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Everything a builder needs and regulation compliant

for cost-effective SAP solutions

The Besblock Star Performer is a multi-purpose, one block solution aimed at the domestic housing market.

As a cellular block with a 21% void content, it achieves strong thermal and acoustic performance and positive SAP / TFEE ratings.

It is also supremely versatile, meeting the required criteria for inner leaf external walls; sound resisting party walls; beam and block floor infills: and below ground DPC applications.

In addition the strength and rigidity of our cellular block is equal (if not superior) to that of solid blocks.

Advantageous PSI values | Thermally efficient | Excellent acoustic properties
Use below DPC | Use in beam and block floors | Single block on site solution | Sustainable

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Certified PSI values for SAP 2012 compliance

The thermal properties of the Besblock Star Performer closely resemble those of a solid medium density block. But when built into a wall, heat loss is shown to be greatly reduced at thermal junctions when the block's bespoke psi and kappa values are entered into the SAP calculation.

This has the advantage of reducing the overall heat loss through the building's envelope so the TER/TFEE are more easily achieved. A psi value summary for all junctions (together with junction detail drawings) can be viewed at PSI Values in this document.

To help you obtain a 'pass' on projects for your builder and developer clients, we invite you to take advantage of Besblock Technical Services for energy advice and preparation of SAP documentation. We are also pleased to assist with post project Air Leakage Testing.

CLICK HERE for PSI values

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Summary of PSI values (Ψ) at thermal junctions

Junctions with external walls

Certificate no	Junction detail	Table K1 ref	Approved Ψ value	100mm F/F	125mm F/F	125mm P/F	150mm F/F	95mm	120mm
				Download PDF Certificate Set	Download PDF Certificate Set	Download PDF Certificate Set	Download PDF Certificate Set	Download PDF Certificate Set	Download PDF Certificate Set
CLICK BELOW TO VIEW CERTIFICATE		cav. U-value	cav. U-value	cav. U-value **0.30-0.22** W/m2K	cav. U-value **0.28-0.18** W/m2K	cav. U-value **0.25-0.17** W/m2K	cav. U-value **0.23-0.15** W/m2K	CavityTherm **U-value 0.23-0.15** W/m2K	CavityTherm **U-value 0.19-0.13** W/m2K
GCU-13	Insulated steel lintel, perforated base plate.	E1	0.50	0.299	0.302	0.310	0.305	0.327	0.326
GCU-14	Folded steel lintel (no base plate).	E2	0.30	0.209	0.214	0.215	0.214	0.284	0.240
GCU-15	Independent steel lintel.	E2	0.30	0.002	0.006	0.012	0.011	0.014	0.015
GCU-16	Window sill.	E3	0.04	0.013	0.017	0.023	0.021	0.019	0.022
GCU-17	Window jamb.	E4	0.05	0.008	0.012	0.017	0.015	0.014	0.017
GCU-01	Solid ground floor, insulation ABOVE slab, timber finish.	E5	0.16	0.093	0.092	0.091	0.090	0.092	0.091
GCU-01	Solid ground floor, insulation ABOVE slab, timber finish AIRCRETE FOUNDATION BLOCK.	E5	0.16	0.086	0.084	0.083	0.082	0.084	0.082
GCU-02	Solid ground floor, insulation ABOVE slab, screed finish.	E5	0.16	0.107	0.106	0.107	0.105	0.106	0.108
GCU-02	Solid ground floor, insulation ABOVE slab, screed finish, AIRCRETE FOUNDATION BLOCK.	E5	0.16	0.092	0.090	0.090	0.088	0.093	0.091
GCU-03	Suspended timber ground floor. The value given is the average for beams perpendicular and parallel.	E5	0.16	0.09	0.093	0.093	0.095	0.094	0.096

Junctions with external walls (continued)

Certificate no	Junction detail	Table K1 ref	Approved Ψ value	100mm F/F	125mm F/F	125mm P/F	150mm F/F	95mm	120mm
				Download PDF Certificate Set	Download PDF Certificate Set	Download PDF Certificate Set	Download PDF Certificate Set	Download PDF Certificate Set	Download PDF Certificate Set
CLICK BELOW TO VIEW CERTIFICATE		cav. U-value	cav. U-value	cav. U-value **0.30-0.22** W/m2K	cav. U-value **0.28-0.18** W/m2K	cav. U-value **0.25-0.17** W/m2K	cav. U-value **0.23-0.15** W/m2K	CavityTherm **U-value 0.23-0.15** W/m2K	CavityTherm **U-value 0.19-0.13** W/m2K
GCU-04	Suspended beam and block floor, insulation below screed. The value given is the average for beams perpendicular and parallel.	E5	0.16	0.095	0.096	0.096	0.098	0.097	0.098
GCU-05	Hanson Jet Floor. The value given is the average for beams perpendicular and parallel.	E5	0.16	0.098	0.094	0.092	0.091	0.092	0.088
GCU-07	Intermediate floor WITHIN a dwelling – external wall.	E6	0.07	0.000	0.001	0.000	0.000	0.000	0.001
GCU-06	Concrete Intermediate floor BETWEEN dwellings-external wall.	E7	0.07	0.000	0.001	0.000	0.000	0.000	0.000
MCI-RE-01	Pitched roof. Ventilated loft. Eaves.	E10	0.06	No bespoke detail. Use table K1 ref. = 0.06					
MCI-RE-03	Pitched roof. Between and under rafter insulation. Unventilated rafter void. Eaves.	E11	0.04	No bespoke detail. Use table K1 ref. = 0.04					
GCU-11	Pitched roof gable – external wall, ventilated loft.	E12	0.24	0.109	0.106	0.103	0.101	0.072	0.068
MCI-RE-02	Pitched roof. Between and under rafter insulation. Unventilated rafter void. Gable.	E13	0.04	No bespoke detail. Use table K1 ref. = 0.04					
GCU-18	Normal (external) corner.	E16	0.09	0.067	0.060	0.053	0.053	0.047	0.042
GCU-19	Inverted (internal) corner.	E17	-0.09	-0.117	-0.105	-0.089	-0.081	-0.075	-0.066
GCU-08	Masonry separating wall to external wall. The value of ψ is applied to EACH dwelling.	E18	0.03	-0.003	-0.002	-0.002	-0.0015	-0.002	-0.001

Summary of PSI values (Ψ) at thermal junctions

Junctions with separating (party walls)

Certificate no	Junction detail	Table K1 ref	Approved Ψ value	Calculated Ψ value
CLICK BELOW TO VIEW CERTIFICATE	**Note**. The value of CALCULATED Ψ is assigned to each dwelling.			
GCU-20	Suspended timber floor to separating (party) wall.	P1	0.16	0.121
GCU-21	Solid ground floor to separating (party) wall, insulation ABOVE slab, screed finish.	P1	0.16	0.10
GCU-22	Solid ground floor to separating (party) wall, insulation BELOW slab, screed finish.	P1	0.16	0.089
GCU-23	Hanson Jet Floor to separating (party) wall. The value given is the average of beams perpendicular and parallel.	P1	0.16	0.095
GCU-24	Suspended beam and block floor to separating (party) wall. The value given is the average for beams perpendicular and parallel.	P1	0.16	0.113
GCU-25	Intermediate floor WITHIN a dwelling to separating (party) wall.	P2	0.04	0.000
GCU-26	Separating floor BETWEEN dwellings to separating (party) wall.	P3	0.04	0.000
GCU-27	Separating (party) wall to roof, with insulation at ceiling level.	P4	0.24	0.096
GCU-28	Separating (party) wall to roof with insulation at rafter level.	P5	0.04	0.0085

Important notes:

The calculations and certificates pertaining to the stated values within this table have been performed in accordance with:

BS EN ISO 10211:2007, BR 497 and BS-EN-ISO 13370:2007

All calculations prepared by:

Chris Sanders B.Sc M.Sc Glasgow Caledonian University.

Certificates & junction detailing:

This information may be downloaded from the relevant section of our web site.

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Typical U values

For external walls with brick outer leaf and internal finish of plasterboard on dabs

Type of insulation	Lambda value of insulation (W/mK)	Cavity width (mm)	U-value (W/m2K)	
Full fill blown bead	0.033	100	0.27	Download PDF U value calculation
Full fill blown bead	0.033	125	0.23	Download PDF U value calculation
Full fill blown bead	0.033	150	0.19	Download PDF U value calculation
Full fill mineral wool slab	0.032	100	0.27	Download PDF U value calculation
Full fill mineral wool slab	0.032	125	0.22	Download PDF U value calculation
Full fill blown mineral wool	0.037	150	0.21	Download PDF U value calculation
Full fill mineral wool slab	0.032	150	0.19	Download PDF U value calculation
Full fill blown mineral wool	0.034	100	0.28	Download PDF U value calculation
Full fill blown mineral wool	0.034	125	0.23	Download PDF U value calculation
Full fill blown mineral wool	0.034	150	0.20	Download PDF U value calculation
PU/PIR board 50mm partial fill	0.022	100	0.28	Download PDF U value calculation
PU/PIR board 75mm partial fill	0.022	125	0.22	Download PDF U value calculation
PU/PIR board 100mm partial fill	0.022	150	0.18	Download PDF U value calculation
Full fill 'CavityTherm' 95mm PIR board	0.021	100	0.19	Download PDF U value calculation
Full fill 'CavityTherm' 120mm PIR board	0.021	125	0.16	Download PDF U value calculation

Important notes: For other U-values not covered in the table, please contact our Technical Services Department who will provide this information. **technical@besblock.co.uk**

Kappa values

Download PDF file

Calculations by BRE calculator: Specific heat (J.kg-1.K-1) from CIBSE Guide A

Wall construction detail	Star Performer calculated Kappa values kJ/(m2K)	SAP default value kJ/(m2K)
External wall: Brick outer: 100mm cavity insulated, Besblock Star Performer, standard wall board on dabs.	95.5	150
External wall: Brick outer: 100mm cavity insulated, Besblock Star Performer, gypsum plaster.	126.1	190
Internal partition wall: Single leaf Besblock Star Performer faced both sides with standard wall board on dabs.	63.2	75
Internal partition wall: Single leaf Besblock Star Performer faced both sides with gypsum plaster wet finish.	91.7	100
Separating (party) wall: Two leaves Besblock Star Performer, 100mm cavity insulated, faced both sides standard wall board on dabs.	70	70
Separating (party) wall: Two leaves Besblock Star Performer, 100mm cavity insulated, faced both sides gypsum plaster.	149.2	180

Certified PSI values at thermal junctions

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Technical specification

Unit weight @ 3% moisture (approx.)	14.5 kg
Weight laid / m2 (approx.)	154 kg/m2
Gross density of unit (approx.)	1554 kg/m3
Net concrete density (approx.)	1900 kg/m3
Effective lambda value	0.649 W/mK
Thermal resistance	0.154 m2K/W
*Compressive strength	3.6N/mm2: 7.3N/mm2: 10.4N/mm2
Bespoke Kappa value	95.5 k J(m2K) plasterboard finish 126.1 k J(m2K) gypsum finish
Void percentage (approx.)	20.82%
Moisture movement	0.5mm / m
Number per pack	9m2
Thickness of concrete shell	27.5mm
Manufacturing category	BS EN 771-3:2003 Category 1 BS EN 1996-1-1 Group 1
Finishes available	Standard : Paint Grade :

If you would like further information about the Besblock Star Performer please contact us

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