H+H Case Study
Linden Homes, Northfields

Product used / aircrete specification:

External Walls: 3.6N and 7.3N/mm² 200mm Plus Blocks

Separating Walls: 2 leaves 100mm Jumbo Bloks (Robust Detail E-WM-10)

Celfix thin joint mortar was used throughout.

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 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.

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 85% recycled materials, it is sustainable both in manufacture and in use.

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 aircrete is now firmly established within the UK.

"Linden Homes was frustrated with timber frame and it was decided that we should use a faster, more robust method and one that was more cost effective. By switching to Rå Build we were able to save in excess of 10% as we can get the inner shell of a masonry home built very quickly.

We have worked with H+H for over 13 years and we are always impressed with the results that can be achieved with their product. The work being carried out at Linden Homes, Northfields has only confirmed my high opinion of the company."

Craig Hart, **MD of Hart Construction**



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Further reading
H+H Thin-Joint brochure
H+H Jumbo Blok Brochure
H+H Multi Plate Brochure
H+H Rå Build 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

build with ease

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November 2012

CI/SfB Ff4



Sustainable Housing Development
Northfields

Main Contractor: Galliford Try Partnerships Limited, Hodgson House, 50 Rainsford Road, Chelmsford, Essex, CM1 2XB.

Specialist Aircrete contractor: Hart Construction, Unit 1A, Grange Farm, Grange Rd, Colchester, CO5 0QQ.

Client: Homes and apartments for private sale with some social housing.

Project: New sustainable neighbourhood designed by Terence O'Rourke. Within this 6.9 hectare site to construct 430 dwellings aimed at first time buyers will provide new homes, an attractive open park and school with useful transport links for the local community.

Build Method: Rå Build method of aircrete construction with H+H blockwork and Celfix thin joint mortar.

Value: The aircrete value is £312,000.

Location: Linden Homes, Northfields, Turner Hill, Colchester, Essex, CO4 BJL.

Type of contract: Design and Build.

Architects: Terence O'Rourke Ltd, 3 Whitcomb Street, London, WC2H 7HA.

Executive summary: Linden Homes, Northfields is H+H's 2000th Rå Build. This unique method creates the ground floors, exterior walls, upper floors and partitions as a labour – inclusive package.

Summary:

Northfields, Colchester, is a new sustainable neighbourhood designed by Terence O'Rourke to provide new homes, an attractive open park and school with useful transport links for the local community. Linden Homes is building a housing development within this 6.9 hectare site to construct 367 dwellings aimed at first time buyers.

The 266 houses in the second phase are being constructed using the Rå Build method of aircrete construction with H+H blockwork and Celfix thin joint mortar. This is the 2000th Rå Build job for H+H. The sustainable homes will be offered for private sale, some under the Government's NewBuy scheme, with an additional allocation for social housing.

The development will have rainwater harvesting (water butts), passive solar, photovoltaics, cycle storage and waste recycling.

Properties available include 'The Ardleigh' a two bedroom-terraced house, 'The Farnham' a three bedroom-terraced house and 'The Jay' a three storey, four bedroom terraced house.

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All styles have an open plan layout with a separate kitchen area and additional sliding door access to the rear garden. There are also detached house variations available with similar layouts.

The development also features Waltham Place an attractive three-story apartment building consisting of 12 social and affordable apartments, including one and two bedroom flats.

The completed block of apartments is 100% social and affordable – two further blocks to be constructed will be predominantly for private sales.

Build time:

The project began in 2008 and will be completed in 2013. The aircrete work with Celfix thin-joint mortar commenced in 2010 and is currently still on site.

Build method:

Originally the build method was timber frame, however Linden Homes saw a potential cost saving of up to 10% by switching to the Rå Build method of thin joint aircrete construction. Terence O'Rourke recognised an aircrete solid wall construction method meant for a more robust build that would support the varied external cladding types used.

The Rå Build method uses the fast setting thin Joint system with large format blocks to build the inner aircrete leaf directly to full storey heights - with intermediate floors and roof installed - ahead of the external brickwork or cladding. This provides a fast, stable and weatherproof shell, allowing first fix trades early access whilst the external cladding is completed. Further time is saved by the use of retrofitted joist hangers, avoiding any block cutting at floor level, and enhancing air permeability levels.

The external solid walls were built using 3.6N and 7.3N/mm_ 200mm thick Plus Blocks insulated using 150mm EPS insulation with a Weber Therm XT render system. Separating walls were constructed with two leaves of 100mm Jumbo Bloks (Robust Detail E-WM-10).

"H+H is particularly proud to be involved with this project as it's the company's 2000th Rå build job demonstrating the popularity of the method. Unlike most frame systems, the Rå Build method of construction does not require any waiting time for settlement before applying the render or other finishes. In fact, the first fix trades can start work inside whilst the external skin is going up – therefore saving valuable time and money"

Graham Keenor, H+H Development Manager

"From a design perspective, the solid aircrete walls meant there were no restrictions for positioning studwork and other fixings, and it also provided an excellent substrate for the variety of cladding types and insulated render systems used on the project."

Dan Fairley,
Senior Architect Terence O'Rourke

Executive summary:

Linden Homes, Northfields is H+H's 2,000th Rå Build. This unique method creates the ground floors, exterior walls, upper floors and partitions as a labour – inclusive package, without any of the logistical problems associated with coordinating different trades for each stage of the build. Full storey height walls can easily be built in just one day.

Throughout the development, four different types of H+H aircrete block were used for a solid wall construction, coupled with insulated render panels.

Reason for choosing H+H aircrete products:

The general sales properties needed to be built to Eco Homes 'excellent' and the affordable units are being constructed to level three of the Code for Sustainable Homes. It was essential that a product was chosen that could meet these standards whilst also being cost effective and robust.

The initial construction phase used a timber frame method, however as the project developed, further consultation proved that a more robust, cost and time effective method would be required to suit the brief and changed market conditions.

H+H was chosen as they perfectly met the specification by providing a sustainable and robust build method that would save in excess of 10% compared to timber frame.

U-value target:

Walls featuring 200mm 3.6N Standard Grade Plus Blocks: 0.15 W/m^{2}K.

Ground Floors:
Between 0.17 and 0.23W/m^{2}K.

Roof: 0.14 W/m^{2}K

Doors / Windows: 1.50 / 1.30W/m^{2}K

Thermal Bridging:

y-value: 0.08W/m
Accredited Construction Details.

"The Northfields development in Colchester has proved extremely popular. We were keen to build a development that gave buyers a choice of house type as well as high quality design, energy efficiency set in a great location. The range of mortgage products offered by Linden Homes has made it a desirable and accessible option, especially with first time buyers."

Housebuilder comment, Linden Homes Eastern