ThermaSilver® Insulated Cladding
Products Range Technical Data Manual
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This means that builders and designers seeking to achieve the six star energy rating can get vastly improved insulation performance with the same board thickness or conversely achieve the same energy rating as normal white EPS using a thinner board. The insulation effect of ThermaSilver® can be up to 20% higher than with conventional EPS.

The unique silver-grey colour identifies the ThermaSilver® material. The ThermaSilver® EIFS Cladding product range is exclusively manufactured by RMAX using the BASF Neopor® technology.

Thermawall® Silver product description

Thermawall® Silver building panels are made up of ThermaSilver® expanded polystyrene (Grade M). The ThermaSilver® expanded polystyrene material readily accepts renders to achieve a variety of finishes. Contact your local architectural coating manufacturer for products that suit Thermawall® Silver building panels and for an application specification.

The Thermawall® Silver Panels incorporate a patented dove tail groove design which can be applied in two different orientations depending on customer preference and / or installation.

Please Note: The term Thermawall® Silver is referenced throughout this brochure. This term covers all three products of the Thermawall® Silver, ThermawallPlus® Silver and Thermawall® Board.

All three products are made up from the patented BASF Neopor® expanded polystyrene (EPS) bead material. The BASF Neopor® based ThermaSilver® material is a higher performing EPS material when compared to standard white EPS due to the inclusion of graphite particles within its cellular structure. Graphite acts as an infra red reflector and absorber which results in the ThermaSilver® material exhibiting reduced thermal conductivity compared to standard white EPS resulting in an improved R value when the same thickness and density of materials are compared.
Option 1: Thermawall® Silver vertical.
The patented dove tail groove design runs vertically down the length of one face of the panel at equal spacings of 75mm as indicated in photo 1.

Option 2: Thermawall® Silver horizontal.
The patented dove tail groove design runs horizontally across the width of one face of the panel at equal spacings of 75mm as indicated in photo 2.
The grooves in either orientation provide increased anchoring of the render finishing systems to the panel face and also act as a convenient locator for the fixing screws and washers resulting in greater ease of installation. Please see page 6 for panel construction diagram.

The ThermaWallPlus® coating is a durable textured surface ready to accept renders to achieve a variety of finishes. Contact your local architectural coating manufacturer for products that suit ThermaWallPlus® Silver building panels and for an application sheet.
ThermaWallPlus® Silver panels offer the ThermaWall Plus® coating on one side and are suitable for both straight and curved wall applications.

ThermaSilver® Board product description
The ThermaSilver® Board is distributed to market as a fully accredited RMAX EPS EIFS system comprising the RMAX ThermaSilver® panel, together with the RMAX Orange Board® render, RMAX Orange Board® fasteners and screws and the RMAX Orange Board® sarking.

For the RMAX warranty to be applied ThermaSilver® board must be used with the RMAX approved Orange Board® Wrap, Orange Board® fasteners and washers and Orange Board® Render.

ThermaSilver® Cladding appraisals
ThermaSilver® Cladding building panels have been subjected to extensive testing and comply with relevant Australian building practices.

The ThermawallPlus® Silver building panels are made up of ThermaSilver® expanded polystyrene (Grade M) core reinforced with high strength alkaline resistant fiberglass mesh and the ThermawallPlus® enhanced surface coating, to provide strength and high impact resistance.
DESIGN CRITERIA

Installation design
All installation, erection and fixing requirements must be in accordance with details contained in this manual and the requirements of your local Building Authority.

Frame structure
The frame structure must be built in accordance with the Building Code of Australia (BCA) and with the relevant Australian Standards, for instance, AS 1684-1999 for Timber Frame structures and AS 3623-1993 for Steel Frame structures.

Fasteners
Each fastener is composed of:
• 1 screw
• 1 washer
Details of each component are given in Table 1.

<table>
<thead>
<tr>
<th>Fasteners</th>
<th>Timber frame</th>
<th>Steel frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw (40mm panel)</td>
<td>10G x 65mm CSK Head Coarse Ribbed Class 3</td>
<td>10G x 55mm Wing Tek Class 3</td>
</tr>
<tr>
<td>Screw (60mm panel)</td>
<td>10G x 85mm CSK Head Coarse Ribbed Class 3</td>
<td>10G x 75mm Wing Tek Class 3</td>
</tr>
<tr>
<td>Screw (75mm panel)</td>
<td>10G x 100mm CSK Head Coarse Ribbed Class 3</td>
<td>10G x 90mm Wing Tek Class 3</td>
</tr>
<tr>
<td>Screw (100mm panel)</td>
<td>10G x 125mm CSK Head Coarse Ribbed Class 3</td>
<td>10G x 115mm Wing Tek Class 3</td>
</tr>
<tr>
<td>Washer</td>
<td>40mm diameter plastic RMAX washer</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Screw length is dependant on thickness of panel used. As a guide the screw should be minimum 25mm longer than the panel thickness for timber frame construction and 15mm longer than the panel thickness for steel frames.

The screw offset from the edge of the panels and the panel joins is to be 20mm. Where two panels butt up against each other, edge to edge, a double stud is to be used, allowing each panel to be fastened to its own individual stud. Please see fastener fixing detail on page 9 & 10 for further information.

Table 2: Minimum stud & fastener spacing for the ThermaSilver® Cladding product range in accordance with AS 4055-2006

<table>
<thead>
<tr>
<th>Wind Regions</th>
<th>Non-Cyclonic (A &amp; B)</th>
<th>Cyclonic (C &amp; D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind category</td>
<td>N1 N2 N3 N4 N5 N6</td>
<td>C1 C2 C3 C4</td>
</tr>
<tr>
<td>Panel Thickness (mm)</td>
<td>40, 60,75,100</td>
<td>75,100</td>
</tr>
<tr>
<td>Stud spacing (mm)</td>
<td>450 or 600</td>
<td>450</td>
</tr>
<tr>
<td>Fastener spacing (mm)</td>
<td>300 (150 at perimeter of wall)</td>
<td>300 (150 at perimeter of wall)</td>
</tr>
<tr>
<td>Number of fasteners/m²</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>
INSTALLATION GUIDELINES

Cutting of panel
For a clean, fast, accurate and no mess cut, we recommend using a standard diamond masonry blade or fibre cement blade. For more intricate cuts a hot knife or handsaw can be used.

Planning
Prior to installing any of the ThermaSilver® Cladding product range of panels, liaise with the builder to enable solid blocking to be installed where fixtures are to be fitted to the finished construction; e.g. balustrade, handrails, clothes lines, large light fittings, hot water services, air-conditioning units, etc.

Method of fixing
The ThermaSilver® Cladding product range of panels can be installed either vertically or horizontally. The panels are screwed directly to the frame. Screw heads and washers should be slightly recessed into the surface of the panel.

Sheets should not be bonded (glued) to studs.
This allows the frame to flex without stressing the external render.

Reinforce all joints with a 150mm minimum fibreglass strip of alkaline resistant 160g/m² mesh to be applied evenly and run the full length of the joint. Ensure that the panels are butted hard together.

Refer to Fastener Positioning detail on page 9 and 10.

Typical Corner and Joint details are to be adhered to.
Refer to pages 11, 12 and 13.

Back blocking of stud joints
Where sheet sides or ends do not finish on a stud, solid back blocking must be installed to strengthen and align joints.

Back blocks are cut from off cuts of stud material. The back blocks can be placed aligned with the joint or placed at 300mm centres perpendicular to the joint. Back blocks are to be nailed securely to frame.

Double studs are required to be installed in accordance with the diagram on page 9 and 10, whenever two ThermaSilver® Cladding panels butt up to each other. Where ThermaSilver® panel joins occur other than at the stud interface, double back blocking is to be installed to ensure that each ThermaSilver® Cladding panel is fastened to its own individual block. Where the end of a ThermaSilver® Cladding panel does not line up with a stud and does not adjoin another ThermaSilver® Cladding panel, a single back block is sufficient.

ThermaSilver® Cladding panels are to be fixed to back blocks in the same manner as fixing panels to the stud frame. Refer to Fastener Positioning detail on pages 9, & 10.

Typical Corner and Joint details are to be adhered to.
Refer to pages 11, 12 and 13.

Beadings
All corners must be protected with UV stabilised PVC or aluminium bead. Any exposed edges (roof line, windows, doors, edge of concrete slab, etc.) should be covered with fibreglass mesh as specified on pages 11, 14 and 21 and finished with a cover bead, which will protect the panel from moisture and provide a clean finish line for coatings.

All beads should be fixed using a polystyrene compatible construction adhesive.

Starter channels
ThermaSilver® Cladding panels are to be located in PVC or aluminium starter channels at the bottom edge of any ThermaSilver® Cladding wall as per ground slab rebate detail on page 16.

Starter channels to include drainage weep holes (min 2mm diameter every 200mm) to allow moisture to escape. Typical bead detail can be found on pages 11-19.

Expansion (control) joints
Prior to installation determine expansion joint placement by consulting with a Design Engineer to calculate the deformation/stress due to soil/structure movement, deflection due to load bearing on roofing structures and to specify location of expansion/control joints.

Expansion joints must occur where the ThermaSilver® Cladding panels meet other substrates/cladding materials.
This technical manual provides some practical details to perform the expansion joint. Refer to pages 12 and 13.

Sarking
ThermaSilver® expanded polystyrene has a very low rate of water vapour transfer. However in line with good building practice RMAX requires the use of a breathable sarking to be fixed directly behind the ThermaSilver® Cladding panels.

It should be noted that ThermaSilver® Cladding installed in conjunction with a reflective breathable sarking will increase the overall thermal effectiveness of the wall system. Refer to Table 6 on page 5.

Render
Render to be of either polymer modified cement type or acrylic system that is suitable for use on expanded polystyrene. Examples of some rendered systems that could be applied are: RMAX Orange Board® render, Multitex RBS – Reinforced Board Render System, Granosite Granomarable, Acrylic Wallcote and Dulux Duspec amongst others.

RMAX® provides examples of applicable render systems only as a guide. RMAX® takes no responsibility for non RMAX render coating performance and effect on surface properties of ThermaSilver® Cladding panels. Render to be applied strictly in accordance with the render manufacturer’s installation instructions requirements at a minimum thickness of 5mm in 2 coats and a maximum thickness of 10mm.

Mesh application
Apply a 3-5mm basecoat of an applicable render system onto the ThermaSilver® Cladding panel using a steel trowel with enough pressure to adhere the product. Whilst the basecoat is wet embed a full layer of alkali resistant 166g/m² (5mm x 5mm), woven fibreglass mesh ensuring that the mesh pieces overlap by a minimum of 100mm at mesh joints.

ThermaSilver® Cladding panel joints should be evenly covered with the same embedded mesh (avoid overlap of mesh joints near the main panel joint). Strips of mesh at 45 degree angle or equivalent, 300mm long by 150mm wide, should be embedded across the corner of all window and door openings.

In the same sequence apply another coat of render at a thickness of 2-3mm on top of the full mesh, embedding the mesh between these layers of render. On setting use a straight edge and screed surface or if using a polystyrene float, finish the surface to achieve an even and true surface.

Do not render over control joints.
Curved wall applications

ThermaSilver® Cladding panels can be used in curved wall applications. Please refer to Table 3:

<table>
<thead>
<tr>
<th>ThermaSilver® Cladding panels thickness</th>
<th>Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>40mm</td>
<td>&gt; 2400mm</td>
</tr>
<tr>
<td>60mm</td>
<td>&gt; 2400mm</td>
</tr>
<tr>
<td>75mm</td>
<td>&gt; 4000mm</td>
</tr>
</tbody>
</table>

Masonry and concrete walls

Contact RMAX.

Adhesive: Glues including SikaFlex 11FC, Emerseal PU25, Enerfoam and a variety of polymer base renders have been used successfully.

Mechanical Fixings: Hilti IDP polypropylene anchors.

Installation: Walls must be cleaned prior to installation and free from dust, dirt, oil, vegetation and any loose or crumbling material.

The construction adhesive is applied evenly over the entire back of the panel. If using a polymer base render as your adhesive, a course notched trowel is used to spread the render evenly, again over the entire back of the panel.

Use a minimum of 6 anchors with RMAX cladding washers per square metre. It is important that the anchors are positioned evenly over the entire panel with corner anchors placed in close proximity to each panel corner.

Typical corner and joint details are to be adhered to. Refer to pages 11, 12 and 13.

Handling

Sheets should be stored elevated, under cover and laid flat. Edges and corners are to be protected at all times. The ThermaSilver® Cladding wall panels should be rendered as soon as possible after installation. Prolonged exposure to elements should be avoided, including exposed edges.

As BASF Neopor® expanded polystyrene (EPS) foam will begin to soften and shrink when exposed to elevated temperatures above 80˚C, the RMAX ThermaSilver® product range of panels and rendered finished ThermaSilver® Cladding wall facades should not be continuously exposed to temperatures in excess of 80˚C, as expansion and blistering of the panels and/or rendered wall may occur.

Thus it is highly recommended that any equipment that generates high levels of radiant heat such as outdoor barbecues or outdoor patio gas heaters etc., should be kept at a minimum of 1.5 metres away from any exposed RMAX ThermaSilver® product range cladded wall.

Continuous exposure to the elements of the ThermaSilver® Cladding panels may result in deterioration causing minor fretting of the exposed edges of the panels. Therefore, if the ThermaSilver® Cladding panels are to be stored outside for extended periods of time prior to installation, the individual panels or panel stacks should be completely covered by a canvas or UV resistant type material. Under no circumstances however should a clear plastic cover be used to cover the panels.

When handling or installing the ThermaSilver® Cladding panels in windy conditions particular care should be taken. Unsecured panels can be severely damaged.

Chemical resistance

ThermaSilver® Cladding panels are chemically resistant to most water based materials. Resistance to diesel fuel, paraffin oils and vegetable oils however is limited, thus prolonged contact should be avoided. ThermaSilver® EPS will however be attacked by hydrocarbons, ketones, esters and solvents. Exposure to these chemicals should be completely avoided.

Refer to the ThermaSilver® Material Safety Data Sheet for further details of storage and handling and compatibility with other chemicals.

Impact resistance

The RMAX ThermaSilver® EIFS Cladding system when installed according to the RMAX specifications and installation manual will provide resistance to most impact loads that are likely to occur in normal residential operating conditions.

Where a building or structure is likely to be exposed to high impact loads, the use of the ThermaSilver® EIFS Cladding systems may not be appropriate and a design engineer should be consulted.

TECHNICAL SPECIFICATIONS

Thermal insulation

<table>
<thead>
<tr>
<th>ThermaSilver® Cladding panels thickness</th>
<th>40mm</th>
<th>60mm</th>
<th>75mm</th>
<th>100mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal conductivity at 23˚C (W/m2K)</td>
<td>0.0321</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R value at 23˚C (m2.K/W)</td>
<td>1.24</td>
<td>1.86</td>
<td>2.32</td>
<td>3.10</td>
</tr>
<tr>
<td>Thermal conductance at 23˚C (W/m2.K)</td>
<td>0.81</td>
<td>0.54</td>
<td>0.43</td>
<td>0.32</td>
</tr>
</tbody>
</table>

ThermaSilver® Cladding wall system thermal performance

From calculations by thermal calculation code recognised by CSIRO, the total R value for the complete ThermaSilver® Cladding wall system are given in Table 5.

<table>
<thead>
<tr>
<th>ThermaSilver® Cladding panels thickness</th>
<th>Total R value (m2.K/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40mm</td>
<td>1.64</td>
</tr>
<tr>
<td>60mm</td>
<td>2.26</td>
</tr>
<tr>
<td>75mm</td>
<td>2.72</td>
</tr>
<tr>
<td>100mm</td>
<td>3.50</td>
</tr>
</tbody>
</table>

ThermaSilver® Cladding installed with a reflective breathable sarking will increase the overall thermal effectiveness of the wall system.

Table 6: Total R value of ThermaSilver® Cladding wall system with reflective sarking

<table>
<thead>
<tr>
<th>ThermaSilver® Cladding panels thickness</th>
<th>Total R value</th>
</tr>
</thead>
<tbody>
<tr>
<td>40mm</td>
<td>2.06</td>
</tr>
<tr>
<td>60mm</td>
<td>2.72</td>
</tr>
<tr>
<td>75mm</td>
<td>3.13</td>
</tr>
<tr>
<td>100mm</td>
<td>3.94</td>
</tr>
</tbody>
</table>
TECHNICAL SPECIFICATIONS

Standard panel sizes and surface mass

The standard panel size is 2500mm x 1200mm, in nominal standard thicknesses of 40mm, 60mm, 75mm and 100mm.

Standard Tolerances

Panel Length = ± 2mm
Panel Width = ± 2mm
Panel Thickness = ± 1mm

The surface mass of each panel is given in Table 7. Panel sheet weights are in Table 8.

Table 7: Nominal surface mass (kg/m²) - unrendered

<table>
<thead>
<tr>
<th>Thickness</th>
<th>40mm</th>
<th>60mm</th>
<th>75mm</th>
<th>100mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ThermaSilver® Cladding</td>
<td>0.76</td>
<td>1.14</td>
<td>1.43</td>
<td>1.90</td>
</tr>
</tbody>
</table>

Table 8: Sheet weight in kg - unrendered

<table>
<thead>
<tr>
<th>Thickness</th>
<th>40mm</th>
<th>60mm</th>
<th>75mm</th>
<th>100mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ThermaSilver® Cladding</td>
<td>2.3</td>
<td>3.4</td>
<td>4.3</td>
<td>5.7</td>
</tr>
</tbody>
</table>

Figure 1: ThermaWallPlus® Silver and ThermaSilver® Board panels

Figure 2: Example of the ThermaWallPlus® Silver and ThermaSilver® Board wall system

Figure 3: Thermawall® Silver panel

Figure 4: Example of the Thermawall® Silver wall system
**Structural bracing capacity**

The ThermaSilver® Cladding external wall system was tested in racking tests in accordance with AS 4040.0-1992, AS 4040.2-1992 and AS 4040.3-1992 for non-cyclonic and cyclonic conditions (Regions A, B, C and D) by an accredited Laboratory (ref. 4 and 5). Refer to page 27.

The obtained bracing capacity at 2.70m (as defined in AS 1684-1999 "Residential timber-framed construction" – Part.2: Non-cyclonic areas; Part.3: Cyclonic areas and Part. 4: Simplified – Non-cyclonic areas), in serviceability conditions are summarised in Table 9.

**Table 9: Structural bracing capacity (kN/m at 2.70m height) of ThermaSilver® Cladding wall systems applicable in regions A & B (Non-cyclonic) and regions C & D (Cyclonic)**

<table>
<thead>
<tr>
<th>Panel</th>
<th>Frame reinforcement</th>
<th>Stud spacing (mm)</th>
<th>Fastener spacing (mm)</th>
<th>300</th>
<th>200</th>
<th>150</th>
<th>120</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>ThermaSilver®Cladding</td>
<td>Nil</td>
<td>450 or 600</td>
<td>1.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThermaSilver®Cladding</td>
<td>Bracing Reinforcement. Vertical 12mm diam steel rod at 500mm from the corner where the racking force is applied. Galvanised straps at the top only.</td>
<td>450 or 600</td>
<td>3.85</td>
<td>1.15</td>
<td>1.35</td>
<td>1.40</td>
<td>1.50</td>
<td>1.55</td>
</tr>
</tbody>
</table>

---

**Bracing Reinforcement**

- Steel strap 0.8 x 30mm section with 4 of 30 x 2.8mm diameter Flat head nails at each stud.
- 1 off 38mm diameter Flat round washer & 1 off 12mm nut.
- The connection at the top to the ceiling or roof frame may be in accordance with AS 1684-1999 part 2, 3 and 4.
- Anchor rod placed at both ends of each section of the bracing wall and not more than 2.4m centres.
  - 12mm diameter
  - Full length mild steel rod.
- The connection at the bottom to the floor frame or concrete slab may be in accordance with the requirement of AS 1684-1999 part 2, 3 and 4.
INSTALLATION AND FIXING DETAILS

Early fire hazard properties (AS/NZS 1530.3–1999)

From tests conducted by AWTA, Division of Building Material – NATA Accreditation # 1356, the following indices given in Table 10 have been determined.

Table 10: Early Fire Hazard properties of the ThermaSilver® product range

<table>
<thead>
<tr>
<th>Material</th>
<th>Ignitability Index (0-20)</th>
<th>Spread of Flame (0-10)</th>
<th>Heat Evolved Index (0-10)</th>
<th>Smoke Produced Index (0-10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therma Silver® product range</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>An Australian Hardboard (4.75mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Bare</td>
<td>14</td>
<td>6</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>– Impregnated with fire retardant</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>An Australian Softboard (12.70mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Bare</td>
<td>16</td>
<td>9</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>– Impregnated with fire retardant</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>T&amp;G Boarding (25 x 100mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Bluegum</td>
<td>11</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>– Oregon</td>
<td>13</td>
<td>6</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Plywood, Coachwood Veneer (4.75mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Bare</td>
<td>15</td>
<td>7</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>– Impregnated with fire retardant</td>
<td>12</td>
<td>0</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

NOTE: The core material in ThermaSilver® Cladding is expanded polystyrene. As with all other organic material, insulation products must be considered combustible and to constitute a fire hazard if improperly used or installed. Therma Silver® Cladding contains a flame retardant additive to inhibit accidental ignition from small fire sources.

Table 11: ThermaSilver® Cladding weighted sound reduction index (Rw) Performance

<table>
<thead>
<tr>
<th>Panel Thickness</th>
<th>Construction</th>
<th>Rw</th>
</tr>
</thead>
<tbody>
<tr>
<td>75mm</td>
<td>Panel only + reflective sarking</td>
<td>12dB</td>
</tr>
<tr>
<td>75mm</td>
<td>Panel + reflective sarking + 8mm render + 10mm plaster. Full wall system</td>
<td>44dB</td>
</tr>
</tbody>
</table>

NOTE: The data in the above table was derived from RMAX M Grade Orange Board® sound transmission testing. The sound transmission performance of RMAX ThermaSilver® will be the same as Orange Board® where the same EPS density grade and thickness has been tested.

Table 12: Perceived change in decibel levels

<table>
<thead>
<tr>
<th>Change in Sound Level</th>
<th>Perceived Change to the Human Ear</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ 1dB</td>
<td>Not perceptible</td>
</tr>
<tr>
<td>+ 3dB</td>
<td>Threshold of perception</td>
</tr>
<tr>
<td>+ 5dB</td>
<td>Clearly noticeable</td>
</tr>
<tr>
<td>+ 10dB</td>
<td>Twice (or half) as loud</td>
</tr>
<tr>
<td>+ 20dB</td>
<td>Fourfold (4x) change</td>
</tr>
</tbody>
</table>

NOTE: The threshold of perception of the human ear is approximately 3 decibels. A 5 decibel change is considered to be clearly noticeable to the ear whilst a 10 decibel change would be perceived to be twice as loud.
INSTALLATION AND FIXING DETAILS OF Thermawall® Silver
In Non Cyclonic Regions (A&B) - Vertical orientation board installation

Please refer to page 3 Table 2 Minimum stud and fastener spacing for both cyclonic and non cyclonic areas.
INSTALLATION AND FIXING DETAILS OF ThermaWallPlus® Silver and ThermaSilver® Board

In Non Cyclonic Regions (A&B) - Horizontal orientation board installation

max. 150mm AROUND PERIMETER

max. 600mm STUD CENTRES

JOINT

1200mm

2500mm

INSTALLATION AND FIXING DETAILS OF ThermaWallPlus® Silver and ThermaSilver® Board

In Cyclonic Regions (C&D) - Horizontal orientation board installation

max. 150mm AROUND PERIMETER

max. 450mm STUD CENTRES (Region C)
(300mm STUD CENTRES Region D)

Please refer to page 3 Table 2 Minimum stud and fastener spacing for both cyclonic and non cyclonic areas.
Corner Details

Internal Corner

External Corner

ThermaSilver® Cladding

Breathable Sarking

Fastening Screw and Washer

PVC Internal Angle Bead

150mm Wide Fibreglass Reinforcing Mesh

Render

ThermaSilver® Cladding

Breathable Sarking

Fastening Screw and Washer

150mm Wide Fibreglass Reinforcing Mesh laid across joint

PVC External Angle Bead
INSTALLATION AND FIXING DETAILS

Expansion (Control) Joints

**ThermaSilver® Cladding to ThermaSilver® Cladding**

**ThermaSilver® Cladding to Brick - Internal Corner**
Expansion (Control) Joints

Prior to installation determine expansion joint placement by consulting with a Design Engineer to calculate the deformation/stress due to soil/structure movement, deflection due to load bearing on roofing structures and to specify location of expansion/control joints.

Placement Guide: The following is a guide only and does not negate the user’s responsibility to consult a Design Engineer.

In line with good building practice placement of vertical expansion joints should not exceed 5 metres where the wall length is greater than 8 metres. Joints should be placed to align with large door and window openings and internal corners. Double studs are necessary at all vertical expansion joints.

Horizontal expansion joints should not exceed 3 metres.

Expansion joints must occur where ThermaSilver® Cladding panels meet other substrates/cladding materials.
INSTALLATION AND FIXING DETAILS

Window Sill Detail

Head/Jamb Detail
Typical Head Detail
ThermaSilver® Cladding / Timber Wall

Typical Sill Detail
ThermaSilver® Cladding / Timber Wall

Typical Side Jamb Detail
ThermaSilver® Cladding / Timber Wall
INSTALLATION AND FIXING DETAILS

**ThermaSilver**
- Cladding
- Breathable Sarking
- Fastening Screw and Washer
- Render
- PVC Reveal Bead or Starter Bead
- Approved Sealant
- Backing Rod

**ThermaSilver**
- Cladding
- Breathable Sarking
- Fastening Screw and Washer
- Render
- 50mm Rebate By Width of Panel
- Control Joint
- 75mm Min Visual Termite Barrier
- External Ground Level

**Ground Slab Rebate Detail**

**ThermaSilver**
- Cladding
- Breathable Sarking
- Fastening Screw and Washer
- Render
- PVC Reveal Bead or Starter Bead
- Approved Sealant

**Ground Slab Edge Detail**
**Roof Junction Detail**

- ThermaSilver® Cladding
- Breathable Sarking
- Render
- Fastening Screw and Washer
- Sub Floor

- Starter bead
- 50mm min

**Timber Floor Junction Detail**

- ThermaSilver® Cladding
- Breathable Sarking
- Render
- Fastening Screw and Washer
- Screws fixed to ends of floor joists above flashing
- PVC Reveal Bead or Starter Bead
- Approved sealant
- 10mm maximum gap
- Pressed metal flashing

- Floor Joist
- Rafter

Thermawall® Silver • TheraWallPlus® Silver • ThermaSilver® Board
INSTALLATION AND FIXING DETAILS

**ThermaSilver® Cladding**
- Breathable Sarking
- Render
- PVC Reveal Bead or Starter Bead
- Approved Sealant
- Max. 8mm
- Backing Rod
- Brick Veneer
- Render
- Fastening Screw and Washer

**Floor Joist**
- Stud Frame

**Brick Veneer Junction Detail**
- ThermaWall® Silver
- ThermaWallPlus® Silver
- ThermaSilver® Board
Thermawall® Silver • ThermaWallPlus® Silver • ThermaSilver® Board

Eave Detail – Type 1

Eave
Approved Sealant
Stud Frame
Breathable Sarking
Render
ThermaSilver® Cladding
Fastening Screw and Washer

Eave Detail – Type 2

Eave
Approved Sealant
Stud Frame
Breathable Sarking
Render
ThermaSilver® Cladding
Fastening Screw and Washer
INSTALLATION AND FIXING DETAILS

Flush Eave Detail

Parapet Detail
PRE-RENDER PREPARATION

Typical Corner Detail

Min. 35 mm
ThermaSilver® Cladding Panel
Glue
Fibreglass Mesh
Glue
Angle Bead
Render

150mm Wide Jointing Mesh

See Typical Corner Detail

150mm Wide Jointing Mesh

PVC Angle bead
PVC Angle

150mm Wide Mesh

System Fasteners

PVC beading after application of fibreglass mesh

Typical Internal & External Corner Detail

Window Application Detail
THERMASILVER® BOARD RENDER PREPARATION

INSTALLATION GUIDELINES

PRODUCT DESCRIPTION
Forming part of the RMAX ThermaSilver® board coating system, RMAX Orange Board® Dry Mix Render is a superior quality cement based, polymer modified render containing washed and graded medium silica sand, acrylic powder and proprietary additives. Dry Mix products are manufactured to stringent quality standards, from the highest quality raw materials available, all of which are blended to accurate specifications to ensure product performance and reliability is "built into every bag every time!" RMAX Orange Board® render provides the ideal base for the subsequent application of a variety of top coats.

Packing Type:
Paper Sack/Bag
Weight: 20kg net per bag

Coverage:

<table>
<thead>
<tr>
<th>Render type</th>
<th>Sq. M/20kg Bag</th>
<th>Application Thickness mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMAX Orange Board® Render</td>
<td>3.5 - 4.5</td>
<td>3.5</td>
</tr>
</tbody>
</table>

SUBSTRATE PREPARATION

- Areas not to be coated should be masked off and protected
- All surfaces to be rendered must be clean, sound and free from contaminants including: oil, mould release, dust, dirt, silicone, mud, grease, salt, efflorescence, animal droppings and any loose or flaking material.

APPLICATION

- Tools/Machinery Required: Hawk & steel trowel, Polystyrene float, plastic floats, straight edge, sponge, power mixer, masking tapes, drop sheeting. If spraying render use proper render spray application equipment.
- Check panels are installed as per panel manufacturer’s instruction.
- Do not render over control joints.
- Add one (1) 20kg bag of RMAX Orange Board® Dry Mix Render to 3.5 - 4.0 litres of clean water using a power stirrer to mix until the consistency is smooth and lump free. Allow the mix to stand for 5 minutes, remix before use or before adjusting consistency if required.
- Apply a 3-5mm basecoat of RMAX Orange Board® Render onto the panel using a steel trowel with enough pressure to adhere the product. Whilst the basecoat is wet embed a full layer of alkali resistant 160g/m² (5mm x 5mm), woven fibreglass mesh ensuring that the mesh pieces overlap by a minimum of 100mm at mesh joints. Panel joints should be evenly covered with the same embedded mesh (avoid overlap of mesh joints near the main panel joint). Strips of mesh at 45 degree angle or equivalent, 300mm long by 150mm wide, should be embedded across the corner of all window and door openings.
- In the same sequence apply another coat of Render at a thickness of 2-3mm on top of the full mesh, embedding the mesh between these layers of Render. On setting use a straight edge and screed surface or if using a polystyrene float, finish the surface to achieve an even and true surface.

Pot Life
- When the Dry Mix Render is mixed with water the maximum pot life is two (2) hours. Do not add more water to extend pot life as this will reduce the strength and durability of the finished render.

Clean up
- Clean up with water

TECHNICAL DATA

- Appearance: Powder, off white/grey with slight odour.
- Application: Hawk & trowel, hopper gun, spray machine.
- Specific Gravity: 2.57 - 2.6
- Bulk Density: 1600 - 1850 kg/m³
- Particle Size: <2mm
- Flammability: Not applicable.
- Solubility in Water: Slight, hardens on mixing with water.
- Top Coat: min 72 hrs
THERMASILVER BOARD RENDER PREPERATION

**Important Notes**

- Do not apply RMAX Orange Board® Render or other render systems on unprotected surfaces when rain is anticipated within 6 hours of completion of the day’s work, (longer in damp, cold &/or humid conditions).
- Avoid application in full sun, on hot surfaces or in hot windy conditions.
- Application should be carried out on a day with temperatures above 10°C and below 30°C.
- Coated area must be protected from damage until the completion of the project; finished work must be protected from rain, frost and severe weather conditions until fully dried.
- Primer/Paint coatings should not be applied to the mineral coating until it is sufficiently hardened and dried.
- General Guide to hardening/drying - allow 1 day per mm of thickness (will reach maximum strength in 28 days from application).

**OTHER CONSIDERATIONS**

**Shelf-life of Unopened Bags:**
Maximum 1 year from date of manufacture when stored in dry condition.

**Transport & Storage:**
Keep dry, off floor level and preferably on pallet.
PRIMER/SEALER PREPERATION

SUBSTRATE PREPARATION

- Ensure the render surface has aged (dried) for 3 days minimum. General Guide to hardening/drying - allow 1 day per mm thickness (RMAX Orange Board® Render will reach maximum strength in 28 days from initial application).
- Areas not to be coated should be masked and protected.
- All surfaces to be coated must be clean, sound, free from contaminants including; oil, mould release, dust, dirt, silicone, mud, grease, salt, efflorescence, animal droppings and any loose or flaking material.

APPLICATION

No. of coats: Single coat application.

Application Method:

Roller:
- The RMAX Orange Board® Render surface must be primed prior to texture coating or painting.
- Mix RMAX Orange Board® Primer/Sealer thoroughly before use.
- Apply one coat of Primer/Sealer evenly to the render surface using a 20mm medium nap roller and let it fully dry before top coating.

<table>
<thead>
<tr>
<th>Dry Time (25°C &amp; 50%)</th>
<th>Tack Free</th>
<th>Recoat/Overcoat</th>
<th>Fully Dried</th>
</tr>
</thead>
<tbody>
<tr>
<td>(approx)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 mins</td>
<td>After 1 Hour</td>
<td>4 Hours</td>
<td></td>
</tr>
</tbody>
</table>

Clean Up:

Clean all equipment with water after use.

IMPORTANT INFORMATION

- RMAX Orange Board® Primer/Sealer must only be applied in air temperatures between 10°C and 30°C on a dry substrate and must be protected from rain and frost for the first 24 hours or finished work must be protected from rain, frost and severe weather conditions until fully dried.
- Avoid application in full sun or hot, windy conditions.
- Apply at recommended spreading rate to ensure optimum performance.
- RMAX Orange Board® Primer/Sealer must be textured and top coated.

Coverage:

<table>
<thead>
<tr>
<th>Primer/Sealer Type</th>
<th>Sq. M/15kg Pail Per Coat</th>
<th>Application Thickness µM</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMAX Orange Board® Render</td>
<td>100 - 120</td>
<td>75 - 100</td>
</tr>
</tbody>
</table>

SAFETY AND HANDLING OF RMAX ORANGE BOARD® PRIMER/SEALER

Refer to Material Safety Data Sheet for RMAX Orange Board® Primer/Sealer before use.

When working RMAX Orange Board® Primer/Sealer, observe the usual precautions for handling acrylic water based products including:

- Avoid inhalation of the vapour, prolonged skin contact and particularly eye contact.
- Wear protective clothing to minimize skin contact and wear goggles where splatter is likely.
- Where spills occur, soak up liquid spillage with sand/sawdust and dispose of in an environmentally sensible manner. Do not permit run-off to sewer, storm water or open bodies of water.
- Full pails are HEAVY. Wear protective footwear and seek assistance if necessary.
- Storage - no specific issues, store away from food and drink.

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- Full pails are HEAVY. Wear protective footwear and seek assistance if necessary.
- Storage - no specific issues, store away from food and drink.
SAFETY AND HANDLING OF RMAX ORANGE BOARD® RENDER

This material is hazardous according to criteria of NOHSC. Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail.

Please refer to RMAX Orange Board® Render Material Safety Data Sheet before use;

When working with Render observe the usual precautions for handling cement based mortars & renders including:

- Avoid inhalation of the dust, wear suitable respiratory protection mask, avoid prolonged skin contact with wet mortar and eye contact (contains sand based crystalline silica).
- Wear protective clothing to minimise skin contact and wear goggles where splatter is likely.

FIRST AID MEASURES

Ingestion
If swallowed, wash mouth out with water.
Do NOT induce vomiting. Drink at least two (2) glasses of water. Seek medical attention.

Eye
Wash with copious amount of water for 15 minutes holding eyelid(s) open. Take care not to rinse contaminated water into non-affected eye.
Seek medical attention.

Advice to Doctor
Treat symptomatically.

General Health and Safety Procedures

Think Safe. Act Safe
To assist in maintaining a safe and healthy workplace, take note of the following:
- Ensure the workplace is safe. This includes attention to plant and equipment.
- Insist that safe work methods are practiced.
- Provide supervision and training where appropriate.
- Ensure everyone on site understands and accepts their responsibilities to promote a workplace that is safe.
- Ensure that all health and safety requirements are adhered to.

Consult your authorised Workplace Health and Safety Officer for specific advice.
WARRANTY

RMAX, a division of Huntsman Chemical Company Australia Pty. Ltd. is the manufacturer of the ThermaSilver® product.

RMAX ThermaSilver® Cladding product range warranty conditions

1. RMAX warrants that the RMAX ThermaSilver® products are free from defects caused by faulty manufacture or faulty materials for a period of 10 years from the date of sale to the purchaser.

2. This warranty is a material only replacement warranty where there is a defect in manufacture. This warranty only applies where the product is applied correctly by a skilled and experienced installer in accordance with all current installation recommendations as per the RMAX ThermaSilver® EIFS Cladding product range Technical Data Manual, including but not limited to, frame and fastener details, installation and fixing details and installation guidelines.

3. To make a warranty claim the customer must provide:
   (a) The details of the items purchased (application dates, product batch numbers and quantities must be recorded and supplied as a minimum to commence potential product failure investigation);
   (b) The date and location of purchase;
   (c) A description of the fault observed with the product, providing photographs and samples if possible;
   (d) Contact details of the customer;

4. The above information can be provided by:
   (i) Mail: RMAX Sales, 2-4 Mephan St, Maribyrnong, VIC 2032;
   (ii) Email: sales@rmax.com.au; or
   (iii) Fax: 03 9317 7888;

5. Unless otherwise agreed to in writing by RMAX, the Buyer shall bear the expense of claiming the warranty.

6. RMAX provides no warranty, expressed or implied, against damage due to movement of the substrate or structure.

7. Whilst RMAX takes every care to ensure that any impurities in the product are eliminated at the time of manufacture, components of the product may occasionally result in minor visual blemishes. RMAX shall not be liable for any such blemishes.

8. Where the Buyer is a consumer under the Competition and Consumer Act 2010, the benefits given under this warranty are in addition to the statutory rights and remedies available to the consumer under the Australian Consumer Law. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

9. To the full extent permitted by law the liability of RMAX for any defect or a breach of the Purchaser’s statutory rights is limited solely to any one or more of the following as determined by RMAX in its sole discretion, namely:
   (i) the supply of replacement products or similar products;
   (ii) the repair of the products; or
   (iii) the costs of replacement or repair of the products.

10. Except as expressly provided in this warranty, to the full extent permitted by law, RMAX will in no circumstances be liable for any loss or damage, whether direct or indirect (including consequential loss, economic or financial loss) to persons or property howsoever arising and whether from any defect in or unsuitability of a product or from negligence on the part of RMAX or any of its servants, contractors or agents. In particular, RMAX will not be responsible for any loss or damage arising from normal wear and tear, weather conditions, any act of God, poor installation or rendering or caused by wildlife or organisms. RMAX is not, and will not be, responsible or liable to any person in any manner whatsoever for incorrect fixing, joining, installing, finishing and/or rendering by any person.
REFERENCES DOCUMENTS AND INFORMATION

Referenced documents


Disclaimer:

The information contained in this manual is presented as a guide to users of RMAX ThermaSilver® Cladding range of products, and while to the best of RMAX’s knowledge it is correct and reliable, RMAX shall not be liable for defects associated with incorrect use of RMAX ThermaSilver® Cladding range of products, misuse, wilful damage, neglect, accidental damage, or any modifications or alterations to any of the range of products.
RMAX and the Environment

RMAX ThermaSilver® is highly energy efficient. The energy saved over the lifetime of a RMAX ThermaSilver® insulation panel in reduced heating demand, more than compensates for the raw material used in its production.

The effective application of ThermaSilver® insulation can cut carbon dioxide emissions by up to 50%. The energy used in its manufacture may be recovered within six months by the energy saved in the buildings when ThermaSilver® is used to insulate the building depending on the building design and the climatic conditions.

RMAX promotes the use of ThermaSilver® and EPS, with their superior thermal insulation properties, to lower energy requirements and reduce the impact of buildings on the environment.

RMAX EPS and ThermaSilver® are free from ozone depleting substances in manufacture and composition. Neopor® EPS is made without CFCs, HCFCs or HFCs. Manufacturing is done with blowing agents that have Zero Ozone Depleting Potential (ODP).

Recycling EPS

EPS products are recyclable and RMAX has established recycling facilities in all of its plants throughout Australia.

RMAX is a member of PACIA (Plastics and Chemical Industries Association) and helped establish the EPS Industry Group, known as EPSA (Expanded Polystyrene Australia). RMAX, through EPSA play a major role in facilitating the collection and recycling of EPS in Australia.

Energy Efficient Manufacture

The manufacture of EPS is a low pollution process. There is no waste in production as all off cuts or rejects are re-used or recycled.

RMAX – Innovation Working for You

RMAX is a company driven by innovation. We have pioneered Rigid Cellular Plastics product technologies, leading the development of innovative product solutions for our customers and international partners.

In the Australian building industry, RMAX was the first to introduce termite resistant expanded polystyrene (EPS) – Isolite® Perform Guard® EPS. The exclusive patented technology incorporates a safe, non-toxic inorganic additive that is a deterrent to termites.

Other new and innovative products from RMAX are ThermaStar® and ThermaProof®. For details on these and other products in our range, visit www.rmax.com.au.

We are committed to working with our customers to deliver high quality creative solutions to construction problems. Contact us and see how our innovative approach using EPS in building construction can help you.

Developed in Australia. Made in Australia.

ThermaSilver® Cladding has been developed in Australia by RMAX specifically for Australian conditions and to meet the stringent Australian Building codes in all states. It is manufactured in RMAX plants in Australia in controlled production processes to maintain consistent quality.