

4711E EXPOL UNDERFLOOR & UNDERSLAB INSULATION

1. GENERAL

This section relates to **Expol** insulation range of pre-cut rigid expanded polystyrene (EPS) foam boards for use as thermal insulation for:

- timber frame floors
- under concrete slab

Related work

1.1 RELATED SECTIONS

Refer to FORMWORK FOR CONCRETE for insulation under concrete slabs.

Refer to REINFORCEMENT FOR CONCRETE for reinforcement

Refer to CONCRETE PLACEMENT for handling, placing and curing of concrete.

Documents

1.2 DOCUMENTS REFERRED TO

Documents referred to in this section are:

NZBC C/AS1	Fire safety
NZBC H1/AS1	Energy efficiency
AS 1366.3	Rigid cellular plastic sheets for thermal insulation - Rigid cellular polystyrene - Moulded (RC/PS - M)
NZS 3604	Timber framed buildings
NZS 4218:2004	Energy efficiency - Small building envelope
NZS 4243	Energy efficiency - Large buildings
AS/NZS 4671	Steel reinforcing materials
NZS 4859.1	Materials for the thermal insulation of buildings - General criteria and technical provisions

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

1.3 MANUFACTURER'S DOCUMENTS

Manufacturer's documents relating to work in this section are:

Expol Under Floor Insulation brochure

Expol Under Concrete Floor Insulation brochure

BRANZ Appraisal 256 - Expol Insulation

Copies of the above literature are available from:

Web:	www.expol.co.nz
Email:	sales@expol.co.nz
Telephone:	09 634 3449 / 0800 863373
Facsimile:	09 634 0756

Requirements

1.4 QUALIFICATIONS

Work to be carried out by tradesmen experienced, competent and familiar with the materials and techniques specified.

Performance

1.5 EXPOL INSULATION

Expol will contribute to meeting the requirements of NZBC H1/AS1: Energy efficiency, 2.0 Building thermal envelope. Install to NZS 4218 for small building envelope, to NZS 4243 for large buildings and to the **Expol** technical requirements.

- 1.6 DURABILITY
Expol EPS insulation to comply with NZBC B2/AS1 Table 1, Durability requirements of nominated building elements.

50 years For **Expol** Under Floor
50 years For **Expol** Under Concrete

Refer to the Manufacturer's literature for additional requirements.

2. PRODUCTS

Materials

- 2.1 EXPOL UNDER FLOOR INSULATION - TIMBER FLOOR
Expol Under Floor, flame retardant polystyrene panels (EPS) to AS 1366.3, and to NZS 4859.1. All panels are 60mm thick.

- 2.2 EXPOL THERMASLAB INSULATION - CONCRETE SLAB
Expol Thermaslab, polystyrene sheets (EPS) to AS 1366.3, and to NZS 4859.1. Manufactured from two grades, H grade and S grade in various thickness.

Components

- 2.3 WIRE GUARD - TIMBER FLOORS
Expol Wire Guard, a paper strip used to separate exposed electrical cables from **Expol** under floor insulation.
- 2.4 FIXINGS - TIMBER FLOORS
Expol non corrosive nylon fixings with a stainless steel nail to secure panels.

3. EXECUTION

Conditions

- 3.1 DELIVERY
Keep materials dry in transit. Take delivery of materials in an undamaged in condition. Reject all damaged materials.
- 3.2 STORAGE
Accept materials undamaged and dry and store in a location that protects them from the weather and damage. Avoid distortion, stretching, puncturing and damage to edges of sheet materials. Do not use damaged sheets.
- 3.3 HANDLING
Wear protective clothing as necessary and when handling, avoid delamination or distortion of the rectangular form. Maintain full thickness unless compression is an installation system requirement.
- 3.4 PROTECT
Do not subject the polystyrene to prolonged saturation or exposure to sunlight. Do not allow the polystyrene come into contact with solvents.

Application **Expol** Under Floor insulation - timber floor

- 3.5 SECURE PANELS NEW FLOORS
Nail two fixings at opposite corners per panel, flush with the top of the joist to ensure the panel sits just below the underside of the floor.
- 3.6 FIT PANELS
Friction fit **Expol** Under Floor panels between floor joists, with one face touching the underside of the floor. Select the correct panel width for the correct joist space. Ensure width of panel is oversize to create a snug fit. Trim edges of panel when oversize by

cutting one or more of the con-cer-tina edges. Ensure separation from electric cabling. Install to **Expol** Technical literature and to BRANZ Appraisal 256 - Expol Insulation.

3.7 SECURE PANELS EXISTING FLOORS

With panels in place, nail two fixings under opposite corners per panel, to ensure the panel sits secure and flush with the underside of the floor.

3.8 ELECTRICAL CABLES

Separate all electrical cables from **Expol** Under Floor insulation using **Expol** Wire Guard, applied to the joist area to separate the cables from polystyrene. Take extreme caution when working around electrical cables.

CAUTION: Electrical cables and equipment partially or completely surrounded with bulk thermal insulation may overheat and fail. For cables installed prior to 1989 ensure all insulation is fitted leaving the cables exposed. When fitting around down lights or other electrical appliances, leave a 150mm clearance around the appliance and comply with NZBC C1/AS1, Part 9, 9.4.

3.9 PIPES AND PLUMBING

Cut the panel and notch around difficult areas to accommodate obstacles. A polyurethane foam material may be used to seal off more difficult areas. Ensure all air gaps are sealed around the outside perimeter to retain maximum insulation.

Application Expol Thermaslab insulation - concrete slab

3.10 LAY POLYTHENE

Lay polythene layer to NZS 3604: clause 7.5.4, Damp-proof membrane.

3.11 INSTALL EXPOL THERMASLAB

Install the polystyrene sheets once the polythene DPM has been laid. Place the polystyrene sheets on top of the polythene DPM and butt together. Do not place the polystyrene under any footings or thickenings. Cut holes in the polystyrene with a sharp knife to accommodate any services. Lay reinforcing steel mesh over the polystyrene on mesh chairs

3.12 REINFORCEMENT

Lay welded reinforcing mesh. Bars to AS/NZS 4671. Grade 300E deformed, other than for ties, stirrups and spirals, unless shown otherwise on the drawings. Welded reinforcing mesh to AS/NZS 4671.

3.13 PRE-PLACEMENT INSPECTION

Do not place concrete until all excavations, boxing and reinforcing have been inspected and passed by the Building Consent Authority.

Completion

3.14 CLEANING

Remove debris, unused materials and elements from the site. Clean soiled or marked work. Replace damaged, cracked or marked elements. Leave the whole of this work to the standard required by following the execution procedures.

3.15 PROTECT

Protect new work from damage.

4. SELECTIONS

4.1 EXPOL UNDER FLOOR INSULATION - TIMBER FLOORS

Location: ~
Brand: **Expol** Under Floor
Size: ~
R value: 1.4

4.2 EXPOL THERMASLAB INSULATION - CONCRETE SLAB

Location: ~
Brand: **Expol** Thermaslab
Size: 2400mm x 1200mm
Grade: S
Thickness: 40mm
KPA: 85
R value: R1.05