



SECTION ON 'A' - 'A'
TYPICAL CONSTRUCTION DETAIL
FOR RODS & MORTAR



Guide to Specifying Glass Blocks – General considerations

1. Glass block walls are self supporting, but not load bearing. In addition to their own weight, they can withstand wind loads, horizontal live loads and impact loads. A lintel provides the head for the panel to be anchored into whilst ensuring no downward pressure is placed on the glass blocks.

2. Openings must be square and perpendicular and the opening dimensions must be designed to suit glass block modules. Glass blocks cannot be cut the masonry bricks are. To calculate the minimum opening size based on using 150 x 150 x 40mm blocks we then join, multiply the number of blocks by 20mm (1mm for the mortar joint) then divide the other mortar joint. This is the minimum opening requirement. 16mm mortar joints are the most commonly used. 6mm spacers can also be used for thinner joints, openings have been prepared incorrectly or if retro installing glass blocks, or to create a finisher radii when building a curved glass block panel.

3. Glass block walls are connected to the surround by reinforcement bars being inserted into pre-drilled holes for panel anchors. For best integral strength, panels should be installed into a four sided pre-prepared opening. The opening can be timber, brick, stone, masonry or block work.

4. Between the opening and glass blocks it is essential to incorporate expansion joint to the perimeter to allow the panel to expand and contract freely with temperature change. The foam must not be bridged by mortar (render/plaster etc...) and caulked with Rods & Mortar expansion joint sealer (fire-retardant in fire-rated applications).

5. Glass blocks should not be installed when the surrounding temperature is 5°C and falling or 38°C and rising.

6. Using standard glass blocks the maximum panel size without intermediate support: slip joints is 25in², with no dimension exceeding 6in in either direction. For TF30 and TF fire blocks, the maximum panel size permissible is 9m² (in line with test specification)

The channel, PFC and box section dimensions are illustrative only and not necessarily scale.

Connection detail principles, should be designed and be specific to each project requirement and calculations checked and qualified by independent structural engineer

Accessories - Perimeter expansion joint:

Glass blocks will expand and contract by 0.25mm per 25°C temperature change. Soft expansion joints must be incorporated into the perimeter between the substrate and block, being caulked with a white silicone (or fire-stop mastic). This will visually appear similar to a standard mortar joint. For the head and jacks of an opening, 10mm thick foam is used. This is a white expansion fibre. The horizontal expansion joint between first row of glass blocks and the base of the opening is formed using high-density bitumen or neoprene material to support the weight of the panel. Alternatively two coats of bitume emulsion can be applied as the barrier between the bottom course mortar joint and base of opening.

Joint sizes and spacer pegs

15mm is the most common joint size for specifying and building glass blocks. A 190 x 15mm spacer glass spacer modules to 200mm. Spacer pegs serve multiple functions: They prevent mortar squeeze, increasing the number of courses that can be constructed in a day. They prevent stainless steel reinforcement bars coming into direct contact with glass block as metal and glass have different expansion and contraction properties. When a spacer peg is fitted and the wall is finished, the tabs at the end twist off and then be ground over.

Other spacers are available for the 80mm-thick blocks—6mm x 6mm and 6mm x 10mm and also for 100mm-thick blocks—10mm x 10mm.

Panel reinforcement and tying back to the perimeter spacing

Stainless steel ribbed reinforcement bars are used to tie to the opening. The rods penetrate the expansion material and anchor the panel in place by connecting to the perimeter frame. This can be located by drilling an over sized hole a minimum depth of 25-35mm an should be filled withsilicone to cushion any movement of the re-bar. Rods are 1200mm long and when the panel is larger than the reinforcement bar, rods are overlapped by a minimum of 150mm and are loosely joined using tie wire/cable tie.

One reinforcement bar should be used in each horizontal and vertical joint as a minimum. More rebar may be required if using end glass blocks or a TF30 or TF60.

For situations where connecting the rods to the opening may prove difficult, panel anchors can be used (similar to the brick-tie principle secured by either screw or bolt fixings or can mechanically shot fired).

Glass blocks specialists mortar - Colnef Vetromi

Colsef Vetromix is a specifically designed and formulated premix mortar for glass block construction. It ensures accuracy and consistency of performance. It can be used internally, externally, straight, curved and fire-rated glass block walling. Vetromix has a fine texture, low slump and the whitest mortar available. It is used as bedding and pointing mix; therefore there are no bonding issues between building and grouting. Mix instructions are on the reverse of each bag and should be strictly adhered to. 10 litres will build approximately twelve 190 x 190 x 90 blocks. The surrounding temperature should not be 5°C and falling or 30°C and rising and the joint width should not exceed 22mm.

Expansion joint sealer sealant

After construction, the perimeter joint should be cleared of any residue mortar and caulked with Rods & Mortar expansion sealant (or fire stop mastic). Bridging the joint would restrict flexibility and movement and negate the expansion fibre and can cause glass blocks or joints to crack.

Glass Block Panel With An Open Unsupported Edge

A panel supported at the base and restrained into just one vertical side (jamb) will probably be finished using end glass blocks and a double-end glass block at the open corner to make the panel look aesthetically pleasing. To increase the panel strength, double stainless reinforcement bars, each course horizontally, must be incorporated.

The open unsupported edge if subjected to impact may vibrate ever so slightly, not a major area for concern, just a point that should be noted, when considering the local of this style of panel relevance to its environment or application. For example it is highly advisable not to use this panel style in a nightclub, bar environment or in an area

A corner glass block wall using corner glass blocks (rule not applicable when using Safewall corner post).

This style of panel can be constructed with Rods & Mortar. Easyfix would make building this complicated. Corner glass blocks are a good solution to linking straight or curved panels, around a 90° angle.

One vertical edge must be anchored to a wall, the secondary panel connected by the corner block, could be straight or curved or open ended and stepped using an end block.

and brook end block combination. Two sets of corner blocks may be used to join the glass block panels together to create an enclosed space or large walk-in shower (for example).

When building with corner glass blocks a vertical slip joint must be incorporated in either the 2nd or 3rd joint away from the corner block.



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The data sheet connection detail & construction principles should be designed and be specific to each project requirement or environment & calculations checked and qualified by independent structural engineers.

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**TYPICAL GLASS BLOCK PANEL
SUPPORTED ON THREE SIDES**

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Scale 1:7.5 & 1:2