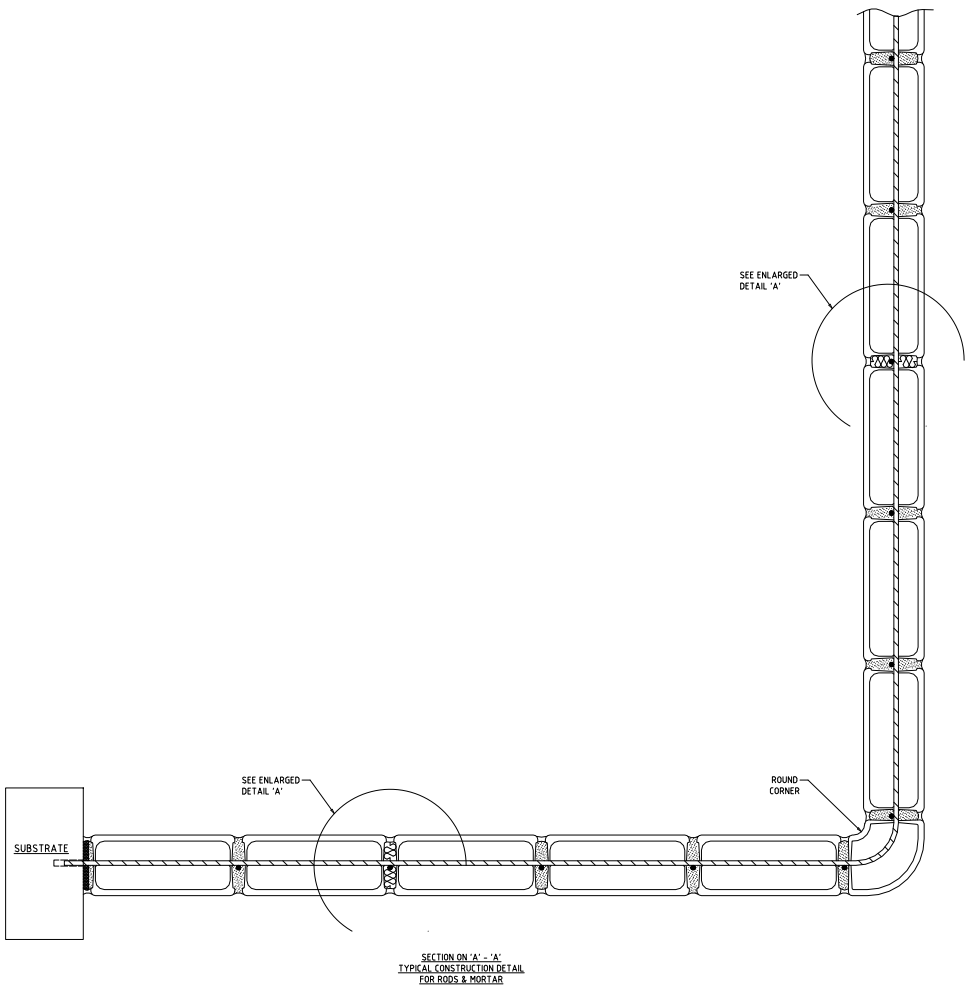
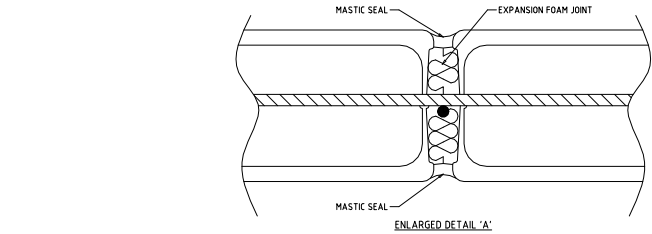
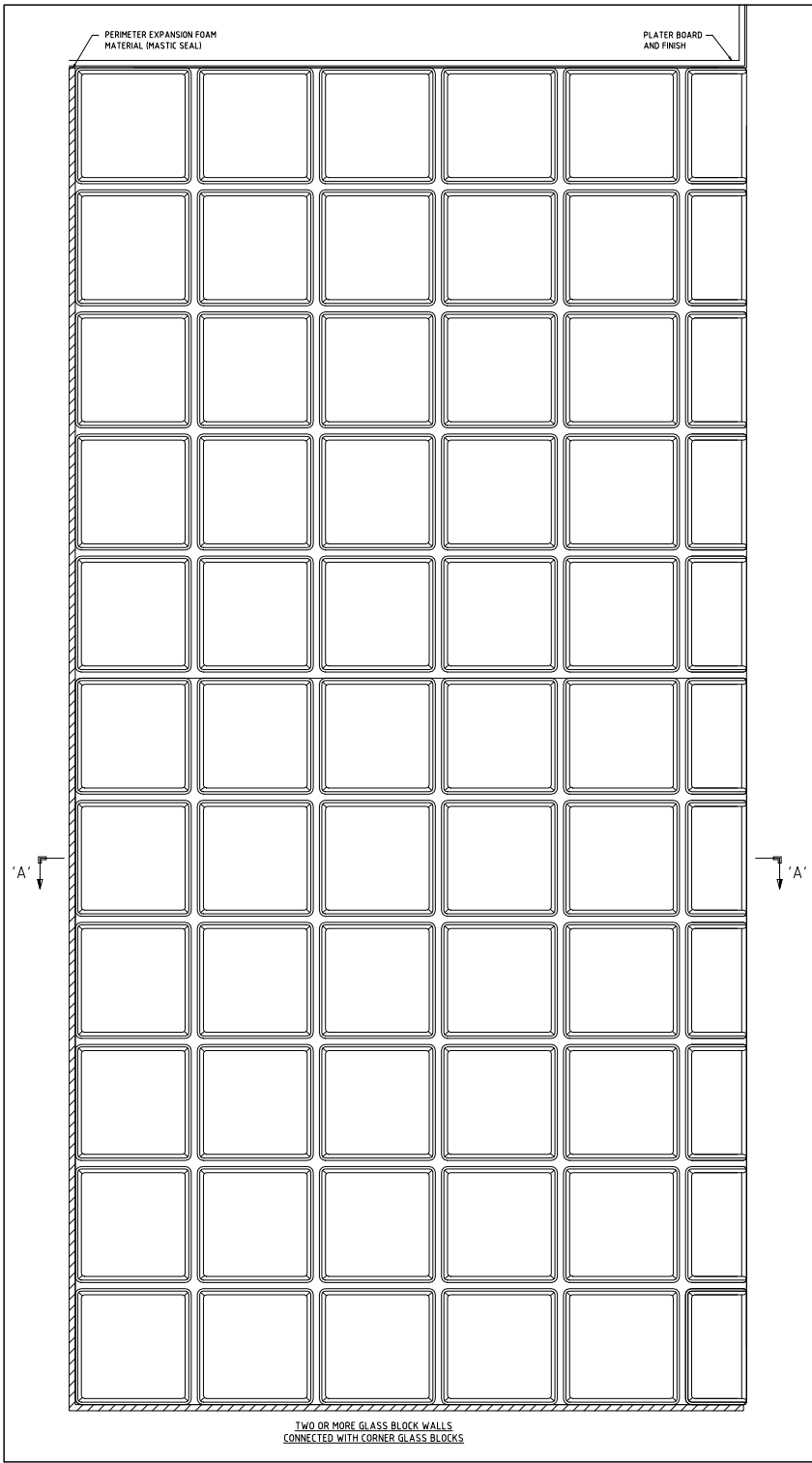




Guide to Specifying Glass Blocks - General considerations: 1. Glass block walls are self-supporting, but not load-bearing. In addition to their own weight, they can withstand wind loads, horizontal live loads and impact loads. A limit provision for the load for the panel to be anchored into whilst ensuring 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 like masonry bricks or tiles. To calculate the minimum opening size based on using 100 x 100 x 60mm blocks with 10mm joints, multiply the number of blocks by 200mm (100 block + 10mm joint) then add 10mm for the other mortar joint. This is the minimum opening requirement. Some mortar joints are the most commonly used; some spacers can also be used for thinner joints. If openings have been prepared incorrectly or if extra installing glass blocks, or to create a lighter rail, 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 (or panel anchors). For best integral strength, panels should be installed into a four-sided pre-prepared opening. The opening can be timber, brick, steel, concrete or block-work. 4. Between the opening and glass blocks it is essential to incorporate expansion joints in the perimeter to allow the panel to expand and contract freely with temperature change. The foam must not be bridged by mortar (bedder/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 or slig joints is 25m², with no dimension exceeding 6m in either direction. For 1750 and 1760 fire blocks, the maximum panel size permissible is 10m² in line with test specifications. Connection details are purely representative to demonstrate the principals how glass blocks can be constructed with channels, or box sections, either for structural and practical purposes, i.e. interface of glass blocks and render or architectural use. The channel, PPC and box section dimensions are illustrative only and not necessarily to scale. Connection detail principles, should be designed and be specific to each project requirement and calculations checked and qualified by independent structural engineers. Accessories - Perimeter expansion joints. Glass blocks will expand and contract by 0.25mm per 25°C temperature change. Self expansion joints must be incorporated into the perimeter between the substrate opening and block, being caulked with a white silicone for fire-clip mastic. This will usually look similar to a standard mortar joint. For the head and joints of an opening, 10mm thick foam is used. This is a white expansion fibre. The horizontal expansion joint between the first row of glass blocks and the base of the opening is formed using high-density silicone or neoprene material to support the weight of the panel. Alternatively the use of a silicone emulsion can be applied as the barrier between the bottom course mortar joint and base of opening. Joint sizes and spacer gaps. 10mm is the most common joint size for specifying and building glass blocks. A 100 x 100 block plus 10mm spacer equates to 200mm. Spacer gaps serve multiple functions: They prevent mortar squashes, increasing the number of courses that can be constructed in a day. They prevent stainless steel reinforcement bars coming into direct contact with the glass block as metal and glass have different expansion and contraction properties. When a spacer gap is fitted and the wall is finished, the tabs at the end twist off and can then be grouted over. Other spacers are available for the 80mm-thick blocks: 6mm x 6mm x 10mm and also for 100mm-thick blocks - 10mm x 10mm. Panel reinforcement and tying back to the perimeter openings. Stainless steel ribbed reinforcement bars are used to tie in the opening. The rods penetrate the expansion material and anchor the panel in place by connecting to the perimeter frame. This can be laid out by drilling an over sized hole a minimum depth of 25. Stems are should be filled with silicone to cushion any movement of the re-bar. Rods are 10mm long and when the panel is larger than the reinforcement bar, rods are overlapped by a minimum of 50mm and are bonded joined using tie wire/cable tie. One reinforcement bar should be used in each horizontal and vertical joint as a minimum. More rods may be required if using glass blocks or a 1750 or 1760. For situations where connecting the rods to the opening may prove difficult, pad anchors can be used similar to the pin-in-place principle secured by either screw or bolt fixing or can mechanically shear fixed. Glass blocks specifies mortar - Colnet Velvex Colnet Velvex is a specifically designed and formulated pre-mix 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. Velvex has a fine texture, low slump and the whitest mortar available. It is used as bedding and pointing mix. Therefore there are no bedding issues between building and pointing. Mixing instructions are on the reverse of each bag and should be strictly followed. 10 mins will hold approximately 120mm x 100 x 80 blocks. The surrounding temperature should not be 5°C and falling or 38°C and rising and the joint width should not exceed 22mm. Expansion joint sealer mastic. After construction, the perimeter joint should be cleared of any residue mortar and caulked with Rods & Mortar expansion sealer for fire stop mastic. Bringing the joint would restrict flexibility and movement and negate the expansion fibre and can cause glass blocks or joints to crack. How a mortar joint works Glass Block Technology mortar is a specially formulated pre-mix bedding and finishing compound, available in one bag to be mixed with water. It is manufactured under factory controlled conditions so all additives are accurately blended and designed for maximum performance of strength, flexibility, resistance and colour. A mortar joint will cure in reaction to air just like normal mortars, so it is important that the joint size is not made too thin. This guarantees total curing and maximum strength. Velvex will become solid within hours of construction. Total curing is achieved after 21-28 days. Glass is impervious unlike brick and concrete, therefore mortar is not absorbed into a glass block. The strength and support of a joint is created by the shape of the mortar profile itself. The edge or collar of a block is concave so when two are laid next to each other an oval joint is created. This oval joint enables the glass block wall to resist impact or applied loads resulting in the panel being stable and self-supporting, but not load-bearing. It is because the reinforcement bars are used to reinforce the panel to the surrounding aperture, whilst also giving the panel integral support and a wind-loading value. The mortar reinforcement joint is laid and the most common used is 10mm. However, this is only the distance on show; the centre of the oval joint is always deeper than the outer depth. This explains the stainless reinforcement bar, which should never be in direct contact with the glass surface.	
GLASSBLOCK TECHNOLOGY	
170 Lodge Lane, Hyde, Cheshire SK14 4LB projects@glassblocks.co.uk www.glassblocks.co.uk twitter@glassblocks Tel: 0161 612 8893 Fax: 0161 285 1503	
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.	
All information is accurate to the best of our knowledge at time of data sheet production, however Glass Block Technology Ltd. cannot be held liable in any way regarding the usage of glass blocks and the manner in which they are installed. Glass Block Technology Ltd. reserves the right to amend or correct changes at any time.	
TWO OR MORE GLASS BLOCK WALLS CONNECTED WITH CORNER GLASS BLOCKS	
GBT116 Rev.	
Scale 1:7.5 & 1:2	