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The EcoHomes Scheme

EcoHomes is an environmental assessment scheme for new and renovated homes. Administered by BRE it sets standards of environmental best practice criteria against which developments can be measured. The criteria cover: energy, transport, pollution, materials, water, land use and ecology, health and well-being.

H+H Celcon's Thin-Joint system combines the use of energy-efficient lightweight aircrete blocks with quick-setting thin-joint mortar which speeds the construction process. It is recognised as a Modern Method of Construction (MMC) by the Housing Corporation. MMC focus on systems which speed the construction process, cut waste, minimise the effect of construction on the environment and create an energy-efficient home to live in.

Thin-Joint System & EcoHomes Assessments

Energy

Aircrete contains tiny air bubbles, which give Celcon blocks outstanding insulation properties. Exceptional thermal performance can be achieved whether building cavity or solid walls – 100mm Celcon Solar blocks with thin-layer mortar, as part of a cavity wall construction can deliver a U-value better than that currently suggested for amendments to Part L in 2005. Celcon Foundation blocks can achieve additional savings in floor heat losses. Using Celcon Plus and Jumbo Plus blocks with Thin-layer mortar means less thermal bridging with fewer and thinner joints compared to 440mm long blocks with traditional mortar.

The Pollington 2 plant in Yorkshire, where blocks for the Celcon Thin-Joint system are produced, has been specifically designed to achieve the highest standards of efficiency and energy performance. Features include a combined heat and power centre, recycling of autoclave steam and compressors which automatically match compressed air production to factory needs.

Green Guide to Housing

External walls, ground floors (beam and block floors) and internal partitions built using Celcon aircrete can achieve **"A"** ratings according to the Green Guide to Housing.

Training Support

Our skilled thin-joint demonstrator team will be able to offer hands on training to designated site Thin-Joint block layers. They can also return to site during construction to assist in the maintenance of Thin-Joint laying quality.

Transport

Being lightweight, Celcon aircrete blocks require less fuel to transport from H+H Celcon's four factories to site and once there, less energy is needed if they need to be moved mechanically around the site.

Pollution

In place at each of its four manufacturing plants H+H Celcon has an Environmental Management System which conforms to environmental management standard ISO 14001:1996 and is third party accredited by BSI.

Materials

PFA (Pulverised Fuel Ash) is used as a major raw material for the manufacture of Celcon blocks. This is a by-product of coal-fired power stations. Aircrete blocks can be cut on site using a block saw and the off-cuts used elsewhere, so minimising waste.

Water

H+H Celcon's Pollington 2 plant has a comprehensive water management system which retains rainwater and wastewater from the manufacturing process. This significantly reduces the quantity of water that needs to be drawn from mains supplies.

Land use & ecology

Celcon products are manufactured predominantly from the by-product of another industry in plants which are designed to use the minimum amount of energy and to recycle water used in the process wherever possible. Celcon Foundation blocks can be used in soil conditions unsuitable for many other types of masonry, because of their resistance to sulfate attack and frost damage.

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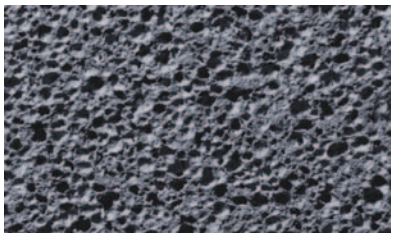
Health & well-being

With their unique micro-cellular structure, with millions of tiny air-bubbles which do not interconnect, an effective barrier against moisture penetration is formed. The exceptional thermal performance of Celcon blocks ensures that occupiers can help in keeping their heating costs down. The inherent sound insulating properties of aircrete make it ideal for controlling noise transmission between adjoining rooms or properties – a significant factor governing residents' quality of life.



The EcoHomes rating system is split into the 7 following categories:

- Energy
- Transport
- Pollution
- Materials
- Water
- Land Use and Ecology
- Health and Well Being

Each category is subdivided into 2 to 5 sections

H+H Celcon products can influence the ratings/credits in the following 5 sections in 4 categories:

Energy

Section Ene1– CO_2 emission

This relates to CO_2 emission for the whole development and is calculated in Kg/m^2/year. The data used to obtain the final figure is typically taken from SAP calculations (note: as this is for the whole development, worst case SAP values should not be taken as they may be unrepresentative).

The following examples of 'main' build components, incorporating Celcon products, can be used to significantly enhance ratings/credits for this section.

External Walls

Brick/100mm Cavity Batt insulation with 0.037W/mK conductivity/**100mm Thin Layer Celcon Solar Plus Block**/12.5 Plasterboard on dabs.

U-Value = 0.25W/m^{2}K

Ground Floor

Beam and **Celcon Floorblock**/100mm insulation with 0.039W/mK conductivity /19mm Plywood decking on timber battens.

U-Value around 0.21W/m^{2}K depending on house type.

Section Ene2 – Building envelope performance

Compliance with this section once again relies on the information supplied within the SAP calculation. It is basically a function of how well the dwellings perform above the minimum Target U-Value requirement as stipulated via the Building Regulations.

Using the specification set out in section Ene-1, it is often possible for section Ene2 to achieve maximum ratings/credits **(100%)**.

Pollution

Section Pol1 – HCFC emissions

The Celcon component of the foundations, ground floor, external and internal walls does not require the use of ozone depleting substances during their construction. Maximum ratings/credits **(100%)** can be achieved if the associated products also comply.

Materials

Section Mat4 – Environmental impact of materials

The Celcon external wall and ground floor constructions detailed in Section Ene1 above both obtain **"A"** ratings according to the Green Guide for housing. Celcon internal Aircrete partitions will also achieve an **"A"** rating.

"A" rating achievement relates to **100%** rating/credit achievement for these constructions.

Health & well-being

Section Hea2 – Sound insulation

2 leaves of 100mm Celcon Standard thin layer blockwork, separated by a 75mm cavity and finished both sides with 8mm internal scratch finished render plus 12.5mm plasterboard on dabs achieves Robust Standard Detail (RSD) status and is recognised as such in the new Part E of the Building Regulations. Construction built to RD E-WM-7 will be capable of achieving a mean airborne performance which is at least 50dB DnT,w+Ctr. This is 5dB better than the mean airborne Part E performance standard which is 45dB min DnT,w+Ctr. **Maximum** EcoHomes Credits should therefore be achievable for tests specifically related to this Party wall construction (Note: EcoHomes compliance does specify pre-completion testing regardless of RSD status).

Please note that an EcoHomes approved assessor should confirm all figures, ratings/credit achievements listed above.

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Case Study A Brighter Future – the story of Seabright Street, Bethnal Green

The Seabright Street development in East London, which uses H+H Celcon's Thin-Joint System in a solid wall construction coupled with aircrete foundations and floor systems was awarded a 'Very Good' rating under the EcoHomes environmental performance through good design.

Built by Laing Partnership for the Bethnal Green and Victoria Park Housing Associations, the terrace of three two and three-storey houses offers excellent thermal efficiency, with wall U-Values of 0.32W/m^{2}K.

Construction times were also very fast, thanks to the nature of Celcon's Thin-Joint System. Celfix mortar reaches full bond strength within 1 – 2 hours and used with solid 355mm Celcon Solar blocks provided a single skin external wall with no cavity to consider. The excellent thermal properties of the aircrete walls required no additional insulation. Celfix mortar also allowed the walls to be finished with thin coat spray plaster, a much quicker application than conventional plaster, with a quicker drying time.

Ground and intermediate floors were constructed with the Celcon Flooring system, using 250 mm deep reinforced aircrete elements to aid the speed of construction and provide exceptional thermal performance at ground floor level as well as enhanced acoustic performance at intermediate floor levels. Reinforced aircrete lintels provide thermal continuity within the wall structure, removing the problem usually associated with cold bridging.

The development at Seabright Street won the 'Best Energy Saving Development' category of the 2002 What House? Awards. It was also runner up in the 'Best Housing Innovation' category of the Building Homes Quality Awards.

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