LIGNACITE ECO 50
CONCRETE BLOCKS

Product data updated: 5th Oct 2026

Lignacite ECO 50 concrete blocks are made with at least 50% recycled content. Not only does this conserve the use of primary materials, but it also results in a product with lower embodied carbon compared to most conventional masonry materials.

An independently verified Environmental Product Declaration (EPD) confirms the key environmental data of Lignacite ECO 50, ensuring transparency and sustainability.

Available in a Paint Grade finish, these blocks come in 100mm and 140mm thicknesses. The 140mm version is specially formulated to optimise block density with a unit weight of less than 20kg. This results in a slight colour difference to the 100mm block.

Lignacite ECO 50 blocks are robust and durable, offering excellent technical performance for a wide range of applications.

LIGNACITE
ECO RANGE

Specification & Application

Standards

Lignacite ECO 50 blocks are BSI Kitemarked and certified to BS EN 771-3. They are also Category 1 masonry units manufactured under a BSI-certified Quality Management System, which is BS EN 9001 compliant.

Appearance

Lignacite ECO 50 blocks are medium grey in colour with a close-textured surface. Blocks are manufactured from naturally occurring aggregates and some colour variation between blocks will be discernible. It is recommended that a sample panel is constructed on-site to establish a benchmark for the standard of workmanship and to assess colour variation.

Application

Lignacite ECO 50 blocks are available in a Paint Grade finish. If left Fair, some colour variation will be discernible.

Typical applications include:

- The inner leaves of external cavity walls
- Internal walls, including fire break walls
- Separating walls

Where the appearance of the wall is important, walls of 210-215mm thickness are recommended to be constructed using two leaves of 100mm Lignacite ECO 50 blocks laid back-to-back and suitably tied. This construction is known as a collar-jointed wall.

Alternatively, if the appearance of the wall is not critical, a 215mm wall can be built using 100mm or 140mm Lignacite ECO 50 blocks laid flat.

Specification

Face Size	440 x 215mm
Thickness	100mm, 140mm
Mean Unit Strength	3.6N/mm2, 7.3N/mm2
Configuration	Group 1, solid blocks
Dimensional Tolerances	Category D1
Net Dry Density	100mm blocks - 1,570kg/m3 140mm blocks - 1,450kg/m3
Thermal Conductivity at 3% Moisture Content	100mm blocks - 0.90 W/mK. 140mm blocks - 0.79W/mK.
Airtightness ($m^3/hr/m^2$) No finish	100mm solid blocks: 5.5
Airtightness ($m^3/hr/m^2$) Paint one side	100mm solid blocks: 0.6 (2 coats of emulsion paint)
Reaction to Fire	Class A1
Moisture Movement	<0.7mm/m
Durability Against Freezing/Thawing	Frost resistance in accordance with PD6697, 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
Solid 440 x 100 x 215	14.9	159	72
Solid 440 x 140 x 215	19.2	206	48

Table 1 Notes:
(1) Weights are based on 3% moisture content by volume.

Fire Resistance

Lignacite ECO 50 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 Lignacite ECO 50 loadbearing and non-loadbearing walls are shown in Table 2, derived from the National Annex to BS EN 1996-1-2. This is applicable to all strengths of Lignacite.

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 2 – Fire Resistance

Block type (No finish)	Non-loadbearing wall (criteria EI)	Loadbearing wall (criteria REI)
Lignacite ECO 50 100mm solid	2 hours	2 hours
Lignacite ECO 50 140mm solid	4 hours	3 hours

Table 2 Notes:
(1) Solid blocks are Group 1 units as defined in EN 1996-1-1.

Sound Insulation

Due to its relatively high mass and low porosity, Lignacite ECO 50 blockwork provides excellent levels of sound insulation between buildings and adjoining rooms. The Weighted Sound Reduction Index (Rw) values of various Lignacite wall constructions are shown in Table 3.

Table 3 – Sound Reduction Values

Weighted Sound Reduction Index: Rw, (dB):

	No finish	Paint finish
Lignacite ECO 50 100mm solid	44	45
Lignacite ECO 50 140mm solid	47	48
215mm solid (Lignacite ECO 50 100mm blocks laid flat)	53	54

Table 3 Notes:
(1) Sound insulation values are based on technical assessments and tests to BS EN ISO 140-3.
(2) Painting the walls with emulsion paint is estimated to provide at least a 1 dB improvement compared to the results with no finish.
(3) 215mm walls built using 100mm blocks laid flat cannot be regarded as a fair face wall. However, the construction will be suitable where the appearance of the wall is not important, or if the wall is to have applied finishes.

Thermal Properties

The thermal resistance values (m² K/W) for Lignacite ECO 50 blocks are shown in Table 5. The values are calculated by dividing the block thickness by its thermal conductivity (W/mK).

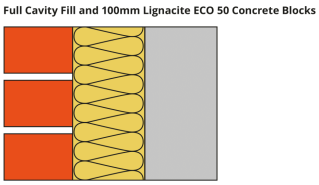
Table 5 – Thermal Resistance Values

	Thermal Resistance (m² K/W): 3% m/c
Lignacite ECO 50 100mm solid	0.111
Lignacite ECO 50 140mm solid	0.177

Table 5 Notes:
(1) 3% moisture content (m/c) should be used for protected locations, such as the inner leaf of external cavity walls.

Presented in the tables are the U-values for a range of wall constructions based on 100mm Lignacite ECO 50 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. It is assumed that no finish is added to the blockwork.

Full Cavity Fill and 100mm Lignacite ECO 50 Blocks



Cavity fill type	No Finish U-values (W/m² K)
100mm DriTherm Cavity Slab 32 Ultimate	0.28
125mm DriTherm Cavity Slab 32 Ultimate	0.23
150mm DriTherm Cavity Slab 32 Ultimate	0.20
100mm Isover CWS 32	0.28
125mm Isover CWS 32	0.23
150mm Isover CWS 32	0.20
90mm Kingspan Kooltherm K106 (plus a 10mm cavity)	0.19
115mm Kingspan Kooltherm K106 (plus a 10mm cavity)	0.15
140mm Kingspan Kooltherm K106 (plus a 10mm cavity)	0.12
90mm Eurowall + (plus a 10mm cavity)	0.21
115mm Eurowall + (plus a 10mm cavity)	0.17
140mm Eurowall + (plus a 10mm cavity)	0.14
100mm Xtratherm Cavity Therm	0.20
125mm Xtratherm Cavity Therm	0.16
150mm Xtratherm Cavity Therm	0.14

Partial Cavity Fill and 100mm Lignacite ECO 50 Blocks

Cavity fill type	No Finish U-values (W/m² K)
60mm Celotex CW4000	0.26
75mm Celotex CW4000	0.22
100mm Celotex CW4000	0.18
60mm Kingspan Kooltherm K108	0.24
75mm Kingspan Kooltherm K108	0.20
100mm Kingspan Kooltherm K108	0.16
60mm Eurowall Cavity	0.26
75mm Eurowall Cavity	0.22
100mm Eurowall Cavity	0.18
100mm Rockwool Partial Fill	0.28
150mm Rockwool Partial Fill	0.20
170mm Rockwool Partial Fill	0.18
100mm Isover CWS 32	0.27
125mm Isover CWS 32	0.22
150mm Isover CWS 32	0.19

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 or as recommended by the manufacturer.

Sustainability

Environmental Management and Responsible Sourcing

Our concrete block manufacturing plants operate to a BSI-certified Environmental Management System (EMS), which complies with ISO14001.

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

Recycled Materials

Lignacite ECO 50 blocks are manufactured with a minimum 50% recycled content.

Environmental Performance Declaration (EPD)

Key environmental performance data (in accordance with EN 15804+A2 and ISO 14025/ ISO 1930) can be found in the EPD for Lignacite ECO blocks.

Environmental Data Summary

A1-A3 (Production Stage) - 100mm Lignacite ECO 50	6.5 kg CO_2e/m^2
A1-A4 (Production & Transport) - 100mm Lignacite ECO 50	6.6 kg CO_2e/m^2
A1-A3 (Production Stage) - 140mm Lignacite ECO 50	17.3 kg CO_2e/m^2
A1-A4 (Production & Transport) - 140mm Lignacite ECO 50	17.4 kg CO_2e/m^2

Table Note:
(1) A4 based on delivery into Central London using HVO fuel.

Source – Click here for all Lignacite ECO EPDs.

The Life Cycle Stage (A1-A3) refers to the extraction, processing, transportation and manufacture of materials and products up to the point where they leave the factory gate to be taken to site.

The notation 'e' is an abbreviation for tonnes of carbon dioxide equivalent.

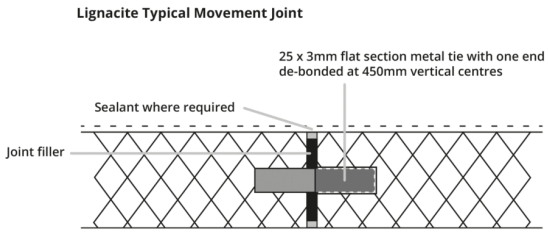
Design

Structural Design

The design of walls using Lignacite ECO 50 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.

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 – 7.0 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.



Service Life

When properly constructed, the durability of walls built using Lignacite ECO 50 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.

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.

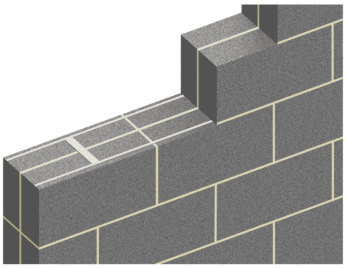
Table 6 – Wall Tie Spacings

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

Collar Jointed Walls

When a 200-215mm thickness wall is required, it is recommended that a collar-jointed wall is used. This comprises two leaves of Lignacite ECO 50 blocks laid back-to-back and suitably tied. This type of wall provides several advantages:

- Manual handling of wider and heavier units is avoided.
- The standard of workmanship when building a fair face wall will be greatly improved when compared to the use of full-width units.



Walls can be tied together using metal ties or masonry reinforcement, e.g., AMR-CJ masonry reinforcement.

Design continued...

Mortar

Generally, the mortar type for work above ground level should be designation (iii) / Compressive Class M4. Stronger mixes may be required if blocks are used below ground.

Table 7 – 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

Direct Painting

A mist coat followed by at least two coats of emulsion will provide a good finish. The actual coverage will depend on the quality of the paint and how it is applied e.g., brush, roller or by spray. Always ensure that each coat of paint has fully dried before any further layers are added.

Safe Handling

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

- Lignacite ECO 50 concrete block packs may be stacked on firm and level surfaces to a maximum height of 2 packs. Consideration of handling equipment's 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 Lignacite ECO 50 concrete 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.
- Lignacite ECO 50 concrete blocks should not be installed if the temperature is at or below 3°C and falling.
- Lignacite ECO 50 concrete blocks should always be laid on a full bed of mortar and vertical joints solidly filled.
- Please note that some colour variation will occur in the blocks due to the use of naturally occurring raw and recycled materials.