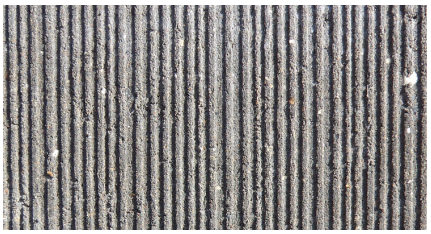
LIGNACITE
Sustainable Masonry

CONCRETE BLOCKS
General Purpose (GP)

Medium density, loadbearing units, suitable for general purpose walling applications.
General Purpose (GP) combines good all round technical performance with a high content of recycled material.

General Properties - Table 1

Face Size	440mm x 215mm
Dimensional Tolerances	Category: D1
Mean Unit Strength	3.6, 7.3, 10.4N/mm^2
Net Dry Density	1450 kg/m^3
Thermal Conductivity (W/mK)	0.47 at 3% moisture content (Internal use)
	0.51 at 5% moisture content (External use)
Moisture Movement	<0.7mm/m
Reaction to Fire	Class A1
Configuration	Solid Blocks: Group 1
Specific Heat Capacity	1000 J/kg/K
Water Vapour Diffusion Coefficient	μ = 5/15 (Tabulated value from BS EN 1745)



General Purpose (GP)

Recycled content .....
for specific details please contact the branch.

- Suitable for various applications above and below ground
- Good surface key for the direct application of plasters and renders
- Provides a strong background for all types of fixings
- Manufactured from at least 35% recycled aggregate conserving valuable sources of primary material

GP is a medium density concrete block which is robust, durable and suitable for a range of walling applications. Typical uses include the inner leaf of cavity walls when used with cavity insulation, separating or partition walls, and infill blocks in beam and block flooring systems. GP can also be used externally where rendering or cladding is to be applied to the wall. GP blocks provide a strong background for holding fixings.

GP is produced using at least 35% of recycled aggregate (by volume) thereby conserving valuable sources of primary material.

Appearance

GP blocks are manufactured with a scratched surface to aid the key of plaster and render finishes. They have a face size of 440m x 215mm and are available in 100mm and 140mm widths in solid form only.

Standards

GP 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

GP blocks can be considered for use in the following locations:

- Inner and outer leaves of external cavity walls
- Internal walls, including fire break walls
- Separating walls including those conforming to Robust Detail specifications
- External and internal walls below ground (7.3N/mm^2 strength blocks should be used to walls exposed to the external ground)
- Infill units to beam and block flooring

Thermal insulation

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

Thermal insulation (continued)

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 GP 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, Lignacite 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

GP blockwork provides excellent levels of sound insulation between buildings and adjoining rooms. It can be used in party wall constructions, based on lightweight blockwork specifications, detailed in 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-2, 4, 8, 11, 14, 17, 20, 21, 22, 27, 28 and 32.

Sustainability

Responsible sourcing - Lignacite Ltd operates its manufacturing plants to a BSI certified Environmental Management System (EMS) complying with ISO14001. 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 and the Code for Sustainable Homes.

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

Design

The design of walls incorporating GP 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. 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.

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.

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Block Weights - Table 2

Width (mm)	Form	Unit Weight (kg)	Laid Weight (kg/m²)
100	Solid	13.7	147
140	Solid	19.2	206

Note: Weights are based on 3% moisture content by weight.

Thermal Resistances - Table 3

		Thermal Resistance (m² K/W)	
Width (mm)	Form	3% m/c	5% m/c
100	Solid	0.212	0.196
140	Solid	0.298	0.274

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

		Sound Reduction Index Rw (dB)	
Width (mm)	Form	L/tweight Plaster	Dry Lined
100	Solid	42	42
140	Solid	52	51

Notes: The above values are based on technical assessments and tests to BS EN ISO 140-3
Surface finishes are assumed to be applied to both wall faces

Fire

The fire resistance periods of GP 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 Tables 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 GP blocks - Table 5

Solid blocks (Group 1 units) - **no finish**	Non-loadbearing wall (criteria E1)	Loadbearing wall (criteria RE1)	
		$a \leq 1.0$	$a \leq 0.6$
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.

3. This Table is derived on data from the National Annex to BS EN 1996-1-2. References to $a \leq 1.0$ and $a \leq 0.6$ refer to the proportion of load on a wall. If unknown, we suggest the values for $a \leq 1.0$ are used as these are 'worst case' values.

Accreditations