

CERTIFICATE No. 07/0264

Quinn Lite, Derrylin, Co. Fermanagh,
Northern Ireland, BT92 9AU
Tel: 048 6774 8866
Fax: 048 6774 8800
Email: technical@quinn-group.com
Website: www.quinn-group.com

Quinn-Lite Aircrete Blocks: B3, B5 & B7

Blocs: Béton cellulaire autoclavé Gasbetonsteinen

The **Irish Agrément Board** is designated by Government to issue European Technical Approvals. Irish Agrément Board Certificates establish proof that the certified products are '**proper materials**' suitable for their intended use under Irish site conditions, and in accordance with the **Building Regulations 1997 to 2006**.

The **Irish Agrément Board** operates in association with the **National Standards Authority of Ireland (NSAI)** as the National Member of UEAtc.

**PRODUCT DESCRIPTION:**

This Certificate relates to the Quinn-Lite Aircrete B3, B5 and B7 blocks of nominal densities 480kg/m³, 650kg/m³ and 760kg/m³ respectively, and average compressive strengths of 3MPa, 5MPa and 7MPa respectively.

This Certificate certifies compliance with the requirements of the Building Regulations 1997 to 2006.

USE:

The blocks are for use in masonry wall construction as per IS 325-1:1996 *Code of practice for use of masonry – Structural use of unreinforced masonry*, and IS 325-2:1995 *Code of practice for use of masonry – Masonry construction*.

MANUFACTURE AND MARKETING:

The product is manufactured and marketed by:

Quinn-Lite,
Derrylin,
Co. Fermanagh,
Northern Ireland,
BT92 9AU.
Tel: 048 6774 8866
Fax: 048 6774 8800
Email: technical@quinn-group.com
Website: www.quinn-group.com

1.1 ASSESSMENT

In the opinion of the Irish Agrément Board (IAB), Quinn-Lite Aircrete B3, B5 and B7, if used in accordance with this Certificate can meet the requirements of the Building Regulations 1997 - 2006 as indicated in Section 1.2 of this Certificate.

1.2 BUILDING REGULATIONS 1997 to 2006

REQUIREMENT:

Part D – Materials and Workmanship

D3 – Quinn-Lite Aircrete B3, B5 and B7, as certified in this Irish Agrément Certificate are comprised of proper materials fit for their intended use (see Part 4 of this Certificate).

D1 – Quinn-Lite Aircrete B3, B5 and B7, as certified in this Certificate, can meet the requirements of the building regulations for workmanship.

Part A – Structure

A1 – Loading

Quinn-Lite Aircrete B3, B5 and B7, as certified in this Certificate, have adequate strength and stability (see Part 4 of this Certificate).

Part B – Fire Safety

B2 – Internal Fire Spread (Linings)

Quinn-Lite Aircrete B3, B5 and B7 are non-combustible. Therefore with traditional plasterboard finishes to ceilings, the blocks can be used in buildings of all purpose groups, providing the buildings are adequately designed in respect of fire safety.

B3 – Internal Fire Spread (Structure)

Walls using Quinn-Lite Aircrete B3, B5 and B7 meet the requirement, provided the completed walls comply with the conditions described in Section 4.1 of this Certificate.

B4 – External Fire Spread

Quinn-Lite Aircrete B3, B5 and B7 have a Class 0 surface spread of flame rating, and when used in the context of this Certificate, can satisfy the requirements of this Regulation.

Part C – Site Preparation and Resistance to Moisture

C3 – Dangerous Substances

Where it is shown that protection from dangerous substances e.g. Radon, is required, an approved gas resistant membrane and gas handling system must be provided under the ground floor. Construction with Quinn-Lite Aircrete B3, B5 and B7 blocks permits the easy incorporation of the appropriate membrane, sump and gas handling system.

C4 – Resistance to Weather and Ground Moisture

Quinn-Lite Aircrete B3, B5 and B7 when installed in compliance with the conditions indicated in Part 2 of this Certificate will not promote the passage of moisture and will minimise the risk of surface of interstitial condensation.

Part E – Sound

E1 – Airborne sound (Walls)

Walls constructed using Quinn-Lite Aircrete B5 and B7 blocks in accordance with this Certificate, will meet the airborne sound requirements of this Regulation.

Part F – Ventilation

F1 – Means of Ventilation

Adequate ventilation openings can be provided in external and internal walls to meet this requirement.

F2 – Condensation

Adequate ventilation can be provided in order to meet this requirement in respect of the prevention of condensation (see Part 4 of this Certificate).

Part J – Heat Producing Appliances

J3 – Protection of Building

In the opinion of the Irish Agrément Board (IAB) Quinn-Lite Aircrete B3, B5 and B7, if used in accordance with this Certificate, meet the requirements of the Building Regulations 1997 to 2006.

Part L – Conservation of Fuel and Energy

L1 - Conservation of Fuel and Energy

Quinn-Lite Aircrete B3, B5 and B7 will contribute to the thermal resistance of walls and to the reduction of surface condensation risks.

Part M – Access for People with Disabilities

M1 – Access and Use

The provision of access, circulation and facilities as required under this Regulation is not comprised through the use of Quinn-Lite Aircrete B3, B5 and B7.

2.1 PRODUCT DESCRIPTION

Quinn-Lite Aircrete B3, B5 and B7 blocks are for use in masonry wall construction as per IS 325-1:1996 and IS 325-2:1995. The blocks are available in a range of sizes and strengths, as shown in Table 1.

Length	440mm
Height	215mm
Thickness*	100, 115, 125, 150, 215, 275 and 300mm
Strength	B3: 3Mpa B5: 5Mpa B7: 7MPa
Dry Density	B3: 480kg/m ³ B5: 650kg/m ³ B7: 760kg/m ³
Thermal Conductivity (λ)	B3: 0.12W/mK B5: 0.17W/mK B7: 0.19W/mK

* Quinn-Lite blocks for foundations are 440 x 215 x 300mm

Table 1: Product Range

Quinn-Lite B3 is certified for use in the construction of internal walls, including use in inner leaf of cavity walls. The use of Quinn-Lite B3 blocks below dpc level is not recommended. It can be used as a foundation block under the control of an engineer after checking the soil for suitability in respect of sulphates.

Quinn-Lite B5 and B7 are certified for use in the construction of loadbearing and non-loadbearing internal and external walls above and below dpc level, including use in inner and outer leaves of cavity walls. If placing slabs on blocks, a minimum size of 150mm block is recommended, however approval must be obtained from an engineer to ensure the strength of the blocks will carry the weight of the slabs.

When used below dpc level, including foundations, it is recommended that the mortar for the laying of the blocks be 1:1:4 cement/lime/sand.

For external build, Quinn-Lite Aircrete blocks must be rendered using Weber.pral D render. Details of approved applicators must be obtained from Weber Building Solutions Ltd.

Quinn-Lite B3, B5 and B7 are CFC and HCFC free and therefore have zero ozone depletion potential (zero ODP).

2.2 MANUFACTURE

The blocks are manufactured in accordance with the test requirements of IS EN 771-3:2005 *Specification for masonry units – Aggregate*

concrete masonry units (dense and lightweight aggregates) and IS EN 771-4:2005 Specification for masonry units – Autoclaved aerated concrete masonry units.

2.2.1 Quality Control

Quality control checks are carried out on the incoming raw materials, during production and on the finished product. These checks include compressive strength, density and dimensional accuracy.

2.3 DELIVERY, STORAGE AND MARKING

The blocks are supplied banded and shrink-wrapped on pallets, with a label showing the manufacturer's name, IAB identification mark and IAB Certificate number. Each block type has a different coloured band: yellow for B3, blue for B5 and red for B7.

The blocks must be stored clear of the ground on a firm level surface and protected from saturation. The shrink-wrapping should be kept in place until the blocks are ready for use.

2.4 INSTALLATION

Bedding Mortar Detail

1:1:6 Cement/lime/sand mix must be used above dpc level – 1:4 cement/sand with plasticizer is to be used for below dpc level. Moisten lime to form a lime putty before adding the cement and sand. A dash of mortar mix may be added. If necessary, dampen the blockwork with a brush to overcome surface absorption before laying the mortar. Alternatively other designation III readymix mortar can be used as listed in BS 5628-3:2005 *Code of practice for the use of masonry – Materials and components, design and workmanship.*

Lintels

Steel lintels are recommended when using Quinn-Lite Aircrete blocks to prevent cold bridging. If full fill insulation is used in the cavity, concrete lintels can be used but metal lathing should be placed over the face of the lintel (extending 300mm over each edge) before plastering. Concrete lintels can also be used over internal doors.

External Finish

The external render must be Weber.pral D, used with a Weber.rend aid stipple coat. This rendering system must be applied on site by trained approved applicators (see Section 2.1).

Chasing

In accordance with the Building Regulations 1997 to 2006, vertical chasing in walls should not be deeper than one third the thickness of the

wall, and horizontal chasing not deeper than one sixth the thickness of the wall.

Quinn-Lite Aircrete blocks are easily sawn, chased and drilled with standard tools. A disc saw is ideal for cutting tracks in the wall, and a chisel is then used to remove the excess material. Tools with hammer actions must not be used to remove excess material.

Fixings

Cut nails or spiral nails can be used for lightweight fixings.

Nylon plugs, suitable for hanging kitchen units and frame fixers, can be used for heavyweight fixings. Expanded metal fixings or plastic plugs are not to be used.

Not all standard fixings suitable for use with dense aggregate blocks can be used in similar situations with aircrete blocks. Quinn-Lite technical department should be contacted for further information on fixings.

Movement Joints

Movement joints to be used as per IS 325-2:1995
The maximum recommended spacing of movement joints should be 5m and bed joint reinforcement should be used at window opes.

Temporary propping should be considered where high walls are being constructed. It is advisable to prop gable walls and any long stretches of wall where return walls have not yet been built until permanent bracing is provided by the roof structure.

Party Walls

Quinn-Lite B5 or B7 blocks are suitable for use in party wall construction. There are two types of party wall that can be used: a solid block 215mm thick, sheeted on both sides with 50mm Moyisover Calibel insulated plasterboard slab; or a cavity wall comprising two leaves of 100mm block with a 75mm cavity between them, and 50mm Moyisover Calibel board on the room side of each leaf. The inner leaf of the perimeter wall (flanking wall) adjoining the party wall must also be lined with Moyisover Calibel board. The party walls and flanking walls should be plastered prior to the fixing of the Moyisover Calibel boards which should cover all areas, including the spaces between ceiling joists. No cut-outs for services such as electrical plugs and switches should be made in the Moyisover Calibel boards.

Quinn-Lite B3 is suitable for use in the construction of internal walls, including use in inner leaf of cavity walls.

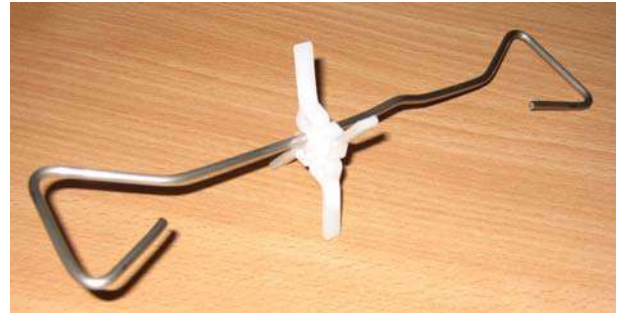


Figure 1: Cavity Wall Tie

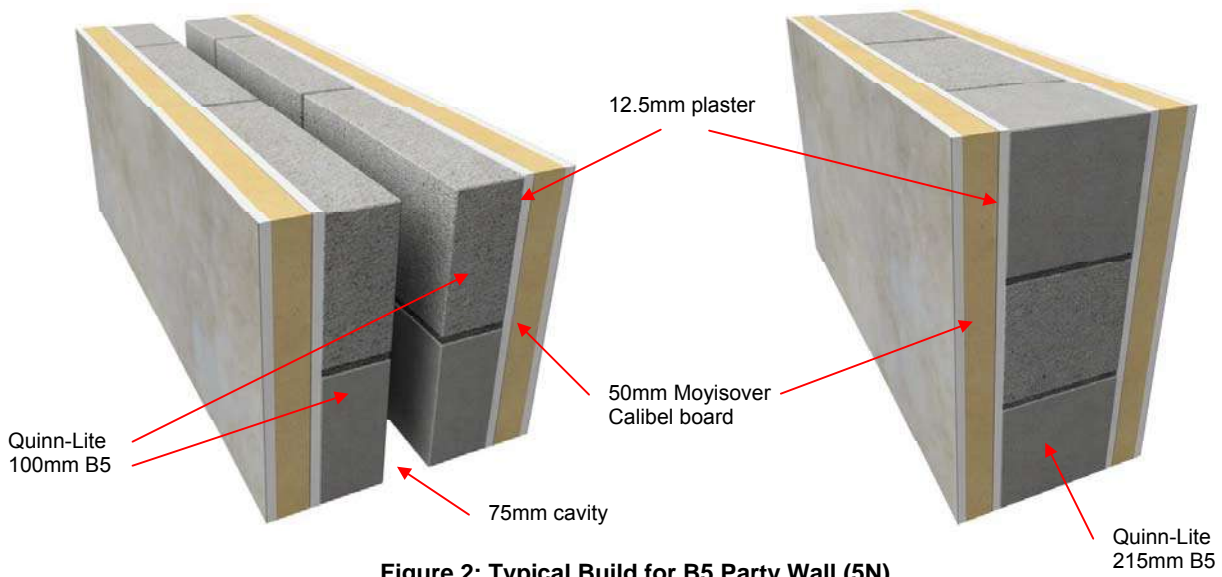
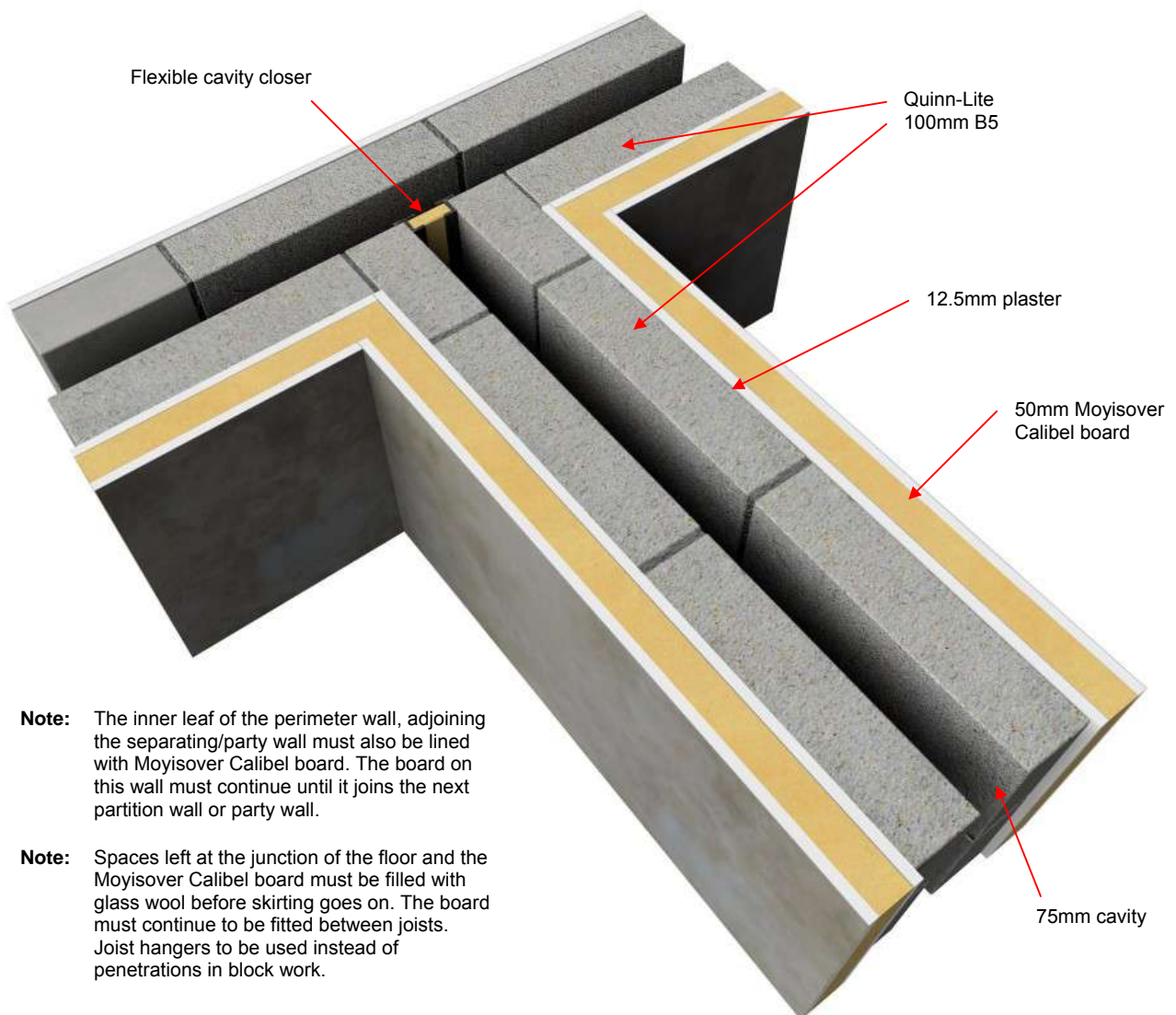


Figure 2: Typical Build for B5 Party Wall (5N)



Note: The inner leaf of the perimeter wall, adjoining the separating/party wall must also be lined with Moyisover Calibel board. The board on this wall must continue until it joins the next partition wall or party wall.

Note: Spaces left at the junction of the floor and the Moyisover Calibel board must be filled with glass wool before skirting goes on. The board must continue to be fitted between joists. Joist hangers to be used instead of penetrations in block work.

Figure 3: Typical Build for B5 Party Wall (5N) – Plan View

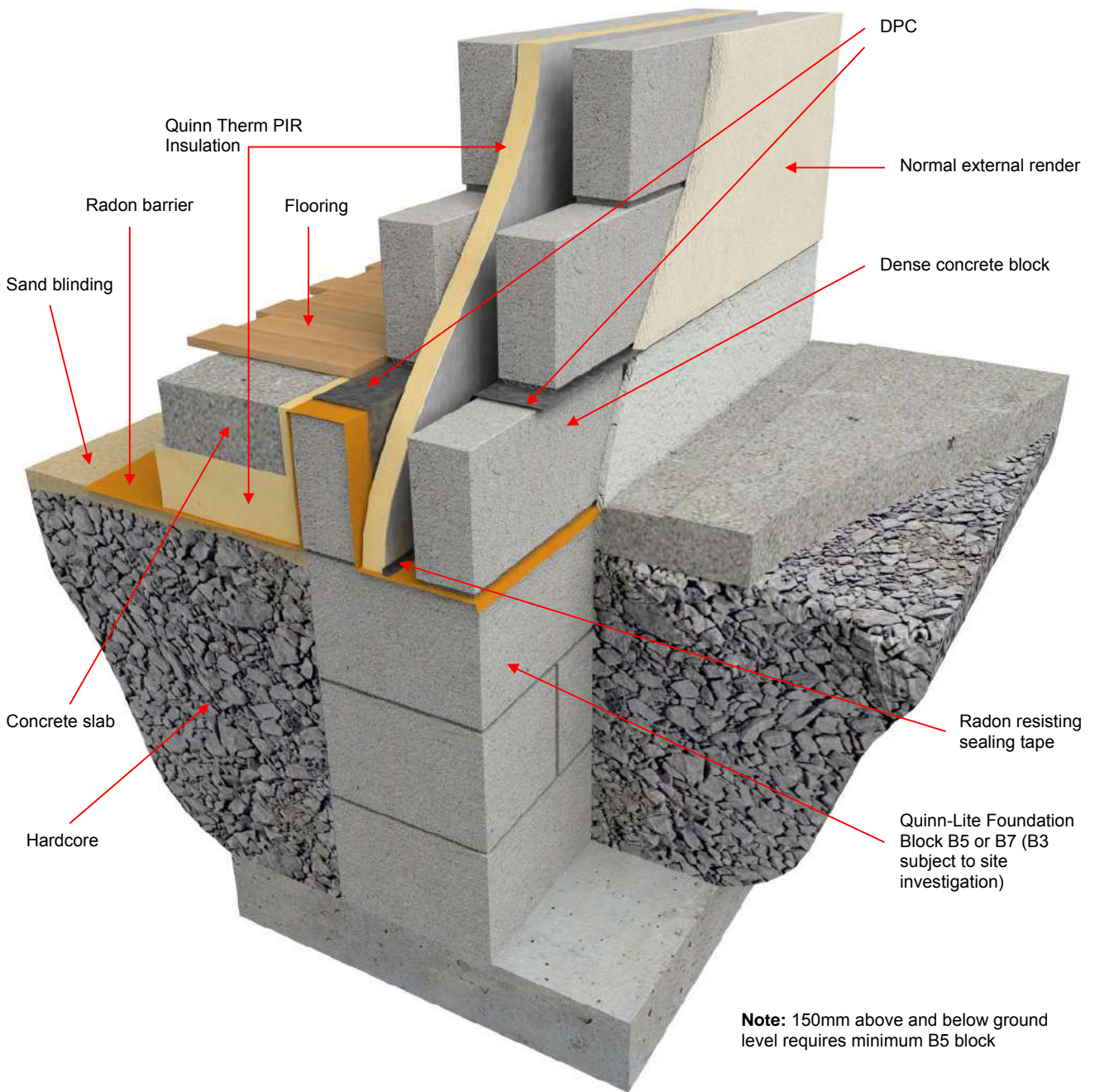


Figure 4: Quinn-Lite Foundation Block

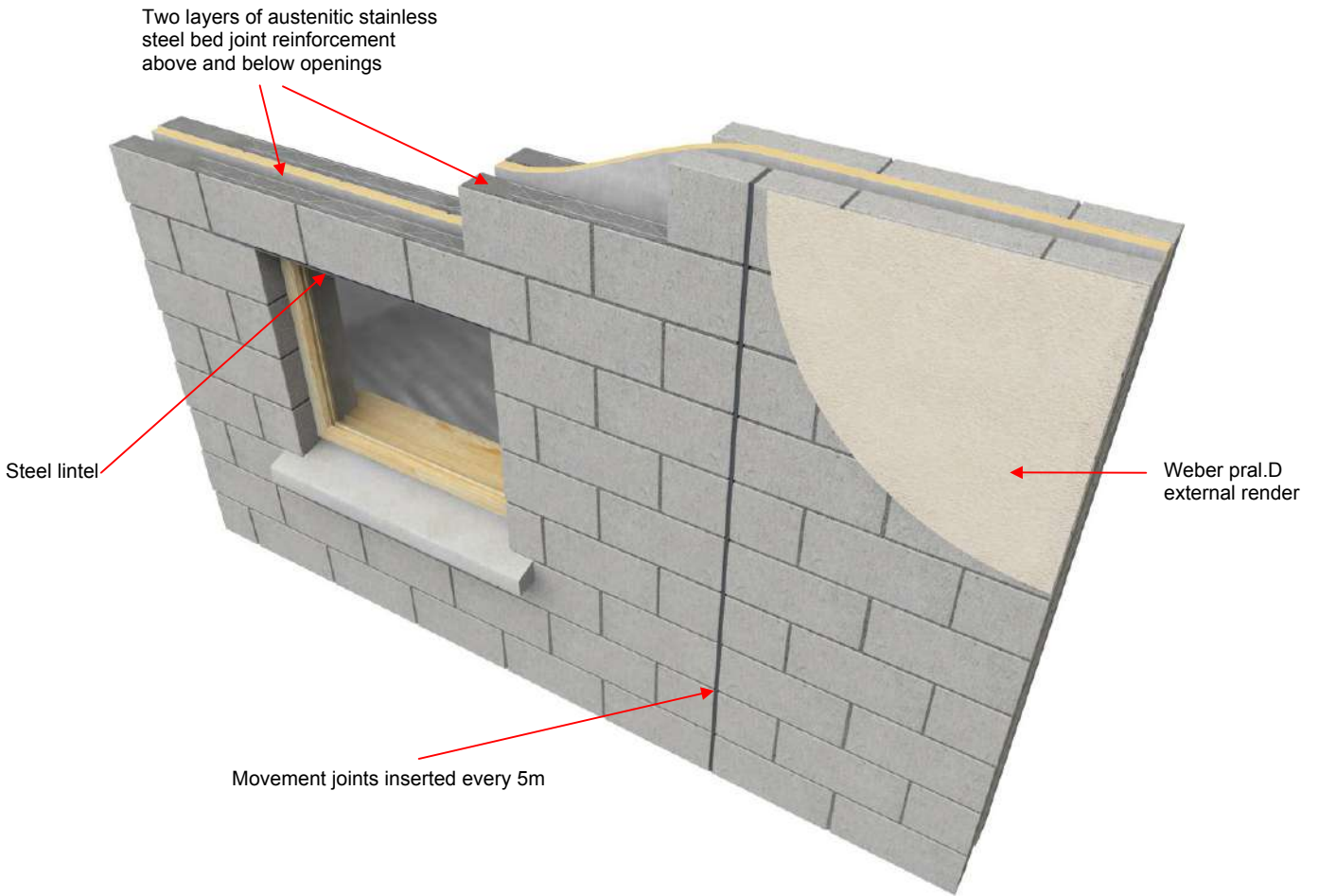


Figure 5: External Wall Detail

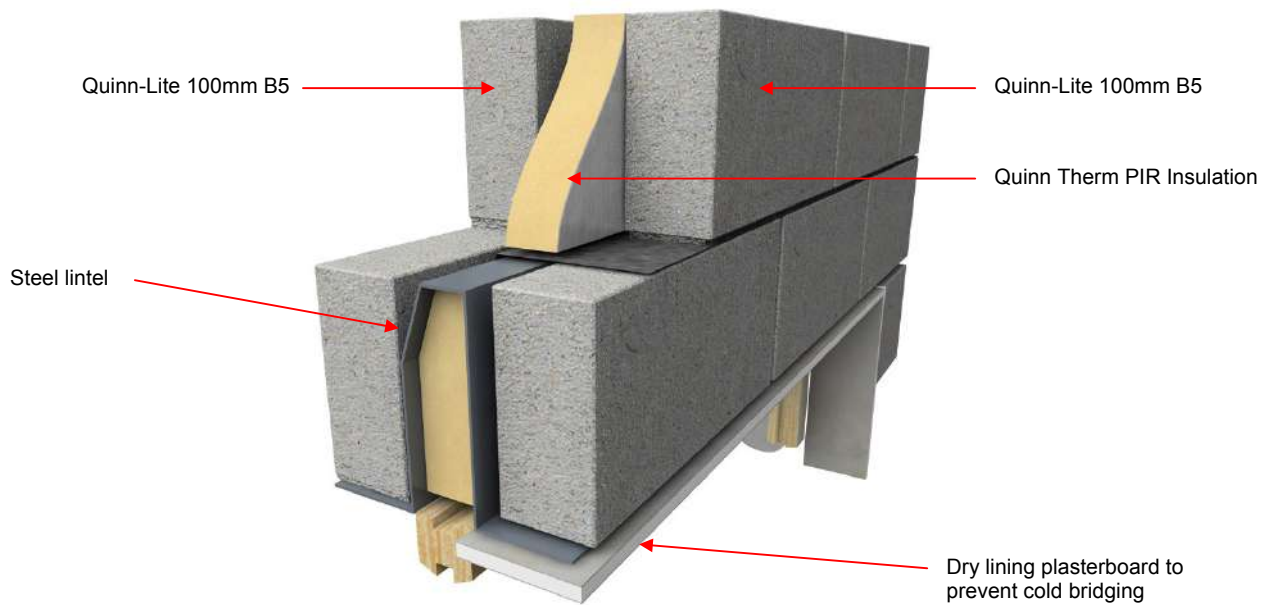


Figure 6: Lintel Detail

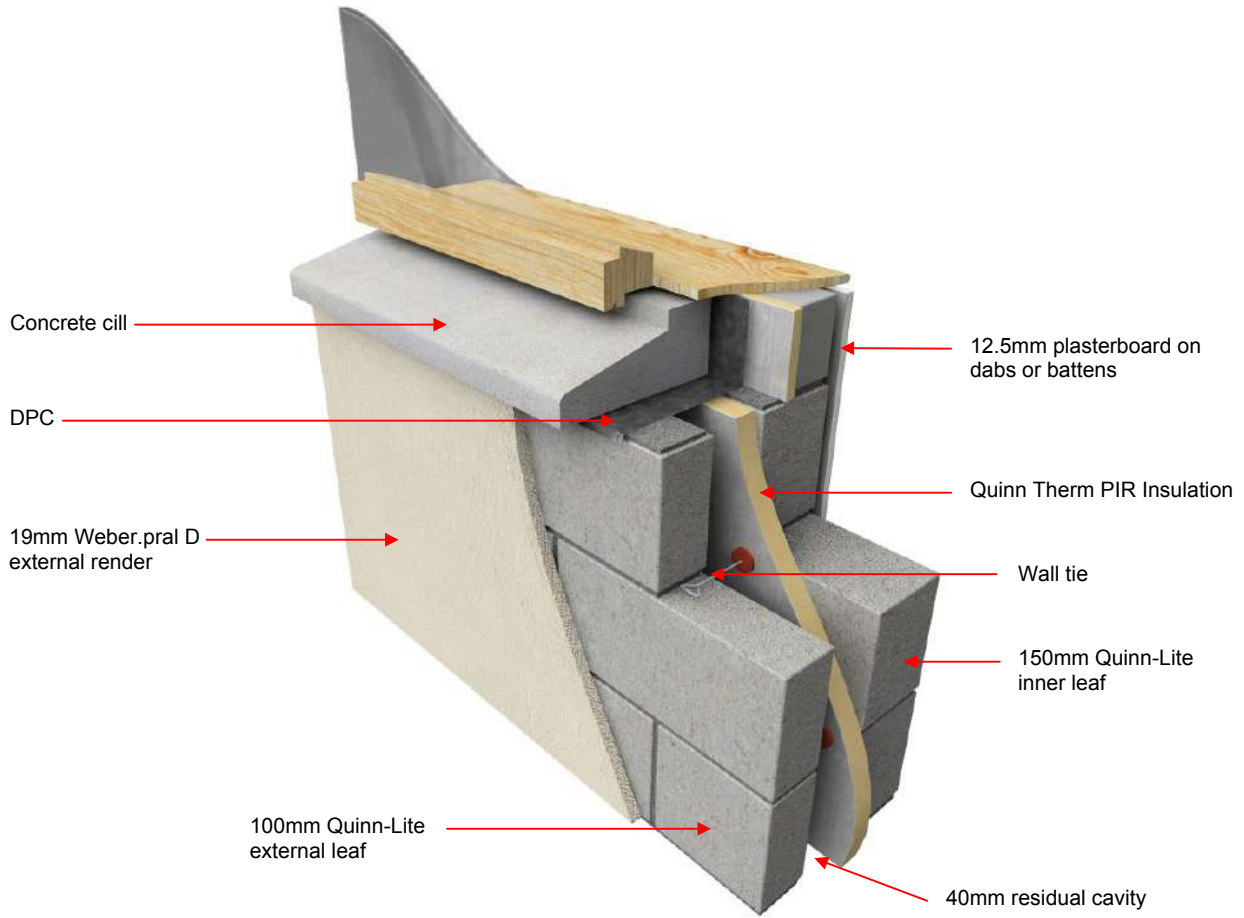


Figure 7: Cill Detail

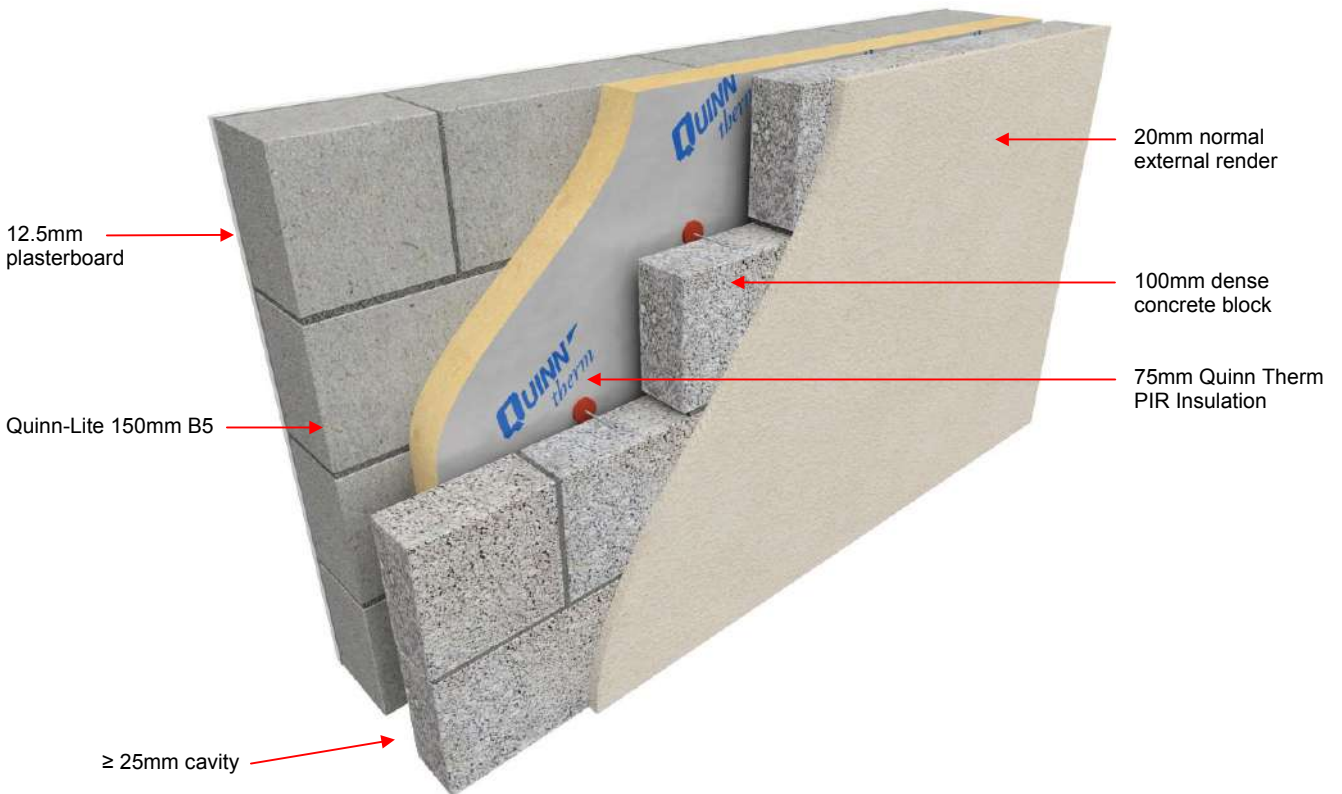


Figure 8: Construction for A-Rated House

3.1 STRENGTH AND STABILITY

Strength properties of Quinn-Lite Aircrete B3, B5 and B7 blocks are shown in Table 1.

The design loads to be taken should be determined in accordance with BS 6399-1:1996 *Loading for buildings – Code of practice for dead and imposed loads*, BS 6399-2:1997 *Loading for buildings – Code of practice for wind loads* and BS 6399-3:1988 *Loading for buildings – Code of practice for imposed roof loads*.

Wind loads should be based on the wind exposure map shown in Diagram 15 of Technical Guidance Document to Part A of the Building Regulations 1997 to 2006. Snow loads should be based on the map shown in Diagram 14 of TGD to Part A of the Building Regulations 1997 to 2006.

Cavity Barriers

A Quinn-Lite cavity wall can be treated the same as a conventional masonry cavity wall, i.e. Diagram 17 of TGD to Part B of the Building Regulations 1997 to 2006 applies.

3.2 STRUCTURAL FIRE SAFETY

Quinn-Lite Aircrete blocks are non-combustible and have a Class 0 surface spread of flame rating in accordance with Part B of the Building Regulations 1997 to 2006.

Acrylic renders are not approved for use with the Quinn-Lite blocks.

3.3 FOUNDATION DESIGN

Foundation design should be in accordance with BS 8004:1986 *Code of practice for foundations*, BS 8103-1:1995 *Structural design of low-rise buildings – Code of practice for stability, site investigations, foundations and ground floor slabs*, and Part A of the Building Regulations 1997 to 2006.

3.4 IMPACT RESISTANCE

The external walls are finished on the outside with Weber.pral D render. With this render on the substrate of the Quinn-Lite Aircrete blocks, there is little risk of external impact damage to the structure. With regard to internal impacts, the plaster on the Quinn-Lite Aircrete blocks has a durability to impact similar to traditional masonry.

4.1 BEHAVIOUR IN FIRE

Quinn-Lite Aircrete B3, B5 and B7 blocks have a Class 0 fire rating. The required thickness of masonry wall for a lightweight concrete block for a particular duration of fire resistance is given in Table 16a of IS 325-2:1995. The table shows that a Quinn-Lite Aircrete block has the same performance as a conventional dense aggregate block.

4.2 PHYSICAL EFFECTS OF MOISTURE

When used externally, the blockwork shall be rendered as detailed in Part 2 of this Certificate in accordance with IS EN 13914-1:2005 *Design, preparation and application of external rendering and internal plastering – External rendering*. The advice of IS 325-2:1995 should be followed in respect of exposure analysis and building details.

4.3 SOUND INSULATION

The sound insulation of Quinn-Lite B5 and B7 used in party wall construction (as detailed in Part 2 of this Certificate) have been assessed and shown to be in compliance with Part E of the Building Regulations 1997 to 2006.

4.4 THERMAL INSULATION

The thermal conductivities of Quinn-Lite B3, B5 and B7 are shown in Table 1. Typical U-values are shown in Table 2, calculated in accordance with Part L of the Building Regulations 1997 to 2006.

4.5 CONDENSATION

Calculations in accordance with BS 5250:2002 *Code of practice for control of condensation in buildings*, show that the level of insulation provided by the Quinn-Lite block masonry walls with Weber.pral D render externally and 13mm lightweight plaster internally should minimise the risk of surface or interstitial condensation in all normal environments in dwellings. As with all wall construction, care must be taken when installing the dpc below windows to ensure that any condensation occurring on the window is drained outwards.

4.6 DURABILITY

Buildings constructed using Quinn-Lite B3, B5 and B7, when constructed in accordance with the manufacturer's instructions and the requirements of this Certificate and all relevant codes of practice, will have a design life of **60 years** in accordance with BS 7543:2003 *Guide to durability of buildings and building elements, products and components*. Buildings based on the manufacturer's recommendations, provided they are properly erected and that construction is carried out properly and accurately, should give good performance under all relevant headings throughout their working life.

Element	Thickness (mm)	Calculated U-Value (W/m ² K)
Render	15	0.27
Quinn-Lite B5	100	
Cavity	≥ 25	
Polyisocyanurate	45	
Quinn-Lite B7	100	
Plaster	12.5	
Render	15	0.23
Quinn-Lite B5	100	
Cavity	≥ 25	
Polyisocyanurate	60	
Quinn-Lite B7	100	
Plaster	12.5	
Render	15	0.27
Quinn-Lite B5	100	
Cavity	≥ 25	
Polyisocyanurate	45	
Quinn-Lite B5	100	
Plaster	12.5	
Render	15	0.22
Quinn-Lite B5	100	
Cavity	≥ 25	
Polyisocyanurate	60	
Quinn-Lite B5	100	
Plaster	12.5	
Render	15	0.27
Quinn-Lite B5	100	
Cavity	≥ 25	
Polyisocyanurate	40	
Quinn-Lite B3	100	
Plaster	12.5	
Render	15	0.21
Quinn-Lite B5	100	
Cavity	≥ 25	
Polyisocyanurate	60	
Quinn-Lite B3	100	
Plaster	12.5	
Render	20	0.20 (A-Rated House: ref Figure 8)
Dense blockwork	100	
Cavity	≥ 25	
Polyisocyanurate	75	
Quinn-Lite B5	150	
Plaster	12.5	

Table 2: Estimated U-values

4.7 TESTS AND ASSESSMENTS WERE CARRIED OUT TO DETERMINE THE FOLLOWING:

- Dimensional accuracy
- Dry density
- Compressive strength
- Assessment of freeze/thaw resistance
- Thermal conductivity
- Acoustic performance
- Drying shrinkage

4.8 OTHER INVESTIGATIONS

- (i) Existing data on product properties in relation to fire, toxicity, environmental impact and the effect on mechanical strength/stability and durability were assessed.
- (ii) The manufacturing process was examined including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.
- (iii) Site visits were conducted to assess the practicability of installation and the history of performance in use of the product.
- (iv) A condensation risk analysis was performed.

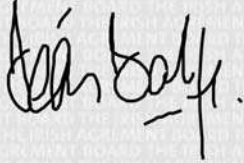
- 5.1** National Standards Authority of Ireland ("NSAI") following consultation with the Irish Agrément Board ("IAB") has assessed the performance and method of installation of the product/process and the quality of the materials used in its manufacture and certifies the product/process to be fit for the use for which it is certified provided that it is manufactured, installed, used and maintained in accordance with the descriptions and specifications set out in this Certificate and in accordance with the manufacturer's instructions and usual trade practice. This Certificate shall remain valid for five years from date of issue so long as:
- (a) the specification of the product is unchanged.
 - (b) the Building Regulations 1997 to 2006 and any other regulation or standard applicable to the product/process, its use or installation remains unchanged.
 - (c) the product continues to be assessed for the quality of its manufacture and marking by NSAI.
 - (d) no new information becomes available which in the opinion of the NSAI, would preclude the granting of the Certificate.
 - (e) the product or process continues to be manufactured, installed, used and maintained in accordance with the description, specifications and safety recommendations set out in this certificate.
 - (f) the registration and/or surveillance fees due to IAB are paid.
- 5.2** The IAB mark and certification number may only be used on or in relation to product/processes in respect of which a valid Certificate exists. If the Certificate becomes invalid the Certificate holder must not use the IAB mark and certification number and must remove them from the products already marked.
- 5.3** In granting Certification, the NSAI makes no representation as to;
- (a) the absence or presence of patent rights subsisting in the product/process; or
 - (b) the legal right of the Certificate holder to market, install or maintain the product/process; or
 - (c) whether individual products have been manufactured or installed by the Certificate holder in accordance with the descriptions and specifications set out in this Certificate.
- 5.4** This Certificate does not comprise installation instructions and does not replace the manufacturer's directions or any professional or trade advice relating to use and installation which may be appropriate.
- 5.5** Any recommendations contained in this Certificate relating to the safe use of the certified product/process are preconditions to the validity of the Certificate. However the NSAI does not certify that the manufacture or installation of the certified product or process in accordance with the descriptions and specifications set out in this Certificate will satisfy the requirements of the Safety, Health and Welfare at Work Act. 1989, or of any other current or future common law duty of care owed by the manufacturer or by the Certificate holder.
- 5.6** The NSAI is not responsible to any person or body for loss or damage including personal injury arising as a direct or indirect result of the use of this product or process.
- 5.7** Where reference is made in this Certificate to any Act of the Oireachtas, Regulation made thereunder, Statutory Instrument, Code of Practice, National Standards, Manufacturer's instructions, or similar publication, it shall be construed as reference to such publication in the form in which it is in force at the date of this Certification.

The Irish Agrément Board

This Certificate No. **07/0264** is accordingly granted by the NSAI to **Quinn-Lite** on behalf of The Irish Agrément Board.

Date of Issue: **February 2007**

Signed



Director of the Irish Agrément Board

Readers may check that the status of this Certificate has not changed by contacting the Irish Agrément Board, NSAI, Glasnevin, Dublin 9, Ireland. Telephone: (01) 807 3800, Fax: (01) 807 3842, www.n Sai.ie

Revisions: May 2007:

- Inclusion of new illustrations for party wall and external wall details.
- Amendments to sections related to sound and external finish.