INTERLYTE MASONRY UNITS

DESCRIPTION

A general purpose masonry unit of low to medium density, available in strengths from 3.6N/mm^2 to 17.5N/mm^2. The standard unit has a textured face providing a good key which is ideal for plastering, dry lining and rendered finishes.

Interlyte Close Textured units are manufactured for walls built fair or painted. The colour of this unit is light to dark grey.

Manufactured to BS EN 771-3 and associated test standards.

- Light to medium weight units
- Manufactured from selected lightweight materials
- Available in solid, cellular and hollow forms
- General purpose all round performance units
- Work Face 440mm x 215mm
- Strengths 3.6 - 17.5 N/mm^2
- Strong background for plastering / rendering
- Close texture finish available for walls built fair or painted
- Manufactured to BS EN 771-3 and associated test standards

APPLICATIONS

Interlyte masonry units are suitable for the following uses:-

- Below DPC level including use in sulphate soil classes DS-1, DS-2 and DS-3, using 7.3N/mm^2 strength Interlyte units.
- Internal partition walls, loadbearing and non-loadbearing.
- Outer and inner leaves of cavity walls, in conjunction with cavity insulation.
- Loadbearing walls, masonry units available up to 17.5N/mm^2 strength, suitable for construction up to 5 storeys depending on design.
- Infill units for use in conjunction with concrete beam and block floors.
- Close Textured units for walls built fair or painted.
- Hollow units for walls requiring lateral force and retaining walls with vertical reinforcement in cores.

- Separating and party walls in accordance with Part E Building Regulations, see heading Sound Insulation.

FORMAT AND SIZE

Available in Solid, Cellular and Hollow format. Face work size is 440mm x 215mm.

Tolerances as EN 771-3 Table 1, Tolerance category D1.

Unit length and height +3, -5mm.

Unit width average +3, -5mm.

PHYSICAL PROPERTIES

Relationship of Density/Strength (Solid units).

EN772-13 Gross Dry Density - Category II Materials.

3.6N/mm^2 - 1350 kg/m^3.

7.3N/mm^2 - 1450 kg/m^3.

10.4N/mm^2 - 1475 kg/m^3 (to special order).

17.5N/mm^2 - 1475 kg/m^3 (to special order).

DESIGN PROPERTIES

MODULUS OF ELASTICITY

Static modulus of Interlyte masonry is approximately 10kn/mm^2.

THERMAL MOVEMENT

Coefficient of linear expansion of Interlyte masonry is 8 x 10^{-6} /0C.

MOISTURE MOVEMENT

As tested to EN 772-14.

Total movement = 0.37 mm/m.

DURABILITY AGAINST FREEZE THAW

Frost-resistance in accordance with PD 6697. Not to be exposed.

SHEAR BOND STRENGTH

Declared Value 0.15N/mm^2 in accordance with EN 998-2 Annex C.

WATER VAPOUR PERMEABILITY

EN 1745 Table A3 Water vapour diffusion coefficient μ 5/15.

EXTERNAL WALLS

Mass of inner leaf to be a minimum of 120 kg/m^2. This is easily achieved using a 100mm wide Interlyte solid 3.6N/mm^2 unit. Mass without finishes is 140 kg/m^2.

THERMAL CONDUCTIVITY AND RESISTANCE

The thermal conductivity (λ) and resistance values of Interlyte units are based on CIBSE Guide A 1999 and are shown in Tables 1 and 2;

TABLE 1: THERMAL CONDUCTIVITY

SOLID UNITS		
DENSITY kg/m^3	W/mK (K value)	
	MOISTURE CONTENT	
	3%	5%
1350	0.45	0.48
1450	0.47	0.505
1475	0.475	0.515

TABLE 2: THERMAL RESISTANCE

STRENGTHS N/mm^2	SOLID FORMAT				
	WIDTHS mm				
	75	90	100	140	215
2.9	0.17	0.21	0.23	0.32	-
3.6	0.17	0.20	0.23	0.31	-
7.3	-	0.19	0.21	0.30	-
10.4 & 17.5	-	0.19	0.21	0.30	-
CELLULAR FORMAT					
3.6	-	-	0.26	-	-
HOLLOW FORMAT					
3.6	-	-	-	0.24	0.37

NOTE: Unit thickness of 75mm is omitted at 7.3N/mm^2 strength and above, due to slenderness ratio, as at this and higher strengths cannot be justified in load calculations (the wall would buckle). Resistance values of blocks for Cellular and Hollow format have been produced by computer using calculations procedure for voided material in CIBSE Guide 1999.

SOUND INSULATION

The table below provides design guidance for the estimated sound reduction values of walls constructed of Interlyte masonry units. Data is based on the mass law. The Frequency range is 100-3150 Hz. The density range for Interlyte material is 1350-1475 kg/m^3.

TABLE 3: AVERAGE SOUND REDUCTION VALUES

SOLID UNITS					
AVERAGE SOUND REDUCTION INDEX dB					
WALL WIDTH mm	FAIR FACE	PLASTER L/WEIGHT	PLASTER DENSE	DRY LINED	HOLLOWS CELLULAR
75	41	42	43	42	-
90	43	44	46	45	-
100	44	45	47	46	(1dB)
140+	45	47	49	47	(2/3dB)
215*	49	52	52	52	(4dB)

*Hollows & Cellular deduct figures in ( ) *100mm Solid units laid flat*
NOTE: Sound Reduction figures RW (dB) for Fair Face Interlyte Blocks (no finish) are based on fully filled ironed joint work and sealed abutments to soffite and structure, (ie no air leakage gaps). + Close Textured only: Fair face 49dB, Painted 50dB.

ACOUSTIC SOUND ABSORPTION COEFFICIENTS

The following data is based on Approved Document Amending Part E, The Building Regulations 2000.

FREQUENCY HZ	FAIR FACE OR PLASTERED BLOCKWORK	COEFFICIENTS PAINTED BLOCKWORK
250	0.01	0.05
500	0.01	0.06
1000	0.02	0.07
2000	0.02	0.09
4000	0.03	0.08

PRODUCT RANGE TABLE

Concrete Density in the range 1350-1475 kg/m^3.

TABLE 4: UNIT SIZES AND WEIGHTS

FORMAT SOLID				CELLULAR	HOLLOWS
WIDTH	STRENGTH N/mm^2			STRENGTH N/MM^2	
mm	3.6	7.3	10.4-17.5	3.6	3.6
75	9.6 kg (104)	-	-	-	-
*90	11.5 kg (124)	12.3 kg (133)	-	-	-
100	13.2 kg (143)	13.7 kg (147)	14.4 kg (154)	10.5 kg (116)	-
140	17.9 kg (193)	19.2 kg (206)	19.6 kg (210)	-	14.4 kg (155)
215	-	-	-	-	19.5 kg (210)
DENSITY	1350 kg/m^3	1450 kg/m^3	1475 kg/m^3	1100kg/m^3	1000/ 1100kg/m^3

To Special Order.

( ) figures in brackets are laid weights including mortar (9.88 units per sq.m). All data based on equilibrium moisture contents. EN 1996-1-1 categorises units according to void percentages. Cellular Units Group 1, Hollow Units Group 2. For any block in excess of 20kg, reference should be made to H.S.E. Manual Handling Guidelines.

SEPARATING AND FLANKING WALLS

Separating and flanking walls can be built using Interlyte units with an extensive number of solutions available for both Pre Completion Testing (PCT) and Robust Detail (RD) compliance. These solutions are for use in flats and apartments as well as houses.

Approved Document E compliant separating walls

Wall Type 2.2:

Interlyte solid units, in two 100mm leaves, 225 Coursing, minimum cavity 75mm, 13mm lightweight plaster on both faces complies with the minimum wall mass including plaster of 300 kg/m^2.

Wall Type 2.3: (for use only where a step or stagger of at least 300mm is used).

Specification identical as Wall Type 2.2 with exception of finish which is plastered.

A minimum wall mass of 290 kg/m^2 is required.100mm width Interlyte solid units comply.

These constructions are subject to Pre-completion testing.

Robust Detail Compliance

Robust Detail (RD) specifications have been developed with the aim of avoiding the need for PCT testing. Builders can select a RD from a growing list of specifications and providing each plot is registered with Robust Details Ltd, PCT can be eliminated.

Interlyte units can be used in a number of RDs. These constructions comprise two leaves of 100mm solid Interlyte units, with a minimum 75mm cavity, and include options for plastered or drylined finishes. Further information on all Robust Details can be found at *www.robustdetails.com*.

Interlyte solid units can be used in the following RD specifications:

- E-WM-2 (Plaster, minimum 75mm cavity)
- E-WM-4 (Render and plasterboard, minimum 75mm cavity)
- E-WM-8 (Saint Gobain Isover RD35, plasterboard, minimum 75mm cavity)
- E-WM-11 (Render and plasterboard, minimum 100mm cavity)
- E-WM-14 (Saint Gobain Isover RD35, plasterboard, minimum 100mm cavity)

- E-WM-17 (Saint Gobain Isover RD35, plasterboard, minimum 75mm cavity)
- E-WM-19 (Render and plasterboard, Monarfloor Bridgestop system, minimum 100mm cavity)
- E-WM-20(Saint-Gobain Isover RD Party Wall Roll or Round the House Roll, plasterboard, minimum 100mm cavity)
- E-WM-21(Plaster, minimum 100mm cavity)
- E-WM-22(Knauf Insulation's Earthwool® Masonry Party Wall Slab, plasterboard, minimum 100mm cavity)
- For both Approved Document E and Robust Detail specifications, 100mm width Interlyte solid units can be used on the inner leaf as a compliant flanking wall solution, allowing continued use of familiar construction methods.

FIRE RESISTANCE

The following Fire Resistance table is based upon EN 1996–1–2: 2005, Table NA.3.1 and NA.3.2. These are valid for walls without finishes, designed to EN 1996,Part 1–1.

TABLE 5: FIRE RESISTANCE (HOURS)

BLOCK THICKNESS (mm)						
	(CRITERIA)	75	90	100	140	215
SOLID UNITS - ANY STRENGTH						
NON LOADBEARING	(E1)	2	3	4	4	-
LOADBEARING	(RE1)	-	1	2	3	-
CELLULAR UNITS						
NON LOADBEARING	(E1)	-	-	2	-	-
LOADBEARING	(RE1)	-	-	2	-	-
HOLLOW UNITS						
NON LOADBEARING	(E1)	-	-	-	4	4
LOADBEARING	(RE1)	-	-	-	3	4

The application of plaster finishes to the blockwork will increase the fire resistance period.

SITEWORK

See the Sitework Guide.

MORTAR MIXES

Suitable mortar mixes for use with Interlyte blocks are shown in Table 6. The thickness of mortar joints should be approximately 10mm.

TABLE 6: RECOMMENDED MORTAR MIXES

LOCATION	MORTAR DESIGNATION	COMPRESSIVE STRENGTH CLASS	PRESCRIBED MIX
WORK ABOVE DPC	(iii)	M4	1:1:6 cement: lime: sand, or 1:5 to 6 cement: sand*
WORK BELOW DPC	(iii)	M4	1:1:6 cement: lime: sand, or 1:5 to 6 cement: sand*
	(ii)	M6	1½: 4 to 4½ cement: lime: sand or 1:3 to 4 cement: sand*

* Mixes can be used with or without air entrainment. Plasticisers should be used only with the designer's approval and should be gauged in accordance with the manufacturer's written instructions.

FINISHES - INTERNAL PLASTER

Lightweight plaster. Suitable undercoats include British Gypsum's Thistle Browning, Thistle Hardwall and Thistle Tough Coat. The finishing coat can include Thistle Multi-Finish.

Dense plaster. A backing coat of 1:1:6 cement: lime: sand or 1:5 to 6 cement: sand, with added plasticiser with a setting coat of gypsum plaster, e.g. Thistle Multi-Finish or similar.

FINISHES - EXTERNAL RENDERING

Depending on exposure conditions, it may be necessary to treat the surface with a spatterdash coat of 1:1 cement: sand: followed when dry and hard with a backing coat 10mm thickness of 1:1:6 cement: lime: sand, ruled out, and lightly scratched. A final or subsequent coat of 5mm thickness using the same mix finished with a wood float, is applied. All types of paint finishes are satisfactory.

CERAMIC TILING

In housing where walls are often plastered, ceramic tiling is fixed with proprietary adhesive. In buildings other than housing, the wall is rendered using a mix of 1:4 cement: sand, ruled out level, and the tiles are fixed using an adhesive. Adequate drying time should be given to the render coat before tiling commences.

DIRECT DECORATION

Interlyte Close Textured units can be painted directly using cement or water-based paints. An economic finish can be achieved using

a mist coat (diluted emulsion) followed by 2 coats of emulsion. The paint can be brush or spray applied. The opacity will depend upon the quality of the paint and the number of coats applied.

DRYLINING

Drylining using Gypsum Wallboard or similar, fixed either by adhesive dabs, or screw fixing to metal firrings, or nailing to timber battens. If required, thermal laminate plasterboards can be used, fixed in accordance with the manufacturer's recommendations.

CUTTING, CHASING, FIXING

Cutting:

Easily cut with a bolster. Use of mechanical cutting lowers wastage and enables cleaner cuts when fair face work is involved. Norton Clipper masonry saws or similar are recommended.

Chasing:

For fast efficient chasing, use a disc cutter or Kango electric hammer with chasing bit.

Fixings:

Use cut nails or screw fixings and proprietary plugs into standard strength material. Masonry nails may be required into high strength material.

QUALITY CONTROL

Interfuse Ltd operates a formalised Quality Assurance system at both Syston and Gainsborough plants. All masonry units are subject to stringent quality control checks and are tested daily in our own laboratory.

A documented factory production control system is in operation with regular checks made on raw materials, production and finished units. A stock control system is in operation with written procedures for non-conforming products. All products are produced to the current European Standards.

MARKING

Each pack is marked for traceability of product and unit clarification as given on the delivery ticket.

SUSTAINABILITY

The environmental impact of Interlyte constructions can be assessed by referring to BRE's Green Guide to Specification, with

many constructions achieving the highest A or A+ rating.
At the end of the life of the building, Interlyte units, which are inert, can be crushed down and recycled. Their use in buildings will far exceed the usual 60-year design life expectancy, making Interlyte a very sustainable material.

DELIVERY / LOAD DATA

Prices quoted per 10 units (9.88 per m/^{2}). All prices include mechanical off-loading and apply to full loads. Load sizes may vary between 19 tonnes Rigid, 24-27 Artics.

TABLE 7: LOAD SIZES

INTERLYTE SOLID 3.6N TO 17.5N/mm²					
WIDTHS mm	75	90	100	140	COURSING UNITS
APPROX No OF UNITS PER 19 TONNE LOAD	1800	1500	1350	1020	8320
24	2280	2000	1800	1320	10400
27	2520	2200	1980	1440	11960
UNITS PER PACK	120	100	90	60	520
CELLULAR & HOLLOWS 3.6N					
WIDTHS mm	-	100	140	215	HIGHER STRENGTH UNITS SUBJECT TO SPECIAL QUOTATION PART LOADS ARE SUBJECT TO SPECIAL QUOTATION
APPROX No OF UNITS PER 19 TONNE LOAD	-	1620	1080	720	
24	-	2160	1260	960	
27	-	2160	1440	960	
UNITS PER PACK	-	90	60	40	