INTERCRETE MASONRY UNITS

DESCRIPTION

A high strength, high-density block manufactured using natural aggregates. Available in strengths from 7.3N/mm^2 to 22.5N/mm^2. Available in solid, cellular and hollow forms, having a textured face ideal for plastering, rendering and dry lining. Colour is concrete buff. A Close Textured (Class 1) ex- Gainsborough and Close Textured (Class 2) ex- Syston is available for walling to receive a paint finish or built fair and left.

Manufactured to EN 771-3 & associated test standards.

- Manufactured from Natural Aggregates
- High Strengths 7.3 - 22.5N/mm^2
- High Density - Excellent Sound Reduction
- Available in Solid, Cellular, Hollow Forms
- Work face 440mm x 215mm
- Strong background for Plastering/Rendering
- Close Textured finish available for walls built fair or painted
- Robust all round Masonry Block
- Manufactured to EN 771-3 & associated test standards

APPLICATIONS

Intercrete masonry units are suitable for the following uses:-

- Below DPC level including use in sulphate soil classes DS-1, DS-2 and DS-3. For use in soil classes DS-2 and DS-3, 7.3N/mm^2 strength Intercrete units should be used.
- Outer and inner leaves of external cavity walls in conjunction with cavity insulation.
- Internal partition walls - load and non-load bearing.
- Separating/and party walls in accordance with Part E Building Regulations, see heading Sound Insulation.
- Infill units in conjunction with concrete beam and block floors.
- Close Textured units for walls built fair or painted.
- Retaining walls, reinforced vertically in cores of hollow units.

FORMAT AND SIZE

Available in Solid, Cellular and Hollow format.

Face work size is 440 mm x 215 mm.

Tolerance as BS 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.

7.3 N/mm^2 - 2000 kg/m^3.

10.4 – 17.5N/mm2 – 2050kg/m3 (17.5 &22.5N/mm2 to Special Order).

DESIGN PROPERTIES

MODULUS OF ELASTICITY

Static Modulus of Intercrete Masonry is approximately 3 to 8 kN/mm^2.

THERMAL MOVEMENT

Coefficient of linear expansion of Intercrete is 10x10^{-6} /0 c.

MOISTURE MOVEMENT

As tested to EN 772-14 total movement = 0.38 mm/m Class 1 Aggregate, 0.27 mm/m Class 2 Aggregate.

SHEAR BOND STRENGTH

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

WATER VAPOUR PERMEABILITY

EN 1745 - Table A.3 Water vapour diffusion.

Coefficients μ 5/15.

THERMAL CONDUCTIVITY AND RESISTANCE

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

TABLE 1: THERMAL CONDUCTIVITY

SOLID UNITS		
DENSITY kg/m³	W/mK ('K' VALUE)	
	MOISTURE CONTENT	
	3%	5%
2000	1.33	1.43
2050	1.39	1.49
	CELLULAR UNITS	
1525	0.61	0.67

TABLE 2 : THERMAL RESISTANCE

STRENGTHS N/mm²	SOLID FORMAT				
	WIDTHS mm				
	75	90	100	140	215
7.3	0.06	0.07	0.08	0.11	-
10.4 to 22.5	-	0.07	0.07	0.10	-
CELLULAR FORMAT					
7.3	-	-	0.16	-	-
-	-	-	-	-	-
HOLLOW FORMAT					
3.6 & 7.3	-	-	-	0.10	0.10

Resistance values of blocks of 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 Intercrete masonry units. Data is based on the mass law. The frequency range is 100-3150 Hz. The density range for Intercrete material is 1950-2050 kg/m³.

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	44	47	47	46	-
90	46	48	48	47	-
100	47	50	50	49	(1dB)
140	50	52	52	51	(2dB)
215*	54	55	55	55	(4dB)

Hollows & Cellular deduct figures in ( ) 100mm Solid Units laid flat
NOTE: Sound Reduction of figures Rw (dB) include Fair Face and Close Textured masonry units, based on fully filled ironed joint work and sealed abutments to soffit and structure, (i.e. no air leakage gaps).

ACOUSTIC SOUND ABSORPTION COEFFICIENTS

The following data is based on Approved Document E to the Building Regulations 2000.

FREQUENCY HZ	COEFFICIENTS	
	FAIR FACED OR PLASTERED MASONRY	PAINTED CONCRETE MASONRY
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

SEPARATING AND FLANKING WALLS

Separating and flanking walls can be built using Intercrete 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 1.1

215mm wall, units laid flat - block density 1850 kg/m^3, 110mm coursing, 13mm plaster finish both sides - minimum mass per unit area including plaster 415/m^2.

Intercrete 100mm solid units comply (1950 kg/m^3).

Wall Type 2.1

Two 100mm wide solid leaves with a minimum 50mm cavity, unit density 1990 kg/m^3, 13mm plaster finish on both room sides, 225mm coursing - min mass per unit area including plaster 415 kg/m^2. 100mm Intercrete 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. Intercrete units can be used in a number of RDs.

These constructions comprise two leaves of 100mm Intercrete solid 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*.

Intercrete solid units can be used in the following RD specifications.

- E-WM-1 (Plaster, minimum 75mm cavity)
- E-WM-3 (Render and plasterboard, minimum 75mm cavity)
- E-WM-16(Render and plasterboard, minimum 100mm cavity)
- E-WM-18 (Plaster, minimum 100mm cavity)
- E-WM-19(Render and plasterboard, Monarfloor Bridgestop system, minimum 100mm cavity)

For both Approved Document E and Robust Detail specifications, 100mm width Intercrete solid units can be used on the inner leaf as a compliant flanking wall solution, allowing continued use of familiar construction methods.

TABLE 4: PRODUCT RANGE

FORMAT SOLID			CELLULAR	HOLLOWS
WIDTH	STRENGTH N/mm²		STRENGTH N/mm²	
mm	7.3	10.4 to 22.5	7.3	7.3
75	14.2 kg (154)	-	-	-
90*	17.4 kg (180)	17.9 kg (190)	-	-
100	19.4 kg (201)	19.8 kg (212)	*14.0 kg (150)	-
140	27.0 kg (290)	27.0 kg (296)	-	18.3 kg (198)
215	-	-	-	19.8 kg (220)
DENSITY	2000 kg/m³	2050 kg/m³	100mm 1525kg/m³	140mm 950kg/m³ 215mm 950kg/m³

( ) 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 are Group 1, Hollow Units are Group 2. For any unit in excess of 20kg reference should be made to H.S.E. manual handling guidelines.

To Special Order.

The following Fire Resistance table is based upon EN 1996–1–2: 2005, Tables 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)	1	2	4	4	-
LOADBEARING	(RE1)	-	1.5	2	3	-
CELLULAR UNITS						
NON LOADBEARING	(E1)	-	-	1	-	-
LOADBEARING	(RE1)	-	-	1	-	-
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 Intercrete units 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 Bonding, Thistle Hardwall and Thistle Tough Coat. The finishing coat can include Thistle Multi-Finish or similar.

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 5 mm 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

Intercrete 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:

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 dense concrete masonry is laborious and should be avoided where possible. If unavoidable it should be carried out using mechanical means.

Chasing:

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

Fixings:

Use masonry nails or screw fixings and proprietary plugs into standard strength material. Masonry nails may be required into high strength material. Joint mortar can be utilised for minor fixings.

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 Intercrete 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, Intercrete 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 Intercrete a very sustainable material.

DELIVERY / LOAD DATA

Prices quoted per 10 units (9.88 blocks 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

INTERCRETE SOLID 7.3N TO 22.5N/mm²					
WIDTHS mm	75	90	100	140	Coursing Units
APPROX No OF UNITS PER 19 TONNE LOAD	1344	1040	1008	672	6084
24	1632	1360	1296	864	7956
27	1920	1520	1512	960	8892
UNITS PER PACK	96	80	72	48	468
CELLULAR & HOLLOWS 7.3N/mm²					
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	-	1170	1020	-	
24	-	1440	1320	960	
27	-	1620	1440	960	
UNITS PER PACK	-	90	60	40	