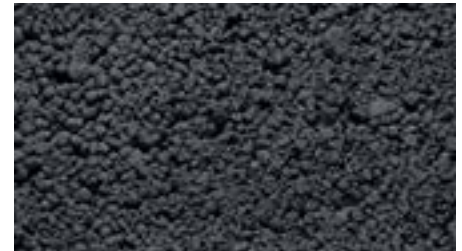


Ultra lightweight, loadbearing units, suitable for general purpose walling applications. Ideal for use in housing and extensions. Fibo 850 is produced in a 3.6N/mm<sup>2</sup> compressive strength. Fibo 950 is produced in a 7.3N/mm<sup>2</sup> compressive strength.

General Properties - Table 1

|  | Fibo 850 (3.6N/mm <sup>2</sup> )               | Fibo 950 (7.3N/mm <sup>2</sup> ) |
|--|--|----------------------------------|
| Face Size  | 440mm x 215mm                                  |                                  |
| Dimensional Tolerances   | Category: D1                                   |                                  |
| Mean Unit Strength (N/mm <sup>2</sup> )                          | 3.6  | 7.3                              |
| Net Dry Density (kg/m <sup>3</sup> )                             | 850  | 950                              |
| Thermal Conductivity (W/mK) @ 3% moisture content (internal use) | 0.27   | 0.31                             |
| Moisture Movement (mm/m)   | <0.6   | <0.6                             |
| Reaction to Fire   | Class A1                                       |                                  |
| Configuration  | Solid Blocks: Group 1                          |                                  |
| Specific Heat Capacity (1000 J/kg/K)                             | 1000   |                                  |
| Water Vapour Diffusion Coefficient                               | $\mu = 5/15$ (Tabulated value from BS EN 1745) |                                  |



- High thermal insulation reducing the amount of added insulation required to comply with energy efficiency standards
- Lightweight, making Fibo 850/950 an easy to handle - one-hand lift - and quick to lay
- Good background for direct application of plasters and renders - no bonding agents required.
- Fixings can be easily made and held securely. Ideal back ground for direct nailing
- High levels of fire protection - up to 2 hours for 100mm loadbearing walls

Fibo 850/950 is an ultra lightweight concrete block manufactured from expanded clay aggregates and a mixture of other naturally occurring raw materials and cement. The clay aggregate is produced from carefully selected clays which through heat expansion are bloated to create a low density porous aggregate with numerous cavities. This is what makes Fibo 850/950 so incredibly light and thermally efficient.

#### Appearance

Fibo 850/950 has an open textured surface which is ideal for applying plaster and render. It has a face size of 440mm x 215mm in 100mm and 140mm widths and is produced in solid form only.

#### Standards

Fibo 850/950 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

Fibo 850/950 is suitable for use in housing and extension projects. It can also be used to construct walls in other buildings where there is a requirement to specify blockwork with a low self-weight, eg., partition walls on floor slabs.

Fibo 850/950 can be considered for use in the following locations:

- Inner and outer leaves of external cavity walls
- Internal walls, including fire break walls
- High strength walls up to 7.3N using Fibo 950
- Use Below Ground. Fibo 850 can be used to construct the inner leaf of cavity walls as well as internal walls below ground. Fibo 950 can also be used to these locations and is also suitable to construct the outer leaf of external cavity walls below ground.

For use in separating walls meeting the requirements of Part E of the Building Regulations, we recommend the use of products from the Ashlite GP and Lignacrete ranges.



"Co-ordinating coursing block available"



#### Sustainability

Recycled content - Fibo 850 and 950 contains recycled material respectively by volume. Recycled content subject to availability of materials.

Responsible sourcing - Lignacite Ltd operates its manufacturing plants to a BSI certified Environmental Management System (EMS) complying with ISO 14001. Lignacite 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.

Environmental ratings - Summary green guide ratings applicable to Fibo 850/950 blocks can be obtained from the BRE Green Guide to Specification.

#### Unit and laid weight

Typical units and laid weight for Fibo 850/950 are shown in Table 2.

Block Weights - Table 2

|          | Width (mm) | Unit Weight (kg) | Laid Weight (kg/m <sup>2</sup> ) |
|----------|------------|------------------|----------------------------------|
| Fibo 850 | 100        | 8.5              | 96                               |
| Fibo 850 | 140        | 11.9             | 134                              |
| Fibo 950 | 100        | 9.5              | 106                              |
| Fibo 950 | 140        | 13.3             | 148                              |

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.

#### Thermal Resistance

The thermal resistance values (m<sup>2</sup>K/W) for Fibo 850/950 are shown in Table 3. The values are derived by dividing the block thickness by its thermal conductivity (W/mK).

Thermal Resistances - Table 3

|          | Width (mm) | Thermal Resistance (m <sup>2</sup> K/W) |        |
|----------|------------|---|--------|
|          |            | 3% m/c                                  | 5% m/c |
| Fibo 850 | 100        | 0.37                                    | 0.35   |
| Fibo 850 | 140        | 0.52                                    | 0.48   |
| Fibo 950 | 100        | 0.32                                    | 0.29   |
| Fibo 950 | 140        | 0.45                                    | 0.41   |

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 Insulation

Sound insulation values for Fibo 850/950 blockwork are shown in Table 4. For use in party walls satisfying Part E of the Building Regulation, other products from Lignacite Ltd are recommended.

Sound Reduction - Table 4

|          | Width (mm) | Sound Reduction Index Rw (dB) |                      |
|----------|------------|-------------------------------|----------------------|
|          |            | Lt/weight Plaster             | Plasterboard on dabs |
| Fibo 850 | 100        | 40                            | 42                   |
| Fibo 850 | 140        | 42                            | 44                   |
| Fibo 950 | 100        | 41                            | 43                   |
| Fibo 950 | 140        | 43                            | 45                   |

Note: 1. The Above values are based upon technical assessments and test to BS EN ISO 140-3.

Note: 2. Surface finishes are assumed to be applied to both wall surfaces. Plasterboard is 12.5mm thick.

#### Fire Resistance

The fire resistance periods of Fibo 850/950 loadbearing and non-loadbearing walls are shown in Table 5.

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 Table 5 are for masonry alone, excluding finishes. For the fire resistance of walls with finishes, refer to the Lignacite Design Guide - Fire Resistance.

Fire resistance of Fibo 850/950 blocks - Table 5

| Solid blocks (Group 1 units) - no finish | Non-loadbearing wall (criteria E1) | Loadbearing wall (criteria RE1) |         |
|--|------------------------------------|---------------------------------|---------|
|  |                                    | a ≤ 1.0                         | a ≤ 0.6 |
| 100mm                                    | 3 hour                             | 2 hours                         | 3 hours |
| 140mm                                    | 4 hours                            | 3 hours                         | 4 hours |

Note:

1. These Tables are 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 from that Standard are available on request.

2. Criteria E1 refers to walls with a separating function. Criteria RE1 refers to walls with a separating and loadbearing function.

#### Thermal insulation

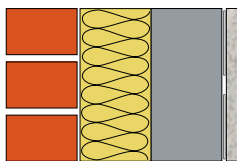
Fibo 850/950 blocks can be used to satisfy the requirements of Part L of the Building Regulations. This includes changes driven by the Future Home Standard which seek to significantly improve the energy performance of new homes, with all homes to be highly energy efficient, with low carbon heating and be zero carbon ready by 2025.



Presented are the U-values for a range of wall constructions based on 100mm Fibo 850 blocks in conjunction 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.

For constructions not shown please contact our Technical Department (01842 810678) who will be pleased to provide confirmation of performance.

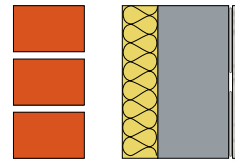
#### Full Cavity Fill and 100mm Fibo 850 blocks



U-values (W/m<sup>2</sup>K)

| Cavity fill type                                   | 12.5mm plaster-board on dabs | 13mm lightweight plaster |
|--|------------------------------|--------------------------|
|  | Internal finish              |                          |
| 100mm DriTherm Cavity Slab 32                      | 0.25                         | 0.26                     |
| 125mm DriTherm Cavity Slab 32                      | 0.21                         | 0.22                     |
| 150mm DriTherm Cavity Slab 32                      | 0.19                         | 0.18                     |
| 100mm Isover CWS 32                                | 0.25                         | 0.26                     |
| 125mm Isover CWS 32                                | 0.21                         | 0.22                     |
| 150mm Isover CWS 32                                | 0.19                         | 0.18                     |
| 90mm Kingspan Kooltherm K106 (plus a 10mm cavity)  | 0.17                         | 0.17                     |
| 115mm Kingspan Kooltherm K106 (plus a 10mm cavity) | 0.14                         | 0.14                     |
| 90mm Eurowall + (plus a 10mm cavity)               | 0.19                         | 0.19                     |
| 115mm Eurowall + (plus a 10mm cavity)              | 0.16                         | 0.16                     |
| 140mm Eurowall + (plus a 10mm cavity)              | 0.13                         | 0.13                     |
| 100mm Xtratherm Cavity Therm                       | 0.19                         | 0.19                     |
| 125mm Xtratherm Cavity Therm                       | 0.16                         | 0.16                     |
| 150mm Xtratherm Cavity Therm                       | 0.13                         | 0.13                     |

#### Partial Cavity Fill and 100mm Fibo 850 blocks



U-values (W/m<sup>2</sup>K)

| Cavity fill type              | 12.5mm plaster-board on dabs | 13mm lightweight plaster |
|-------------------------------|------------------------------|--------------------------|
|                               | Internal finish              |                          |
| 60mm Celotex CW4000           | 0.24                         | 0.24                     |
| 75mm Celotex CW4000           | 0.21                         | 0.21                     |
| 100mm Celotex CW4000          | 0.17                         | 0.17                     |
| 60mm Kingspan Kooltherm K108  | 0.21                         | 0.21                     |
| 75mm Kingspan Kooltherm K108  | 0.18                         | 0.18                     |
| 100mm Kingspan Kooltherm K108 | 0.14                         | 0.14                     |
| 60mm Eurowall Cavity          | 0.24                         | 0.24                     |
| 75mm Eurowall Cavity          | 0.21                         | 0.21                     |
| 100mm Eurowall Cavity         | 0.17                         | 0.17                     |
| 100mm Rockwool Partial Fill   | 0.25                         | 0.26                     |
| 150mm Rockwool Partial Fill   | 0.19                         | 0.19                     |
| 170mm Rockwool Partial Fill   | 0.17                         | 0.17                     |
| 100mm Isover CWS 32           | 0.24                         | 0.25                     |
| 125mm Isover CWS 32           | 0.21                         | 0.20                     |
| 150mm Isover CWS 32           | 0.18                         | 0.18                     |

#### Notes to tables:

- 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 (m<sup>2</sup>K/W).
- Wall ties are assumed to be stainless steel with a cross-sectional area of no more than 12.5mm<sup>2</sup> for structural cavities up to 125mm wide.
- 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.

#### 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 (y) 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 Fibo850/Fibo950 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.

### Thermal Bridging (cont)

We recommend 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 (y) values can be accessed at [www.cba-blocks.org.uk](http://www.cba-blocks.org.uk)

### Design

The design of walls incorporating Fibo 850/950 should be in accordance with relevant design standards including BS 8103: Parts 2 and BS EN 1996-1-1 and the requirements of the Building Regulations.

### 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.

### 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. Ensure the first coat of render is applied to a greater thickness than successive coats.

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.

### Accreditations

