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01. GENERAL**01.01. SCOPE OF WORK “FOILBOARD®” FOIL FACED INSULATION PANEL SYSTEMS – INSULATION****General:**

Extent: The following work is included in this specification section:

*** *(please delete “Systems” not relevant to your specification)*

Framed walls:**System – 1:**

Thermal insulation panel system – Brick veneer timber or steel stud walls:

- Description: 10mm thick anti-glare FOILBOARD® Standard 10 Insulation Panel installed to the external (cavity side) face of the stud wall; giving an insulation value of R1.8 (heat flow out) R1.8 (heat flow in).
- Description: 15mm thick anti-glare FOILBOARD® Super 15 Insulation Panel installed to the external (cavity side) face of the stud wall; giving an insulation value of R2.2 (heat flow out) R2.2 (heat flow in).
- Description: 20mm thick anti-glare FOILBOARD® Ultra 20 Insulation Panel installed to the external (cavity side) face of the stud wall; giving an insulation value of R2.6 (heat flow out) R2.6 (heat flow in).

System – 2:

Thermal insulation panel system – Weatherboards, fibre cement sheet or timber lining boards on timber or steel stud walls with 19mm fixing batten over insulation to provide additional cavity:

- Description: 15mm thick anti-glare FOILBOARD® Super 15 Insulation Panel installed to the external face of the stud wall; giving an insulation value of R2.0 (heat flow out) R2.0 (heat flow in).
- Description: 20mm thick anti-glare FOILBOARD® Ultra 20 Insulation Panel installed to the external face of the stud wall; giving an insulation value of R2.4 (heat flow out) R2.4 (heat flow in).

Double brick walls:**System – 3:**

Thermal insulation panel system – Double brick walls:

- Description: 10mm thick anti-glare FOILBOARD® Standard 10 Insulation Panel installed within the brick cavity; giving an insulation value of R1.8 (heat flow out) R1.8 (heat flow in).
- Description: 15mm thick anti-glare FOILBOARD® Super 15 Insulation Panel installed within the brick cavity; giving an insulation value of R2.2 (heat flow out) R2.2 (heat flow in).

Under timber floors:**System – 4A:**

Thermal insulation panel system – Under timber floor framing:

- Description: 10mm thick anti-glare FOILBOARD® Standard 10 Insulation Panel installed in between joists using FOILBOARD® Floor Saddles; giving an insulation value of R2.2 (heat flow out) R1.2 (heat flow in).
- Description: 15mm thick anti-glare FOILBOARD® Super 15 Insulation Panel installed in between joists using FOILBOARD® Floor Saddles; giving an insulation value of R2.6 (heat flow out) R1.3 (heat flow in).

System – 4B:

Thermal insulation panel system – Under timber floor framing:

- Description: 10mm thick anti-glare FOILBOARD® Standard 10 Insulation Panel installed directly to the underside of timber floor framing; giving an insulation value of R3.1 (heat flow out) R1.3 (heat flow in).
- Description: 15mm thick anti-glare FOILBOARD® Super 15 Insulation Panel installed directly to the underside of timber floor framing; giving an insulation value of R3.5 (heat flow out) R1.5 (heat flow in).

Concrete & masonry structures:**Walls:****System – 5:**

Thermal insulation panel system – Internal plasterboard wall linings on **28mm** furring channels fixed to concrete or blockwork single skin external walls:

- Description: 10mm thick anti-glare FOILBOARD® Standard 10 Insulation Panel installed to the internal face of the concrete or masonry wall; giving an insulation value of R1.4 (heat flow out) R1.4 (heat flow in).
- Description: 15mm thick anti-glare FOILBOARD® Super 15 Insulation Panel installed to the internal face of the concrete or masonry wall; giving an insulation value of R1.6 (heat flow out) R1.6 (heat flow in).
- Description: 20mm thick anti-glare FOILBOARD® Ultra 20 Insulation Panel installed to the internal face of the concrete or masonry wall; giving an insulation value of R1.8 (heat flow out) R1.8 (heat flow in).

Thermal insulation panel system – Internal plasterboard wall linings on **16mm** furring channels fixed to concrete or blockwork single skin external walls:

- Description: 15mm thick anti-glare FOILBOARD® Super 15 Insulation Panel installed to the internal face of the concrete or masonry wall; giving an insulation value of R1.3 (heat flow out) R1.3 (heat flow in).
- Description: 20mm thick anti-glare FOILBOARD® Ultra 20 Insulation Panel installed to the internal face of the concrete or masonry wall; giving an insulation value of R1.5 (heat flow out) R1.5 (heat flow in).

Ceilings:**System – 6:**

Thermal insulation panel system – Internal plasterboard ceiling linings on **28mm** furring channels fixed to concrete soffit of external suspended slab covering an occupied space:

- Description: 15mm thick anti-glare FOILBOARD® Super 15 Insulation Panel installed to the soffit of the concrete slab; giving an insulation value of R1.3 (heat flow out) R1.7 (heat flow in).
- Description: 20mm thick anti-glare FOILBOARD® Ultra 20 Insulation Panel installed to the soffit of the concrete slab; giving an insulation value of R1.5 (heat flow out) R1.9 (heat flow in).

Walls:**System – 7:**

Thermal insulation panel system – Internal plasterboard wall linings on **28mm** furring channels fixed to 15mm – 20mm packing over concrete or blockwork single skin external walls:

- Description: 10mm thick anti-glare FOILBOARD® Standard 10 Insulation Panel installed to the internal face of the concrete or masonry wall; giving an insulation value of R2.0 (heat flow out) R2.0 (heat flow in).
- Description: 15mm thick anti-glare FOILBOARD® Super 15 Insulation Panel installed to the internal face of the concrete or masonry wall; giving an insulation value of R2.2 (heat flow out) R2.2 (heat flow in).
- Description: 20mm thick anti-glare FOILBOARD® Ultra 20 Insulation Panel installed to the internal face of the concrete or masonry wall; giving an insulation value of R2.3 (heat flow out) R2.3 (heat flow in).

Ceilings:**System – 8:**

Thermal insulation panel system – Internal plasterboard ceiling linings on **28mm** furring channels fixed to 15mm – 20mm packing over concrete soffit of external suspended slab covering an occupied space:

- Description: 10mm thick anti-glare FOILBOARD® Standard 10 Insulation Panel installed to the soffit of the concrete slab; giving an insulation value of R1.6 (heat flow out) R2.0 (heat flow in).
- Description: 15mm thick anti-glare FOILBOARD® Super 15 Insulation Panel installed to the soffit of the concrete slab; giving an insulation value of R1.8 (heat flow out) R2.2 (heat flow in).
- Description: 20mm thick anti-glare FOILBOARD® Ultra 20 Insulation Panel installed to the soffit of the concrete slab; giving an insulation value of R2.0 (heat flow out) R2.4 (heat flow in).

Concrete floors:**System – 9:**

Thermal insulation panel system – Insulation on 25mm battens under suspended carpeted concrete floor over external unoccupied space (i.e. Carpark):

- Description: 15mm thick anti-glare FOILBOARD® Super 15 Insulation Panel installed to timber battens fixed to the soffit of the concrete slab; giving an insulation value of R2.8 (heat flow out) R1.8 (heat flow in).
- Description: 20mm thick anti-glare FOILBOARD® Ultra 20 Insulation Panel installed to timber battens fixed to the soffit of the concrete slab; giving an insulation value of R2.6 (heat flow out) R1.8 (heat flow in).

Cathedral Roofs:**System – 10A:**

Thermal insulation panel system – Cathedral roof with iron sheeting or tile roof and lined ceiling:

- Description: 20mm thick anti-glare FOILBOARD® Ultra 20 Insulation Panel installed within the cavity between the roof sheeting on aluminium foil sarking and over ceiling linings having a 25mm minimum air space above and below the insulation; giving an insulation value of R2.3 (heat flow out) R2.7 (heat flow in).
- Description: 25mm thick anti-glare FOILBOARD® Cathedral 25 Insulation Panel installed within the cavity between the roof sheeting on aluminium foil sarking and over ceiling linings having a 25mm minimum air space above and below the insulation; giving an insulation value of R2.5 (heat flow out) R3.0 (heat flow in).

System – 10B:

Thermal insulation panel system – Cathedral roof with iron sheeting or tile roof and lined ceiling:

- Description: Two layers of 15mm thick anti-glare FOILBOARD® Super 15 Insulation Panel spaced with a 15 – 20mm packer. Installed to the underside of the roof battens within the cavity between the roof sheeting on aluminium foil sarking and over ceiling linings connected to the underside of rafters; giving an insulation value of R3.2 (heat flow out) R4.0 (heat flow in).

Factory – Shed Roofs:**System – 11:**

Thermal insulation panel system – Ceiling to factory roof with iron/steel or fibre cement sheeting:

- Description: 15mm thick anti-glare FOILBOARD® Super 15 Insulation Panel installed directly to the underside of roof framing below roof sheeting on aluminium foil sarking; giving an insulation value of R1.5 (heat flow out) R3.0 (heat flow in).

- Description: 20mm thick anti-glare FOILBOARD® Ultra 20 Insulation Panel installed directly to the underside of roof framing below roof sheeting on aluminium foil sarking; giving an insulation value of R1.7 (heat flow out) R3.5 (heat flow in).
- Description: 25mm thick anti-glare FOILBOARD® Cathedral 25 Insulation Panel installed directly to the underside of roof framing below roof sheeting on aluminium foil sarking; giving an insulation value of R1.9 (heat flow out) R4.0 (heat flow in).

02. QUALITY

02.01. STANDARDS – INSULATION

General:

Included: The following standards and codes are applicable to the Works included in this Section, and unless otherwise described in this Specification shall be regarded as describing the minimum standard of materials and workmanship to be provided.

AS 1366.3-1992 Rigid cellular polystyrene - moulded
AS/NZS 4859.1:2002 Materials for the thermal insulation of buildings

02.02. INSPECTIONS – INSULATION

Witness points:

Notice: Give sufficient notice so that inspection may be made of the following:

- Building framing or substrates prior to installing insulation.
- On completion of installing insulation and prior to insulation being covered up or concealed.

03. MATERIALS

03.01. “FOILBOARD®” INSULATION PANEL – INSULATION

Description:

Proprietary item: FOILBOARD® Insulation Panel.

Panel size: 2440 x 1200mm.

Panel size: 2700 x 1200mm (Standard 10 & Super 15)

Edges: Square cut.

Standard: Manufactured to comply with AS/NZS 4859.1:2002.

Insulation panel: Aluminium foil bonded to a fire-retardant SL grade moulded expanded polystyrene core.

Aluminium foil: 20 micron thick material, having the following properties:

- Non-laminated construction.
- One side of insulation panel to have the foil coated with a green anti-glare coating of emissivity not greater than 0.2, and having 100 x 100mm cutting guide lines and the manufacturers' brand name.
- The second side shall be bright reflective aluminium of emissivity less than 0.03.

Polystyrene core: Complying with AS 1366.3-1992, manufactured in 10, 15, 20 and 25mm thicknesses.

Adhesive bonding of the foil to the polystyrene core: Heat resistant type able to sustain a temperature of 100°C without causing delaminating of the aluminium foil from the polystyrene core of the insulation panel.

03.02. “FOILBOARD” SEALING TAPE – INSULATION

*** *(please delete “items” not relevant to your specification)*

General installations:

Proprietary item: TESA Green Polypropylene Acrylic High Temperature Tape – Code 64204.

Aluminium tape for use where FOILBOARD Insulation Panel remains exposed:

Proprietary item: Approved manufacturer’s AL500 aluminium silver foil tape.

03.03. “FOILBOARD” FIXINGS & ACCESSORIES – INSULATION

*** *(please delete “items” not relevant to your specification)*

Nail fixing – insulation panel to timber framing:

Proprietary item: FOILBOARD® Sizo-Fix plastic rectangular fasteners with integral zinc plated annular ring steel nail of sufficient length to suit board thickness.

Screw fixing – insulation panel to steel framing:

Proprietary item: FOILBOARD® Sizo-Fix plastic rectangular fasteners with separate zinc plated steel screws of sufficient gauge and length to suit board thickness.

Furring channel clips for furring channels – insulation board to concrete walls or ceilings:

Proprietary item: BETA-FIX Brackets.

Plastic packer shims for minor alignment: DON DENYER FASTENING SYSTEMS.
Or Horse-shoe packer.

Plasterboard or plywood for packing to provide air space: Use off-cuts of plasterboard or plywood.

Furring channels mating with furring channel clips – insulation board to concrete walls or ceilings:

28mm furring channels: RONDO 129 or equivalent.

16mm furring channels: RONDO 308 or equivalent.

04. INSTALLATIONS

04.01. FIXING OF “FOILBOARD” FOIL FACED INSULATION PANEL SYSTEMS – INSULATION

*** *(please delete “Systems” not relevant to your specification)*

Framed walls:

System – 1:

Thermal insulation panel system – Brick veneer timber or steel stud walls.

Fixing: Secure FOILBOARD® Insulation Panel to timber studs with the Sizo-Fix fasteners with integral nails, using 3 fasteners per stud per panel.

Sealing: Butt joints, penetrations, gaps and holes can be sealed with tape to prevent air infiltration which lowers the “R” value.

Note: Installation of FOILBOARD[®] is best done after the frame, bracing, roof, fascia, windows, flashing and plumbing rough-in are all complete and frame inspection is passed. The top sheets should be fixed first (pushed up until they hit the underside of rafters). Top and bottom edges should lap onto top and bottom plates. Lintels should be covered and sheets butted at corners.

System – 2:

Thermal insulation panel system – Weatherboards, fibre cement sheet or timber lining boards on timber or steel stud walls with 19mm fixing batten over insulation to provide additional cavity.

Fixing: Secure FOILBOARD[®] Insulation Panel to timber or steel studs with the Sizo-Fix fasteners with integral nails, using 3 fasteners per stud per panel.

or

Fixing: Secure FOILBOARD[®] Insulation Panel to steel studs with the Sizo-Fix fasteners and screw gun, using 3 fasteners per stud per panel.

Sealing: Butt joints, penetrations, gaps and holes can be sealed with tape to prevent air infiltration which lowers the “R” value.

Note: Installation of FOILBOARD[®] is best done after the frame, bracing, roof, fascia, windows and plumbing rough-in are all complete and frame inspection is passed. The top sheets should be fixed first (pushed up until they hit the underside of rafters). Top and bottom edges should lap onto top and bottom plates. Lintels should be covered and sheets butted at corners.

Cavity brick walls:**System – 3:**

Thermal insulation panel system – Cavity brick walls.

Fixing FOILBOARD[®] over brick ties: Install during construction of the cavity brickwork by running the inner skin of brickwork up at least 1200mm and then push FOILBOARD[®] insulation panel onto the protruding wall ties. Taping holes around the ties secures the insulation panel in position.

Sealing: Butt joints, penetrations, gaps and holes can be sealed with tape to prevent air infiltration which lowers the “R” value.

Note: It is best to leave the ‘snots’ of mortar protruding into the cavity, from both skins of brickwork, to locate the FOILBOARD[®] Insulation Panel in the centre of the cavity.

Under timber floors:**System – 4A:**

Thermal insulation panel system – Under timber floor.

Installation of FOILBOARD[®] Insulation Panel and Floor Saddles is best done after joists are fixed to bearers and before yellow tongue or strip flooring is laid down. It is recommended that for best-fit plumbing rough in and all other services under floor are complete. FOILBOARD[®] Insulation Panel is lightweight, easy and safe to handle. It may be easily cut to size using long snap blade knife. Off-cuts can be taped and re-used. Space FOILBOARD[®] Floor Saddles on top of floor joists at approximately 600mm centres. Saddles should be spaced 200mm from end of sheet. At double joists simply cut the FOILBOARD[®] Floor Saddle in half and fasten with a nail.

Push Floor Saddles down so that the specially designed teeth can grip the joist. Cut FOILBOARD[®] Insulation Panel to size to fit in-between joists. Place sheet between joists, resting on the lip of the Floor Saddles. Gently apply pressure to the FOILBOARD[®] Insulation

Panel until it clicks into place with our patented lock-in flap design. This will prevent wind from unsettling the sheet from underneath.

Sealing: Butt joints, penetrations, gaps and holes can be sealed with tape to prevent air infiltration which lowers the “R” value.

System – 4B:

Thermal insulation panel system – Under timber floor framing.

Fixing FOILBOARD® – accessible space under floor: Secure FOILBOARD® Insulation Panel to the underside of timber joists with the Sizo-Fix fasteners with integral nails, using 3 fasteners per joist per panel.

or

Fixing FOILBOARD® – inaccessible space under floor: Provide 25 x 25mm timber battens along the lower edges of the joists and then lay FOILBOARD® Insulation Panel onto the battens to provide a snug fit between the faces of the joists.

and/or

Where the underfloor area is subject to wind: Provide additional battens to the face of the joists to prevent uplift of the Insulation Panel.

Sealing: Butt joints, penetrations, gaps and holes can be sealed with tape to prevent air infiltration which lowers the “R” value.

Concrete & masonry structures:**Walls:****System – 5:**

Thermal insulation panel system – Internal plasterboard wall linings on furring channels fixed to concrete or blockwork single skin external walls.

Furring channel clips: Fix clips to concrete or masonry walls using power activated fasteners or masonry anchors. Space clips at a maximum of 1200mm centres along furring channels. Spacing for furring channels shall be a maximum 600mm centres. Pack and shim for alignment.

Fixing FOILBOARD® over clips: Push FOILBOARD® over clips to retain in position. Insulation Panel can be joined using sealing tape.

Furring channels: Fix furring channels legs into the notches provided in the clips by squeezing the open legs of the furring channels together; all to hold the FOILBOARD® tightly in position.

Sealing: Butt joints, penetrations, gaps and holes can be sealed with tape to prevent air infiltration which lowers the “R” value.

Ceilings:**System – 6:**

Thermal insulation panel system – Internal plasterboard ceiling linings on furring channels fixed to concrete soffit of external suspended slab covering an occupied space.

Furring channel clips: Fix clips to concrete soffit using power activated fasteners or masonry anchors. Space clips at a maximum of 1200mm centres along furring channels. Spacing for furring channels shall be at a maximum 600mm centres. Pack and shim for alignment.

Fixing FOILBOARD® over clips: Push FOILBOARD® over clips to retain in position. Insulation Panel can be joined using sealing tape.

Furring channels: Fix furring channels legs into the notches provided in the clips by squeezing the open legs of the furring channels together; all to hold the FOILBOARD® tightly in position.

Sealing: Butt joints, penetrations, gaps and holes can be sealed with tape to prevent air infiltration which lowers the “R” value.

Walls:**System – 7:**

Thermal insulation panel system – Internal plasterboard wall linings on furring channels fixed to 15mm – 20mm packing over concrete or blockwork single skin external walls:

Packing: Use timber, plasterboard off cuts or plywood to provide a double air space. Fix to concrete or masonry wall together with the furring channel clips.

Furring channel clips: Fix clips over packing to concrete or masonry walls using power activated fasteners or masonry anchors. Space clips at a maximum of 1200mm centres along furring channels. Spacing for furring channels shall be a maximum 600mm centres. Pack and shim for alignment.

Fixing FOILBOARD[®] over clips: Push FOILBOARD[®] over clips to retain in position. Insulation Panel can be joined using sealing tape.

Furring channels: Fix furring channels legs into the notches provided in the clips by squeezing the open legs of the furring channels together; all to hold the FOILBOARD[®] tightly in position.

Sealing: Butt joints, penetrations, gaps and holes can be sealed with tape to prevent air infiltration which lowers the “R” value.

Ceilings:**System – 8:**

Thermal insulation panel system – Internal plasterboard ceiling linings on 28mm furring channels fixed to 15mm – 20mm packing over concrete soffit of external suspended slab covering an occupied space:

Packing: Use timber, plasterboard off cuts or plywood to provide a double air space. Fix to concrete or masonry wall together with the furring channel clips.

Furring channel clips: Fix clips over packing to concrete soffit using power activated fasteners or masonry anchors. Space clips at a maximum of 1200mm centres along furring channels. Spacing for furring channels shall be at a maximum 600mm centres. Pack and shim for alignment.

Fixing FOILBOARD[®] over clips: Push FOILBOARD[®] over clips to retain in position. Insulation Panel can be joined using sealing tape.

Furring channels: Fix furring channels legs into the notches provided in the clips by squeezing the open legs of the furring channels together; all to hold the FOILBOARD[®] tightly in position.

Sealing: Butt joints, penetrations, gaps and holes can be sealed with tape to prevent air infiltration which lowers the “R” value.

Concrete floors:**System – 9:**

Thermal insulation panel system – Insulation on 25mm battens under suspended carpeted concrete floor over external unoccupied space.

Timber battens: Secure timber battens to the soffit of the concrete slab using power activated fasters or masonry anchors. Space battens at 600mm maximum centres.

Fixing: Secure FOILBOARD[®] Insulation Panel to the underside of timber battens with the Sizo-Fix fasteners with integral nails, using 3 fasteners per rafter per panel. Note – where exposed install Insulation Panel with anti-glare side up.

Sealing: Butt joints, penetrations, gaps and holes can be sealed with aluminium tape to prevent air infiltration which lowers the “R” value and provide a better finish.

optional Painting plastic fasteners: Use a pressure pack of chrome paint to disguise fasteners.

Cathedral Roofs:**System – 10A:**

Thermal insulation panel system – Cathedral roof with iron/steel sheeting or tile roof and lined ceiling.

Fixing FOILBOARD in roof space: Use packers of 25mm to provide a 25mm reflective air space above the ceiling linings. Lay FOILBOARD[®] Insulation Panel over spacers to snugly fit between framing members.

Sealing: Butt joints, penetrations, gaps and holes can be sealed with tape to prevent air infiltration which lowers the “R” value.

System – 10B:

Thermal insulation panel system – Cathedral roof with iron/steel sheeting or tile roof and lined ceiling.

Two layers of FOILBOARD[®] Insulation Panel are fitted to a cathedral ceiling in between rafters. The reflective air space between the two sheets of FOILBOARD[®] is required to enable a higher ‘R’ value.

First sheet is installed to the underside of the roof batten using FOILBOARD[®] Sizo-fix fasteners. Second sheet is then spaced (20mm min) using packers or battens. Cut second sheet 3-4mm over span and wedge sheet between rafters. This sheet can also be glued into place using a water based building adhesive

Factory – Shed Roofs:**System – 11:**

Thermal insulation panel system – Ceiling to factory roof with iron/steel sheeting.

****** *Note: Timber battens, of minimum size of 70 x 19mm, F7 Radiata Pine are to be provided under edges of FOILBOARD[®] Insulation Panel and mid-way; i.e. at 600mm maximum centres (Super 15), 900mm maximum centres (Ultra 20) & 1200mm maximum centres (Cathedral 25).*

Fixing: Secure FOILBOARD[®] Insulation Panel to the underside of timber roof framing with the Sizo-Fix fasteners with integral nails, using 3 fasteners per rafter per panel. Note – install insulation panel with anti-glare side up.

Sealing: Butt joints, penetrations, gaps and holes can be sealed with aluminium tape to prevent air infiltration which lowers the “R” value and to provide a better finish.

optional Painting plastic fasteners: Use a pressure pack of chrome paint to disguise fasteners.