



INSULATED LIGHTWEIGHT CLADDING SYSTEMS

- * COST EFFECTIVE
- * COMPLETE SYSTEM PACKAGES
- * ENERGY EFFICIENT
- * 10 YEAR GUARANTEE

07 55 005815
WWW.RHINOBOARD.COM.AU



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RhinoBoard™ Product Data

Rhinoboard™ Energy Efficient Insulative Walling System Product Information

RhinoBoard™ is an insulative walling system suitable for external cladding of timber or steel framed buildings as well as solid concrete or masonry walls. The factory manufactured RhinoBoard™ panel, incorporates the combination of a lightweight, high density EPS, embedded with fibreglass reinforcing mesh and then sealed with a durable membrane coating. The system provides a weather resistant seam free rendered finish in a wide range of textures and colours. It also provides continuous thermal insulation over the entire wall. The system has been well tried in Australia over the last 15 years ranging from dry, arid areas to tropical and alpine regions.

RhinoBoard™ is an insulative walling system combining expanded polystyrene and modified polymer render with a full ten year warranty. RhinoBoard™ is manufactured without the use of CFC's and does not contain or emit any poisonous gas. In fact RhinoBoard™ is made of 98% air entrapped in a closed cellular structure of polystyrene. This entrapped air accounts for the extremely good insulative properties of the system.

Major Benefits.

- *Complete Package System - Supply, installation and architectural finish by Rhino Architectural Systems Approved Application
- *Cost Effective
- *Lightweight with High Impact Strength
- *Thermal Insulation - 40mm System R1.5 - 60mm System R1.9 - 75mm System R2.4
- *Sound Insulation
- *Energy Efficient - Complies with all new BSA standards relating to energy efficient building systems.
- *Fashionable Render Finishes
- *Environmentally Friendly - Recyclable reusable products.
- *Fire Retardant
- * Insect Repellant
- * The system can be made to look like plastered masonry or block construction at a fraction of the price.
- * Due to the light weight nature, ease of workability and size of RhinoBoard™ (1.2 x 2.4m), a quick installation time is insured, saving on site time and scaffolding costs.

Product Data

RhinoBoard™ Insulative Walling System consists of:

1.1 An enhanced expanded polystyrene insulation board impregnated with an insect repellent compound and fire retardant. The board is mechanically fixed to a timber/ steel stud frame or a reinforced concrete or masonry wall. Standard RhinoBoard™ panel sizes are 1200x2400mm at a thickness of 40, 60 and 75mm. (other thicknesses are available upon special order.)

The surface of the RhinoBoard™ is horizontally grooved and primed ready to accept reinforced render. This system has major benefits over standard board including:

- Increased surface tension.
- Stronger more rigid board.
- Cavity protection.
- Stronger fixing between board and render.
- Cost effective (installation and render).
- Time Saving

1.2 Insecticide treatment repelling ants, termites and vermin.

1.3 Plated screws and PVC washers for fixing the board to frame or substrate

1.4 A polymer modified cement render reinforced with an alkali resistant fibreglass 160g mesh creating excellent adhesion and strength as base coat, with acrylic trowel on top coat.

1.5 External PVC angle beads and window trims.

1.6 Acrylic texture coating and or pigmented membrane finished in your selected colour.

1.7 A high impact strength finish.

1.8 RhinoBoard™ has a thermal rating of the following R1.5 for the 40mm board, R1.9 for the 60mm board & R2.4 for the 75mm board.

1.9 The sound rating or STC value for 60mm Rhinoboard used in a 90mm timber framed wall lined with 10mm plaster as tested has a Stc rating of 35 similar to brick veneer. Sound proof batts may be added to cavity for extra soundproofing.

1.10 It is an extremely high-energy efficient product reducing heating costs in winter and cooling costs in summer.



Properties and Advantages of RhinoBoard™

2.1 Environmental Factors

The RhinoBoard™ panel is manufactured from high density, rigid, expanded polystyrene. The raw material is gained as a by-product of the manufacture of oil. RhinoBoard™ is manufactured without the use of CFC's and does not contain or emit any poisonous gas. In fact RhinoBoard™ is made up of 98 % air entrapped in a closed cellular structure of polystyrene. This entrapped air accounts for the extremely good insulation properties of the RhinoBoard™. Disposal of waste building materials and polystyrene is becoming a major concern for today's planners. This is not the case with RhinoBoard™. The off cuts can be glued within the wall cavity prior to the installation of the internal linings as additional insulation, also cutting down the impact to our environment, as all the material is being used leaving no material to be removed from site.

2.2 Insulation for Energy Efficient Buildings

The RhinoBoard™ system is one of the most cost efficient methods of insulation in terms of R-value per dollar. Unlike some other methods of insulation that allow thermal bridging across the timber or steel studs, RhinoBoard™ provides a continuous insulative sheath around the entire building. The external location of the polystyrene insulation puts the insulation in the best place: as far toward the outside of the building as possible where the temperature fluctuates. This reduces the amount of energy that is needed to maintain a constant temperature inside the home. The polystyrene that is used in the RhinoBoard™ System provides all the thermal insulation that is required in the wall cavity, reducing the developer's cost to insulate the home. Because the polystyrene provides an unbroken layer of insulation on the outside of the home, air filtration is extremely low. This creates a fantastic thermal barrier unlike batts, which tend to slump in the wall over time.

Building Systems	R-Value
60mm RhinoBoard	2.3
75mm RhinoBoard	2.7
Weatherboards	0
Bricks	0
Cement Sheet	0
Masonry Blocks	0.0026

2.3 Impact Resistance

The RhinoBoard™ Cladding System has sufficient impact resistance to cope with most domestic and commercial situations. In areas where high impacts may occur a double layer of the reinforced render is used.

2.4 Easy to Render

The surface of the RhinoBoard™ is horizontally grooved and primed providing an excellent substrate for the Reinforced Render.

2.5 Energy Efficient Production

RhinoBoard™ uses much less energy in its production than conventional building materials such as concrete and masonry.

2.6 Design Freedom

Curved walls, rounded corners, embossed patterns, raised wall areas, mouldings and other architectural features are simple to achieve and economically viable with the versatile RhinoBoard™ Walling System. Polystyrene can be bent, rasped, curved and carved to create different forms and shapes. The RhinoBoard™ System is not jointed on its outside surface. This feature allows designers and architects to readily achieve a monolithic look without the risk of being able to see any type of uniform deviation in the cladding surface.

2.7 Insect Repellent

RhinoBoard™ is impregnated with a natural insect repellent, perform guard.

2.8 Biologically Inert

Polystyrene is an inert organic material that will not rot and is highly resistant to mildew. It also provides no nutritive value to ants, termites, rodents, or microorganisms.

2.9 Building Wind Zones

When mechanically fixed to a variety of substrates in accordance with the RhinoBoard™ installation guidelines, the wall cladding system is suitable for use in the building wind zones as shown over;

- Intermediate Region B (W33) - "sheltered suburban"
pd = 0.990 kPa
- Intermediate Region B (W41) - "exposed suburban"
pd = 1.485 kPa
- Intermediate Region C (W50) - "open rural"
(tropical cyclone) pd = 3.289 kPa
- Intermediate Region D (W65) - "open rural" (severe
tropical cyclone) pd = 4.719 kPa

2.10 Crack Resistant

As RhinoBoard™ is not a rigid system, the screws that are used to hold it in place can move slightly within the polystyrene allowing it to settle at the same rate as the building. This characteristic ensures the system is extremely crack resistant.

2.11 Lightweight

As the RhinoBoard™ System is extremely lightweight (approximately 5-7kg per m²) it is well suited to pole structures or areas with poor quality soils and foundations. This characteristic can also reduce the cost of supporting structural elements such as beams and columns.

It also does not require a base footing of concrete in order to support its own weight, which can save money on foundation work. The RhinoBoard™ Panel is a light weight product which enables ease of handling and fixing, especially when working with scaffolding.

Technical Information

The RhinoBoard™ Insulative Walling System forms a continuous weather resistant thermal envelope around the external walls of the building. The versatility of the building and the workable nature of the RhinoBoard™ composite panel permits greater design freedom. This system allows the designer to economically provide a fashionable, long lasting render finish as well as comply with the strictest energy ratings required in modern building codes. Tests show that a properly insulated building can reduce energy costs by up to 75%. This greatly reduces the running costs of the building in terms of energy savings and reduces the amount of green house gases released into the atmosphere.

3.1 Structure

The 40mm, 60mm and 75mm thick RhinoBoard™ has sufficient strength and rigidity to be supported by wall framing spaced at 600mm maximum centres. When RhinoBoard™ is installed over masonry walls 40mm thick sheets may be used to add the "R-value" so the masonry wall complies with the thermal requirements of the new building codes being introduced.

3.2 Insulation Values

Thermal resistance for RhinoBoard™ Insulative Walling System

	40mm	60mm
	RhinoBoard™	
R-value of 70/90 x 35 framed wall with 10mm gypsum board lining.	1.5m ² C/W	1.9m ² C/W
R-value of insulation material	1.1m ² C/W	1.6m ² C/W
Thermal Conductivity k (W/m C degrees)	0.036	0.032

3.3 Acoustic Values

A complete wall comprising of an outer layer of render 60mm RhinoBoard™ fixed to a 75mm stud, which if filled with either Rockwool or Glass Fibre Wool, sealed by a standard 10mm plasterboard lining will provide a rating of STC 50.

3.4 Impact Resistance

The RhinoBoard™ Walling System when installed in accordance with the RhinoBoard™ Walling System Installation Guidelines, will have adequate resistance to impact loads likely to occur in normal residential and commercial use. The likelihood of damage in public areas in or around residential, commercial or industrial buildings where heavy impacts could occur should be considered at the design stage. Heavier grade fibreglass reinforcing mesh or multiple layers should be used and appropriate protection or barriers provided in vulnerable areas.

3.5 Durability

When the RhinoBoard™ Walling System has been installed in accordance with the procedures of the installation guidelines, by RhinoBoard™ Approved installers, the system is guaranteed for 10 years.

3.6 Hazardous Building Materials

When installation is complete the RhinoBoard™ Walling System and the Reinforced Render System is non-hazardous.

3.7 External Moisture

The RhinoBoard™ Walling System contains specific details and instructions for flashing around windows, finishing to edges and sealing penetrations. Head, sill and jamb flashings must be used as specified. The RhinoBoard™ Walling System must not be allowed to come into contact with the ground and careful attention to detailing must be made to the ground - foundation - floor. [See Details.](#)

3.8 Internal Moisture

The RhinoBoard™ Walling System is vapour permeable allowing the walls to "breathe". Water vapour generated from within the building can pass through the walls without causing damage to the system.

3.9 Water Vapour

Water vapour exists in the air at all times as a colourless gas. It occurs in various concentrations depending on the humidity level and the temperature of the space where it is located. The hotter the air, the more moisture it can hold. In winter, the air indoors is usually warmer and more humid than the air outdoors. This causes the vapour indoors (which is at a higher vapour pressure) to want to relieve itself by moving toward the cold air outside. If this moving air were to hit something that was non vapour permeable, condensation would occur causing a build up of moisture in the building cavity. RhinoBoard™ is a breathable system that does not create a barrier to the passage of water vapour. This characteristic allows any absorbed moisture to escape when atmospheric conditions change.

3.10 Toxicity

The level of toxicity of expanded polystyrene in a fire is no greater than that of burning timber and other commonly used building materials.

3.11 Standards

Product	Standards
Stud Frame Walls	Wall frames to be in accordance to the building code of Australia. AS. 4055-1992 W33-41-50-60 C
Rigid Insulation Board	Manufactured in accordance to AS. 1366.3 1992.
RhinoBoard Systems	AS. 1530.3 ANZ 1562.3 B.S. 476 part 1987.

3.12 Fire

RhinoBoard™ is manufactured from fire retardant polystyrene in accordance with A.S. 1530.3 -1989 and will not support combustion. The materials used in the RhinoBoard™ System do not contribute to fire. All expanded polystyrene manufactured in Australia for the RhinoBoard™ system is made of material that contains a fire retardant additive. Therefore, when the polystyrene comes in contact with a flame it retreats from it until it self-extinguishes. RhinoBoard™ is coated on site with non-combustible polymer render and fibreglass mesh.

Ignitability	13
Spread of flame	0
Heat evolved	3
Smoke developed	4

Note: The RhinoBoard™ System must be separated from heat sources such as fireplaces, chimneys or flues. Does not provide a fire rated wall.

3.13 Slab Design

Generally, a rebate the thickness of the panel is made to the outer edge of the slab. A V joint is expressed along the line where the sheets abut the concrete slab. The base edge of the sheet should be fixed with Reveal angles. [See Detail 3.1.](#)

Check with your Termite Treatment Contractor to establish the most appropriate Termite Barrier System. The edge of concrete slabs should be flat and smooth. In the event that edge beams are misaligned and require building up or cutting back, this work will be the Builders responsibility and this work is to be completed prior to the RhinoBoard™ Systems Installers commencing work on site.



RhinoBoard™ Installation Guidelines

RhinoBoard™ wall over "timber or steel domestic frame" tools required for installation:

1. Screw Gun
2. Power Saw
3. Diamond Blade
4. Straightedge
5. Level

4.1 These guidelines provides information on the correct procedures and materials to be used for the installation of the RhinoBoard™ Walling System over standard framed and solid structures. The drawings and details are provided to assist specifiers in the correct design and detailing of the RhinoBoard™ Walling System. These details cover most common applications. If the details are to be altered or new ones proposed please contact RhinoBoard™ to discuss the changes. Failure to do so may void the systems warranty.

The components that make up the RhinoBoard™ Insulative Walling System are:

RhinoBoard™, screws, washers, beading, fibreglass mesh, render and texture coatings. All components are available through Rhino Architectural Systems. These components form part of the complete system and must not be substituted with other possibly non-conforming materials.

Timber and Steel Framing

4.2 All timber and steel framing should conform to the current Australian standards as well as the relevant local standards for structural requirements including wind loadings and bracing.

The timber or steel framework to which the RhinoBoard™ Systems energy efficient cladding is to be installed must conform to all requirements of the Building Code of Australia and be approved by Local Authorities or a Qualified Registered Engineer. It is the Builders / Contracting Parties' responsibility to obtain this approval prior to the installation of the RhinoBoard™ system. Check the frame for straightness, this is the Builders responsibility and the straightness of the finished wall will reflect the degree of alignment of the frame. It is preferable that the sheet bracing be placed on the internal walls where possible.

4.3 Moisture Control

Prevent the accumulation of water behind the EPS system, either by condensation or leakage through the wall construction, in the design and detailing of the wall assembly.

Provide flashing to direct water to the exterior where it is likely to penetrate components in the wall assembly, including, above window and door heads, beneath window and door sills, at roof/wall intersections, decks, abutments of lower walls with higher walls, above projecting features, and at the base of the wall. [See Details.](#)

4.4 Existing Framing

When over-cladding existing timber buildings, inspection must be carried out to identify any deterioration or infestation by wood boring insects by a fully qualified person. Although the RhinoBoard™ is impregnated with an effective insect repellent, it will not prevent existing infestations of timber framing to continue. Where necessary repairs must be undertaken to ensure that the timber substrate is sound, straight and true.

4.5 Back blocking

Where sheets join off the studs it is necessary to back block the join by fitting a noggin behind the joint and fixing with screws and washers. Horizontal "back blocks" does not need to be a full noggin, spaced approximately every 300mm. A vertical piece of stud turned on the 75mm side is equally as efficient, glue the edge of the sheet prior to installing the following sheet, with the two sheets in place take noggins, smear Bostik glue over one face, place noggings against join of sheets, screw through face of RhinoBoard™ into noggings pulling both sheets into alignment. [See Detail 9.1.](#)

4.6 Solid blocking

Consult with the builder to provide for solid blocking to be installed where fixtures are to be fitted to the finished walls: e.g. Clothes Lines, Balustrades, Handrails, Hot Water Services, Air Conditioning Units, Downpipes, Taps, Large Light Fittings etc.



4.7 Fitting RhinoBoard™ Insulation Panels

Before commencing to fit panels check that the frames are straight, all windows and flashings are correctly installed and solid backing blocks are in place.

Timber frames must have a moisture content of less than 15% before panels are fitted. RhinoBoard™ panels may be fitted either vertically or horizontal, although are recommended to be fitted horizontally due to the grooved pattern favouring substrate adherence in this format.

RhinoBoard™ panels should be fixed off at 300mm centres along the studs and around all edges, at both internal and external corners the sheets are overlapped the full thickness of the sheet. All edges of the RhinoBoard™ Panel must be securely fixed to the structural frame on a stud or noggin. Where RhinoBoard™ Panels edges share a noggin /stud, both panels must be independantly secured along the joint with staggered fixings.

Glue external angle beads to all external corners using recommended construction adhesive. Ensure that the beads are straight, plumb and line up with the starter strips to allow for the correct thickness of render and texture to be applied. [See Detail 4.1.](#)

4.8 Curved Walls

40mm and 60mm panels can be fitted to curved walls with a radius greater than 2.4 metres. Where a tighter radius is required multiple layers of 20mm panels are used with the joints offset.

4.9 Expansion Joints

Expansion joints must be provided to allow for movement in the building. Place joints vertically every 8 metres and over floor joist intersection. Expansion joints must be provided where the RhinoBoard™ panel covers different substrates, joins adjacent materials, or where there is a construction joint in the substrate. [See Detail 5.1.](#)

4.10 Fixings

Fixing Requirements Per Square Metre of Panel.

To Timber Frames:

40mm

12 of 65mm Climacoat Timber Screw

60mm & 75mm

12 of 100 mm Climacoat Timber Screw

12 of 40mm Diameter Plastic Washer

To Steel Frames:

12 of 10 Gauge Self Drilling Screws

12 of 40mm Diameter Plastic Washer

4.11 Cutting

RhinoBoard™ can be cut using a handsaw, knife or a power saw with a diamond blade. For the most accurate cut the power saw with the diamond blade has proven the preferred method. It has also been proven that for environmental reasons the power saw with a diamond blade or a hot wire table is a must when cutting RhinoBoard™ on building sites, as there is no debris or any material polluting the environment.

4.12 Gluing and Sealing

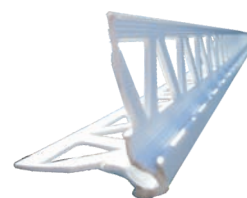
All joints are to be glued using PU Expandable Foam. For sealing of windows use an approved PU Sealant and Primer where plastic meets windows.

4.13 Beading

Rhino Architectural Systems have a full range of UV stabilized PVC beads specifically designed for RhinoBoard™ cladding. Use only UV stabilized beads for external application. All external corners must be protected with External Angles.

Exposed window reveals should be protected with Reveal Angles. [See Details 1.1, 2.1.](#)

All PVC angle beads should be fixed using construction adhesive.



EXTERNAL ANGLE



Concrete and Masonry Walls.

4.14 RhinoBoard™ sheets come in 40mm, 60mm & 75mm thicknesses. The panels are fixed using both gluing and mechanical fixing. Mechanical fixings are Hilti IDP polypropylene anchors Adhesive used is approved Render or "Powers" foam adhesive.

4.15 Preparation

All walls must be clean and dust free from dirt, oil, vegetation, and crumbling or loose materials. When installing via the Power's Foam adhesive system, apply a large application of foam adhesive to the middle of each and every Masonry block.

4.16 Fixing

Position the board and drill 8mm hole through the Masonry at each corner offset in by approx 100mm. Hammer the Hilti IDP anchors. Use a minimum of 8 IDP anchors for each 2500x1200 board with at least 2x IDP anchors staggered in the mid section of the board.

Alternatively

Mix the approved Render with clean water to achieve a smooth stiff paste. This material will have a pot life of approx 2 hrs. Adhesive is applied to the back of the board using a coarse notched trowel. The first sheet is fitted into the starter strip at the base of the wall and positioned level with the corner. The panels are pressed firmly against the wall and fitted tightly.

4.17 Consistent Surface

Any gaps must be filled with EPS and not left to be filled with the cement render, as thermal bridging will occur at these points further panels are installed in the same manner to cover the entire wall. Internal and external corners are overlapped the full thickness of the sheet. As the panels are laid a straight edge is used to ensure that the wall is straight and true. The panels are fitted to window reveals and sealed around frames. Mechanical fixings are subsequently installed at the rate of 4 fixings per square metre.

4.18 Finishing

Before rendering any irregularities in the surface of the sheet or joints are sanded back using a coarse rasp.

4.19 Expansion Joints

All expansion joints in the substrate must be carried through the complete cladding system. [See Detail 5.1.](#)

Handling and Storage

4.20 The boards should be laid flat with edges and corners protected from damage. If storage is to be in the open then they need to be protected from prolonged exposure to direct sunlight and kept away from extreme heat and organic solvents. Approved render must be stored in a dry place of the ground and away from moisture. Acrylic base texture coatings and membranes must be stored out of sunlight and not allowed to freeze.

Health and Safety

4.21 When installation is complete the RhinoBoard™ insulative walling system and the reinforced render system are non-hazardous. However, as with all composite materials basic safety clothing and gloves are to be worn when handling or cutting the RhinoBoard™. When cutting with a power saw a face mask and protective glasses must be worn. Please Note: to use appropriate respirator mask and eye protection when mixing render with water.

Bead and Sealant Procedures.

4.22 Preparation

Fit angle beads to all external angles and other relevant beads using liquid nails of similar adhesives. The angles must be fitted straight and plumb, aligning with the starter beads to allow the correct thickness of render and texture to be applied. Check that the wall is straight and all joints are flush, sand back any irregularities and dust the wall down with a broom or compressed air to remove all dust or loose materials. Walls must be clean and dry before application of reinforced render commences. Mask all windows and adjacent surfaces that are not to be coated and cover all finished paving and tiled areas.

4.23 The RhinoBoard™ approved PVC bead details require accuracy of detail at intersecting points. Either external or internal 'rail edges' must be precise in practise to ensure a uniform complete finish in readiness for render stage.

4.24 Reveal Bead

If the door/window is to have a decorative mould, no reveal bead is required. Maintain a 3mm gap between RhinoBoard™ sheet and joinery and adhere to sealant procedures.

If there is no decorative moulds, use PVC reveal bead and follow sealant procedures.



4.25 Sealing

Seal around any extrusions through the wall and around windows with a flexible joint filling compound such as Bostik seal "n" flex.

4.26 Prime and Sealant Statement

This procedure stage requires extreme attention to detail, to ensure water tightness of all window/door/openings.

4.27 Sealant Procedure

You will require: Bostik Primer 5077, Clean rag, Masking tape, Bostik'Seal n Flex'.
With clean rag, dampen cloth with primer and quickly clean the internal joinery to RhinoBoard™ line that is to be sealed.
Using masking tape, accurately adhere to frame of joinery, 4mm from edge creating a neat parallel margin, ready for sealant application.
Cut a medium size end off nosse of 'Seal n Flex.'
Proceed in applying sealant. Using a coving tool, neatly create an internal cove finish.
Remove masking tape off joinery leaving a completely 100% water proof joint seal.
Emphasis is placed strongly, that this procedure is not just a gap filling exercise. It is an integral part of the total RhinoBoard™ composition.

Reinforced Render, Texture & Membrane Coating

4.28 The Reinforced Render System

The reinforced render system consists of approved render reinforced with alkali resistant fibreglass mesh, 160 g per square metre, finished with a 100% acrylic topcoat as a texture coating with a membrane finish, or a membrane finish. The system has a finish thickness of approximately 5mm.

4.29 Application Procedure

Approved render will be a pre-blended polymer modified cement render that is mixed with water immediately prior to use. The powder is mixed with clean water to achieve a smooth trowelable paste and applied to the wall using a steel trowel or suitable spray machines. The first coat is applied to a thickness of approx 4mm. The fibre mesh is lightly trowelled into the surface of the render while it is still wet and trimmed around the edges with a knife. The mesh is laid onto the wall in strips 1 metre wide and the edges are overlapped at least 100mm. Extra reinforcing mesh, 200mm x 600mm must be trowelled into the render at 45 degrees diagonally across the corners of all openings. [See Detail 10.1.](#)

4.30 Second Application

A further application of 100% acrylic trowel on texture coating must be used to prevent any hairline cracks. If this is not adhered to all warranties are void.

Approved Render Application Hints

5.1 The first layer of approved reinforced render should be a minimum of 4mm.

5.2 Continuously hang the pre-cut mesh (hook the corner of the steel trowel into the top corner of the mesh - locate then 'swipe' the trowel across the mesh and into the render.

5.3 Approved fibreglass mesh must cover PVC bead joints and mesh to mesh overlap must be 100mm

5.4 Cut out all the apertures in the mesh (windows, doors etc.)

5.5 From these cut outs, cut out the 600x200 diagonal reinforcement strips of mesh to bond at 45 degree angles at the corners of openings. [See Detail 10.1.](#)

5.6 Trowel in the above on all corners of doors, windows etc.

5.7 Finish off with a minimum 1.5mm approved acrylic trowel on texture coating.

5.8 On completion the system is ready to be sealed and painted with a high build protective paint.

5.9 PLEASE NOTE: If the internal linings are to be installed after the application of the external coatings, the internal linings must be screw fixed as nailing may damage the external linings.



Pre-Installation Check.

- Make sure that all edges of the brickwork or concrete slab are straight and finish past the frame to allow for a flush finish with the RhinoBoard™ wall sheeting.
- All framework should be set out for sheets, allowing double studs for joints in sheets and at either side, above and below openings. Offset framework 40mm when returning at internal and external corners.
- All framework is to be kept straight with no obstructions or protrusions, to provide a level and plum surface to skim render.
- All services must be installed at least 40mm into the framework from the outside face to avoid possibly damaging contact with the RhinoBoard™ wall fixings, and any penetrations through external walls should be kept to a minimum and solidly fixed prevent any movement if bumped, which may result in cracking of the render.
- All scaffolding required is to be supplied by the client and in place prior to commencement, installed approx. 300mm from the face of the wall, and approx. 2 metres between working platforms. Any moving of the scaffold by the fixer shall be subject to an additional charge.
- All timber window reveals must be kept back flush or further inside the face of the frame to allow the sheets to butt against the window, without interfering with the reveal.
- Eaves can be either installed before or after sheeting, (depending on if there is to be a timber eave mould) but must be installed prior to the application of the skim coat
- Internal linings etc. Must be in place prior to skimcoating if they are nailed to the frame - otherwise they should be screw fixed. Nailing after skimcoating could cause cracking of the newly applied skimcoat - which requires time to cure to full hardness.
- Ventilated (perforated) sarking installed.
- Overall good work practices and quality control are essential. A thorough check of the job prior to the commencement of the RhinoBoard™ installation will reduce the risk of additional cost, misunderstandings and ensure a speedy, efficient and quality job.

Quoting Hints.

- 6.1 With most regulations requiring a minimum R1 value for walls No additional insulation is needed when using 40mm (or thicker) RhinoBoard™.
- 6.2 Measure area to be covered by RhinoBoard™ not including windows and doors, add 10% to allow for cutting and waste.
- 6.3 Window sealant: Bostik 'Seal n Flex' 1 x 300ml tube = Approx. 8 Lineal metres
e.g. 160Lm divided by 8 = 20 tubes.
- 6.4 Make sure that a full take off is done for all bead areas. This includes external corners, base and top around windows, doors and all flashing. Add 10% to allow for cutting.
- 6.5 Allow 12 screws/ washer per square metre when fixing to studs. 4 x Hilti IDP's per square metre + Urethane glue when fixing to masonry.
- 6.6 Glue: Bostik 'No More Nails', calculate at 0.22 per m² will give you the number of 300mL tubes required. E.g. (150m² x 0.22 = 33 tubes)
- 6.7 Only approved Render to be used at approx. 2 x square metres per bag.
- 6.8 Fibreglass mesh will equal the area of RhinoBoard™ allowed + add 10% to the calculated mesh area for overlaps etc.
- 6.9 Adhere RhinoBoard™ offcuts/waste into frame cavity typically into western wall alleviating waste control whilst adding additional insulation

POLYSTYRENE MATERIAL SAFE HANDLING INFORMATION

7.1 Storage and Transport

Combustible solid, store in open or well ventilated areas away from sources of strong heat or flame. Smoking should be prohibited during unloading of the product and in storage areas as good safety practice. Conditioned Expanded Polystyrene is not classified as a Dangerous Good under the Australian Transport of Dangerous Goods code.

7.2 Storage and Disposal

The product is combustible in the presence of a strong heat source or flame. Laboratory combustion toxicity studies indicate that the acute toxicity of Expanded Polystyrene Foam Products is no greater than that of wood combustion products.

Extinguishing media: Water, Foam. CO₂ or dry chemical.

Special Fire-fighting Procedures: When ignited the product melts, drips and gives off toxic decomposition products and dense black smoke which obscures vision.

Hazardous Decomposition Products: Decomposition products above about 240°C include carbon monoxide, carbon dioxide, smoke, styrene monomer and other hydrocarbons and small amounts of hydrogen halides.

7.3 Precautions for Use

Exposure Limits -

Pentane Component:

NH & MRC TVL 8-hour time-weighted average : 600ppm
TVL Short Term Exposure Limit (15 mins) : 750ppm

Ventilation -

No special ventilation normally required
Air change rates, which meet the requirements of workplaces (typically 6 air changes per hour minimum), are usually adequate to keep pentane concentrations below the odour threshold and therefore the exposure limits.

Personal Protection -

No special protection normally required
Use SAA approved respiratory protection within the supplier's limitations if the odour of pentane is detected and the exposure limits are exceeded.

Flammability -

Conditioned Expanded Polystyrene Foam does not present a flammability hazard. However, the product is combustible in the presence of a strong heat source or flame. Normal practices of fire safety and housekeeping should be observed.

Prohibit open flames or potential flame sources in foam storage and installation areas.

Protect foam from hot work, such as welding, by a

suitable protective fire barrier. During such work, have a suitable fire extinguisher handy.
Store foam board stocks in limited quantities in a location protected from sources of flame or sparks, such as welders or grinders.
Dispose of waste foam properly as good housekeeping practice.

7.4 Identification

Product Name	Expanded Polystyrene Foam
Other Names	Conditioned fabricated shapes of Expanded Polystyrene Foam containing fire retardant.
Un No.	N/A
Dangerous Goods Class	N/A
Subsidiary Risk	N/A
Packaging Group	N/A
Hazchem Code	N/A
Poisons Schedule	N/A

Physical Description/Properties:

Appearance	Opaque, Rigid, Plastic Foam Sheet
Odour	Very Slight Hydrocarbon
Solubility	Insoluble in Water & Alcohol, soluble in Hydrocarbons (eg. Petrol, Mineral Turpentine) Esters and Keytones (eg. Acrylic lacquer thinners)
Specific Gravity	0.01 - 0.03 (Floats on Water)
Percent Volatiles	3 max (by weight)
Flash Ignition Temperature	296 (test method D1929 - 68)
Auto Ignition Temperature	490 (test method D1929 - 68)
Softening Temperature	Approx 100.

Ingredients	Proportion, % wt.
Polystyrene	96
Pentane	0.5
Isopentane	2
Halogenated Organic Compound	1.5
Other Impurities (mainly water)	neg.

7.5 Health Effects

* Short Term (Acute) Health Effects :

Swallowed: None

Eye : Mild irritation (pentane)

Skin . None

Inhaled : Mild Irritation (pentane)

* Long Term (Chronic) Effects:

None Known

7.6 First Aid

Swallowed: n/a

Eye : Flush with plenty of water. Seek medical attention if discomfort persists.

Skin : n/a

Inhaled : Remove to fresh air. Seek medical attention if discomfort persists.

Advice to Doctor : N/A

7.7 Please see associated R Max brochure for supporting evidence and further technical data and specifications on polystyrene products.



FIBREGLASS MESH MATERIAL TECHNICAL INFORMATION

8.1 Technical Sheet Series K50

Primary Uses	Thermal Insulation Systems Reinforcement of Plasters & Mortars
Composition	Raw 100% Fibreglass
Construction	Woven Yarn
Finish	Alkali Resistant
Standard Colours	Various
Weight of Raw Net	130g/m ²
Weight of Finished Net	157g/m ²
Mesh Width	4.5mm x 5mm

8.2 Resistance to Tensile Strength (Tested 50 mm Strips)

Warp Breaking Force	> = 185daN 50mm
Warp Elongation on Breaking	3.5% - 4.5%
Weft Breaking Force	> = 185daN 50mm
Weft Elongation on Breaking	4% - 5%

8.3 Specifications

Width	Standard 1000mm
Roll Length	50 metres
Packaging	Rolled on Cardboard Tube
Approx Weight / Roll	9.5kg
Storage	Vertical Position, 0- 40 deg C Away from Direct Sunlight.

BEADING MATERIAL TECHNICAL INFORMATION

9.1 Pro Trim is an Australian made range of architectural PVC angles specifically designed for the drywall, hardboard, render & foam board building systems.

The products are made from high quality, impact modified and UV stabilised rigid PVC plastic. This plastic is made especially for Australian climatic extremes and is suitable for interior and exterior applications. It contains UV absorbers and all other ingredients used are recommended for applications involving exposure to sunlight.

9.2 Technical Data

APN Compounding Pty Ltd grade TE01H1 is rigid PVC compound (UPVC) recommended for uses that involve direct and indirect exposure to UV radiation. All raw materials used in TE011-11, including pigments are the best known available in Australia with respect to Stability.

TE01H1 has been used in outdoor applications for many years with no recorded cases of material failure. It has been tested in a QUV Accelerated Weathering Tester - ASTM G 154 after 500 hrs it showed almost no sign of colour change, loss of gloss or any cracking

Hardness (Shore D)	ASTM D2240	82
Tensile Strength at Yield (Mpa)	ASTM D638M	>36
Tensile Strength at Break (Mpa)	ASTM D638M	1.48
Elongation at Break (%)	ASTM D638M	>132
Impact Strength (mm)	Impact Method	>9
Vicat Softening point (C)	ASTM D1525 120C/Hr	>73
Heat Distortion Temp (C)	ASTM D648	
	@455kPa	>67
	@1820kPa	<59

9.3 Fire Hazard Pro Trim products are made from a self-extinguishing material. If a fire occurs, fire fighters must wear breathing equipment as PVC compounds release hydrogen chloride if burnt.

9.4 Handling and Storage

Store flat and below 25°C, away from any solvents. Lay flat during transit.

9.5 Adhesion Pro trim Exterior Angles are designed with a 15.7mm triangular hole pattern spaced every 5.29mm apart. This maximises the amount of (rendering) material protruding through the angle to give it superior strength and bonding. It also has a machined edge to the outer surface for added adhesion.

9.6 Please see associated Pro Trim brochure for supporting evidence and further technical data on all beading products.

ADHESIVES TECHNICAL INFORMATION

10.1 Please see associated Bostik Findley brochure for supporting evidence and further technical data on 'No More Nails'.

10.2 Please see associated Bostik Findley brochure for supporting evidence and further technical data on 'Seal n Flex'.

10.3 Please see associated Bostik Findley brochure for supporting evidence and further technical data on 'Polyurethane Primer Selector'.

10.4 Please see associated Powers Fasteners brochure for supporting evidence and further technical data on Power Foam, Trigger Foam and Trigger Foam Cleaner.

RENDER TECHNICAL INFORMATION

11.1 Please see associated Rockcote Quick Render & Pm100 Render brochure for supporting evidence and further technical data.



RhinoBoard™ Checklist.

All of the following items must be adhered to during installation and checked off by not only the applicator but also the site supervisor.

Rhino Architectural Systems Pty. Ltd WILL ONLY warrant the installation on the provision that the above has been completed, both parties signed the declaration and that a copy of the signed document is received by Rhino Architectural Systems Pty. Ltd. (each party to tick the boxes and add a signature).

1.Ensure entire frame structure is straight and true from eg: Roof Parapet through frame, through subfloor intersections.

STAGE 1.

Stage 1. can be completed by either a trained applicator/ renderer or by a trained carpentry crew.

2.The RhinoBoard™ is fixed with the fixings provided and spaced according to the specification eg: 300mm centres on timber/steel framework.

3.Each RhinoBoard™ 'sheet is adhered to its neighbour with the construction glue provided (Bostik'No More Nails').

4. All off stud joints must be 'back blocked' ie: small horizontal pieces of stud material 300mm apart) or one long vertical screwed into place.

5. All cutting should be neat and straight (masonry diamond blade in standard power saw) so as to allow for the PVC bead to be glued straight.

6. A 3mm gap should be left around the head and sides of all windows and doors when installing 40mm and 60mm RhinoBoard™. A 10 - 12mm gap should be left on all windowsills.

7. The provided 'Reveal Bead' needs to be glued into place on the above heads and sides. A mitred joint is preferable with the crown of the two intersecting bead meeting together. No overlapping of the PVC is to occur.

8. The gap between the window head and sides needs to completely primed and sealed using an external UV type of Polyurethane sealant eg: Bostik'Seal n Flex'.

9. The gap on the window sills needs to be sealed using the same sealant as above but directly to the RhinoBoard™. A section of 'External Bead' is adhered to the RhinoBoard™ sill so the renderer is able to create a 'sill with a fall' angling up and back to the sealed window fin.

10. All exposed base edges need to have either 'Cover Bead' adhered (eg: RhinoBoard™ Overlapping flashing) or a specific 'Base Bead'. (Base Bead is only available for 40mm and 60mm RhinoBoard™ sizes in excess of 60mm use a Cover Bead).

STAGE 2.

Stage 2 can only be completed by a trained renderer.

11. The renderer must check the installation of the RhinoBoard™ and associated PVC bead to ensure that it complies with the Rhino Architectural Systems specification.

12. The RhinoBoard™ fibreglass mesh provided must be 'lightly' trowelled into the 1st coat of render making sure that it overlaps all the PVC Bead joints and itself (mesh to mesh overlaps to be 100mm).

13. Cut away the mesh that is covering windows and doors (making sure that the overlap is maintained) and cut these pieces into approximately 250mm and 600mm - place and trowel them in lightly on the diagonal at all window and door corners.

14. Approved Render must be applied to a minimum total of 6mm thickness over two coat applications.

15. Sponge finish the wall.

STAGE 3.

16. Applied Finish Paint Specification

Party 1 Signature

Party 2 Signature

Print Name

.....

Company

.....



RhinoBoard™ Limited Warranty

Standard Ten Year Warranty

Ten (10) year Limited Warranty: Rhino Architectural Systems warrants that RhinoBoard™ as supplied, when installed by an approved applicant, to manufacturers specifications and installation instructions, is free from defects and will perform as described in the manufacturers literature.

Rhino Architectural Systems shall not be responsible in any way for materials not formulated, tested, manufactured subjected to quality control and labelled by Rhino Architectural Systems. It is agreed by the purchase and use of RhinoBoard™ that the terms of this document are understood and acknowledged. Purchaser bears responsibility to all other involved parties.

It is further understood and agreed that all RhinoBoard™ terminations shall be professionally designed and executed in a water tight manner, the integrity of these details must be maintained.

Project Information
.....

Contractor
.....

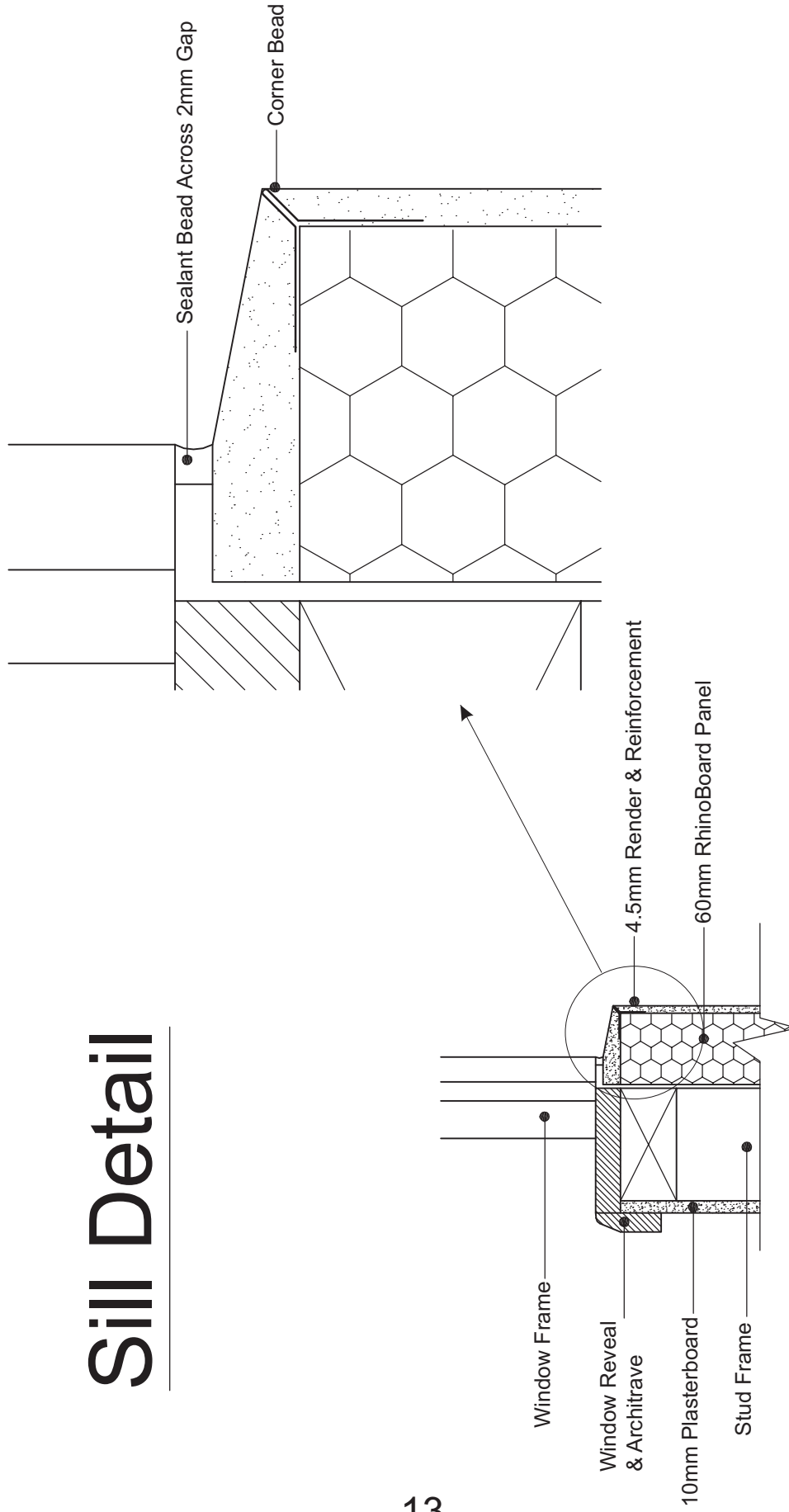
Completion Date
.....

Authorised Signature
.....

Date
.....



Sill Detail



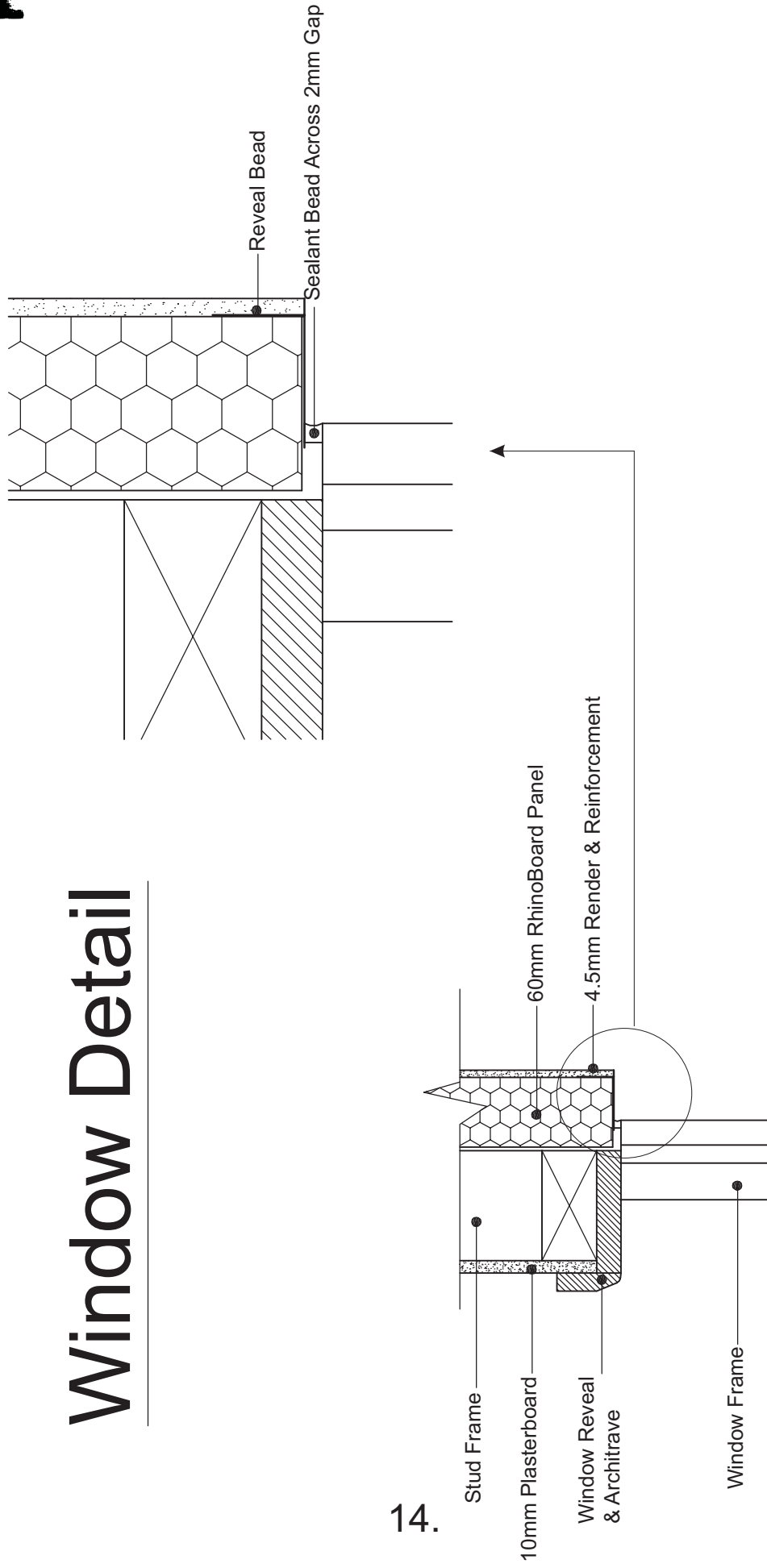
13.

DETAIL 1.1.



Window Detail

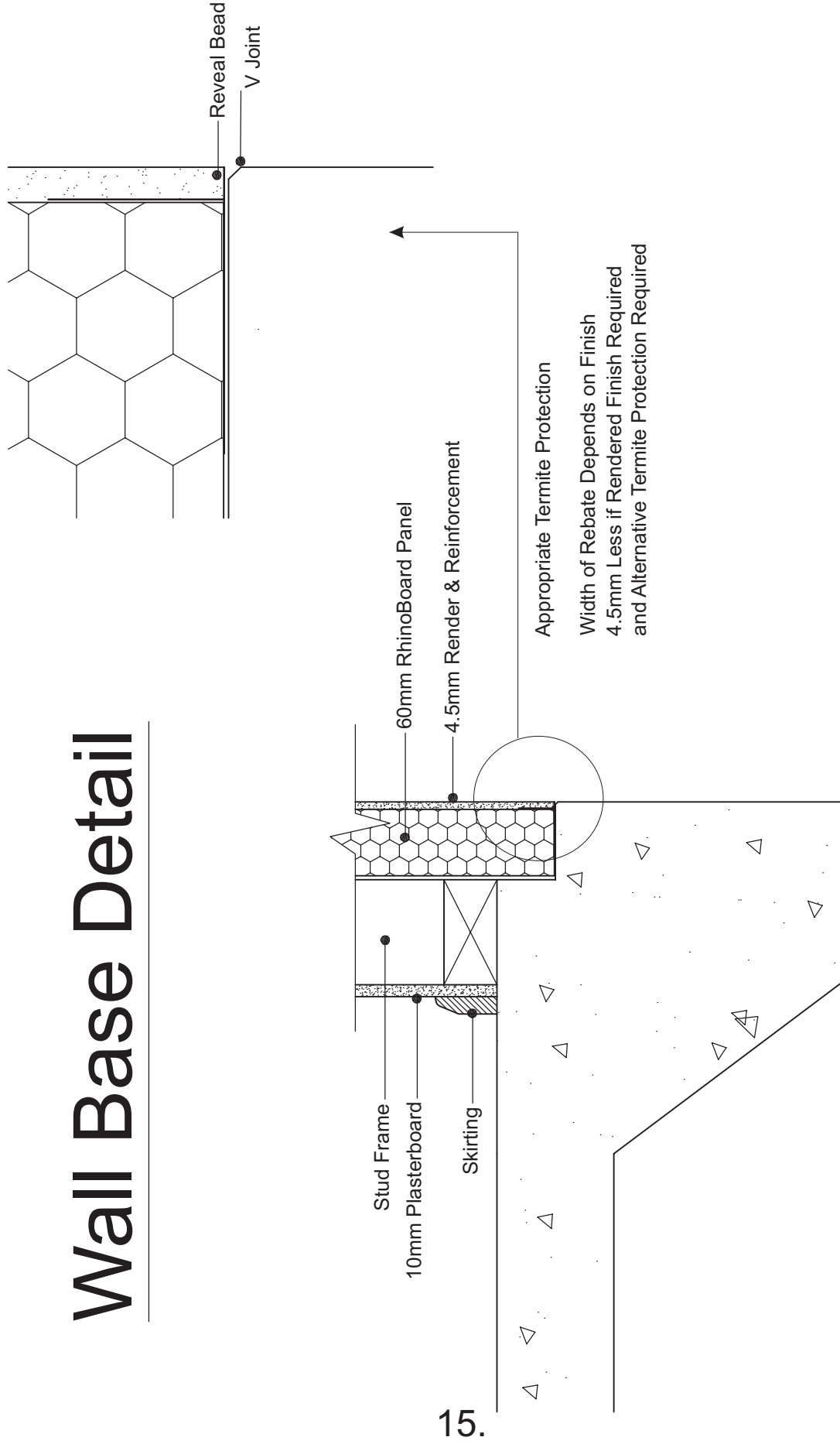
14.



DETAIL 2.1.



Wall Base Detail

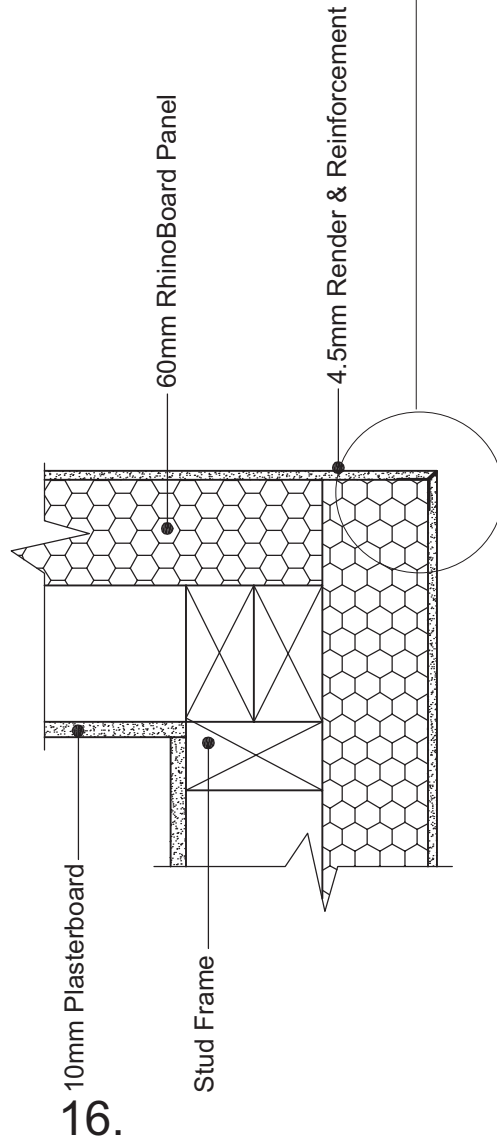
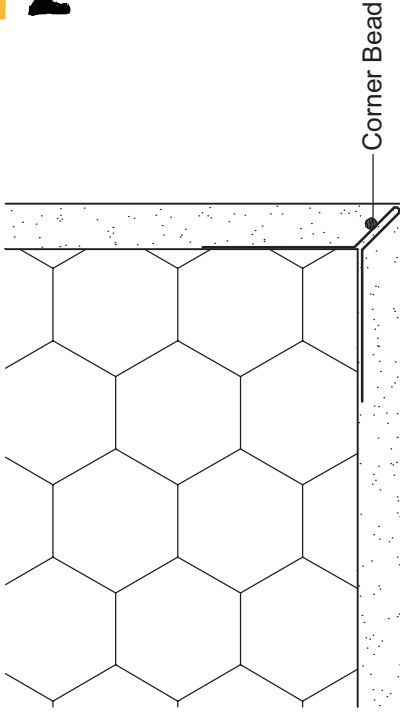


15.

DETAIL 3.1.



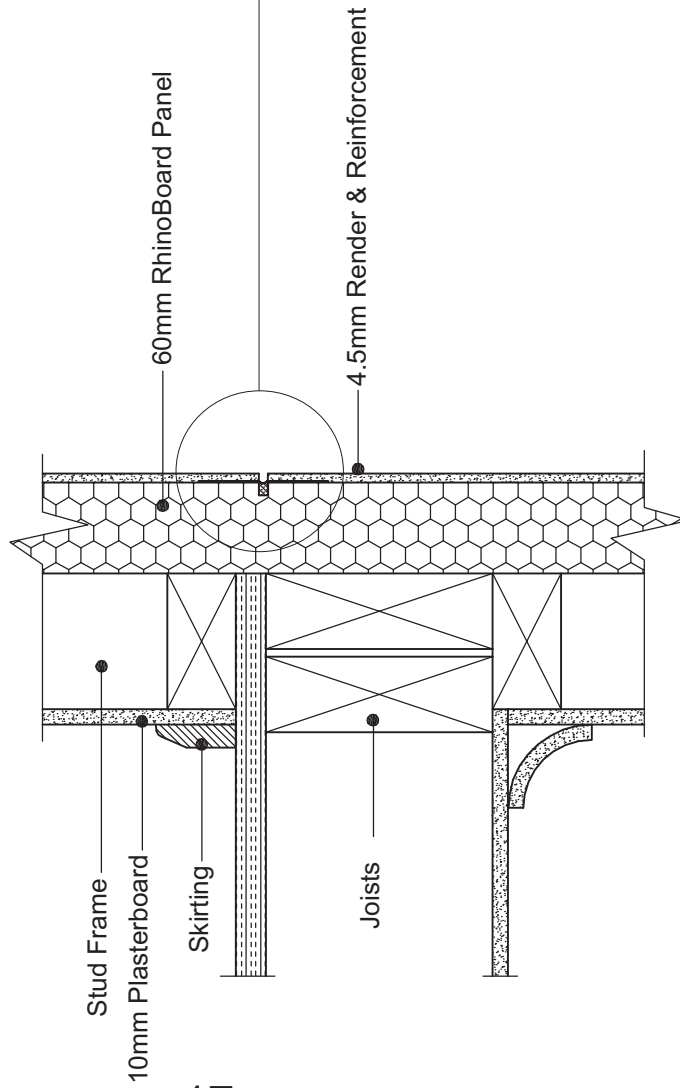
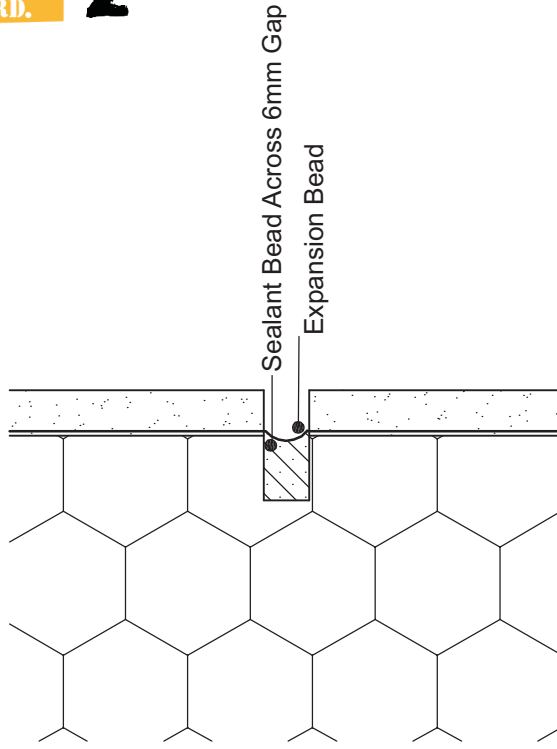
External Corner Detail



DETAIL 4.1.



Horizontal Expansion Joint Detail



17.

DETAIL 5.1.

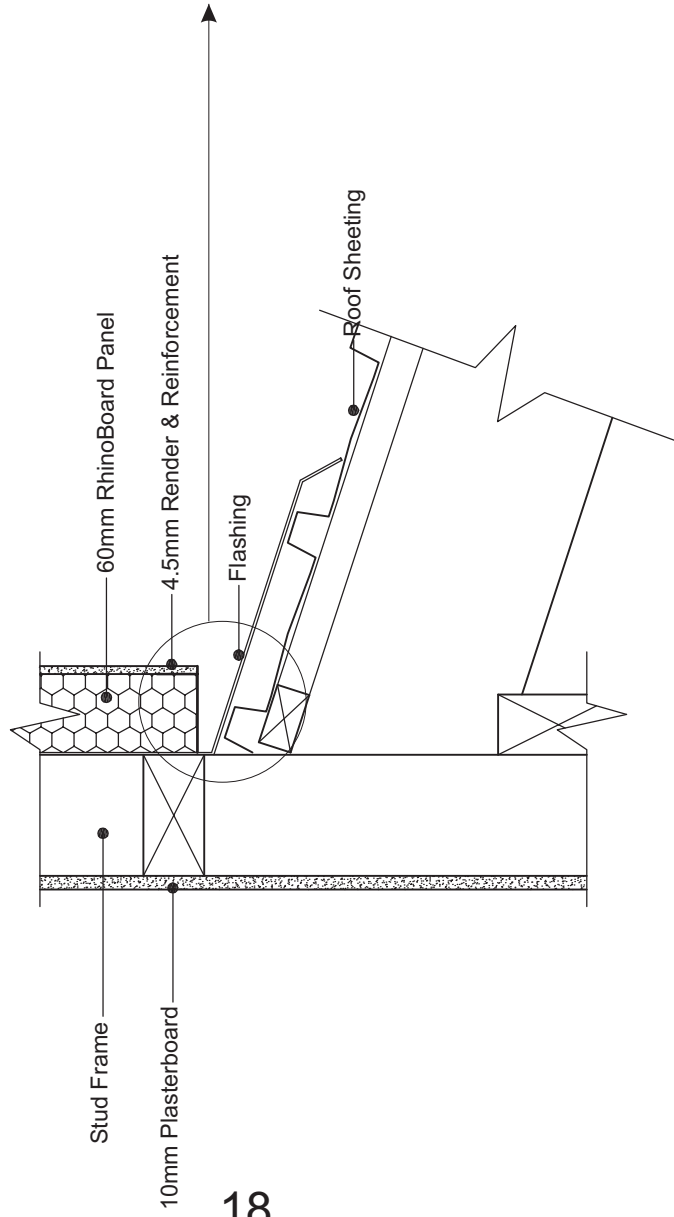
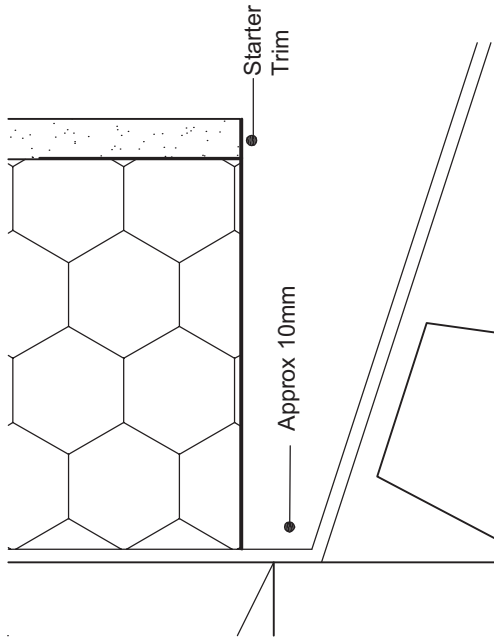


RHINO BOARD.™

RHINO ARCHITECTURAL SYSTEMS PTY LTD.

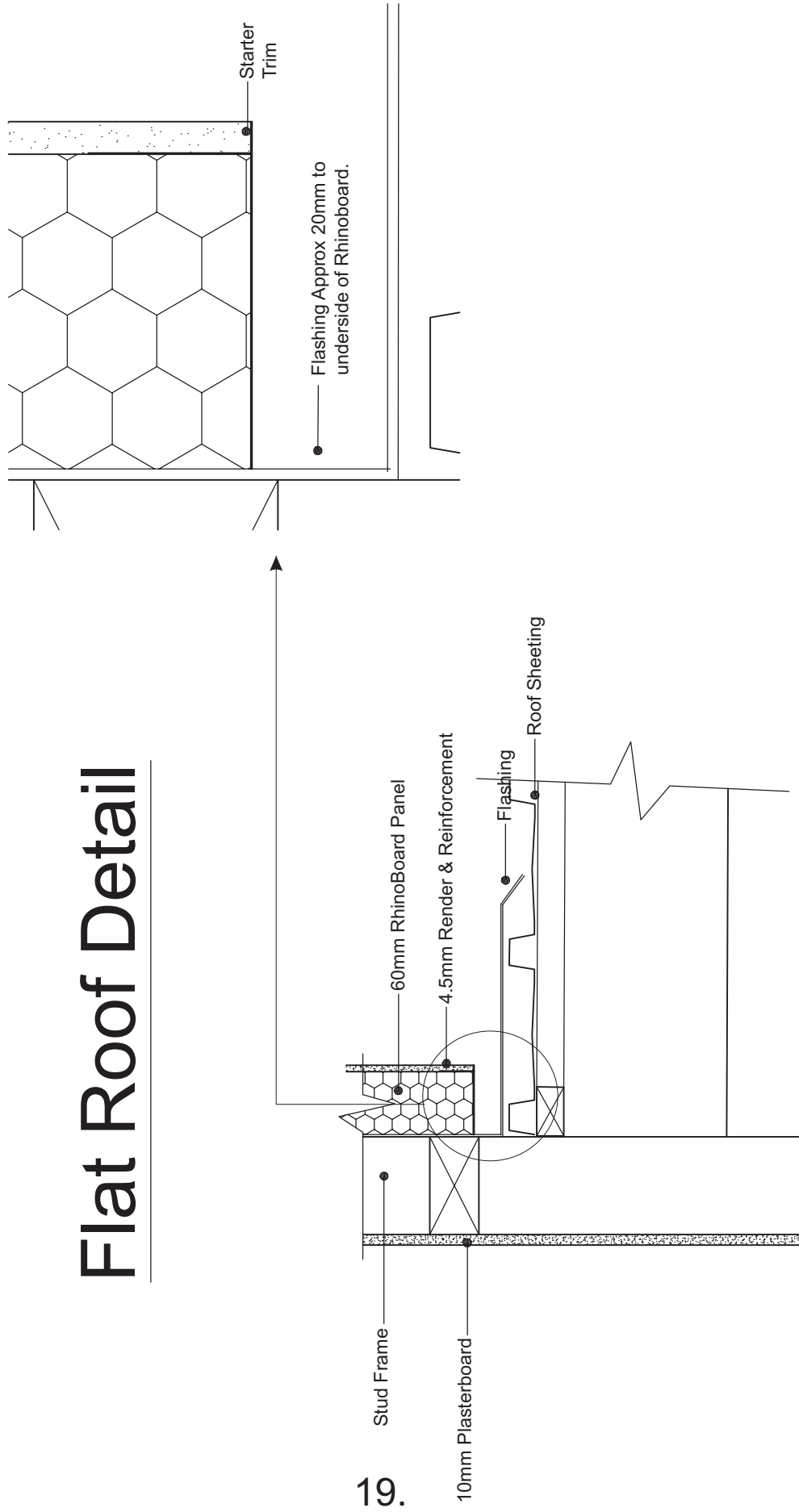
WWW.RHINOBOARD.COM.AU

Raking Roof Detail





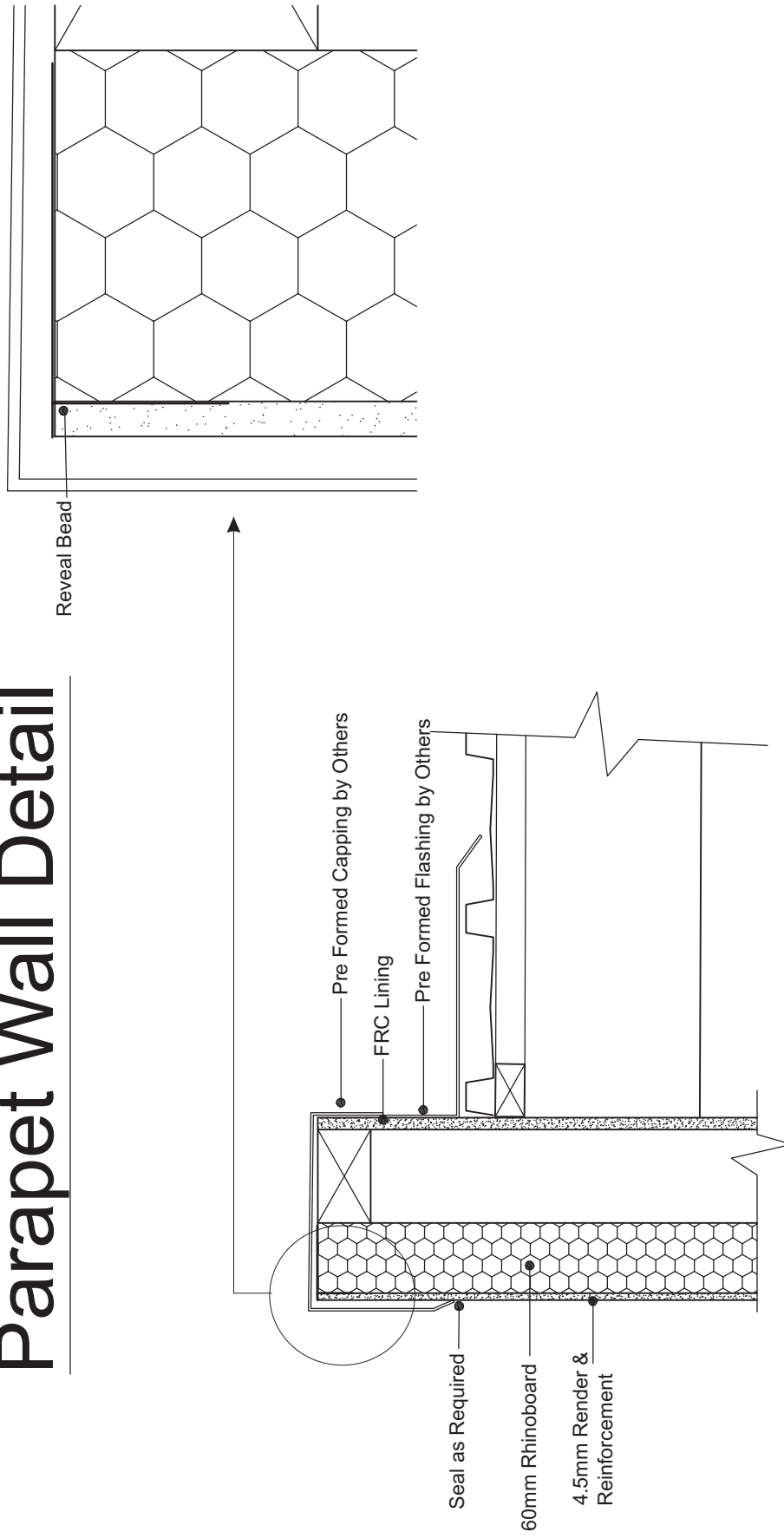
Flat Roof Detail



DETAIL 7.1.



Parapet Wall Detail

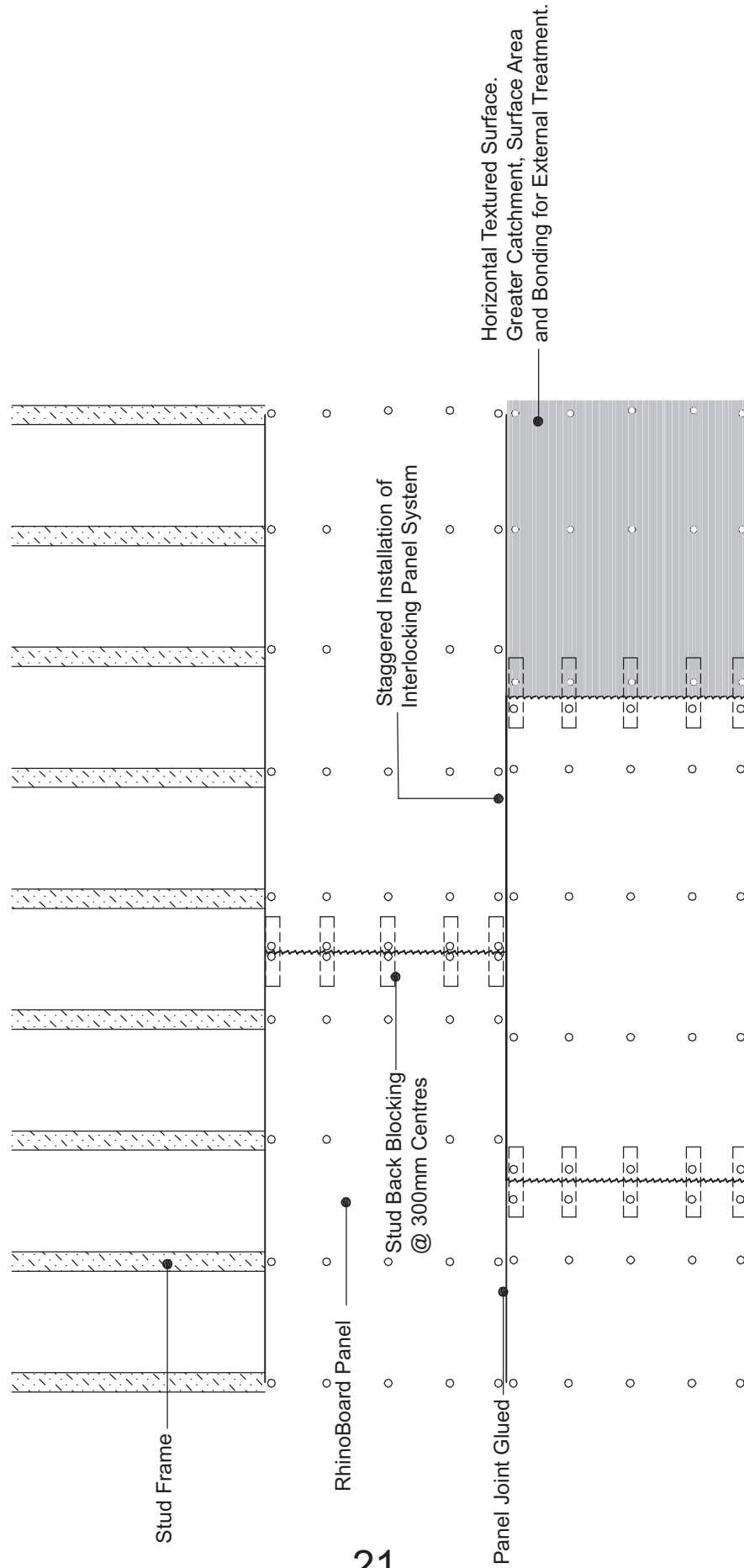


20.

DETAIL 8.1.



Back Blocking Detail

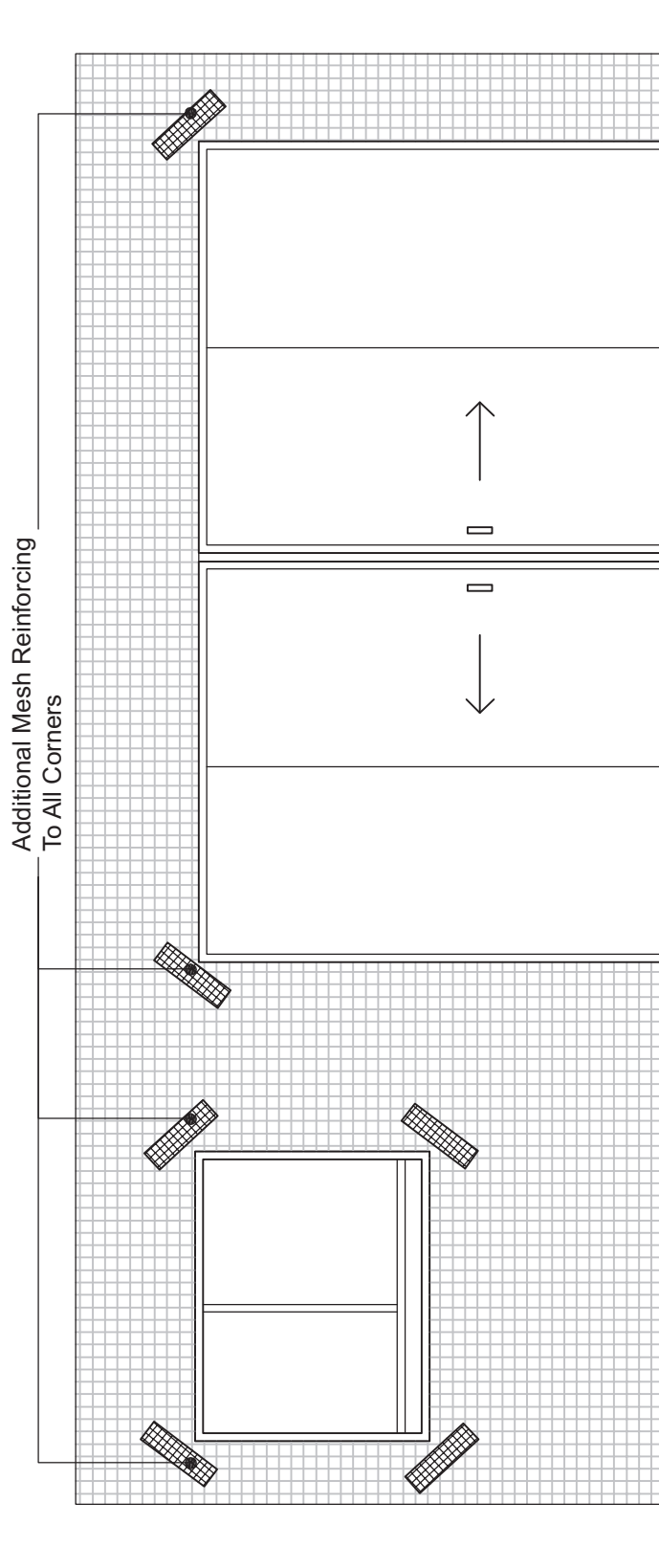


21.

DETAIL 9.1.



Corner Mesh Reinforcing



DETAIL 10.1.



Sub Contractors

Safety Management Standards Plan





SUB CONTRACTORS

Safety Management Standards Plan

WORKPLACE HEALTH & SAFETY ACT 1995.
WORKPLACE HEALTH AND SAFETY AMENDMENT
REGULATION (No. 3) 2002.

	ABN:	Ph:
Sub Contractors Name, ABN & Phone Number		
Address of Workplace		
Construction Work Start Date	Completion Date (estimated)	
Type of Construction		
(cont)		

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PPE Assessment	Page 10	
Material Safety Data Sheet Register	Page 11	
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Identify & Tick Risks Addressed Below		Tick
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.....
 Sub Contractors Signature

.....
 Date



HEALTH & SAFETY POLICY

It is the policy of Rhino Architectural Systems to conduct its activities in such a way as to provide an environment which protects the health, safety and welfare of all persons at the workplace and actively encourage safe working practices.

To achieve a healthy, accident free working environment, the dedication and co-operation of each employee is essential.

To this end:

*Senior Management is committed to ensuring the health, safety and welfare of all persons in the workplace and rectify any substandard practices or conditions.

*Line Managers and Supervisors are committed to all aspects of health and safety in their areas of operation.

*All person employed by Rhino Architectural Systems, any contractors or other persons involved with the operation of the business, have a personal responsibility to the business, their fellow workers, themselves and the general public to adopt and maintain appropriate health and safety standards in their work activities.

To aid in the implementation of this policy, Rhino Architectural Systems will:

*Comply with all relevant legislative and statutory requirements, codes of practice and industry standards, making adequate provision of resources to meet these requirements.

*Provide information, instruction and training for employees to increase personal understanding of workplace hazards.

*Involve employees on health and safety matters, and consult with them in ways to reduce workplace hazards and improve control systems.

*Set short and long term objectives in health and safety management as part of an ongoing action plan and regularly review its performance and that of it's mangers and supervisors against the objectives of this policy.

It is important to recognize that no task is so important as to compromise health and safety and appropriate consideration must be given to determining a safe and healthy work method for all activities.

DATE _____

SIGNED _____
Manager



Supporting Material

