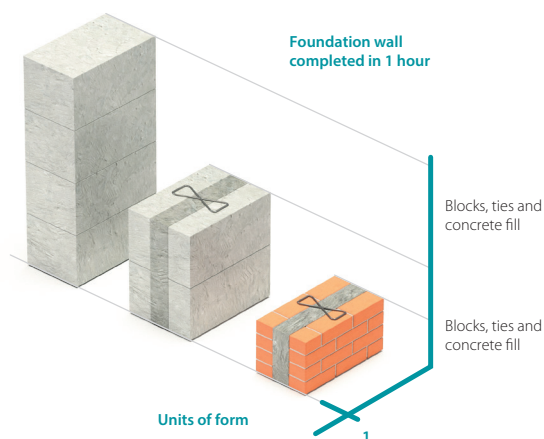


Application datasheet 1

The use of aircrete below ground



The light weight and faster build-speed of aircrete blocks mean foundations can be constructed quickly, easily and cost-effectively, creating an extremely effective moisture barrier with significant thermal insulation properties. Their cellular structure and durability make them a recognised sustainable alternative in most below-ground situations.



Productivity

Available in a range of face sizes and thicknesses to match typical cavity wall widths, aircrete blocks can virtually halve foundation build-time for cavity wall options, offering considerable labour and cost savings. Aircrete blocks can be used with traditional or thin joint masonry with cavity or solid walls, frame constructions, with suspended floors and beam and block floors. Trenches can be back-filled as soon as installation is complete.

Ease of use

Aircrete blocks offer considerable improvements in productivity. They're easy to handle so you can build more courses per day which become stable soon after laying. Solid foundations mean fewer materials on site and their greater workability means they can easily be cut with a hand saw.

Most thicknesses/sizes are below the CONIAC handling regulations, reducing the risk of injury. Certain products are available with hand holds to improve manual handling and with tongue and grooves to assist alignment during build. For below ground construction unless the masonry forms a retaining wall or basement walls, blocks can be used with unfilled vertical (perpends) joints. This also applies to plain end blocks if the units are built with their ends closely butted together to stop the passage of vermin.

Frost and sulfate attack

To confirm their resistance to frost damage and sulfate attack, aircrete blocks are BBA approved for use below DPC level in soil conditions unsuitable for many other types of masonry unit. Continuous freeze-thaw cycle tests have shown no reduction in strength under these conditions and most blocks can be used in soils up to and including Class DS 4 sulfate levels, to BRE Special Digest 1.

Strength

Aircrete foundation blocks are available in a range of strengths to suit most applications: 2.9N/mm² or 3.6N/mm² is adequate for general housing needs. For high rise or multi storey buildings, higher strength aircrete blocks are available. A solid foundation of aircrete blocks provides a good, level platform from which to build brick and block walls.

Water resistance

Their unique, micro-cellular structure, with millions of tiny air bubbles that do not interconnect, forms an effective barrier against moisture penetration, resisting passage of water from the surface. Aircrete is a long lasting durable material that does not rot or decay.

Thermal performance

Solid aircrete foundation blocks make a considerable contribution to heat loss through a ground floor compared to other forms of construction and, combined with suspended beam and aircrete block floor system, can achieve significant savings in floor U-values, offering excellent cost savings through the elimination of secondary floor insulation.

Aircrete constructions and details achieve significant improvements in linear thermal bridging values (psi values), which has become more and more dominant as fabric insulation increases. These details effectively reduce heat loss at the junctions of constructions, further reducing CO₂ emissions.

The use of aircrete enhanced construction details, such as the LABC Registered Construction Details or the Constructive Details (ECDs) can result in significantly lower psi and y-values, generally half of the default values that are used in SAP assessments.

www.labc.co.uk/registration-schemes/construction-details
www.constructivedetails.co.uk/resources/



Application datasheet 1

The use of aircrete below ground



Quick and easy

The benefits of improved construction times and easier handling have persuaded many of the major housebuilders to use aircrete blocks for foundations as well as above DPC.

Design and build developers use aircrete in recognition of the further benefits of impermeability and superior frost resistance. Aircrete foundations are now widely used by smaller builders on one-off houses, including extensions, since attractive time and cost savings are possible regardless of project size.

Use an appropriate mortar mix

Below DPC level, mortars of designation class M4 or M6 may be used, according to soil conditions. Above DPC, a mortar not stronger than M4 should be used.

As a general rule, cement:lime:sand mortars give a stronger bond than plasticised mortars of a similar compressive strength.

EN Class	Mortar Designation	Cement	Lime	Sand
M6	(ii)	1	½	4
M6	(ii)	1**	0	4
M4	(iii)	1	1	6
M4	(iii)	1	0	6*
M4	(iii)	1**	0	5

* Sand with plasticiser

** Masonry cement – has a plasticising agent within the cement mix, therefore lime is not required

Sustainability

Aircrete has strong credentials as a sustainable building product making extensive use of recycled materials and materials primarily sourced within the UK. All APA members are committed to operating sustainably, complying with all relevant legislation, regulations and codes of practice.

Aircrete can perform to meet current and future requirements of the Code for Sustainable Homes with solutions to meet all levels of the Code and can be used to build Zero Carbon Homes. Use of aircrete in foundations contributes to efficient site waste management by reducing waste giving additional credits under the Code for Sustainable Homes.

Aircrete manufacturers are committed to a responsibility to the environment as embodied in their environmental policies operating Environmental Management Systems to BS EN ISO 14001 and demonstrating Responsible Sourcing with all APA members having BES 6001 certification at 'Very Good' or higher level - giving the maximum credits available under Materials category of the Code for Sustainable Homes. Aircrete constructions can give up to A+ rating under the Green Guide.

For more information

This publication is only intended to be an outline guide to aircrete products and you are advised to contact the APA members for comprehensive technical support and guidance, backed by extensive technical literature covering every aspect of designing and working with aircrete products.



H+H UK Limited
Celcon House, Ightham
Sevenoaks, Kent, TN15 9HZ
www.hhcelcon.co.uk
t: 01732 886444
f: 01732 887013
e: technical.services@celcon.co.uk



Forterra Building Products
5 Grange Park Court
Roman Way
Northampton, NN4 5EA
t: 03705 626500
e: thermalitesales@forterra.co.uk



Quinn Building Products
235 Ballyconnell Road, Derrylin,
Co. Fermanagh Northern Ireland, BT92 9GP
www.quinn-buildingproducts.com
t: 02867 748866
f: 02867 748800
e: info@quinn-buildingproducts.com



Thomas Armstrong (Concrete Blocks) Ltd
Bridge Road, Brompton-on-Swale
Richmond, North Yorkshire, DL10 7HW
www.thomasarmstrong.co.uk
t: 01748 810204
f: 01748 813950
e: airtec@thomasarmstrong.co.uk



Tarmac Building Products
i10 Building
Railway Drive
Wolverhampton, WV1 1LH
www.tarmac.com
t: 0345 606 2468
e: blocks@tarmacbp.co.uk