



Self Build Development Bourne End, Bucks

Principle Contractor: Chris Page Building Contractors, 19 Blind Lane, Bourne End, Bucks

Client: Private family

Project: A one off custom built four bedroom home built on the site of an existing bungalow, which had been demolished

Project value: £260,000

Build method: Solid wall aircrete block construction with external wall insulation (EWIS). H+H Celcon Blocks Standard Grade were used throughout with traditional mortar

Location: Bourne End, Bucks

Type of contract: Simple written quote with any extras agreed before work commenced

Architect: Architectural Services and Consultancy, 1 Warren View Cottages, Holyport Street, Holyport, Maidenhead SL6 2JY

Aircrete contractor: Chris Page Building Contractors

Build time: August 2012 to April 2013

Executive summary:

Private one-off custom-built residential home built for a family of four who had lived in Bourne End since 1985. They wanted to buy a new house in the area, having extended their existing bungalow three times, but could find nowhere suitable. This led them to look at custom building a new home on the existing bungalow's plot.

As part of the decision making process the family had the previous house valued. At £350k it was lower than they had thought and confirmed the viability of a custom build. The family had clear ideas regarding what they wanted for their new house. It had to be 'green' with low energy consumption, have high levels of environmental comfort and be built with solid concrete floors and masonry internal and external walls. Professional design advice was also sought and this suggested beam and block for the ground floor and concrete planks for the first floor.



“This was the first time I had built a house with external wall insulation, although I am very familiar with block-work building. The single skin went up very quickly and I am very pleased with the end result. I would love to build another house like it.”

Chris Page,
Chris page Building Contractors.

Originally the family wanted to start work in late June 2012 but they had a major problem with the disconnection of gas and electricity from the original bungalow which set them back by six weeks.

As a consequence, the family had to move to rented accommodation for longer than anticipated, from the 1st of June until the 13th of August. They were given £250 compensation by the utility supplier as a result of the delays, but this compared poorly with their extended rental which was over £2000.

The building shell was roofed and plastered in December 2012 and the floor screed went in a few days before Christmas. They decided upon a special admixture in the screed to improve its performance as they were laying under-floor heating.

After connection of gas and electricity there was a lengthy warm-up process for the under-floor heating, taking a recommended ten days. Unfortunately, this process caused substantial amounts of water vapour to be released, much of which condensed in the loft. Although this was only a temporary problem, experience shows a

need for care and a recommendation to other self-builders to ventilate their houses as much as possible at that stage to open windows and ensure there is good air flow through the loft from the eaves, which can easily be blocked by poorly fitted loft insulation.

After the delay in June, the project got underway in August 2012, the external skin was completed by Christmas and in April 2013 the family moved in.

U-Value: External walls built to achieve a minimum U-value of 0.24W/m² K.

“The speed of build was very good and we love living in the house. Despite being bigger than our old bungalow it uses less energy – it achieved a B Energy Performance Certificate - and is more comfortable to be in. The wow factor is the brightness of the house as it’s now clearly visible from the road. We have had road works along the road recently and most drivers pulled up in the queue opposite the house and spent a long time looking at it. My son also loves the front door that shuts like an airlock!”

Lynn Thomas, Client





External walls:

Celcon Blocks 215mm thick (7n/mm²) joined with traditional mortar - mixed in accordance with BS 5628, pt3, 1985 – and a two coat gypsum plaster finish. The walls were finished externally with 100mm external wall insulation above DPC and 80mm below, from manufacturer Sto.

Internal walls:

Ground floor non load bearing walls constructed with Celcon Blocks Standard Grade 440 x 215 x 100mm with a 12.5mm plaster finish.

First floor non load-bearing walls constructed with Celcon Blocks Standard Grade 440 x 215 x 100mm with a 12.7mm plaster finish.

Foundations

All foundations were dug to a minimum depth of 1 metre, standard strip. They were initially designed at 450mm width but increased to 600mm at the request of the Building Control Officer, due to ground conditions. The foundation concrete used was a minimum grade of C₂₀ and below DPC, Celcon Foundation Blocks were used.

Windows

Internorm triple-glazed composite windows in aluminium and timber were used. Front and side doors were aluminium and the patio doors were PVCU.

Floors

Screed floors throughout with under-floor heating and 18mm engineered wood finish in living area. Tiling was used in bathrooms, en-suites, kitchen and utility room.

“Solid wall construction has been growing for several years in the UK market. As solid wall eliminates the requirement for cavity ties, cavity closures and cavity trays enabling a simpler build compared to cavity wall construction. The versatility of this method of build enables various external finishes to be applied; external insulation can be changed to achieve the required thermal performance.

The product’s good thermal mass helps in reducing temperature variations within the property allowing the home owner a more comfortable living environment.”

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John Churchett at H+H





Product benefits:

- Easily meets or exceed Part L and Part E of the Building Regulations
- Simplifies the construction process
- H+H aircrete products use up to 80% recycled material
- Achieves A+ rating in the BRE Green guide

Other benefits included:

- Block-work is highly adaptable, easily allowing for any last minute design changes
- Aircrete achieves an air permeability of $0.12\text{m}^3/\text{hr}/\text{m}^2$
- 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

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: not only does it provide excellent thermal and acoustic insulation and contributes to air-tightness but, being manufactured from up to 80% recycled materials, it is 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 under 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

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Further reading

Designing with Aircrete
Building with Aircrete
The Excellence of Aircrete - the all round commercial and industrial building product 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