

OBECO GLASS BLOCKS

TECHNICAL DATA

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TECHNICAL DATA		STANDARD BLOCKS		SPECIAL BLOCKS		
DESCRIPTION	UNIT	80mm	100mm	TF30	TF60	Double skin of 100mm
Load Bearing Properties	Own weight in kN/m ²	1.05	1.25	1.6	2.35	2.5
Thermal Protection	Heat transmission coefficient – U value in W/m ² K	3.1	2.9	2.3	1.7	1.5
Total Energy Transmission	g value	0.65	0.65	0.50	0.54	0.35
Sound Insulation	Sound insulation index Rw in dB	40	42	45	50	50
Fire Protection tested to AS1530.4	Fire Resistance Levels (FRLs) for vertical panels – walls.	-/60/-	-/90/-	-/60/30	-/90/60	-/120/-
	Fire Resistance Levels (FRLs) for horizontal panels – floors.		P.19.100 Paver 90/90/15	TFP60 Paver 60/60/60	TFP90 Paver 120/120/90	

1 ENERGY CONSERVATION

The energy transmission coefficient of glass block walls is comparable to standard double glazing.

The heat transmission coefficient U value of glass block walls depends on the format of the glass blocks (see mean values for all sizes) and the material used for joints.

The following factors should be taken into account for determining the energy balance of buildings.

- The equivalent energy transmission coefficient.
- Heat loss due to transmission.
- The useable heat gained due to transparent components.

Glass block walls can reduce the heating of rooms caused by direct sunlight in summer and warm rooms in winter by allowing heating from the sun while it is at a low angle.

2 LIGHT TRANSMISSION

Glass block walls offer a high degree of light transmission, up to 85% (depending on pattern and size) of vertically incident light. This is equivalent to normal double-glazed insulating panes. In the case of coloured glass blocks, light transmission varies with the intensity of colour.

The degree of transparency of glass block walls can be controlled by design. Any degree of transparency can be achieved to obtain the right balance of comfort and privacy. For example:

- fully transparent blocks have plane and parallel sides and offer a full and undistorted view;
- patterned blocks prevent identification of objects, showing only contours; and
- other glass blocks create only diffuse light and hide all forms behind them.

A wide variety of glass blocks with different light properties are available to meet workplace regulations, such as unobstructed view or screened environments e.g. in health care applications.

Special glass blocks with light guiding properties are also available. These blocks have prismatic structures within the block, designed to spread light around the room.

3 SECURITY

Glass block walls meet high security standards. Typical application areas are:

- sidelights to entrances;
- curtain walls in storage/production areas and workshops;
- secure areas in factories, airports etc;
- banks; and
- military establishments.

Some examples of specific applications are as follows:

a) Bullet resistance – Glass blocks offer high resistance to bullets. Ballistics tests were carried out using glass blocks as per NF EN 1063 level BRI NS. Refer to Banc National d’Epreuve Test Report No. 149/09/BOZ for La Rochere 190x190x100 TF30.

b) Intrusion resistance – Curtain walls made of glass blocks offer a high degree of protection against intrusion. The degree of protection offered can be increased by selecting the right block size, joint thickness and by reinforcing the mortar. Note that high resistance classes require cross-reinforcing with special steel members.

c) Ball impact – Glass block panels of any size offer a high degree of protection against ball impact, vibrations and earthquakes. The structural robustness is derived from the static stability of the blocks as well as the reinforcement.

4 NOISE INSULATION

Standard 80mm thick glass blocks provide a weighted sound insulation index of 40/42dB. Higher indices can be achieved using thicker blocks or different size blocks (see below).

GLASS BLOCK SIZE/TYPE	NOISE REDUCTION (SOUND INSULATION INDEX) R_w
190 x 190 x 80	40dB
190 x 190 x 100	42dB
190 x 190 x 100 (TF30)	45dB
190 x 190 x 150 (TF60)	50dB
240 x 240 x 80	42dB
300 x 300 x 100	41dB
Double layer wall of 190 x 190 x 80	50dB