

Aggregate Concrete Blocks Cellular Blocks

Introduction

Cellular blocks are masonry units that contain one or more formed voids that do not fully penetrate the block. The selection of cellular blocks can have significant advantages over solid blocks where weight is a prime consideration. The reduced unit weight makes for ease of handling, reduced floor/foundation loading, economic and efficient productivity. They do not require special laying techniques and can be laid on a full bed of standard 1:1:5-6 cement:lime:sand (or equivalent) or general purpose mortar for most applications.

Block Specification

Types

There are two block types available in cellular format:

- Dense aggregate blocks (typical material density range 1800 - 2100kg/m³)
- Lightweight aggregate blocks (typical material density range 850 - 1500kg/m³)

Depending on the manufacturer and thickness, cellular blocks may have in-line voids or parallel voids (multiple rows of voids) – see figures for example of void arrangements.

Cellular units with up to and including 25% of formed voids are Group 1 units to BS EN 1996-1-1. Cellular units with greater than 25% of formed cavities are Group 2 units to BS EN1996-1-1.

Face sizes/co-ordinating dimensions

Cellular aggregate concrete blocks are available in two face sizes (length x height) of 440 x 215mm and 390 x 190mm.

To obtain the co-ordinating dimensions add the specified joint thickness (normally 10mm) to the height and length of the block.

Block description

Cellular blocks are available in various ranges e.g. Standard Common, Close Textured/Paint Grade Common, Standard, Facing and Architectural Masonry Facing Blocks. For more information see CBA Data Sheet 1 – A Guide to Selection & Specification.

Block strengths and dimensions

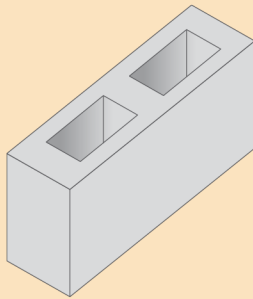
Strengths

Cellular blocks are available in compressive strengths from 2.9N/mm² to 22.5N/mm². Common strengths are 3.6N/mm² and 7.3N/mm².

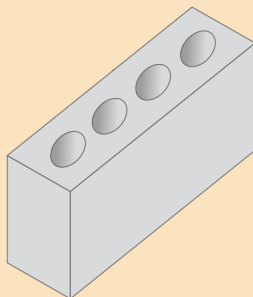
Dimensions

Cellular blocks are available in widths from 90mm to 215mm in 440 x 215mm and from 90mm to 190mm in 390 x 190mm face sizes.

In-line voids

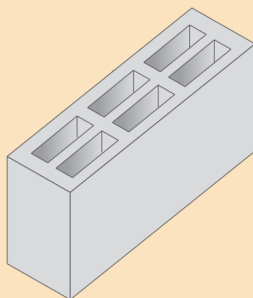


Block with 2 voids



Block with 4 voids

Parallel voids



Block with 2 rows of voids

Cellular Blocks

Applications

Cellular blocks can be used as a direct replacement for solid blocks except where the most onerous conditions exist such as maximum wall mass for airborne sound insulation. By selecting the correct specification, cellular blocks can be used in the following common applications:

- Infill in framed structures
- Providing improved insulation as the inner leaf to external cavity walls
- Outer leaves of cavity walls when protected e.g. render, tiling etc.
- Single leaf external walls when protected e.g. render, tiling etc.
- Internal partitions
- Sound separating walls when supported by acoustic test evidence
- Below dpc internally or externally

Site Considerations

Cutting

Blocks containing splitting aids (double thickness central web and/or transverse slot) are available from most manufacturers in most sizes. Alternatively blocks can be sawn or split on site taking the appropriate safety precautions or, alternatively, supplied pre-cut by the manufacturer.

Chasing

Chasing of a cellular block wall can be accommodated. The depth of vertical chasing should be restricted to not greater than 1/3 block thickness or 1/6 the thickness for horizontal chases. In addition, the depth of the chase should be restricted to ensure that a minimum shell thickness of 15mm is maintained between the bottom of the chase and voids.

Fixings

Standard duty fixings (plastic plug and screw) are easy to install into all types of cellular blocks and are suitable for most domestic fixing applications (e.g. radiators, kitchen cupboards, bookshelves etc).

Where heavy duty fixings are required for commercial/industrial applications, standard bolt type fixings can be used through the solid sections of the block or alternatively, specialist proprietary fixings can be employed.

Visit www.cba-blocks.org.uk for the latest information, news and views from the CBA.

CBA Technical Helpline: 0116 232 5165

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