

H+H Case Study

Chantry Hall, Westbourne, West Sussex

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Chantry Hall: mixed use development Westbourne, West Sussex

Developer: Telegraph Construction Management Ltd,
Telegraph House, Compton, West Sussex, PO18 9QL.

Clients: Downland Housing Association & Bolton Retirement Homes Ltd.

Project: 36 new affordable and retirement homes.
The 8 affordable homes are for Downland HA and the 28 retirement homes for Bolton Retirement Homes. Phase 1 of 16 homes is complete and Phase 2 is currently under development.

Build method: Rå Build: Thin jointed masonry shell.

Value: Total Sub-contract Rå Build Value is £834,000.
The overall contract is worth £6 million.

Location: Chantry Hall, Westbourne, West Sussex

Type of contract: JCT 2008 management contract

Architect: Giles Jollands Architects, North Marden Barn, North Marden,
Chichester, West Sussex, PO18 9JU.

Contractor: Masonry Frame Systems: Middlefield Lodge, Olantigh Road,
Wye, Kent, TN25 5EP. Masonry Frame Systems (MFS) is one of the most
established H+H recommended contractors.

Bricklaying subcontractor: Inner Rå Build shell by Masonry Frame Systems:
External brickwork by Clarke and Fradgley, based in Fareham, Hampshire.

Project description: Phase one consists of a mix of two storey 2 and 3-bedroom affordable and retirement houses. The external cavity walls are constructed with a Thin-Jointed aircrete inner leaf and either brick, flint or cladding to the outer-leaf, topped with a pitched, tiled roof. The foundation and ground floor makes use of the tongue and groove H+H Flooring System and Celcon Foundation Blocks. The first floors incorporated engineered timber joists by iLevel and roofs constructed with trusses and spandrel panels, designed and manufactured by BSW Timber Systems Ltd. The internal finish is dry lined. Phase two will be constructed using the same methodology.

Build time: The Rå Build programme for the initial phase of 16 homes from foundations to structural roof completion, took approximately 16 weeks, with some 3,000 m2 of aircrete laid and 900 m2 of the H+H Flooring System installed.

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Executive summary: The Rå Build method - with the inner leaf, first floor and roof installed ahead of the external leaf - offered many advantages:

The homes were required to achieve level three in the Code for Sustainable Homes, and the excellent acoustic, thermal and air tightness characteristics inherent with this type of construction contributed greatly towards this. The speed of build was another important factor and the Rå Build method gave impressive time savings over other construction techniques. All the external finishes are of a traditional appearance in keeping with the surrounding area.

Product used / aircrete specification:

3.6N/mm² Jumbo Bloks
(610 x 270 x 100mm / 115mm thick)
3.6N/mm² Celcon Foundation Blocks
(440 x 215 x 355mm thick)
H+H Flooring System
(300 x 600mm up to 6.0m long)
Celcon Floor edge units
(300 x 215 x up to 600 mm thick)

- **External walls** - Cavity construction using H+H Thin Joint system with Jumbo Bloks (610 x 270 x 100 and 110mm thick) and Celfix Thin Joint mortar for the inner leaf, with either brick, flint or clad aggregate blockwork for the outer leaf.

With 60mm Kingspan rigid insulation, 50mm residual cavity and an internal finish of 12.5mm plasterboard fixed using dabs, the external walls provided average U-values of 0.21W/m²K.

- **Separating wall** - 2 leaves of 115mm Jumbo Bloks Thin Jointed with Celfix mortar, 75mm cavity fully filled with Isover RD Party Wall Roll acoustic insulation. Finished with 12.5mm plasterboard on dabs both sides. To improve the acoustic performance still further, cavity ties were omitted.
- **Internal partition walls** - 63mm timber studs infilled with insulation and finished with 12.5mm plasterboard both sides.
- **Ground floor** - H+H Flooring system with grouted joints. In keeping with the approach of avoiding wet trades and taking advantage of the very flat system, floor boarding was installed over Kingspan insulation.
- **Foundations** - Strip footings with 2 courses of Celcon Foundation Blocks to dpc level.



H+H UK Recommended contractor comment

"We are an H+H Recommended Rå Build Contractor and long standing user of H+H aircrete products. On this project you could not use much more aircrete if you tried. We used aircrete for the entire inner skin of the development and for the first time on a commercial development we also used the H+H flooring system with Celcon Foundation Blocks. We specialise in Rå Build and know how easy and fast it is to get an aircrete shell built from dpc, but we were pleasantly surprised with the foundation and floor products. We found the floor very quick to lay great to work off and incredibly flat, providing an excellent base for the rest of the construction."

Norman Hinckes, Director, Masonry Frame Systems

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Reason for choosing H+H aircrete products

Telegraph Construction specified the Râ Build method from the beginning, the primary reason being the speed of construction achievable. With the bulk of the development being retirement homes, the traditional solidity of a masonry construction was considered more suitable than lightweight options. The flooring and foundation products were specified due to the excellent thermal properties they bring as well as the flatness achieved with a completed floor. This was important as the development needed to achieve at least level 3 of the Code for Sustainable Homes. The environmental credentials of H+H aircrete were also taken into consideration.

Acoustics: With the majority of the development being made up of retirement homes, sound insulation was an important factor. Telegraph Construction specified a minimum 50dB DnT,w + Ctr sound reduction for separating walls to achieve 3 credits within the Health and Wellbeing Category of the Code for Sustainable Homes.

H+H partnered with Isover to devise a bespoke solution. Trial construction of a new wall building method was carried out and tested at H+H 's Borough Green Research Laboratories prior to any work beginning on site.

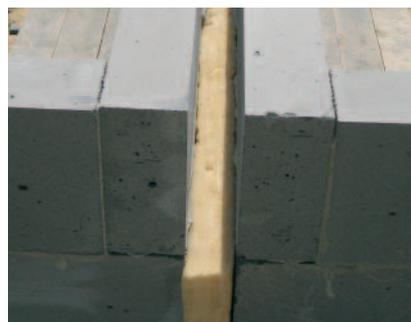
The chosen approach was to fill the separating wall cavity with insulation tailored to enhance acoustic rather than thermal performance; something never done before with an aircrete construction.

Once completed, sound tests have shown an average 56dB DnT,w + Ctr sound reduction, far better than required, giving the development an extra credit on the code for sustainable homes.

Developer comment: "We were pleased with the Râ Build approach because having the one shell contractor simplified the process for getting the site underway within agreed time frames. The speed of build is remarkable and in fact the watertight shells were ready so quickly we had to be alert to keep up. We found the Thin-Joint walls provide a very solid and true base for following trades"
Adrian Rolt, Director, Telegraph Construction Management Ltd

"By working together with Isover, we were able to show how effective an aircrete wall can be at reducing the passage of sound between dwellings, in fact being the first to come up with such an answer using this material"

Doug Harris,
H+H UK Research Manager



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Product/system benefits:

- Build programmes are reduced by allowing the construction of the inner shell ahead of the external cladding, by one contractor
- Easily meets or exceeds Part L and Part E of the Building Regulations
- Simplified the construction process

Masonry Frame Systems were in complete control of the frame build; block-work, floors and roof timbers, all installed prior to the arrival of the brickwork contractors.

Other benefits included:

- Virtually nil lead time, the components for Thin-Joint block-work being available from stock
- Block-work is highly adaptable and design flexible, or if other design elements are not as they should be
- Thin-Joint blockwork has an air tightness around $1\text{m}^3/\text{hr}/\text{m}^2$
- Approximately 75% less mortar is required on site. Celfix takes up less storage area, with quantities mixed as required.

H+H aircrete applications:

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

The RâBuild method enables the structure of a building to be erected faster and to a better quality, allowing follow-on trades to start work sooner in a substantially weatherproof environment, whilst retaining the flexibility of on-site construction. It is fully adopted as the preferred method of wall construction throughout most of northern Europe.

Aircrete is also 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.

The speed of build and waste reduction that can be achieved using the Râ Build method with the H+H Thin-Joint System helps in meeting the stringent requirements of build schedules.

H+H aircrete has exceptional sustainability credentials: not only does it provide excellent thermal and acoustic insulation and contributes to air-tightness but, as up to 80% of the raw materials are recycled, it is sustainable both in manufacture and in use. Couple this with H+H'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

H+H Thin Joint brochure
H+H Jumbo Blok Brochure
H+H Multi Plate Brochure
Building a sustainable future
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

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