

Fielding Meadow - Leicestershire



Main Contractor: Cawrey Limited

Project: Cawrey Homes' Fielding Meadow development is made up thirty two 2 & 3 bed semi-detached and four 4 bed detached homes. All the homes are built to level 4 of the Code for Sustainable Homes

Client: Cawrey Homes

Build method: Standard trench fill foundations with aircrete Celcon Plus Blocks Standard Grade used for the foundations and for the inner leaves of all external cavity walls. All homes are finished with unusual sedum roof coverings on single ply membrane. Solar PV panels are installed to a solar fin. Traditional mortar was used throughout the development.

Value: The value of aircrete blockwork is approximately £80,000 with the overall project coming in at £11.5 million

Location: Fielding Meadow, Fielding Lane, off Ferndale Drive, Ratby, Leicestershire, LE6 0AS.

Type of contract: Design and build

Aircrete contractor: Cawrey Homes carried out all aircrete blockwork

Build time: Construction on site started in October 2010 with homes reaching completion at different stages up to 2013

All of the 36 homes on the Cawrey Homes' Fielding Meadow development are built to level 4 of the Code for Sustainable Homes, making use of a 'fabric first' approach, with H+H aircrete blockwork, coupled with different renewable technologies.

Air Source Heat Pumps deliver hot water and heating to underfloor pipework on the ground floors and radiators on first floors. Fabric heat losses are reduced by highly insulated ground floors, 200mm wide filled wall cavities and 'green' (sedum) roofs. Roof fins provide passive ventilation to reduce overheating in summer, solar PV panels generate electricity and energy efficient appliances are included in every home.

The majority of the homes are for sale on the private market, 80% in fact, with the remaining 20% being reserved for a local housing association. Cawrey Homes builds exclusively in the Ratby area, having done so since 1968, and has gained a reputation for constructing quality masonry homes to high specifications for all types of buyer.

Fielding Meadow - Leicestershire

Executive summary:

Fielding Meadow is a 'fabric first' development built with an interesting mix of the traditional and 'modern' methods of construction. H+H blocks were used for the foundations and also, in combination with standard mortar, for external cavity walls and ground floor partitions. Each home has been finished externally with tried and tested facing brickwork, internally with two coat wet plaster. A host of renewable technologies are included and the sedum covered 'green' roof construction is significantly different to common pitched roofs so often topped with tiles or slates.

Reason for choosing H+H aircrete products:

Cawrey Homes is a traditional builder and does not build using timber frame, preferring the durability of masonry. The main reason for specifying H+H products rather than others was the level of customer and technical support offered by the company and the interest shown since the project inception. Also, bearing in mind the sustainable requirements of Fielding Meadow, using aircrete fitted in with the aim of building to level 4 of the Code for Sustainable Homes.

Product used / aircrete specification:

Celcon Plus Blocks Standard Grade (610 x 215 x 100mm).
Compressive Strength 3.5N/mm² with 600 Kg/m² Density aircrete blockwork or Celcon Plus Blocks High Strength Grade (610 x 215 x 100mm).
Compressive Strength 7.3N/mm² with 750 Kg/m² Density aircrete blockwork.

U value targets:

Ground floors - 0.15W/m²K
Cavity walls - 0.14W/m²K
Main roofs - 0.12W/m²K



External cavity walls:

Walls were built to an overall width of 417.5mm with:

102.5mm facing brickwork (65mm facing brickwork 102.5mm wide to external leaf), 200mm fully filled cavity, 100mm 3.6N/mm² aircrete blockwork and 15mm 2-coat plaster. Facing bricks used were either Hanson Oakthorpe Red Stock or Ibstock Bradgate Multi Cream.

Ancon 'TeploTie' 325mm long Type 2 basalt fibre low thermal conductivity wall tie were used to tie the skins of masonry with Birtley steel lintels to openings.

Insulation consisted of bonded polystyrene beads blown into cavities through 22mm diameter holes drilled into mortar joints internally (prior to plastering). Separating walls are insulated with 100mm Isover RD Party Wall roll.

Internal walls were finished with 12mm British Gypsum Thistle tough-coat undercoat plaster and 3mm British Gypsum Thistle Multi-finish finishing plaster.

Ground floor partition construction:

Walls were built to an overall width of 130mm with: 15mm two coat wet plaster, 100mm aircrete blockwork, 15mm two coat wet plaster. Aircrete blocks used were Celcon Plus Blocks Standard Grade (610 x 215 x 100mm). Walls were finished in the same way as the cavity walls also using Birtley steel lintels.

"Fielding Meadow is an excellent example of how maintaining good client relationships over time leads to success. Cawrey had for years worked with competing aircrete manufacturers. The fact they chose to work with us on this project demonstrates the extra mile we go to in assisting clients."

Michael Turner,
Key Account Manager, H+H

Fielding Meadow - Leicestershire

“We usually build with other brands of aircrete blockwork but for Fielding Meadow we decided to use H+H’s products. We needed a large format block and the H+H Celcon Plus Block fitted the bill perfectly.

I first discussed the project with the company nearly four years ago and it took some time to gain planning permission. However, once we had this, H+H was the only aircrete manufacturer to have maintained regular contact and show more interest in our development. In the end it was a no brainer to go with them.

As a company we prefer masonry construction compared with timber frame methods. Also, this type of blockwork combined with wet plastering helps build as airtight and thermally efficient building envelope as possible, something critical when building to level 4 of the CfSH.

The support from H+H has been first class. Any queries we had about sound issues, Building Regulations or shrinkage have all been answered. Moving forward I would be happy to use H+H products for other projects.”

Dave Walgate,
Estimator/ Buyer, Cawrey Homes

Foundations and floors:

Foundations made use of ready-mixed GEN1 type concrete with 20mm aggregate and 75mm slump poured into trenches either 450, 750, 900 or 1000mm wide.

For the substructures Celcon Plus Blocks High Strength Grade (610 x 215 x 100mm). Compressive Strength 7.3N/mm² with 750 Kg/m² Density aircrete blockwork was used.

DPC brickwork was 65mm smooth blue brick with 100mm wide 500mu polythene DPC.

Ground floors used the Hanson ‘Jetfloor LO’ composite insulated floor system with concrete screed. To be exact, 150mm deep pre-stressed precast concrete beams at 610mm centres with expanded polystyrene block infill. Ready-mixed fibrin reinforced C25 concrete screed 90mm thick with power-float finish. Concrete screed incorporating under floor heating pipework fixed to A142 mesh reinforcement at ground floor level.

Roofs:

Perhaps the most untraditional element of Fielding Meadow is the roofs. These are complex in construction, main sections constructed with pre-grown Sedum planting with minimum 100mm growing medium, ‘Easi-Joist’ metal webbed roofing system with 250mm Kay-Metzeler ‘Kay-Cel Super Plus’ insulation between rafters. To prevent cold bridging between insulation slab, 150mm mineral wool insulation was rolled and pushed tight between insulation/webs of joists. All home roofs also have a 1.14kW array of Schuco MPE 190 solar PV panels mounted on the solar fin with two layers of Celotex insulation between rafters.



Fielding Meadow - Leicestershire

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.

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.

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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