

AIRCRETE PRODUCTS ASSOCIATION MEMBERS

www.aircrete.co.uk

Forterra
H+H UK
Quinn Building Products
Tarmac Building Products
Thomas Armstrong



CONCRETE BLOCK ASSOCIATION MEMBERS

www.cba-blocks.org.uk

Manufacturer Members:
Aggregate Industries
Barnetts of Buglawton
Besblock
Breedon Aggregates Scotland
Broome Bros
CEMEX
Cheshire Concrete Products
E & J W Glendinning
Forterra
Hillhouse Quarry Group
Interfuse
Laird Bros
Lignacite
Mona Precast
Newlay Concrete
Patersons Quarries
Plasmor
Premium Concrete Products
Stocks Brothers

S Morris
Sellite Blocks
Skene Concrete Products
Stowell Concrete
Tarmac Building Products
Thakeham Tiles
Thomas Armstrong
WDL Concrete Products
William Rainford Holdings

Associate Members:
Active Moulds
Beton Machinery Sales
Carbon8 Aggregates
KVM UK
Matrix Materials
Sain Gobain LECA UK



PRECAST FLOORING FEDERATION MEMBERS

www.precastfloors.info

Manufacturer Members:
Acheson & Glover
ACP Concrete
Bison Manufacturing
CEMEX
Charcon Construction Solutions
Collier & Henry Floors
Creagh Concrete
Forterra
FP McCann
Litecast Homefloors
Longley Concrete
TT Concrete Products
Stowell Concrete

Associate Members:
EKC Systems
Graceland Fixing
Megasteel LLP



PRECAST FLOORING FEDERATION

MORTAR INDUSTRY ASSOCIATION MEMBERS

www.mortar.org.uk

Manufacturer Members:
Breedon Aggregates
CEMEX UK
Cornish Lime Company
CPI Mortars
Hugh King & Co
John Carr (Liverpool)
Premier Mortars
RTU
Tarmac Building Products
Watts Mix

Associate Members:
BASF Construction Chemicals
Cathay Pigments
Christeyns UK
French Jones
Grace Construction Products
Huntsman Pigments
Lanxess
Lhoist UK
Neil Beningfield & Associates
Singleton Birch



SUSTAINABILITY PERFORMANCE

Masonry Walls and Precast Floors	Environmental	Economic	Social
Fire Resistance	✓	✓	✓
Durability	✓	✓	✓
Acoustic Performance	✓	✓	✓
Flood resilience	✓	✓	✓
Robustness / Security	✓	✓	✓
Thermal Mass	✓	✓	✓

SUSTAINABLE MANUFACTURE

Masonry walls and concrete floors can be used to deliver long lasting sustainable buildings. Importantly these products are also manufactured in a sustainable way.

All members of the Concrete Block Association, Aircrete Product Association and Precast Flooring Federation are signatories of the British Precast Sustainability Charter. This requires annual sustainability audits, annual reporting and collective targets for achieving improved environmental and social sustainability performance. Details are published in British Precast Sustainability Matters and also in the broader Annual Concrete Industry Sustainability Performance Report.

In 2014 our data shows:

- a high percentage of recycled and secondary material is used as aggregate – up to 100% in the case of some blocks.
- the cement industry sources 44% of its fuel from waste or by-products reducing the use of carbon intensive fossil fuels.
- the concrete and masonry industry is a net consumer of waste – using more recovered and waste materials than the waste it sends to landfill.
- a BES 6001 certification denoting responsibly sourced is available on over 75% of manufactured product and this continues to rise.

...and at end of life masonry and concrete is fully recyclable into new concrete and masonry products.

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British Precast is the trade association of precast concrete manufacturers and is a federation including specialist product groups and sector bodies.
www.britishprecast.org

British Precast is affiliated to the Mineral Products Association (MPA) the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and silica sand industries.
www.mineralproducts.org

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High Performance Housing

using Masonry and Precast Flooring

High performance housing exceeds regulations and standards across a range of performance parameters. This housing can be built using locally available masonry and precast flooring.

COMFORT AND RESILIENCE



Homes that people want to live in. Homes that last.

Concrete and masonry homes provide the following benefits to occupants and home owners.

Energy saving

The homeowner can have the lowest energy bills because of the insulation, air-tightness and thermal mass of concrete and masonry homes.

Long life

Purchasing a home is a major investment, and long life ensures it retains its value for future generations.

Low fire risk

"Fires in dwellings of timber framed construction experienced on average more damage than those of no special construction". Stephen Williams, MP, Minister Communities and Local Government. *House of Commons January 22, 2015.*

Quiet

Precast floors do not squeak: 48% of homeowner noise issues raised with NHBC for detached homes were creaking floors. *NHBC Foundation Report NF56.*

Secure

In high risk areas and for attached housing, solidity of masonry provides increased security.

Comfortable

A home should be solidly built with no vibration issues, good with noise separation from family, housemates and neighbours; as well as being warm in winter and cool in summer.

Flood resilient

Homes built from concrete and masonry suffer less damage because they are robust, dimensionally stable and do not rot.

IN BUILT PERFORMANCE



Masonry and concrete are local, low carbon and long lasting.

Inherent properties give whole life performance.

The inherent properties of concrete and masonry are the starting point:

- non-combustible
- durable
- robust
- moisture resistant
- inert
- rot resistant
- sound reduction
- good thermal properties.

Skills Availability

Project teams can design with these products because they are familiar with the materials and design process and further guidance is readily available. Masonry construction represents the vast majority of housing being built and hence there is a large and widely spread resource of skilled operatives. These skills are well known so that projects can be delivered with a high level of performance. For example, air tightness of completed projects can meet the most exacting standards.

With the dynamic nature of the construction industry, skills shortages are often reported across all parts of the industry including office based professionals and on-site operatives. The skills development period for brick layers is relatively short compared with other skills in the construction industry, meaning that shortages can be more readily addressed.

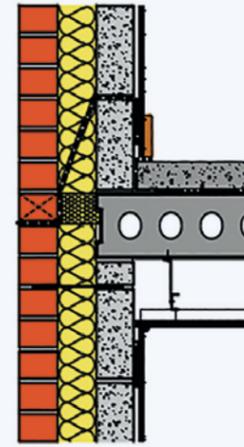


Material Supply

Concrete precast flooring and masonry used in the UK is manufactured in the UK – which is good for UK plc. On average, product travels 60 miles from factory to site.

Investment in manufacturing capacity has enabled the masonry and flooring industry to continue to deliver to the recovering construction industry. For example aircrete production increased by 45% from 450,000 m³ in the quarter ending December 2012 to over 650,000 m³ in the quarter ending June 2014, which when directly compared, is actually at a faster rate than the current rate of new housebuilding growth.

THERMAL BRIDGING



Aircrete block wall
Upper Floor
Detail CD 0030

There are significant advantages to architects and developers if they use thermal bridging details from product manufacturers.

Thermal bridging is important because as insulation and air tightness values have become more stringent a larger percentage of energy is lost through thermal bridges.

Thermal bridges, either point or line bridges, are paths through the insulated building envelope where heat is lost.

The details shown here are just two of hundreds of details, including Ψ -values, available to designers.

Examples:

AIRCRETE PRODUCTS ASSOCIATION DETAIL CD 0030: PRECAST CONCRETE SEPARATING FLOOR BETWEEN DWELLINGS (shown above)

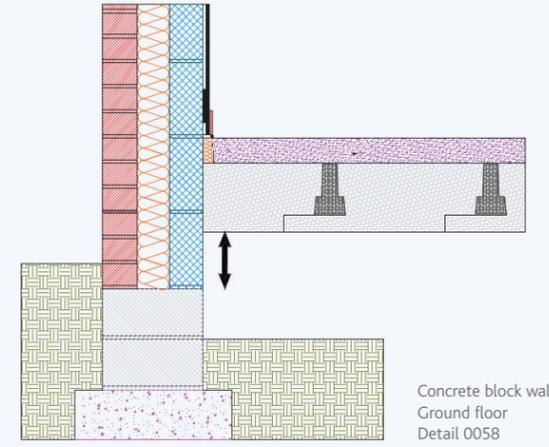
Detail CD 0030 provides Ψ (Psi) values for a range of block conductivity and wall Ψ -values. For a wall u-value of 0.17W/m²K and block conductivity of 0.16W/mK the Ψ (Psi) value is 0.058 W/mK. This compares with a SAP2012 default value of 0.14 W/mK.

The Precast Flooring Federation has provided data for the same detail but amended to be for an intermediate floor. The Ψ (Psi) value in this case is only 0.005W/mK. This compares with a SAP2012 default value of 0.14 W/mK.

CONCRETE BLOCK ASSOCIATION DETAIL 0058: SUSPENDED BEAM & EPS BLOCK FLOOR (shown top right)

This ground floor detail is with a beam and block floor with the block formed from EPS. The inner skin can be ultra-lightweight, lightweight or dense block. The range of Ψ (Psi) values is 0.056 to 0.151 W/mK. These compare with a SAP2012 default value of 0.32W/mK.

THERMAL BRIDGING



Concrete block wall
Ground floor
Detail 0058

The advantage to designers and developers of using thermal bridging Ψ (Psi) values for specific details is that Part L compliance is more economically achieved because the true performance is taken into account. All SAP assessors should use thermal bridging Ψ (Psi) values that have been calculated for specific details.

SAP Assessors should be required to do this by their commissioning architect or developer.

The example tabulated below shows the benefit of using Ψ (Psi) values calculated for specific details (in this case by the Concrete Block Association). The Part L requirement can be met (see dark green box), which is not the case (see red boxes) if default values, or accredited construction details on the planning portal, are used by the SAP assessor. If these less precise values are used, it may result in increased cost being expended unnecessarily or changing the construction to get compliance.

		Default value in SAP $y = 0.15$ (W/m ² K)	Accredited Construction Details on Planning Portal $y = 0.1015^*$	Concrete Block Association details $y = 0.0385^*$
Emissions (kgCO ₂ /m ² /y)	Target Emission Rate	22.1	22.1	22.1
	Dwelling Emission Rate	22.1	21.1	19.8
	% improvement	0.0%	4.7%	10.5%
Fabric Energy Efficiency (kWh/m ² /y)	Target Fabric Energy Efficiency	49.9	49.9	49.9
	Dwelling Fabric Energy Efficiency	56.8	51.7	44.9
		Target not met	Target not met	Target met

* Includes the following thermal bridges: lintel, cill, jamb, ground floor, intermediate floor, eaves at ceiling, gable at ceiling, corner normal party wall between dwellings, party wall ground floor, party wall intermediate floor, party wall roof at ceiling

Choose thermal bridging Ψ (Psi) values for specific details and make sure your SAP assessor does too. They are available from:

Concrete blocks:
www.cba-blocks.org.uk/tech/thermal-bridge.html

Aircrete blocks: www.constructivedetails.co.uk/resources/

Aircrete and Concrete blocks in an alternative web format:
www.labc.co.uk/registration-schemes/construction-details