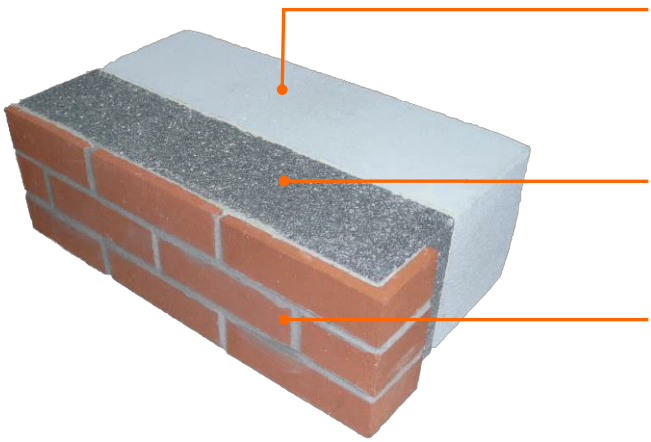
THOMAS ARMSTRONG (CONCRETE BLOCKS) LTD

Externally Insulated Walls

Block Factsheet 3 - November 2020

An Externally Insulated Wall (aka SIM Super-Insulated Masonry) consists of a solid aerated block with a layer of high performing insulation fixed externally to the masonry wall with a choice of finishes. This system enables the building designer to reduce thermal bridging, increase air tightness and reduce costs.

Further enhanced design details to the floors and roof can then increase the SAP performance of the whole building and avoid the need to install expensive and complex solar-PV systems.



Solid Masonry Core:
A 190mm or 215mm solid aerated block with a thermal value as low as 0.09 W/mK which maximises the benefits of the thermal mass effect of masonry construction as the insulation is on the outside.

Insulation Layer:
A layer of PIR/PU is adhered and mechanically fixed to the block with no need for cavities and membranes. Simple, fast construction with no interstitial condensation risks in cavities between layers.

External Finish:
There is an extensive choice of finishes for the external wall, including high performance renders in various textures and colours. A wide range of brick slips, conventional brickwork or stone can be used.

Thin Joint Masonry:

A mortar joint of 2mm provides a stronger bond than conventional mortar joints. The thin joint mortar is quick setting, gaining strength within 20 minutes, allowing walls to be built continuously without height restrictions. The reduced area of the thin joint further improves the u-value of the wall and restricts air leakage. Air leakage tests on site show that 0.6m^3/hr/m^2 is readily achieved.

The Benefits of EWI Construction

- U-Values below 0.10 W/m²K are achievable using only 2 main layers plus external finishes
- A fast, proven, flexible, effective and repeatable build technique
- Up to 15% lower in build costs than framed equivalent constructions
- A+ green guide rating Zero thermal bridging
- Zero interstitial condensation risk
- Maximises the thermal mass of the build meaning less seasonal temperature fluctuation throughout the year
- Future-proof, robust and resilient build, which is easily modified when required
- Passive house levels are achievable with less need for expensive renewable energy technology.
- Low maintenance costs – no expensive solar panels, damage to walls and reduced energy costs.
- Lower build costs – up to 15% on framed buildings with same build time.
- Quicker lead times, no bulk purchases required for servicing site.