

Carlyle Avenue – Brighton



Principle Contractor:

Canning Ericsson

Client:

Joshua Charles
Developments Ltd

Project:

A second scheme in Carlyle
Avenue, Brighton

Build method:

Rå Build method using
the H+H large format blocks
and the Thin-Joint System
with Celfix Mortar.

Type of contract:

Design and Build

Architect:

Canning Ericsson

Aircrete contractor:

Canning Ericsson

Executive summary:

Developer Canning Ericsson used H+H's Thin-Joint System of large format aircrete blocks and quick-drying Celfix Mortar to construct a three-storey apartment block with solid concrete floors to current Building Regulations on a confined site in Brighton.

Project Description:

Canning Ericsson demolished a bungalow which it replaced with a five-unit apartment block comprising two ground floor flats, two first floor flats and a top-floor flat incorporated into the building's pitched roof.

The block is constructed on 600mm deep strip foundations built onto chalk bedrock. It has a reinforced concrete ground-bearing ground floor slab and cast in situ concrete first and second floors. Both the inner and outer leafs of the external cavity walls

are constructed using H+H's Thin-Joint System. Thin joint has also been used to construct the double-skin separating walls between apartments and the single skin internal partition walls. The apartment block has a pitched roof with a clay tile covering.

Reason for choosing H+H aircrete product:

Canning Ericsson is well versed in using Rå Build. "We decided to use H+H's Thin-Joint System again because it is quick and easy to use, it goes up fast and gains structural strength quickly; it's a really great system," says Michael Alderton, a director of design and build contractor Canning Ericsson.

Structural strength was important because the weight of the project's cast in situ reinforced concrete first and second floor slabs is carried by the High Strength Celcon Blocks that form the cavity wall's inner leaf.

Carlyle Avenue – Brighton

“The biggest benefit of using H+H’s Thin-Joint System is the ability to use large format 630mm x 250mm x 100mm wide Jumbo Bloks, which enables the walls to be constructed a lot quicker” says Mr Alderton. The blocks are relatively lightweight and easy to cut to shape in comparison to denser blocks. “The footings were in place mid-October 2014 and by the end of December 2014 we had built the block using aircrete with cast in situ floors and fitted the roof.”

In addition to speeding construction the aircrete blocks also help improve the walls’ thermal performance, reduce sound transmission between apartments and improve the airtightness to help the scheme meet the current Building Regulations.

“This is the third time we have use the Thin-Joint System on the full project and we will continue to use it. The biggest benefit of aircrete and the Thin-Joint System comes with the use of the large format blocks [Rå Build]. Rather than using the smaller blocks, these 250mm Jumbo Bloks mean the walls are constructed a lot quicker and they also remain lighter to handle than dense concrete blocks.”

Michael Alderton, Director at Canning Ericsson

Using the Thin-Joint System also helped Canning Ericsson overcome the limited storage facilities on the compact site because the Celfix Mortar is delivered bagged and can be mixed in buckets, which eliminates the need to store sand and other materials on site.

Foundations:

Strip foundations, 600mm deep built on solid chalk.

Ground floor:

125mm thick reinforced concrete ground-bearing slab incorporating a Radon barrier set on a hardcore base.

Internal floors:

First and second floor slabs are cast in-situ reinforced concrete to provide fire separation between apartments. The stairs too are formed from cast in situ reinforced concrete.

Walls:

Thin-Joint System of construction using Jumbo Bloks and Celfix Mortar throughout. All the walls have a plaster finish.

External Walls:

The external cavity wall was constructed using High Strength Grade (7.3N/mm²) Blocks on the inner leaf to support the reinforced concrete first and second floor slabs. The outer leaf is constructed using Standard Grade 3.6N/mm² Blocks. The cavity is filled with 100mm Knauf DriTherm cavity slabs. To minimise heat losses, an additional 70mm of Kingspan Kooltherm insulation has been added externally finished with Knauf’s Marmorit pre-coloured render. The walls have a U-value of 0.13W/m²K.



Carlyle Avenue – Brighton

“Canning Ericsson wanted a fabric-first, high performance masonry construction solution for this tight construction site. Rå Build method of construction using the Thin-Joint System was ideal because the Jumbo Bloks provide a thermally efficient, highly productive building system and the quick drying Celfix Mortar is supplied dry in 25kg bags minimising the need for storage on site.”

H+H

Product benefits:

- Provides a fast watertight masonry shelled enabling internal trades to start worked sooner compared to traditional build methods
- Easily meets or exceeds Part L and Part E of the Building Regulations
- Simplifies the construction process
- H+H aircrete products use up to 80% recycled materials
- Achieves A+ rating in the BRE Green Guide

Other benefits include:

- The components for the Rå Build method are all available off the shelf

- Blockwork is highly adaptable, easily allowing for any last minute design changes
- Aircrete achieves an air permeability of 0.12m³/hr/m²
- Celfix Mortar can be stored within the footprint of the building and small quantities mixed as required
- Has excellent fire resistance with a Class 0 rating for surface spread of flame

H+H aircrete applications:

- Internal and external leaf in cavity walls
- Solid walls
- Separating / party walls
- Flanking walls
- Partitions
- Multi-storey
- Foundations

Separating Walls:

These are constructed using H+H's Thin-Joint System with High Strength Grade Blocks.

Internal Walls:

Internal, non-loadbearing partitions are constructed using Thin-Joint the Standard Grade Blocks.

Roof:

Cut and pitched timber roof supporting interlocking clay tiles with a dry-fix system on ridges and verges. Insulation is installed between and over the rafters to create a 'warm roof'.

Workforce:

The building shell was constructed by a team of four, all of whom had been trained in the use of the Thin-Joint System and all of whom had worked on thin-joint schemes prior to this project.



Carlyle Avenue – Brighton



The Thin-Joint, Rå Build method of construction enables a fast, weathertight masonry shell to be built, allowing follow-on trades to start work sooner in a weatherproof environment, whilst retaining the flexibility of on-site construction. Thin-Joint is a recognised Modern Method of Construction and has been fully adopted as the preferred method of wall construction throughout most of northern Europe.

Aircrete is an excellent all round commercial and industrial building material. Used in partition and external walls (both solid and cavity), fire walls and as infill to steel and concrete framed buildings it provides durability, fire resistance and superb thermal and acoustic insulation.

H+H aircrete has exceptional sustainability credentials: providing excellent thermal and acoustic insulation and contributes to airtightness but also being manufactured from up to 80% recycled materials, making it sustainable both in manufacture and in use. We also have BES 6001:2008 accreditation for responsible resourcing of materials in addition we have an A+ rating in the BRE green guide on both cavity and solid external walls. Couple this with H+H UK's rigorous approach to pursuing the highest environmental standards throughout the whole of its business and it's easy to see why this innovative and award winning system is now firmly established within the UK.

Contact details

For enquiries call
Tel: 01732 886444
or email: info@hhcelcon.co.uk

Head office

H+H UK Limited
Celcon House
Lghtham, Sevenoaks
Kent TN15 9HZ

Further reading

Designing & Building with Aircrete
Thin-Joint as an MMC
Fact sheet 9 Solid wall construction
Building with aircrete

For further information about the subjects covered or the H+H products used in this case study, please visit our website www.hhcelcon.co.uk