing) producing and delivering the blocks. For the most up-to-date information, please contact our Sales Team via brandonsales@lignacite.co.uk or nazeingsales@lignacite.co.uk. Alternatively, call our Head Office on 01842 810678.

Sound Properties

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 Building Regulations' Approved Document E. It can also be used to construct party walls meeting Robust Detail specifications (e.g., Robust Details E-WM-1, 3, 16, 18 and 19). The Weighted Sound Reduction Index (Rw) values of various Lignacrete wall constructions are shown in Table 2.

Table 2 – Sound Reduction Values

Weighted Sound Reduction Index: Rw, (dB):

	Plaster finish	Plasterboard on dabs
100mm Lignacrete – All strengths	51	49
140mm Lignacrete - All strengths	55	53
215mm Lignacrete – (100mm blocks laid flat)	58	57

Table 2 Notes:
(1) Sound insulation 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

Lignacrete blocks are rated as Class A1 in accordance with BS EN 13501-1:2007+A1:2009. A1 materials are completely non-combustible and make no contribution to fire.

The fire resistance periods of Lignacrete loadbearing and non-loadbearing walls are shown in Table 3, derived from the National Annex to BS EN 1996-1-2. This is applicable to all strengths of Lignacrete. The fire resistance of loadbearing walls is influenced by the proportion of the load on a wall, which is annotated in the National Annex as a ≤1.0 or a ≤ 0.6. The fire values presented are based on the worst loading case (≤1.0) and can therefore be safely used for all loading conditions.

The thicknesses shown are for masonry alone, excluding finishes. For the fire resistance of walls with finishes, refer to the Lignacite Design Guide – Fire Resistance.

Table 3 – Fire Resistance

Solid blocks (Group 1 units) No finish	Non-loadbearing wall (criteria EI)	Loadbearing wall (criteria REI)
100mm	3 hours	2 hours
140mm	4 hours	3 hours

Thermal Properties

The thermal resistance values (m² K/W) for Lignacrete High Strength blocks are shown in Table 4. The values are calculated by dividing the block thickness by its thermal conductivity (W/mK).

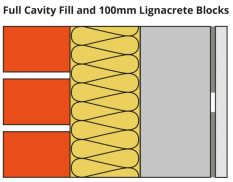
Table 4 – Thermal Resistance Values

	Thermal Resistance (m² K/W): 3% m/c	Thermal Resistance (m² K/W): 5% m/c
100mm Lignacrete 17.5N/mm²	0.075	0.069
100mm Lignacrete 22.5N/mm²	0.069	0.064
140mm Lignacrete 17.5N/mm²	0.105	0.097
140mm Lignacrete 22.5N/mm²	0.097	0.089

Table 4 Notes:
(1) 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.

Presented in the tables are the U-values for a range of wall constructions based on 100mm Lignacrete blocks with full and partial cavity insulation. The outer leaf is facing brick, but a rendered block outer leaf will usually achieve at least the same U-value.

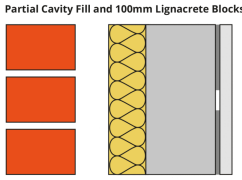
Full Cavity Fill and 100mm Lignacrete Blocks



Cavity fill type	Internal finish - 12.5mm plasterboard on dabs U-values (W/m² K)	Internal finish - 13mm lightweight plaster U-values (W/m² K)
100mm DriTherm Cavity Slab 32 Ultimate	0.27	0.28
125mm DriTherm Cavity Slab 32 Ultimate	0.22	0.23
150mm DriTherm Cavity Slab 32 Ultimate	0.19	0.20
100mm Isover CWS 32	0.27	0.28
125mm Isover CWS 32	0.22	0.23
150mm Isover CWS 32	0.19	0.20
90mm Kingspan Kooltherm K106 (plus a 10mm cavity)	0.18	0.19
115mm Kingspan Kooltherm K106 (plus a 10mm cavity)	0.15	0.15
140mm Kingspan Kooltherm K106 (plus a 10mm cavity)	0.12	0.13
90mm Eurowall + (plus a 10mm cavity)	0.20	0.20
115mm Eurowall + (plus a 10mm cavity)	0.16	0.16
140mm Eurowall + (plus a 10mm cavity)	0.14	0.14
100mm Xtratherm Cavity Therm	0.19	0.20
125mm Xtratherm Cavity Therm	0.16	0.16

Cavity fill type	Internal finish - 12.5mm plasterboard on dabs U-values (W/m² K)	Internal finish - 13mm lightweight plaster U-values (W/m² K)
150mm Xtratherm Cavity Therm	0.13	0.14

Partial Cavity Fill and 100mm Lignacrete Blocks



Cavity fill type	Internal finish - 12.5mm plasterboard on dabs U-values (W/m² K)	Internal finish - 13mm lightweight plaster U-values (W/m² K)
60mm Celotex CW4000	0.25	0.26
75mm Celotex CW4000	0.22	0.22
100mm Celotex CW4000	0.17	0.18
60mm Kingspan Kooltherm K108	0.24	0.23
75mm Kingspan Kooltherm K108	0.20	0.20
100mm Kingspan Kooltherm K108	0.16	0.16
60mm Eurowall Cavity	0.25	0.26
75mm Eurowall Cavity	0.24	0.22
100mm Eurowall Cavity	0.17	0.18
100mm Rockwool Partial Fill	0.27	0.28
150mm Rockwool Partial Fill	0.19	0.20
170mm Rockwool Partial Fill	0.17	0.18
100mm Isover CWS 32	0.26	0.27
125mm Isover CWS 32	0.22	0.22
150mm Isover CWS 32	0.18	0.29

Cavity Fill Table's Notes:
(1) The U-values shown are based on the use of various proprietary insulation products. Alternative products can be used, provided they can achieve an equivalent thermal resistance (m² K/W).
(2) Wall ties are assumed to be stainless steel with a cross-sectional area of no more than 12.5mm² for structural cavities up to 125mm wide.
(3) The suitability of full fill cavity insulation materials will depend on exposure conditions and should be confirmed by the designer. For partial cavity fill, a 50mm residual should be maintained (always check the manufacturer's guidance).

Sustainability

Environmental Management and Responsible Sourcing

Our manufacturing plants operate to a BSI certified Environmental Management System (EMS), which complies with ISO 14001.

Lignacite Ltd also meets the requirements of BES 6001 – Framework Standard for the Responsible Sourcing of Construction Products (Certificate No: BES 580823). This independently awarded Responsible Sourcing Certification confirms that our products have been made with constituent materials that have been responsibly sourced. This extends to organisational governance, supply chain management and environmental and social aspects, all of which must be addressed in order to ensure the responsible sourcing of construction products. Certification to BES 6001 will allow credits to be gained under environment assessment schemes such as BREEAM.

Energy Management

A BSI certified energy management system in accordance with ISO 50001 (Certificate No. ENMS 751020) is used to help manage energy use.

Compliance with ISO 50001 is a valuable tool in helping to manage energy use and includes the following outputs.

- A policy for more efficient use of energy
- Fix targets and objectives to meet the policy
- Use data to better understand and make decisions about energy use
- Measure the results
- Review how well the policy works, and
- Continually improve energy management

Design

Structural Design

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

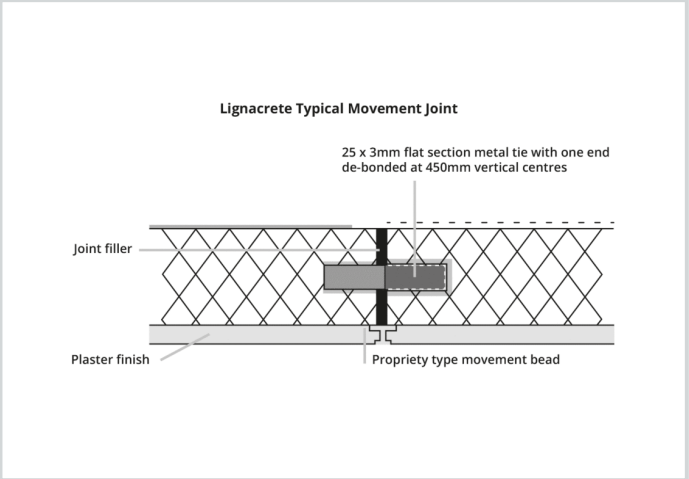
Service Life

When properly constructed, the durability of walls built using Lignacrete High Strength products will match that of walls of traditional masonry and will fulfil their intended function for the life of the building in which they have been installed (typically 100 years).

The blocks themselves will require no maintenance. Maintenance for walls will normally include the replacement of sealant in movement joints and at junctions / openings. Repointing for walls that are exposed to the elements may be necessary towards the end of its service life.

Movement Control

Vertical movement joints should be considered in accordance with masonry design codes and the recommendations of Published Document PD 6697, at 6.0 - 8.0 metre spacings. In areas of raised stress, such as above and below openings in external walls, the blockwork may need to be reinforced to restrain movement.



Wall Ties

Under normal conditions, wall ties should be embedded 50mm into the mortar on each leaf, staggered in alternate courses and spaced in accordance with the following.

Table 5 – Wall Tie Spacings

Leaf Thickness (mm)	Cavity Width (mm)	Horizontal Spacing (mm)	Vertical Spacing (mm)	Ties per m²
Less than 90mm	50 - 75	450	450	4.9
Over 90mm	50 - 150	900	450	2.5

Design continued...

Mortar

Generally, the mortar type for work above ground level should be designation (iii) / Compressive Class M4. However, where it is needed to maximise the loadbearing capacity of the wall, designation (ii) / Compressive Class M6 mixes should be specified. Stronger mixes may also be required for work below ground.

Table 6 – Mortar Mixes

Mortar Designation (as per BS 5628-3)	Compressive Strength Class (as per BS EN 1996)	Recommended mix proportions of materials by volume
(iii)	M4	1:1:5 to 6 - Cement:Lime:Sand. 1:5 to 6 - Cement:Sand with or without air entrainment. 1:4 to 5 - Masonry Cement:Sand (with non-lime filler). 1:3½:4 - Masonry Cement:Sand (with lime filler).
(ii)	M6	1:½:4-4½ - Cement:Lime: Sand. 1:3 to 4 - Cement:Sand with or without air entrainment. 1:2½:3½ - Masonry Cement:Sand (with non-lime filler). 1:3 - Masonry Cement:Sand (with lime filler).

Site Practice

Surface Finish Recommendations

Drylining

Standard plasterboard can be fixed using adhesive dabs or attached onto timber battens or metal studs.

Plaster

Dense plasters can be applied using either 1:1:6 cement:lime:sand or 1:4 ½ masonry cement:sand or 1:5 ½ cement:sand and plasticiser. It is advisable to use a bonding treatment prior to applying cement render plasters.

Lightweight plasters should be used in accordance with manufacturer's recommendations. Suitable plasters include British Gypsum's Thistle Carlite Bonding coat.

Finishing coats include British Gypsum's Thistle Multi-Finish.

Safe Handling

For detailed advice, refer to Lignacite's Sitework Guide and the Material Safety Data sheet.

- Block packs may be stacked on firm and level surfaces to a maximum height of 2 packs. Consideration of handling equipments' suitability for site terrain and safety limits should also be given. Hand-operated pallet trucks may not be suitable unless pallets specific for this purpose are used and loads do not exceed the limits of the pallet truck or its operator(s). Care should be taken when opening packs that are wrapped or banded to ensure that items do not fall or otherwise endanger persons handling the blocks or those nearby.
- Handling of blocks should be undertaken in accordance with HSE Construction Sheet No. CIS77 'Preventing injury from handling heavy blocks' (Construction Industry Advisory Committee) and in accordance with the Manual Handling Regulations 1992 (as amended). This concludes that there is a high risk of injury to individuals who repetitively manually handle blocks in excess of 20 kg. Where practical, mechanical handling equipment should be used to transport block packs to the area of work.
- Blocks should not be installed if the temperature is at or below 3°C and falling.
- Blocks should always be laid on a full bed of mortar and vertical joints solidly filled.