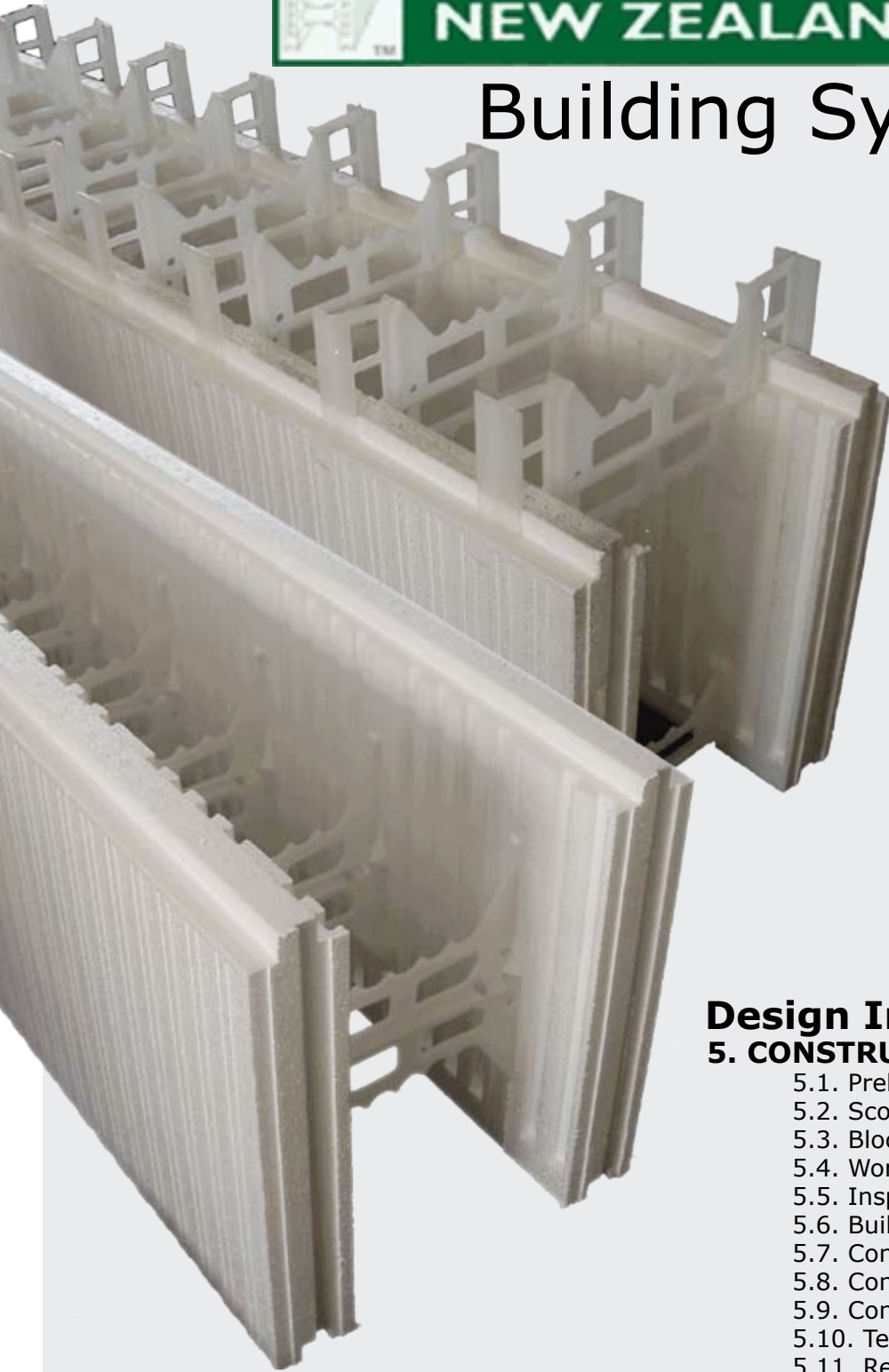




**INSULFORM**  
NEW ZEALAND LTD

# Building Systems



## **Design Information**

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# INSULFORM POLYSTYRENE PERMANENT CONCRETE INSULATING FORMWORK EPS - TPB

## 5. CONSTRUCTION SPECIFICATIONS

### 5.1. Preliminary

Refer to the Conditions of Contract and Preliminary and General clauses which shall apply to this section of the works. Allow to co-operate with all other trades.

### 5.2. Scope

This section of the work consists of the supply of all labour, plant, materials, propping, temporary bracing and the like for the erection of all polystyrene blocks as formwork for the walls etc as shown on the plans. Horizontal reinforcement must be placed at the same time as the blocks are being laid. Vertical reinforcement can be placed after the blocks are laid provided wire tying loops are provided for tying the vertical bars to the starters and the horizontal bars.

### 5.3. Blocks

All Insulform polystyrene blocks are injection moulded from fire retardant polystyrene beads in accordance with the specification contained in the BASF technical leaflet TL 423, January 1993, so as to produce accurate dimensionally stable blocks. The blocks shall have a final density between 23 and 26 kg per cubic metre.

Heavy duty thermoplastic bridging shall be polypropylene bonded into each external skin of polystyrene.

Allow to cut with a hot wire or saw to all non modular sizes. Support any cut blocks with other supports where required to prevent bulging and grout loss.

### 5.4. Workmanship

Sufficient care shall be taken when handling or transporting EPS blocks that corners, rebates, etc are not damaged. Before use, blocks shall be kept dry, free from contact with the ground, and completely covered from the weather. Caution must be taken to ensure no solvent based products come into contact with polystyrene, as they will dissolve the polystyrene in the blocks.

All polystyrene blocks shall be laid by a layer experienced in this type of work. All walls shall be true to line, level, and plumb to within the following accuracy.

Deviation from the position shown on the plan.	20mm.
Deviation from vertical within a storey.	10mm per 3m.
Relative displacement between load bearing walls in adjacent storeys intended to be in vertical alignment.	5mm.
Deviation from line to plan.	
(i) Any length up to 10m.	5mm.
(ii) Any length over 10m.	10mm.
Deviation from horizontal.	
(i) Any length up to 10m.	5mm.
(ii) Any length over 10m.	10mm.



All blocks shall be accurately bedded into the blocks below and shall butt accurately up against each other so that true wall dimensions are achieved. Webs of blocks must not be placed over the vertical flue of the blocks below.

Horizontal joints can be glued with a polystyrene contact adhesive on each face if required to assist stability against wind or construction loads.

All walls shall be stayed against wind and construction loads.

Where required sills, reveals, and rebates shall be formed to conform to the details drawn on the architectural drawings.

### **5.5. Inspections**

The Engineer shall be notified 24 hours before commencement of grout filling, to enable inspection of the work to ensure that the work is carried out with the intent of his design.

### **5.6. Build-In**

Build in all bolts, straps, fixings, switch and power boxes, etc, as shown on the drawings or as required by the various trades

Chases, holes, cut outs, and recesses in masonry shall be constructed only as specified or approved by the Engineer.

Any fixings to be cast in shall have polystyrene removed so as to give 30mm concrete cover around the fixing.

### **5.7. Concrete Placement**

Consolidation of the concrete shall be carried out using mechanical vibration or rodding with a 16mm square end reinforcing rod. Place grout into cells as a semi continuous operation allowing for consolidation as the work proceeds. Each lift shall be a maximum height of 1.2 metres before consolidation of itself and reconsolidating previously poured concrete to a depth of 100mm.

All concrete work shall comply with N.Z.S.3109:1997 "Specification for Concrete Construction".

### **5.8. Construction Joints**

The preparation of construction joints shall be as specified in N.Z.S.3109:1997. Immediately before placing concrete the construction joint shall be made wet and a 10mm thick layer of slurry applied to the joint. This slurry can be all cement and water paste or a 1:1 slurry of cement and concreting sand. Well work the slurry into the construction joint before placing the concrete.

### **5.9. Concrete**

All concrete shall be supplied from an approved ready mix concrete plant and shall comply with N.Z.S.3104:1991. Grout grade and strength are defined in N.Z.S.3104 and N.Z.S.3108.

Concrete shall be High Grade Concrete with a minimum compressive strength of 20MPa at 28 days, having a slump of 100mm. Higher strengths are required for durability within 500m of a coast line. Concrete shall consist of Portland Cement, sand, aggregate up to 14mm maximum size, water, and plasticiser/water reducing agent. Super plasticisers and expansion additives must not be used.



### **5.10. Tests and Records**

The delivery docket and other certified records for plant mixed concrete shall be forwarded to the Engineer at fortnightly intervals.

The Contractor shall keep an accurate record of the in-place location of all batches. Tests on site shall be carried out as per Section 9 of N.Z.S.3109:1997.

### **5.11. Reinforcement**

Bar reinforcement denoted on the drawings with the prefix H shall be deformed bars of grade 430, complying with N.Z.S.3402:1989 "Steel Bars For The Reinforcement Of Concrete".

Bar reinforcement denoted on the drawings with the prefix D shall be deformed bars of grade 300 complying with N.Z.S.3402:1989 "Steel Bars For The Reinforcement Of Concrete".

Bar reinforcement denoted on the drawings with the prefix R shall be plain bars of grade 300 complying with N.Z.S.3402:1989 "Steel Bars For The Reinforcement Of Concrete".

### **5.12. Bending and Placing of Reinforcement**

Reinforcement shall be cut, bent and placed as indicated on the drawings and in conformity with the appropriate sections of N.Z.S.3109:1997. Reinforcement shall be secured with wire ties and the cover maintained with plastic or concrete spacers.

Bars shall be lapped only where detailed, except that bars in foundation and slab edge beams may be lapped to suit stock lengths with the proviso that laps shall be kept to a minimum and staggered where possible.

Before pouring begins the Engineer is to be notified and reasonable opportunity given for him to inspect the reinforcing as fixed.

All reinforcing steel shall be bent to return to all wall, beam, slab or column junctions, where not otherwise shown.

### **5.13. Cleaning**

During laying and on completion, clean down all blockwork to remove all adhesive or concrete splashes and to leave a first class fair finish to all polystyrene blockwork exposed in the finished building. Make good with acrylic cement plaster any damaged corners or faces. Remove from the site, all plant and debris pertaining to this trade, all to the complete satisfaction of the Engineer.



## 6. TECHNICAL SPECIFICATIONS

### 6.1. Manufacture Technical

All INSULFORM blocks are manufactured by injection moulding of building grade EPS. Building grade EPS contains a fire retardant additive. The blocks are moulded to a density of approximately 23-27kg/m<sup>3</sup>. Each block contains about 700g of polystyrene bead. The heavy duty thermoplastic bridges are 2.0 mm thick bonded into the polystyrene at the time of moulding.

- INSULFORM standard block includes bridges bonded into the polystyrene at the time of moulding.
- INSULFORM Supablock features bridges inserted on site.

### 6.2. Series 200

The INSULFORM Series 200 block is designed for single storey and internal load bearing walls. It has applications for small retaining walls also.

LENGTH	HEIGHT	WIDTH	CONCRETE PER BLOCK	CONCRETE WALL THICKNESS
1000mm	300mm	200mm	0.03m <sup>3</sup>	100mm

### 6.3. Series 250

The INSULFORM Series 250 block is designed for up to three storey external walls and internal load bearing walls. Also used for retaining walls to 3m.

LENGTH	HEIGHT	WIDTH	CONCRETE PER BLOCK	CONCRETE WALL THICKNESS
1000mm	300mm	250mm	0.045m <sup>3</sup>	150mm

### 6.4. Series 300

The INSULFORM Series 300 block is designed for multi storey external load bearing and larger retaining walls.

LENGTH	HEIGHT	WIDTH	CONCRETE PER BLOCK	CONCRETE WALL THICKNESS
1000mm	300mm	300mm	0.06m <sup>3</sup>	200mm

