

SPECIFICATIONS MODEL

a. Materials:

AAC Thermalite J2 & J1:

Definition: Autoclaved Aerated Concrete (AAC) Thermalite Blocks made of cement, sand, lime, and water, as follows:

Category	J2	J1*	Unit	Remarks
Dry Density	525	480	Kg/ m ³	± 50
Average Normalized Compressive Strength	3.2	3.2	N/mm ²	Min.
Thermal Conductivity at 35°C & 60% R.H.	0.134	0.13	W/ m.k ⁰	Max.
Fire Resistance	4	4	Hours	Min**

* AAC Thermalite J1 can be manufactured only on pre-agreement

** For 4 inch thick blocks while it reaches six hours for 6 inch thick blocks

B. Standards & Technical Approval:

The blocks meet the requirements of the following:

Technical Approval (Certificate# 2003-001) for AAC Thermalite J2 from Dubai Central Laboratory Dept.

Confirmation of compliance from D.M for Autoclaved Aerated Concrete (AAC) Thermalite J1 Blocks

DMS 1 Part3: 2004 “Specification for precast AAC masonry units”.

BS EN 771-4: 2001: ‘Specification for Masonry units – AAC Masonry units’

Or equivalent ASTM C 1386 – 98 “Standard Specification for PAAC wall Construction Unit”

C. Manufacturer of Autoclaved Aerated Concrete (AAC) Thermalite Blocks in UAE:

Name	Address	Telephone	Fax	E- mail
Al Jazeera Factory	Abu Dhabi, P.O. Box: 9081	00971 2 58 22 768	00971 2 58 22 353	jaziraac@emirates.net.ae
Delmon AAC Factory	Dubai, P.O. Box: 48308	00971 4 2639416	00971 4 26 31 816	delmonfa@emirates.net.ae

D. Thin Bed Mortar:

Thin Bed Mortar: is a specially developed thin joint insulating mortar for Autoclaved Aerated Concrete Blocks. It ensures that joint width is kept to a minimum hence eliminating the cause of thermal bridging associated with the use of traditional mortars. So, it is important that AAC Thermalite blocks for external walls should be laid using thin bed mortar recommended by the manufacturer of AAC Thermalite Blocks and this mortar should be used for both horizontal and vertical joints of approx. 3 mm thick to prevent any thermal bridging through non-filled joints. Also the same should be used for the internal block walls to prevent any effects of the performance of wall's sound insulation through the non-filled joints.

E. Site works:

In common with all types of masonry block work, Thermalite block work should be constructed generally in accordance to the recommendations of BS 8000:part 3: 2001, code of practice for masonry and BS 5628:part 3: 2001, code of practice for the use of masonry – materials, components.: Design and workmanship. The following block work specifications are in accordance with the above recommendations:

- The first course of blocks are always laid in thick bed mortar mix made of 1:4 (by volume) cement: sand added to it a bonding agent @ 10% of water. This serves as a leveling pad for the first course of blocks. Care must be taken at this stage to ensure the blocks are plumb and level so further construction up to ceiling height will be fast and accurate.
- Slab on ground situation: damp proof course (DPC) slip joint material should be installed between the first course and the foundation or concrete slab ground floors under all external and internal walls. The DPC should conform to the BS 6398 type B specification. The width of DPC material should match the width of block, so it is visible from both sides of wall
- Movement joints should be taken into consideration as per BS 5628: part 3:2001. However, where Thermalite block work abut other materials, such as dense concrete, steel etc., Separation should be introduced between the two surfaces to compensate for any differential characteristics and movement rates.
- Walls Supported by structural members: As per BS 5628-3: 2001\ Page: 49, for all types of masonry “where a wall is built on a suspended floor or beam is not designed

for composite action, it may be necessary to make allowance for deflection of the supporting member by providing a separation joint: at the base of the wall and/or by including bed joint reinforcement in the lower part of the wall”.

- Partitions beneath structural members: As per BS 5628-3: 2001\ Page: 49 “where a partition is designed not to carry any vertical load from the structure it should be separated by a gap or by a layer of resilient material to accommodate the deflection of structural above it, consideration should be given to the need for lateral restraint”, therefore, joints between non-load bearing walls (top surface of the panel) and soffit of beam or slab subject to large deflection, should be filled with typical compressible material.
- Subsequent courses are laid in block bond thin bed mortar. The thin bed mortar is applied to the horizontal and vertical joints with a special scoop which is designed to form grooves in the mortar and minimize overspill. The joint should be approximately 3 mm thick to cover the width of the block. Scoops of various widths to match the block widths are available.
- Blocks are laid in half bond configuration and overlap of joints is a minimum of 200mm. Blocks should be laid as close to their final alignment as possible and use a rubber hammer to level and align the blocks.
- Angle ties should be used for tying the AAC wall with concrete columns as per standard recommendations.
- At opening or at changes of wall height, thickness or direction, bed-joint reinforcement can be used two courses below the opening and two courses above the opening [extended minimum 600mm from each corner of the opening].
- Normal plastering: by mixing 1: 3 cement and sand with water added to it a bonding agent at the rate of 10 - 15 % of water for the first coat and 1:5 cement and sand for the second coat.
- Normal plastering can be done as per BS 5262: table 2. The wall can be moistened before applying plaster and should be kept damp for the first 3 days after plastering taking into consideration the notes in BS 8000: part 3: 1989. (Under no circumstances, should excessive water be applied on to the wall.)

- For spray or premix light-weight plaster, application and curing as per the recommendations from the manufacturers of plaster.
- For AAC walls finishing can be done using an acrylic based render or paint or using a full acrylic based render system or other compatible paints.
- All the fixing items for AAC blocks should be compatible with lightweight blocks and are readily available in the market.
- Hourdi blocks: for AAC hourdi blocks, spray fine water several times at least 2-3 hours before casting concrete and spray water lightly again shortly before casting concrete. For the top slab, finishing should be done by steel float finish and after this, cover it by polythene sheet.