

Ashford Council Houses



Executive summary:

Changes to government funding structures for social housing allow Councils, for the first time in nearly thirty years, to build directly-owned houses for rent. Capitalising on these changes, Ashford Council embarked on a programme of building that is likely to see some 20 units per year added to the council-owned portfolio using private sector finance to fund the development.

The most cost-effective way for the council to achieve its objective was to use land already in council ownership – hence the focus on brownfield and infill sites. The use of these small areas of land does present some logistical challenges, and was one of the reasons that a masonry build was preferred over timber frame: with a tight space in which to build, manoeuvring a timber frame into place would, in many instances, have been impossible.

As Ashford Council had not directly built any new housing units for some two decades, it needed to focus on enhancing its in-house building-management skills. In this project the Council also relied on the experience of its design and build contractor ISG Jackson.

Principle Contractor: ISG Jackson

Specialist contractor: Masonry Frame Systems

Client: Ashford Borough Council

Project: 44 brand new council houses. The development comprises a range of dwellings including: bungalows, semi detached and attached houses.

In addition there are some apartments and a care unit for elderly residents.

Build Method: Rå Build Thin-Jointed cavity wall using Celcon Jumbo Bloks for both interior and exterior leaf with a render finish for the facade.

Value: £750k for all masonry Rå Build work

Location: 11 sites around Ashford, Kent

Type of contract: Design and Build

Rå Build contractor: Masonry Frame Systems carried out all the structural envelope including: internal and external blockwork leaves; intermediate and PCC separating floors and trussed roof construction.

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Project description:

This was phase two of a multi-staged project to build new council homes on existing council-owned land. Typical sites for the project included disused garages and areas of waste ground between developments.

The dwellings were all built to Code Level 4 of the Code for Sustainable Homes. Although in advance of the existing building regulations, this objective fitted with the government aim of encouraging government agencies to increase standards of sustainability.

To achieve this rating, the construction elements needed a high level of thermal insulation. The Rå Build method using the H+H Thin Joint masonry system was specified using Jumbo Bloks. Fully filled cavities were combined with either aircrete or brick outer leaves.

This is not only an extremely fast and efficient method of building, but also provides substantial benefits in

reducing heat loss. In designing the wall structure, the use of aircrete's very low psi values, based on Accredited Construction Details, allowed a halving of the y-value from 0.08 to 0.04 W/m²K. This is used to calculate the impact of linear thermal bridging within SAP 2005. The 0.04 y-value is achieved by virtue of the thermal efficiency of aircrete, without the need to resort to Enhanced Construction Details, and has a similar effect on all external elements.

Wherever possible the contractors used aircrete for both leaves of the external walls in order to fully capitalise on the inherent thermal efficiency of aircrete. The outer leaf was then finished with a through-colour monocouche render.

High performance full-fill cavity wall insulation manufactured by Superglass was used in the 125mm cavity. The structural width of the whole cavity wall was no more than 325mm with a U-value of 0.19W/m²K using two Thin Jointed leaves of 3.6N/mm² aircrete.

However, taking into account the 0.04 reduction in the y-value meant that the walls effectively provided a U-value of 0.15W/m²K.

To complete the energy efficiency of the build, solar PV panels were used on the roof of the dwellings. It was necessary to include some renewables in this project to achieve Code 4 level, but the contractors did note that the very thermally efficient structure significantly reduced the PV requirement.

Build time:

The 44 units were delivered within a 21 week programme with four sites under construction at any one time.

“On this development we wanted to build to Code Level 4. Although in advance of current building regulations, the government is looking for agencies to increase sustainability standards so we were looking for an effective way to build to this level.

We wanted to go with an all masonry solution for several reasons. We wanted a really robust solution to help with our longer-term planned maintenance programme and feel that masonry provides us with the reassurance of a really solid structure. We also considered that air-tightness that the Rå Build method offers, particularly the assurance that this level of air-tightness will be maintained over time.

The masonry solution also gave us the flexibility to include bespoke designs – which is key to the success of this project, given the nature of the sites we were developing.”

Giles Holloway, Ashford Borough Council



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“We are Rå Build contractors so this is all we do, but for this project the masonry block design was ideal. All the sites are infill so space for access was limited – the blocks could easily be delivered in small loads with no requirement to use cranes for unloading. Each building is also a bespoke design, so the inherent flexibility of a block-based structure is a key advantage – the nature of blockwork is that you can hand build it to any required design.”

**Norman Hinckes,
Director, Masonry Frame Systems**



Reason for choosing H+H aircrete products:

The council was looking for a combination of excellent thermal insulation, speed of construction and a very robust finished structure. The design chosen allowed the houses to be built to level 4 of the Code for Sustainable Homes and the council was keen to go for an all masonry solution.

The objective was to build high quality houses that will last for decades, being able to withstand the rigours of a number of different tenant families over time. The council wanted a predictable and low level of planned maintenance and also felt that a masonry solution would be more likely to retain its level of airtightness over time than a timber frame alternative.

Because the sites are relatively small, the design for each housing unit needed to be bespoke. The council, building new houses for the first time in 20 years, was keen to keep as much of the process in-house as possible. An external planning consultant was used but much reliance was placed on

in-house design resources. Masonry products allowed for great flexibility in design. The skills required to build masonry walls are common within the building trade, allowing local labour to be used for site work, which fitted in with Ashford Council’s sustainability commitments.

Another clear appeal of the H+H offering was the sheer speed with which the Rå Build frame was completed, allowing follow on trades onto site very quickly and shortening the build time. The Thin Joint masonry allows storey height construction, and retrofitted joist hangers in the houses avoided the need to cut blocks at first floor level and eliminated the concerns regarding air tightness and sound resistance normally associated with joists build in.

Ashford Council specified the H+H system having been invited to see another Rå Build site under construction.

“With 44 units including 18 apartments on eleven separate sites, all with different dwelling types, Rå Build, using Thin Joint technology, provided a simple approach at design stage, plus vital programme flexibility on site.

The large format blocks and thin layer mortar are ex stock, and simply called off as required, making delivery and storage of blocks a straightforward issue for the contractor. As an H+H Recommended Contractor provided all masonry frames across eleven separate sites the programme control was greatly simplified.”

**Graham Keenor,
Development Manager, H+H**

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Product used / aircrete specification:

Cavity wall construction using the H+H Thin-Joint System with Jumbo Bloks and Celfix Thin-Joint mortar.

External and internal separating walls 3.6N/mm² Jumbo Bloks (610 x 270mm face size and 100mm thick) were used for both external and separating walls. For apartment blocks Hi-Strength Jumbo Bloks with a compressive strength of 7N/mm² were used to the ground floor.

Internal partition walls

The construction of the internal walls varied depending upon the dwelling type. Where masonry walls were constructed, the same Jumbo Bloks from H+H were used in a Thin Joint construction. Party walls also included Superglass insulation in the cavity to address the thermal losses identified in the new Part L 2010 requirement without affecting the acoustic insulation requirements between dwellings.

Foundations

A range of foundation designs were used; mostly strip, with piled foundations to some sites. All properties have beam and block ground floors in-filled with Celcon aircrete floor blocks.

Roof

Trussed rafter type pitched roof constructions were the standard design, accommodating on-top Solar PV panels.

Product/system benefits:

- Programme time was reduced by a frame construction allowing early access for first fix trades
- Easily exceeded Part L of the
- Building Regulations

- Simplified the construction process
- Masonry Frame Systems were in complete control of block-work, floor and roof elements and were therefore not dependent on outside agents for additional delivered supplies

Other benefits included:

- The components for Thin-Joint block-work are all available off the shelf
- Block-work is highly adaptable and flexible – very suitable for bespoke design solutions
- Thin-Jointed walls have an airtightness of around 1m³/hr/m²
- Celfix mortar can be stored within the footprint of the building and small 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

Thin Joint construction using aircrete enables the structure of the building to be built faster and to a better quality, allowing follow-on trades to start work sooner in a 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 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 R& Build method with the H+H UK Thin Joint System helps in meeting the stringent requirements of build schedules.

Added to this 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. The products attract 3 credits within the Code for Sustainable Homes, Mat2 Section. 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.

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www.hhcelcon.co.uk