

SUPERFORM EZI-SPEC

PRELIMINARY AND GENERAL

Refer to the Preliminary and General Clauses of this Specification and the General and Special Conditions of Contract which are equally binding on all trades. This section of the Specification shall be read in conjunction with all other sections.

EXTENT OF WORK

This Section of the Contract consists of the supply, fabrication, reinforcement, and concrete grout filling of the Superform polystyrene block walls shown on the drawings.

INSTALLATION

All work is to be carried out in accordance with the Superform BIG Block Manual. The following procedures are emphasised :

Laying of Superform BIG Blocks.

Blocks are laid on a level footing base or floor slab. The base must be level to within + 5mm in 5m. Spacer tie bridges are to be inserted into each polystyrene face shell to form block modules. There is provision for 10 ties to be inserted into each 1.5 metre long Superform BIG Block face shell. All 10 ties must be inserted in the slots provided. The blocks can be cut with a hot wire or saw to all non-modular sizes. Care should be taken to ensure the first course of base blocks are set plumb to avoid the need for later adjustment. Tolerances shall be in accordance with NZS 3109:1997. Locate the base blocks positively in position using an approved foam bond. The slab must be dry and the manufacturer's instructions for use are to be followed. Foam bonds approved for use are FOSROC Foambond, Ramset Fomoplus, and Superform Superfoam (See Details Superform BIG Block Manual).

Blocks are placed accurately, in a stretcher bond pattern, to interlock into the block courses below and butt up against each other so that true wall dimensions are obtained. Horizontal bars are tied to vertical bars to assist with holding blocks in position as the wall rises. Work proceeds to the top plate level or to the level of the first wall pour depending on the stage of the construction sequence. After the top course is laid, the wall is rechecked for line, level and plumb. Adjust if necessary. The top bar is tied onto the plastic tie to stop lifting of the blocks during pouring and to ensure the central position of the vertical bars. Door and window openings are formed as the wall laying proceeds.

Forming Curved Walls

Curved walls with a minimum radius of 3m can easily be formed by cutting the inside block face short by the difference between the arc of the outside block face, and the arc of the inside block face, forming the curved wall. Care needs to be taken to ensure that the interlocking castellations on the blocks still intermesh between courses. Strips of 12mm ply or customwood 200mm wide, are screwed to every second course on the outside face of the curve, this ensures that a true curve is formed and avoids faceting of the blocks.

Door and Window Openings (See Details Superform BIG Block Manual).

Blocks are cut horizontally or vertically to coincide with door and window openings or top plate and wall ends. Timber framing is installed as temporary formwork to the opening head. The cut blocks provide side forms for lintel beams over door and window openings.

Care must be taken when setting out the window openings to allow the clearances as specified in the window details see (See Details Superform BIG Block Manual).

This shows the need to add to the stated window size. Open block ends are formed and braced, using EPS stop ends. Block stop ends are available to be inserted where required at window and door openings and corners. At corners and at wall intersections the blocks are butted and not overlapped as this allows the walls to be plumbed when the bracing system is fitted to the blocks. Archways are formed in walls by cutting the archway out, placing a thin flexible material (e.g., 24 gauge sheet metal) against the soffit of the arch and positioning the cut out section back under the arch to provide support during concrete placement, and initial curing. Shaping of sills, jambs and heads and the insertion of flashings may be required prior to the placement of concrete, depending on the joinery, cladding and lining systems used.

H3 treated fixing blocks or batten must be fixed in place prior to pouring to enable the fixing of door and window reveals.

Bracing and Alignment

The erected blocks are braced at corners, at 900cra along the wall and either side of window and door openings to provide security against wall movement from wind and construction loads (See Details Superform BIG Block Manual). Ensure the appropriate bracing system is in place prior to and during the placement of concrete and for at least three days after the placement of the concrete. Advice regarding temporary works such as bracing is available from a Superform BIG Block Technical Adviser.

Concreting

Special care is to be taken to ensure no debris is dropped in the wall cavity. Any debris at the base of the wall is to be removed via clean out ports cut in the polystyrene prior to pouring. All concrete should be supplied from an approved high or special graded ready mix concrete plant. Concrete strength must not be less than 20MPa High Grade concrete and have a slump of 100-120mm when consolidation is by mechanical vibration and 130-150mm when concrete is consolidated by hand methods. Concrete should contain aggregate up to 13mm maximum size. Plasticiser/ water reducing agents may be used subject to approval from a Superform BIG Block Technical Adviser. Expansion admixtures and super plasticisers must not be used. The flow of concrete must be directed at the sides of the block modules to minimise possible block blowouts. Concrete can be placed by skip and flexible hose or pump/hand placement methods. The concrete is consolidated by striking the blocks with the hand or suitable implement that will not damage the blocks and also by rodding the concrete within the blocks. Mechanical vibrators may be used but care must be taken to ensure that a maximum pour rate of 900mm per lift is maintained when vibrating. The vibrator head size is to be a maximum of 25mm. The wall shall be poured to a maximum pour height of 3.6m, in lifts of a maximum of 900mm. Each lift shall be allowed to achieve initial set. Before the subsequent lift is placed. The two lifts are to be vibrated together to ensure a wall construction without cold joints is formed. Between pours a construction joint is formed 20mm below the top of the blocks. Reinforcing steel must be in place to provide a continuous connection. Construction joints are to be wire brushed to achieve a suitable roughness.

Bolt Fixings

Bolts, straps and fixings for all structural and non-structural fittings should be embedded in the wet concrete rather than anchored in drilled holes after the concrete has been poured. Any fixings to be cast in should have polystyrene removed so as to provide a 50mm concrete cover around the fixing. The length of fixings must allow for the thickness of the polystyrene to ensure the minimum embedment, as required by details in this Manual or by specific design, is maintained in the body of the wall. Insert hold down bolts for the top plate. Internal timber frame walls joining exterior Superform BIG Block system walls are connected by fixing the end stud against timber blocks bolted to the concrete infill via cast in M12 bolts. (See Details Superform BIG Block Manual) Internal Superform BIG Block walls joining exterior Superform BIG Block walls are connected by forming a continuous concrete infill joint and providing L shaped reinforcing bars with adequate returns. A vertical reinforcing bar must be placed at the inside bend of the L bars. (See Details Superform BIG Block Manual)

Services And Wall Penetrations

Chases, holes, cut-outs and recesses for small size services such as electrical wiring and piping up to 40mm diameter can be located against the concrete in slots cut into the Superform BIG Block external polystyrene skins. Small size services are fixed to the concrete with U clamps and tappets. Larger services up to 100mm diameter can be located in ducts passing directly through the Superform BIG Block walls. The ducts must not be located within 400mm of a lintel, beam or bond beam, and reinforcing cover of 50mm must be maintained.

Any penetrations outside this scope must be specifically designed. Wall penetrations for services and ventilation can be made by cutting through the Superform BIG Block polystyrene face shell. Where this procedure is used, the casting holes should be covered to prevent them being filled with concrete. The plasticiser in PVC sheathed electrical cables can migrate. PVC sheathed electrical cables must therefore be contained within plastic conduit or laid without conduit in oversize channels cut back to the concrete core. The conduit or the cables must be fixed at regular centres to the concrete core.

Provision for fittings and cabinet joinery.

Ensure that adequate fixing for kitchen and bathroom joinery, and all household fittings such as towel rails, shower mixers and laundry taps, etc, is provided at appropriate locations on the internal wall face by removing portions of the internal EPS face shell and replacing with solid timber blocks before pouring. Fix the blocks to the concrete infill as shown in the Superform BIG Block Manual. These connections can carry a combined load of 25kg shear and 5kg tension.

INSPECTIONS

Before pouring of concrete begins, the Engineer is to be notified and given reasonable opportunity to enable inspection of the reinforcing as fixed and to ensure that the work is carried out according to the intended design.

Where required, the Local Authority Inspector must also be notified.