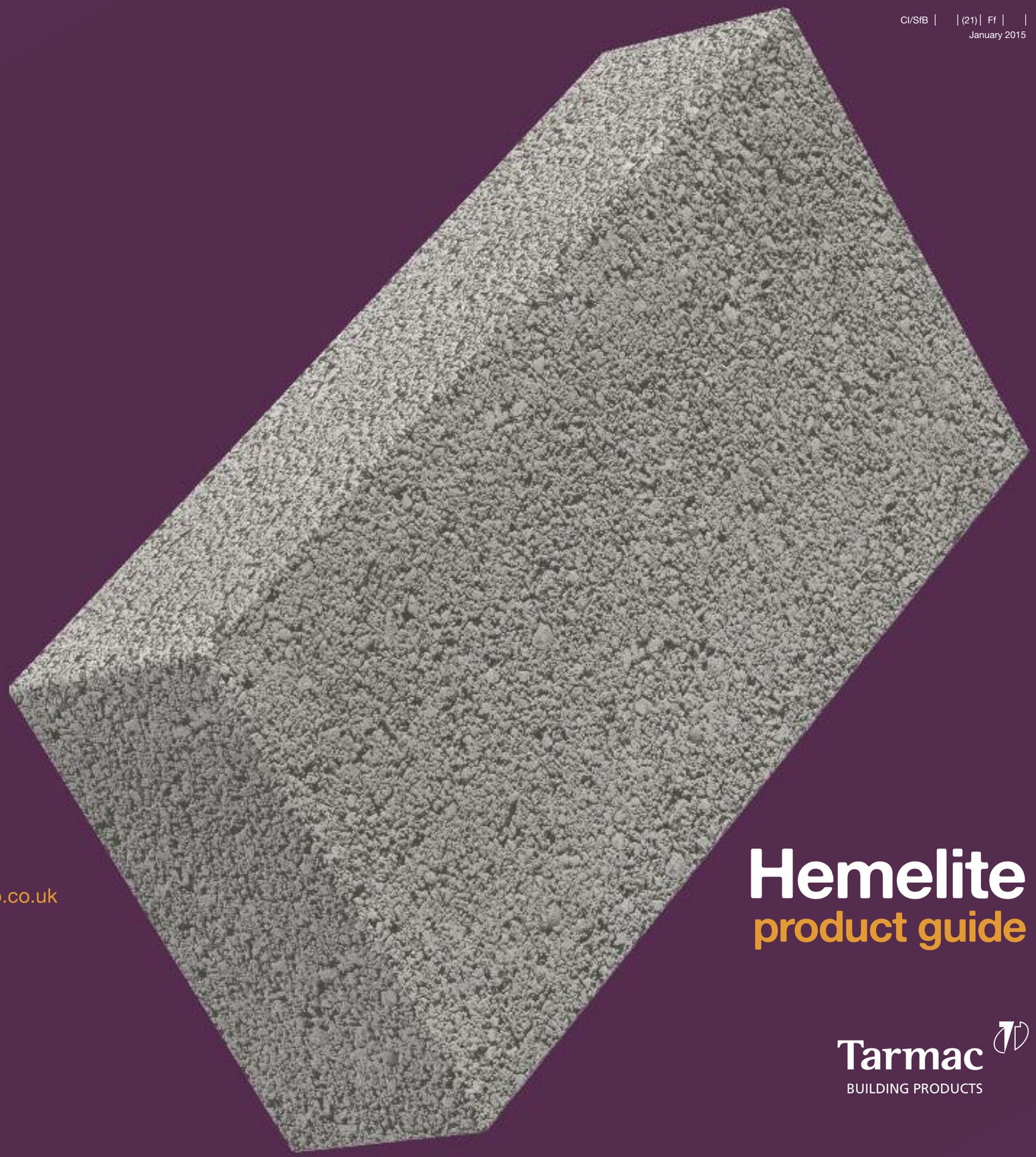


Hemelite
product guide

To contact us:

Technical telephone number: 0870 242 1489

Technical email address: technical.services@tarmacbp.co.uk

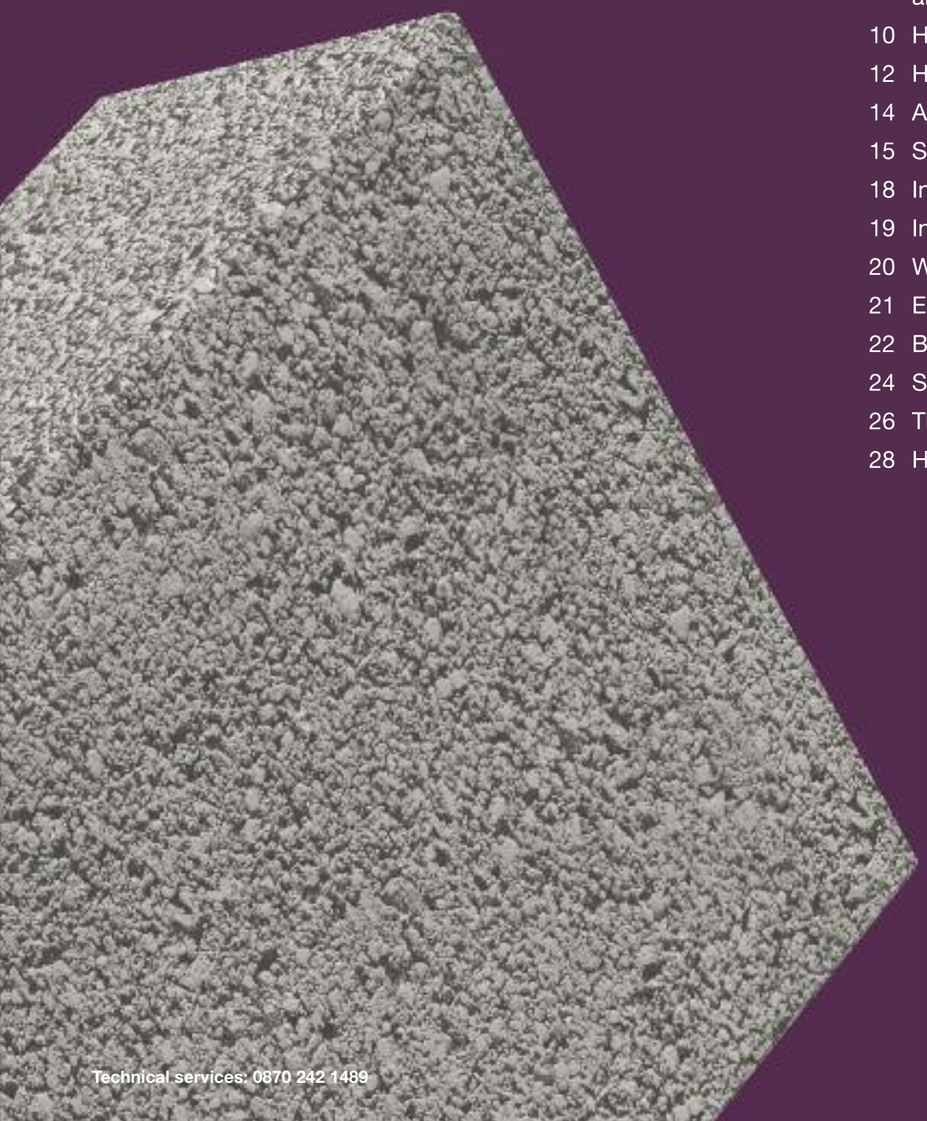
Sales telephone number: 0845 606 2468

Tarmac
BUILDING PRODUCTS

Salisbury House, 2a Tettenhall Road, Wolverhampton, West Midlands, WV1 4SA

Tarmac
BUILDING PRODUCTS

Hemelite is a range of lightweight aggregate blocks available in a variety of formats and suited to a number of loadbearing applications.



Contents

Applications

Walls

Walls above and below ground including separating walls (ideal for finishing with with render, cladding, plaster or dry lining)	 Hemelite Standard	 Hemelite Coursing bricks
Commercial and leisure buildings that require direct decoration	 Hemelite PQ	
Solid and cavity masonry separating walls in residential buildings such as hotels and student accommodation	 Hemelite Standard	

Foundations

Solid and cavity walls below DPC	 Hemelite Standard	 Hemelite Foundation

Floor

Beam and block floors	 Hemelite Standard	 Hemelite Coursing brick

For more detailed product applications, please see pages 70 to 78.

Hemelite lightweight aggregate blocks are suitable for use in walls above and below ground and in block and beam floors. They have a proven high level of technical performance.

01 Loadbearing

A range of strengths caters for the requirements of general housing and other buildings.

02 easy to decorate

Ideal background for drylining, plaster, rendering and fixings.

03 Sound insulation

Excellent sound insulation properties that comply with Robust Detail specifications and the Building Regulations.

See also:

14 Applications

26 Thermal insulation

28 Packs

Excellent technical performance

- Hemelite aggregate blocks have a medium thermal conductivity which aids compliance with Part L Thermal Standards as well as Code for Sustainable Homes requirements.
- Standard cavity width of 75mm or 100mm can be built to meet U-values of 0.30W/m^{2}K or better.
- Hemelite can be used in specifications to meet the requirements of Part E Sound Insulation for houses and flats, including compliance with Robust Detail specifications.
- The environmental performance of Hemelite can help to achieve compliance with the Code for Sustainable Homes including ratings in accordance with the Green Guide to Specification.

Loadbearing capacity

- Hemelite aggregate blocks are extremely durable and robust and have excellent loadbearing properties.
- Compressive strengths of 3.6, 7.3 and 10.4N/mm^2 cover virtually all structural needs and meet Category 1 manufacturing control requirements of BS EN 5628:1.
- Available in solid, hollow and cellular formats.
- The benefits of ease of handling will assist contractors and specifiers in meeting the obligations of the Construction (Design and Management) Regulations.

Easy to work

- Hemelite aggregate blocks have excellent working characteristics. They are straightforward to install following conventional block laying practice.
- Hemelite blocks provide a strong background for the application of wet and dry finishes as well as a good substrate into which to secure fixings.

Appearance

- Standard grade blocks are light to dark grey and have a textured surface suitable for plastering or rendering.
- Paint Quality grade blocks are light to dark grey and have a close textured surface. The colour and texture of blocks may differ according to factory of origin. Samples are available on request.

Sustainability

All TBP manufacturing plants operate an Environmental Management System (EMS) conforming to ISO:14001. All sites are independently certified for compliance by BSI. Use of Hemelite products, supported by a certified ‘Very Good’ to BES 6001, provides the evidence to comply with the Responsible Sourcing element of the Code for Sustainable Homes. This, together with a responsible supply chain, allows Hemelite to maximise the credits available within the Code. Summary Green Guide ratings applicable to Hemelite constructions can be found in the BRE Green Guide to Specification.

Authority and standards

Hemelite blocks are BSI Kitemarked to BS EN 771-3 and are manufactured under a Quality System complying with BS EN ISO 9001.

They conform to the ‘Special Category of Manufacturing Control’ requirements specified in BS 5628-1.

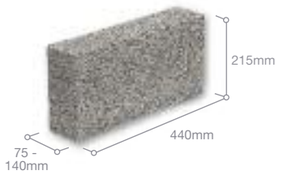
Hemelite blocks have been awarded ‘Very Good’ to BES 6001: Responsible sourcing of Construction Products.

All Hemelite products are CE marked in accordance with the Construction Products Regulations (CPR). Further information can be obtained from www.tarmacbuildingproducts.co.uk/ce

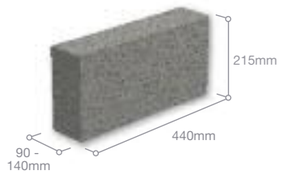
BES 6001 Responsible Sourcing www.greenbooklive.com

Hemelite Standard and Paint Quality

For general use in walls above and below ground and in beam and block floors, or close textured blocks for walls in commercial and leisure buildings which are to receive direct decoration.



Hemelite Standard



Hemelite Paint Quality

Low unit weight

Easy to handle, high strength to weight, lower overall build weight

Excellent acoustic and thermal performance

Good U-values and high Rw values, as well as Robust details

Range of strengths

4 options available for wide range of specifications

Table 1: **Hemelite Standard sizes and weights**

Face size 440 x 215 mm Block width (mm)	75*	90*	100	140
Solid: 3.6N/mm²				
Block weight	9.9	–	13.1	18.4
Laid weight	106	–	142	198
Solid: 7.3N/m²				
Block weight	10.6	12.6	14.0	19.5
Laid weight	113	135	150	210
Solid: 10.4N/mm²				
Block weight	–	–	14.7	20.5
Laid weight	–	–	157	219
Cellular: 3.6N/mm²				
Block weight	–	–	11.0	–
Laid weight	–	–	121	–
Hollow: 3.6N/mm²				
Block weight	–	–	–	–
Laid weight	–	–	–	–

Unit and laid weights, which are given for design purposes, are approximate only and based on 3% moisture content. Tolerance to BS EN771-3, Tolerance category D1

* Made to order.

Table 2: **Hemelite Paint Quality sizes and weights**

Face size 440 x 215 mm Block width (mm)	90*	100	140
Solid: 3.6, 7.3N/mm²			
Block weight	12.2	13.5	18.9
Laid weight	131	145	203
Solid: 10.4N/m²			
Block weight	–	14.5	20.2
Laid weight	–	155	217
Cellular: 3.6, 7.3N/m²			
Block weight	–	–	12.0
Laid weight	–	–	134

Unit and laid weights, which are given for design purposes, are approximate only and based on 3% moisture content. Tolerance to BS EN771-3, Tolerance category D1

* Made to order.

Table 3: **Material properties**

	Standard	Paint Quality
Compressive strength to BS EN771-3 (N/mm²)		
Solid blocks	3.6, 7.3 & 10.4*	3.6, 7.3 & 10.4*
Cellular and hollow blocks	3.6	3.6 & 7.3*
Material dry density (kg/m³)		
Solid, cellular or hollow 3.6N/mm²	1360	1400
Solid 7.3N/mm²	1450	1400
Solid 10.4N/mm²	1520	1500
Thermal conductivity (W/mk) @ 3% moisture content		
Solid, cellular or hollow 3.6N/mm²	0.45	0.46
Solid 7.3N/mm²	0.47	0.46
Solid 10.4N/mm²	0.49	0.48
Moisture movement (mm/m) (shrinkage and expansion)		
	< 0.80	< 0.80
Typical airtightness (m³/[h.m²] @ 50Pa)		
100mm solid blocks – emulsion paint finish	–	0.12 - 0.57
140mm solid blocks – emulsion paint finish	–	< 0.10 - 0.63

* Made to order

Hemelite Standard

For general use in walls above and below ground** and in beam and block floors. They are ideal for finishing with render, cladding, plaster or drylining.

Hemelite Paint Quality

Close textured blocks ideally suited for walls in commercial and leisure buildings which are to receive direct decoration.

It is recommended that Hemelite Paint Quality blocks are painted as there may be variations in colour and texture depending on the factory of origin.

As a general rule, only one side of a block may be considered ‘fair’ as any dimensional tolerance will be reflected in the other face.

Where a 215 or 200mm wide wall is required, is recommended that the wall is constructed from 2 x 100mm blocks laid as a collar jointed wall. This has the benefit of providing a ‘fair face’ to both sides and reduces the unit weight during construction.

Samples are available on request.

Separating walls

The range of Hemelite solid blocks can be used with a number of Robust Detail Constructions, including those with fully filled cavities, avoiding the need for pre-completion testing. In addition, these constructions may be used with various Robust Detail separating floors. For further details, see the Applications section on pages 14-27.

Loadbearing walls

Hemelite is available in a range of strengths from 3.6 to 10.4 N/mm² which make them suitable for a variety of structural applications from domestic to commercial building.

Hemelite blocks are produced to comply with ‘Category 1’ manufacturing control to BS EN 5628-1 and BS EN 771-1 to 16.

** Subject to soil sulphate conditions (see Table 7 on page 20 for further guidance).

Hemelite Standard and Paint Quality (continued)

Table 4: **Performance summary**

Standard	Fire resistance, no finish (hrs)		Sound reduction, (R_wdB)		Block thermal resistance (m²k/w)		
Single leaf wall	**Non-loadbearing**	**Loadbearing**	**Lightweight plaster**	**Drylining**	**3.6 N/mm²**	**7.3 N/mm²**	**10.4 N/mm²**
75mm solid	2	-	45	43	0.17	-	-
90mm solid	2	1	45	45	0.20	0.19	-
100mm solid	2	2	46	46	0.22	0.21	0.20
140mm solid	4	3	48	48	0.31	0.30	0.29
100mm cellular	2	2	44	46	0.28	-	-
140mm cellular or hollow	3	2	48	47	0.33	-	-

Paint Quality	Fire resistance, no finish (hrs)		Sound reduction, (R_wdB)	Block thermal resistance (m²k/w)	
Single leaf wall	**Non-loadbearing**	**Loadbearing**	**Paint finish only**	**3.6 N/mm² 7.3 N/mm²**	**10.4 N/mm²**
90mm solid	2	1	44	0.20	-
100mm solid	2	2	46	0.22	0.21
140mm solid	4	3	48	0.30	0.29

Notes
The values for fire resistance and sound insulation apply to Hemelite blocks of any strength
Fire resistance - the application of plaster or drylining finishes will generally increase the period of fire resistance
Sound reduction - values are based on technical assessment and test to BS EN 140

Fire

Hemelite blocks provide excellent periods of fire resistance which can satisfy building regulations and other imposed requirements e.g. those of insurers.

All Hemelite products conform to a fire rating of Class A1 to BS EN 13501-1: 2002.

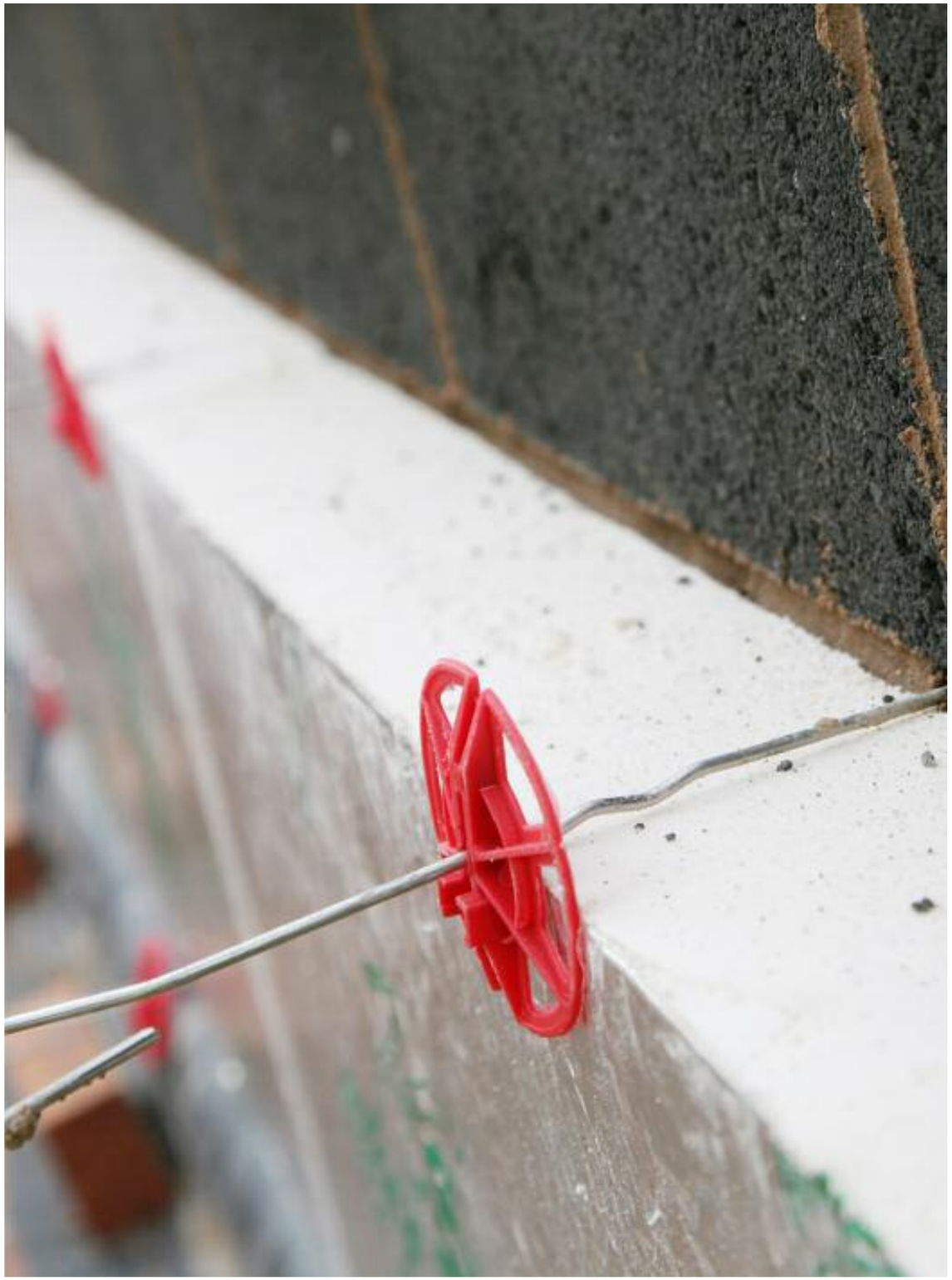
Typical fire resistance values for Hemelite constructions are shown and are based on the UK National Annex to Eurocode 6: Design of masonry structures (Part 1-2).

Sound insulation

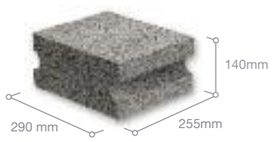
Hemelite blocks may be used to provide acoustic insulation between internal rooms. The Building Regulations Approved Document E requires certain internal walls and floors in dwellings to meet a performance standard of 40R_wdB.

This can be met, for example, using 100mm Hemelite Standard finished with plaster or drylining. Sound reduction values of other Hemelite products are shown in the Table 4.

For further advice including use in separating wall constructions, including Robust Details, see the Applications section on pages 14-27.



Hemelite Foundation blocks are produced specifically for use below DPC in solid walls.



Increased productivity

Replaces traditional inner and outer leaf with one block, potentially halving construction time.

Easy to handle

Each block has recessed groves to ease handling.

Foundation blocks

Foundation block is produced specifically for use below DPC in solid walls.

It replaces the inner and outer leaf, wall ties and concrete cavity fill associated with traditional construction methods. This means that construction time may be halved compared to cavity walling and that the wall becomes stable soon after laying, eliminating the risk of collapsed cavities.

They are formed with recessed grooves in each short edge to facilitate lifting and are available in a coursing height of 140mm.

These blocks are produced at our factory in Newark for supply into the Midlands area.

Quantities

For estimating purposes, the following number of blocks are required per m^2 of laid wall, based on 10mm mortar joints:

- 255mm width – 22.2 blocks
- 290mm width – 25 blocks

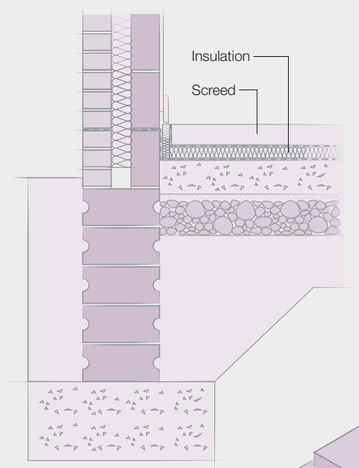


Fig 1: Hemelite Foundation blocks below DPC

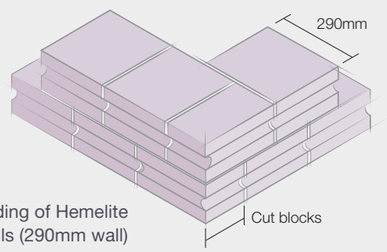


Fig 2: Corner bonding of Hemelite Foundation walls (290mm wall)

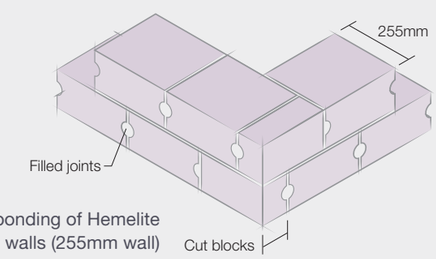


Fig 3: Corner bonding of Hemelite Foundation walls (255mm wall)

Table 5: **Material properties**

Block size 255 x 290 x 140mm	
Compressive strength to BS EN 771-3 (N/mm^2)	7.3
Material dry density (kg/m^3)	1400
Thermal conductivity (W/mK)	0.51
Unit weight (kg)	15.0
Laid weight (kg/m^2) 255mm width	380
Laid weight (kg/m^2) 290mm width	420

Unit and laid weights are approximate and taken at 3% moisture content.

Applications

Foundation blocks can be used to support cavity walls of 250mm – 300mm above DPC, or solid walling of equivalent size.

Foundation blocks may be laid with either 255mm or 290mm as the wall width.

Installation

They would usually be laid in a GM6 (formally Designation II) mortar depending on the individual site requirements. The blockwork should be set out to achieve adequate block bonding at corners. Typical solutions are shown on page 20.

Foundation Blocks are below the 20kg manual handling weight.

Hemelite Coursing bricks

Coursing bricks are designed for use with the range of Hemelite blocks.

Less wastage

Ideal for infilling over lintels and between floor joists

Consistent background

Provides a uniform background to receive render or plaster.

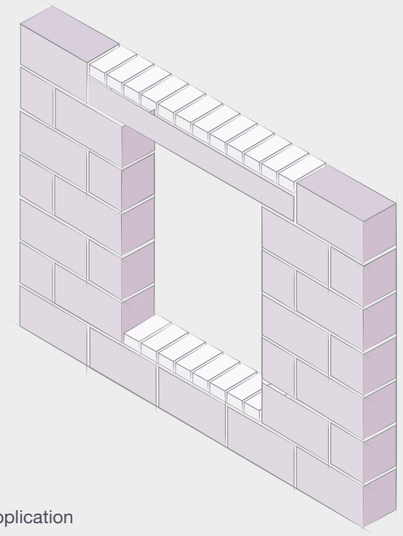


Fig 4: Typical application

Application

Coursing bricks should be used for general coursing work, in-filling small areas of wall such as between timber floor or roof members as well as maintaining the coursing over lintels and at sills.

Their use can eliminate cutting and wastage.

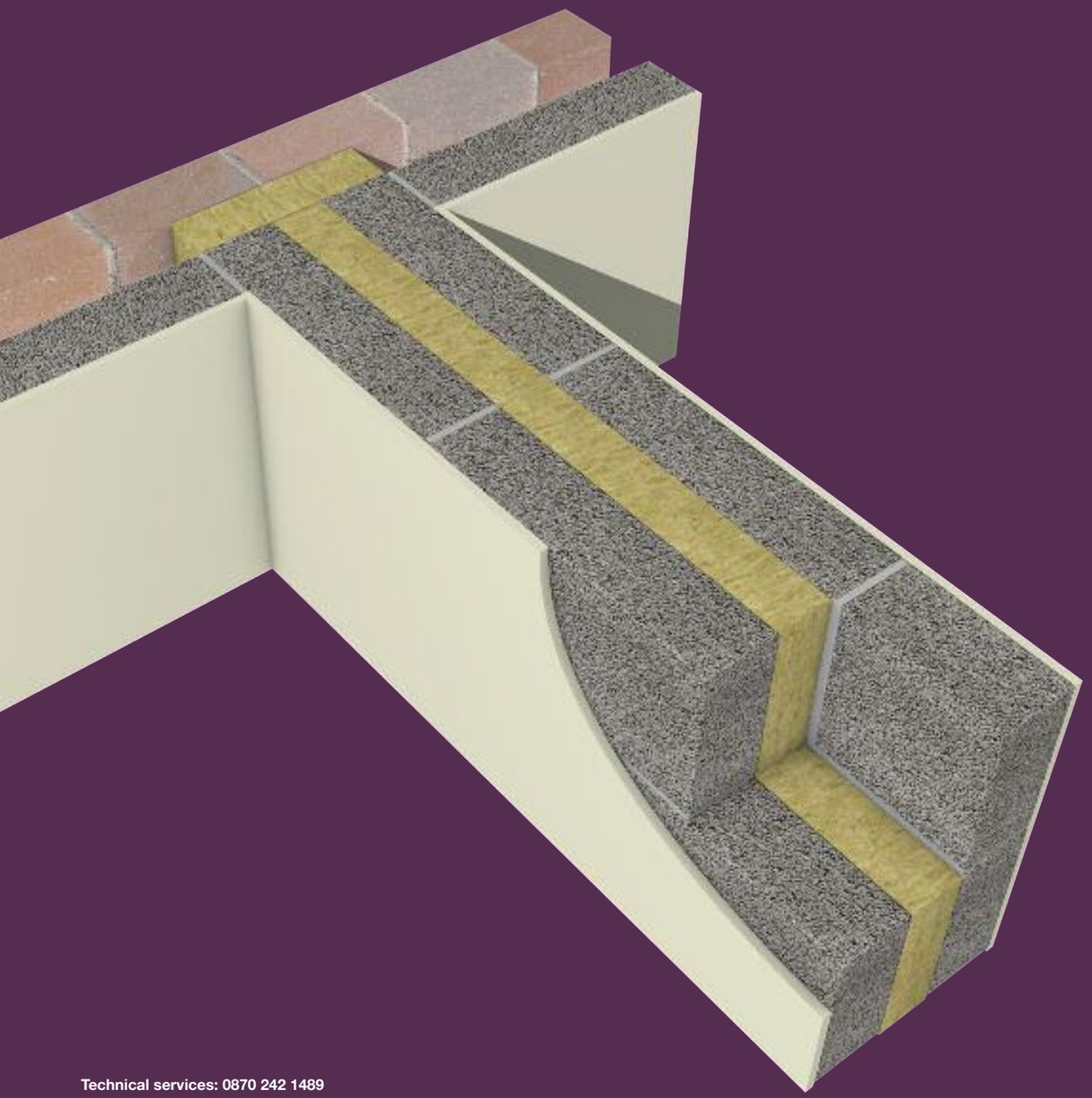
Table 6: **Material properties**

Block size 215 x 100 x 65mm	
Compressive strength to BS EN 771-3 (N/mm^2)	3.6, 7.3
Normal dry density (kg/m^3)	1400
Unit weight (kg)	2.0

Unit weight is approximate and taken at 3% moisture content

Aggregate block applications

TBP aggregate blocks are suitable for a wide range of applications.



Separating walls The Building Regulations require separating walls to provide reasonable resistance to sound transmission.

Guidance on suitable Hemelite and Topcrete constructions capable of meeting the specified performance given in Approved Document E is shown on pages 16-19. This includes constructions that can be built to satisfy Robust Details. The use of Robust Details provides an alternative to pre-completion testing for demonstrating compliance with Part E for new build dwellings. Robust Details should be used in accordance with the scheme requirements including plot registration.

The performance of separating walls is highly dependent on design, detailing and the good workmanship of the associated flanking construction.

Residential buildings

RPW (Residential Party Wall) blocks are designed for the construction of solid masonry separating walls in residential buildings such as hotels and student accommodation.

The performance of RPW has been evaluated based on tests to BS EN ISO 140-3 and BS EN ISO 717-1.

Walls can be finished with 13mm dense or lightweight plaster, or 12.5mm plasterboard on dabs. It is essential that good standards of workmanship are maintained, particularly the full filling of all mortar joints, to enable the acoustic potential of the separating wall to be realised.

Pre-completion testing

Constructions requiring pre-completion testing in accordance with Approved Document E or other technical guidance (e.g. BBA certification or field test data).

It is recommended that Hemelite and Topcrete separating wall types should not be used where there is a timber separating floor. All Hemelite and Topcrete should be specified as solid blocks

Where there is a step or stagger of at least 300mm in the Hemelite separating wall, a drylined finish may be used.

1. 13mm plaster (10kg/m^2 min.)
2. 50mm cavity
3. 2x 100mm Topcrete Standard blocks

OR:

1. 13mm plaster (10kg/m^2 min.)
2. 75mm cavity
3. 2x 100mm Hemelite Standard blocks

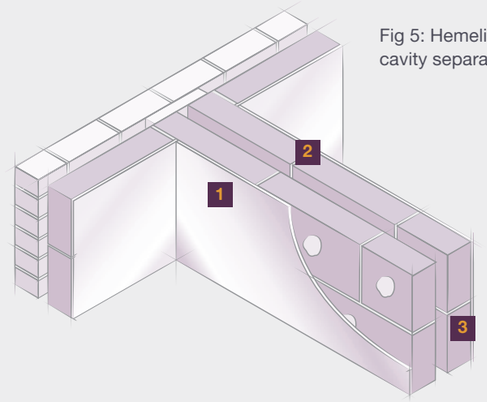
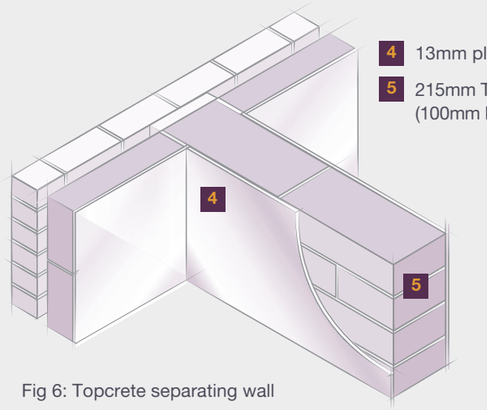


Fig 5: Hemelite and Topcrete cavity separating walls



4. 13mm plaster (10kg/m^2 min.)
5. 215mm Topcrete Standard (100mm blocks laid flat)

Fig 6: Topcrete separating wall

Separating walls (continued)

New dwellings – Robust Details

no site testing required

E-WM-1*, E-WM-2* (dense and lightweight aggregate blocks with wet plaster)

2 x 100mm Topcrete or Hemelite blocks, minimum 75mm cavity, 13mm plaster or cement - sand render with plaster skim (min 10kg/m^2) both sides.

E-WM-3*, E-WM-4* (dense and lightweight aggregate blocks with gypsum-based board on dabs)

2 x 100mm Topcrete or Hemelite blocks, minimum 75mm cavity, gypsum-based board (nominal 8kg/m^2) mounted on dabs on cement:sand render (nominal 8mm) with scratch finish.

E-WM-16* (dense and lightweight aggregate blocks with gypsum-based board on dabs)

2 x 100mm Topcrete or Hemelite blocks, minimum 100mm cavity, gypsum-based board (nominal 9.8kg/m^2) mounted on dabs on cement:sand render (nominal 8mm) with scratch finish.

* The cavity may be fully filled with mineral wool (max. density 40kg/m^3) to provide a 'zero U-value' separating wall.

E-WM-18* (dense and lightweight aggregate blocks with wet plaster)

2 x 100mm Topcrete or Hemelite blocks, minimum 100mm cavity, 13mm plaster or cement - sand render with plaster skim (min 10kg/m^2) both sides.

It is recommended that Hemelite and Topcrete separating wall types should not be used where there is a timber separating floor. All Hemelite and Topcrete should be specified as solid blocks.

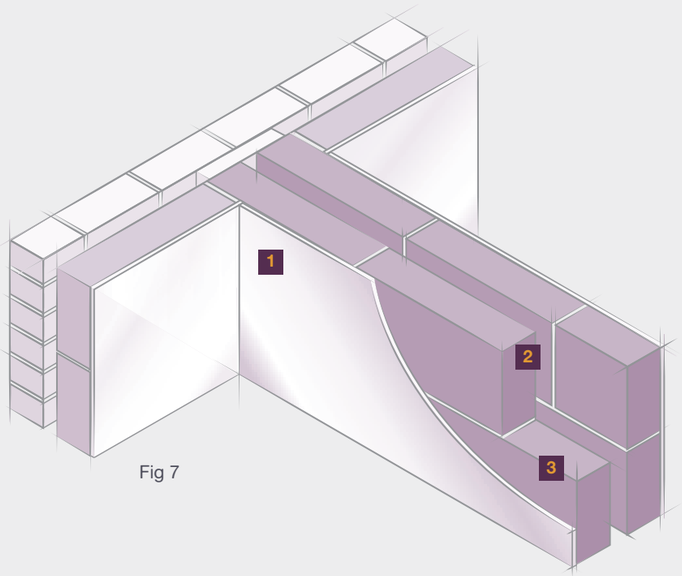


Fig 7

1. 13mm plaster (10kg/m^2 min.) or plasterboard (8.0kg/m^2 nominal) on 8mm nominal parging
2. 75 or 100mm cavity
3. 2x 100mm Topcrete or Hemelite Standard blocks

New build rooms for residential purposes

Any of the recommended solutions shown for the New Build Dwellings can be specified for separating walls for use in rooms for residential purpose. In addition, the solutions shown below may be used.

Constructions requiring pre-completion testing in accordance with Approved Document E or other technical guidance e.g. BBA certification or field test data.

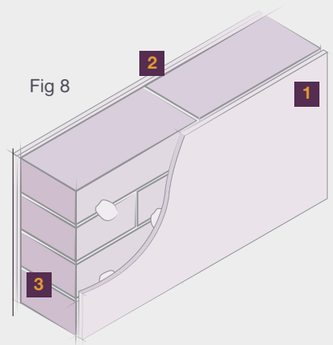
Rooms for residential purposes include hotels, hostels, boarding houses, halls of residence and residential houses but exclude hospitals or similar establishments used for patient accommodation.

1. 13mm plaster (10kg/m^2 min.)

OR:

2. 13mm plasterboard (10kg/m^2 min.)
3. 215mm Topcrete blocks laid flat

Fig 8

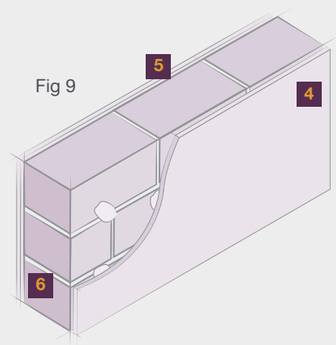


4. 13mm plaster (10kg/m^2 min.)

OR:

5. 13mm plasterboard (10kg/m^2 min.)
6. 190mm Topcrete RPW blocks laid flat

Fig 9



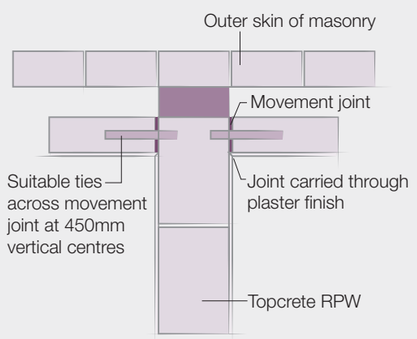


Fig 10: Typical junction with external wall

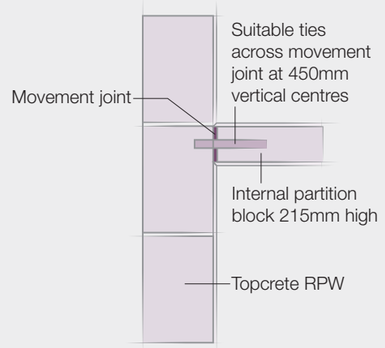


Fig 11: Typical junction with partition wall

Internal walls* Any grade of Hemelite or Topcrete can be used for the construction of internal walls.

For partitions in dwellings, these products can be used to provide good levels of airborne sound insulation as well as a suitable background for fixings and finishes.

For commercial and industrial applications, Hemelite and Topcrete may be used to provide sound insulation, fire resistance and structural strength.

Certain internal walls are required to provide a level of sound insulation as required by the Building Regulations E2. Walls between bedrooms, or a room containing a water closet, and other rooms, need to provide the minimum sound insulation of $40R_wdB$. The constructions shown in Figure 33 have been assessed and/or laboratory tested to demonstrate the performance level required by Approved Document E.

Approved Document E solution

no site testing required

Approved Document ‘E’ prescriptive solutions or TBP constructions which have been shown by testing to meet the regulations.

1. Plaster or drylining
2. Wall blocks comprising
   100mm Hemelite Standard
   75mm Topcrete Standard

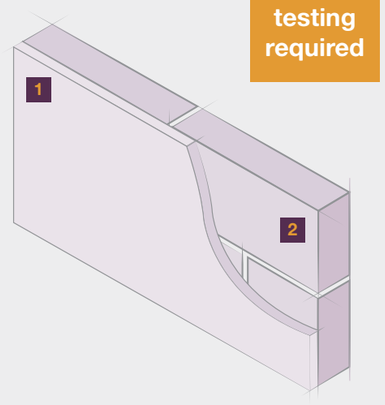


Fig 12

* Internal walls and floors are elements within a dwelling and are not separating elements.

Internal floors* Approved Document ‘E’ prescriptive solutions or TBP constructions which have been shown by testing to meet the regulations.

Approved Document E requires that internal floors in dwellings provide the minimum sound insulation of $40R_wdB$. Hemelite and Topcrete blocks, when used in beam and block floors, can exceed this.

Approved Document E solution

no site testing required

1. 50mm min. sand-cement screed
2. Any ceiling finish
3. Infill blocks comprising 100mm
   Hemelite** or Topcrete Standard blocks

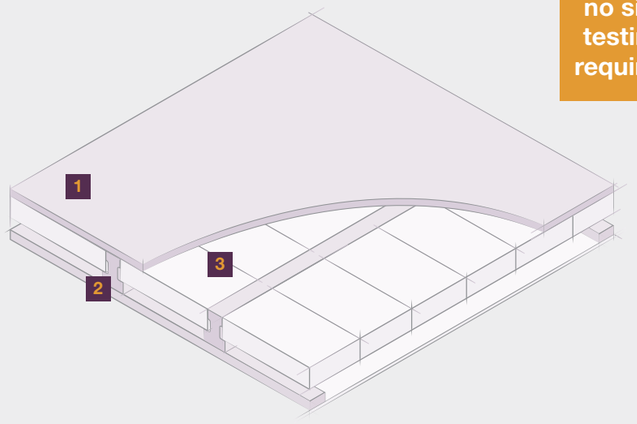


Fig 13

* Internal walls and floors are elements within a dwelling and are not separating elements.

** Hemelite 3.6N/mm² blocks must be specified as ‘flooring grade’.

Walls below DPC Hemelite and Topcrete Standard blocks are suitable for constructing internal and external walls below ground.

For the outer leaf of external cavity walls, or solid external walls below ground, any Topcrete product can be used, or Hemelite Standard blocks of 7.3N/mm^2 strength. However, for protected locations, such as the inner leaf of a cavity wall or internal walls, Hemelite Standard 3.6N/mm^2 solid or cellular blocks may be used.

These products are suitable for use in sulphate soil conditions Class DS-1 to DS-3, as defined in BRE Special Digest No. 1 and shown in Table 43, and their use is supported by research conducted by the Concrete Block Association.

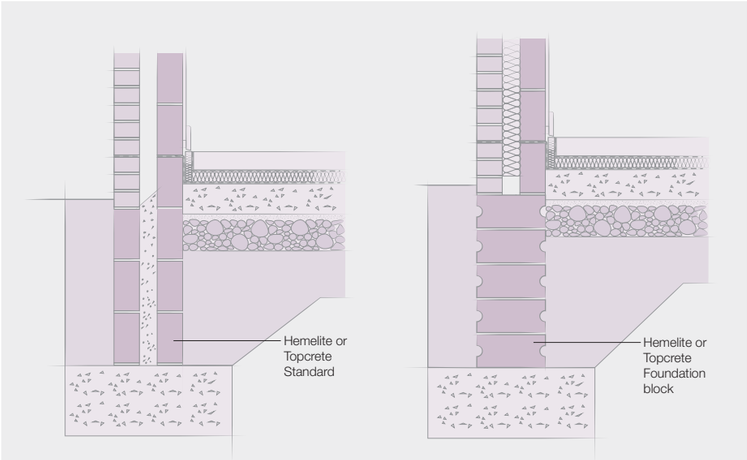


Fig 14: Hemelite and Topcrete blocks below DPC

Table 7: **Sulphate soil conditions**

Hemelite or Topcrete aggregate blocks	DS-1	DS-2	DS-3
Hemelite Standard* 3.6N/mm^2	✓		
Hemelite Standard 7.3N/mm^2 or Foundation block	✓	✓	✓
Topcrete Standard – any strength or Foundation block	✓	✓	✓

* Hemelite Standard 3.6N/mm^2 solid or cellular blocks are suitable for use as the inner leaf of cavity walls and internal walls below dpc.

External walls In cavity walls, Hemelite or Topcrete may be used for either or both leaves, normally with a minimum width of 90mm.

When used for the outer leaf, the blockwork should normally be rendered or clad. When the cavity is not to be fully filled with insulation, a clear residual cavity of 50mm minimum width should be maintained depending on the type of insulation being used. The residual cavity width excludes partial fill insulation.

In a single leaf wall, the minimum width of blockwork, with or without rendering, may be selected from BS 5628-3.

Beam and block floors Hemelite or Topcrete Standard blocks are suitable for use in suspended floors in conjunction with precast concrete beams.

Hemelite or Topcrete Standard blocks are suitable for use in beam and block suspended ground and internal floors in single occupancy dwellings under domestic loading. Where high point loadings are anticipated, such as in garages, a reinforced structural topping must be used.

Where floor loadings dictate closer beam spacing, blocks should be used spanning the 215mm direction.

They are quick to install and provide effective sound insulation for internal floors.

Coursing bricks to in-fill between beam-ends are available in 65mm bedding height.

For the suitability of cellular blocks, contact Technical Services.

When tested under transverse load the blocks are designed to support a point load of 3.5kN over a 420mm clear span.

Building Regulation E2

The requirements of Building Regulation E2 ‘Protection against sound within a dwellinghouse’ can be easily met using a beam and block internal floor using Hemelite or Topcrete infill blocks, finished with a minimum 50mm sand and cement screed and plasterboard ceiling.

Independent tests confirm that the airborne sound reduction (RW) of these finished floor constructions was 51R_WdB. This exceeds the minimum required value of 40R_WdB.

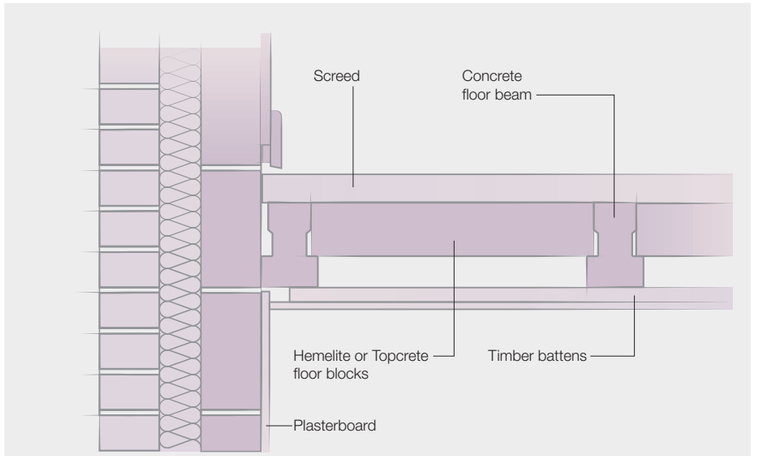


Fig 15: Typical beam and block internal floor

Table 8: **Block specification**

Topcrete or Hemelite Standard
440 x 100 x 215mm Hemelite Standard – either 3.6N/mm² or 7.3N/mm² strength solid blocks may be used but when 3.6N/mm² are required they should be specified as ‘flooring grade’ or 440 x 100 x 215mm Topcrete Standard – 7.3N/mm² strength solid blocks may be used.

Structural elements The Tarmac Building Products medium dense and dense block range provides a combination of strength coupled with excellent thermal and acoustic performance, which makes them ideal for house building.

The strength of the blockwork for many domestic and other small buildings can be determined using the simple rules given in the Building Regulations Approved Document A: Structural Safety.

Using the minimum block strengths indicated in Figures 16-17, the correct block strength may be selected without the need for a structural design calculation. Therefore, in most cases either Hemelite or Topcrete would be adequate for the inner leaf and internal walls of two storey dwellings. For three storey housing, the ground floor inner leaf and load bearing internal walls can be constructed using either Hemelite or Topcrete 7.3N/mm^2. The inner leaf and internal walls on the upper floors could revert to Hemelite 3.6N/mm^2.

Note that, where there are separating walls within attached dwellings, the minimum block strength will be dictated by the density requirements that are necessary for acoustic purposes.

In cases where a structural design is carried out, it may be possible to justify a block strength of 3.6N/mm^2 on the ground floor of three storey housing rather than 7.3N/mm^2 as indicated in Figure 18.

For additional guidance on the use of BS 5628 and Euro Code 6 (BS EN 1996) please contact our Customer Services Team on 0870 242 1489.

Table 9: **Hemelite and Topcrete block strengths**

Block type	Compressive strength (N/mm^2)
Hemelite Standard	3.6, 7.3, 10.4
Hemelite Paint Quality	3.6, 7.3
Topcrete Standard	7.3, 10.4, 17.5, 22.5
Topcrete Paint Quality	7.3, 10.4

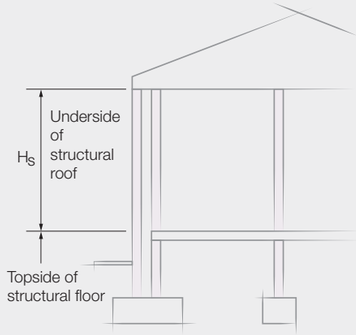
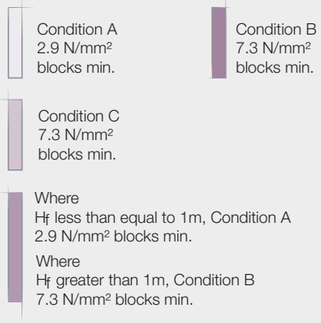


Fig 16



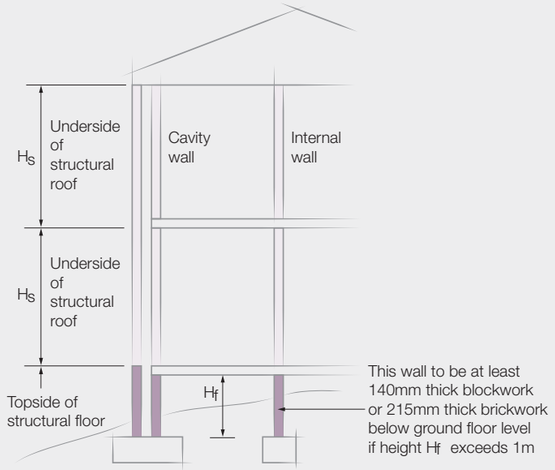


Fig 17

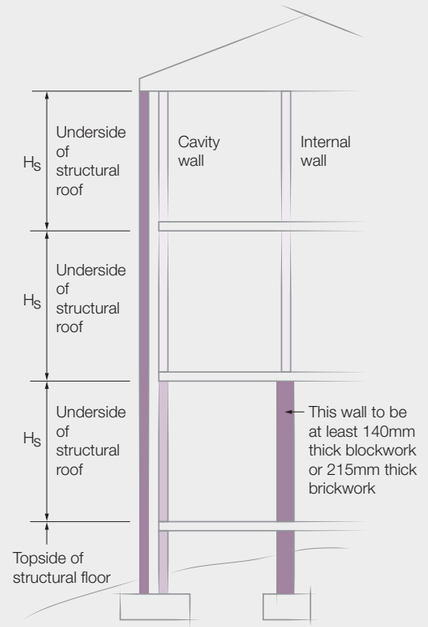


Fig 18

Notes

1 If H_S is not greater than 2.7m, the minimum compressive strength of bricks or blocks should be used in walls as indicated by the key.

2 If H_S is greater than 2.7m, the compressive strength of bricks or blocks used in the wall should be at least Condition B, or as indicated by the key, whichever is the greater.

3 If the external wall is solid construction, the masonry units should have a compressive strength of at least that shown for the internal leaf of a cavity wall in the same position.

4 The guidance given in the diagram for walls of two and three storey buildings should only be used to determine the compressive strength of the masonry units where the roof construction is of timber.

Thermal performance The suite of Building Regulations Approved Documents L1A and B and L2A and B (2013) gives detailed guidance on how a building may be designed to meet the requirements for the conservation of energy.

The overall thermal design of a building, in simple terms, depends on many factors including the U-value of the exposed elements, the air tightness of the structure, the efficiency of the heating and hot water system and the lighting.

The thermal efficiency of the building fabric for new dwellings is set out in Approved Document L1A and will be determined by carrying out a calculation to SAP 2012. However, there are two key U-values for the external walls, depending on how the SAP calculation is performed. When adopting the 'Elemental recipe' approach the U-value will be 0.18W/m^{2}K.

Alternatively, the U-value can be relaxed, if compensating measures are taken elsewhere, to a value approaching the limiting U-value of a external wall of 0.30W/m^{2}K. In this case the U-value could be in the order of 0.26W/m^{2}K depending upon what compensating measures are employed.

Extensions to existing houses are treated in a much simpler way by assigning maximum 'elemental' U-values to various elements. The maximum U-value for the external wall is 0.28W/m^2/K.

Tables 10-12 are intended to provide some typical wall U-values but are not exhaustive. For specific U-values using your preferred insulation material please contact our Technical Services Team.

For further U-values and a more detailed explanation of the requirements of the Approved Documents using your preferred insulation material, please contact our Customer Services Team on 0870 242 1489.

Table 10: **U-values for clear cavity walls with thermal laminates and 100mm blocks**

Internal finish Thermal laminate	Hemelite Standard	Topcrete Standard
70mm ThermaLine Super (R-value = 3.06m^{2}K/W)	0.26	0.27
80mm ThermaLine Super (R-value = 3.56m^{2}K/W)	0.23	0.24

Note
Thermal laminates are assumed to be fixed using adhesive dabs
All U-values calculated in accordance with BR 443.

Table 11: **U-values for partial fill cavity walls and 100mm blocks**

Insulation	Internal finish	Hemelite Standard	Topcrete Standard
50mm Kingspan TW50 or similar k = 0.022W/mK)	13mm lightweight plaster 13mm plasterboard on dabs	0.29 0.28	0.30 0.29
65mm Kingspan TW50 or similar k = 0.022W/mK)	13mm lightweight plaster 13mm plasterboard on dabs	0.25 0.24	0.26 0.25
70mm Kingspan TW50 or similar k = 0.022W/mK)	13mm lightweight plaster 13mm plasterboard on dabs	0.22 0.22	0.23 0.22

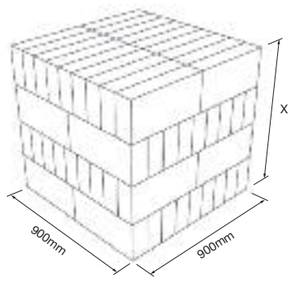
Note
Similar materials include Celotex and Xtratherm etc
All U-values calculated in accordance with BR 443.
The resistance of the Low-E cavity taken as 0.64m^{2}K/W

Table 12: **U-values for fully fill cavity walls and 100mm blocks**

Insulation	Internal finish	Hemelite Standard	Topcrete Standard
100mm Earthwool DriTherm 32 or similar (k = 0.032W/mK)	13mm lightweight plaster 13mm plasterboard on dabs	0.28 0.27	0.29 0.28
125mm Earthwool DriTherm 32 or similar (k = 0.032W/mK)	13mm lightweight plaster 13mm plasterboard on dabs	0.24 0.24	0.24 0.24
100mm XtraTherm CavityTherm* (R = 4.52m^{2}K/W)	13mm lightweight plaster 13mm plasterboard on dabs	0.19 0.19	0.20 0.19

* Includes a 5mm air gap r = 0.11m^{2}K/W
All U-values calculated in accordance with BR 443.

Hemelite pack sizes All packs of Hemelite blocks are supplied without wrapping (unless requested at additional cost), in standard packs. The packs are double banded horizontally and are supplied either with or without a pallet.



X = 4 layers x 215mm = 860mm
or 5** layers x 215mm = 1075mm

Identification codes

An identification code is sprayed on the side of every pack. From this the pack contents can be determined.

Typical Hemelite coding:
BH 100 SSF 10/14 7.3N 02

Where in this case:

BH	Block Hemelite
100	Thickness of block (mm)
SSF	Standard Solid 7.3N – see other block types in Table 139
10/14	Production code
7.3N	The block strength (N/mm²)
02	Plant of manufacture

Table 13: **Hemelite (standard packs)**

Block Thickness (mm)	75*	90*	100	140	140**
Coverage per pack (m²)[a]	10	8.57	7.2	4.8	6
Number of blocks per pack	96	100	72	48	60
Pack width (mm)	900	900	900	880	880
Standard Solid 3.6N/mm² pack weight (kg)	951	-	944	884	1104
Standard Solid 7.3N/mm² pack weight (kg)	1018	1260	1008	936	1170
Standard Solid 10.4N/mm² pack weight (kg)	-	-	1059	984	1230
Standard Cellular 3.6N/mm² pack weight (kg)	-	-	792	-	-
Paint Quality Solid 3.6N/mm² pack weight (kg)	-	1220	972	908	-
Paint Quality Solid 7.3N/mm² pack weight (kg)	-	1220	972	908	1134
Paint Quality Solid 10.4N/mm² pack weight (kg)	-	-	1450	970	-
Paint Quality Cellular 3.6N/mm² pack weight (kg)	-	-	-	576	-
Paint Quality Cellular 7.3N/mm² pack weight (kg)	-	-	-	576	-

Notes
* Made to order ** 5 layers high [a] Area of built wall including 10mm mortar joints

Table 14: **Hemelite block types**

SSB	Standard Solid 3.6N
SSG	Standard Solid 10.4N
SPB	Solid Paint Quality 3.6N
SPG	Solid Paint Quality 10.4N
CPF	Paint Quality Cellular 7.3N
SSF	Standard Solid 7.3N
CSB	Standard Cellular 3.6N
SPF	Solid Paint Quality 7.3N
CPB	Paint Quality Cellular 3.6N