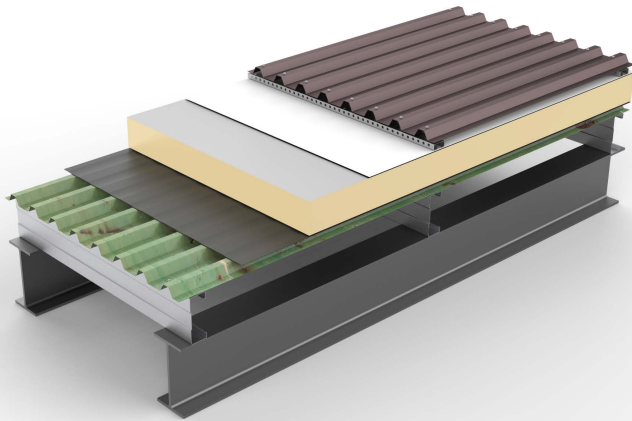


Dimond Advanced Roofing Systems

Advanced Vented Retrofit System



PRODUCT DESCRIPTION

Advanced Vented Retrofit System is overlay system leaving the existing roof covering in-situ which allows the occupants of the building to continue with their 'day to day' business operations without costly disruptions to trade. The core, PIR Board, ensures continuous thermal insulation with customizable R-values (R2.0 to R7.0). Consequential damage due to inclement weather and falling debris usually associated with conventional reroofing are eliminated when over-roofing. Leaving the existing roof covering in place eliminates the removal phase. This in turn reduces the duration of the project which contributes to significant financial savings.

IMPROVED HEALTH & SAFETY

The existing steel roof sheets remain in position providing the contractor with a platform to work off. This significantly simplifies the fall protection plan required.

ENERGY EFFICIENCY

Over-roofing with the Advanced Vented Retrofit System creates an engineered, structurally defined cavity between the old and new roof coverings. When insulated, this cavity dramatically improves the overall energy efficiency of the entire building and controls condensation issues with vapour control layer at the base.

ACOUSTIC PERFORMANCE

Creation of an insulated cavity dramatically improves the acoustic performance of a roof. Additional Acoustic layers can be added to Advanced Vented RetroFit System. Acoustic performance is imperative when a conducive environment is required in places of learning, workspaces or the like.

SCOPE OF USE

- Advanced Vented RetroFit System is intended to be installed over existing roof structure.
- Dimond PIR insulation board is available in a range of thicknesses to achieve thermal insulation R values between R2.0 and R7.0.
- The control of moisture and condensation is achieved with the Dimond Vapour Barrier control layer on the liner sheet and a layer of breathable Dimond Underlay covering the PIR insulation ensuring no build-up of moisture within the system.
- The 27mm high galvanised Dimond Vented RetroFit Roof Rail is designed to allow the top sheet to expand and retract separately from the components below. In freezing climates, it acts as a cold deck, reducing the risk of ice damming.
- The Dimond Top Sheet covering can be selected from our range of long-run roof profiles and coated metal materials to match performance to the environment. This includes the scope to use site-rolled, clip fastened decking profiles to achieve a continuous roof covering sheet in lengths up to 90m from ridge to gutter.
- Multi-layer skylights can be incorporated to achieve the required balance between natural lighting levels and thermal insulation.

Refer to system separate component manufactures technical and installation data. These can be downloaded online at www.dimond.co.nz.

Limitations:

Not intended for installation over a plywood liner.

In coastal environments Dimond Vented Roof Rail to be coated in epoxy primer to prevent corrosion.

Roof pitch meets the minimum required pitch for the selected top sheet product.

COMPLIANCE WITH THE NZ BUILDING CODE

Past history of use of long run metal roofing and cladding products in New Zealand and information available from Pacific Coilcoaters and New Zealand Steel indicate that provided the system design, use and maintenance is in line with the guidelines contained in the current Dimond Roofing technical literature and standards referenced therein, Dimond Roofing® long run metal roofing & wall cladding systems can reasonably be expected to meet the following performance criteria outlined in New Zealand Building Code;

B1 Structure: Performance clauses B1.3.1, B1.3.2, B1.3.3 (a) (b) (c) (g) (h), B1.3.4 (b) (d): Dimond long run roofing and wall cladding has been tested in accordance with the NZMRM code of practice Section 17.1.

B2 Durability: Performance clauses B2.3.1(b): Dimond long run roofing and wall cladding conforms to AS/NZS 2728 as stated in NZMRM code of practice section 17.4.

C3 Fire affecting areas beyond the fire source: Buildings C3.4(a): Testing has been carried out material suppliers in accordance with the relevant standards stated in C3.4(a).

E2 External moisture: Performance E2.3.1, E2.3.2: Is suitable for installation in accordance with Acceptable Solution E2/AS1, NZMRM code of practice, RANZ installation guides and Dimond installation Details. Installation details provided by other parties such as architects and engineers may also be suitable.

F2 Hazardous building materials: Performance F2.3.1: The quantities solid particles emitted by Dimond long run roofing and cladding, shall not give rise to harmful concentrations at the surface of the material where the material is exposed, or released in the atmosphere.

G6 Airborne and Impact Sound: Performance clause G6.3. Specific design required using Dimond technical literature and Advanced Vented RetrSystem details to reasonably meet the requires of NZBC clause G6.3

H1 Energy Efficiency: Performance clause H1.3.1 (a). Contributes to meeting this requirement

Relevant Standards

NZBC – E2/AS1 – External Moisture/building performance

NZMRM Cop – NZ Metal Roof and Wall Cladding Code of Practice

AS 1562.1:2018 – Sheet roof and wall cladding

AS 4040.1,2 and 3-1992 – Methods of testing sheet roof and wall cladding resistance to concentrated loads, wind pressure for non-cyclone and cyclone regions

AS/NZS 2728:2013 – Prefinished/prepainted sheet metal products for interior/exterior building applications – Performance requirements

AS/NZS 1530.3:1999 – Methods for fire testing on building materials, components, and structures. Simultaneous determination of ignitability, flame propagation, heat, and smoke release

AS/NZS 4020:2018 – Testing product for use with drinking water

ISO 5660-1:2015 – Reaction to fire tests – Heat release. Smoke production and mass loss rate. Part 1

ISO9223:2012 – Corrosion of metals and alloys – Corrosivity of atmospheres – Classification, determination, and estimation

ISO9705:1993 Fire test– Full scale room test for surface products

ENVIRONMENTAL PRODUCT DECLARATION

Dimond Roofing® has been implementing green building principles across the industry for a number of years now and has developed a fully realised environmental sustainability pathway to reach our goal of reducing our carbon emissions by 30% by 2030. Dimond Roofing® has met the criteria for “Level A” certification for the Global GreenTag™ GreenRate™ ecolabel and as part of Dimond's Toitū carbonreduce® accreditation, essential Scope 1 & 2 emissions, are being measured as well as voluntarily measuring Scope 3 emissions.

Dimond Roofing® profiles are accredited with Eco Choice Aotearoa when manufactured from COLORSTEEL®. All manufacturing sites have been Audited by NZ Steel.

Dimond Roofing® recycle all steel scrap waste and offcuts which can then be remelted down and reused in other steel-based products. At the end of its useful life as a roofing profile can be recycled back by being remelted down.

Dimond Roofing® has carefully chosen products and suppliers that align with our goals to reduce our carbon footprint. That is why Dimond® believes working with Kingspan/Thermakraft and the Planet Passionate programme we can continue to get better in our environmental journey.

Refer to ColorCote and COLORSTEEL Environmental Product Declaration documents.

DURABILITY & MAINTENANCE REQUIREMENTS

All roofing and cladding products are subject to the cumulative effect of weather, dust and other deposits. Normal rain washing will remove most accumulated atmospheric contaminants from roofs. For wall cladding, manual washing every 6 to 12 months, depending on the paint system, is recommended in moderate to very severe environments to prevent accumulation of dirt, debris or other material not removed by rain washing.

For areas that do not receive any or adequate rain washing (called unwashed areas) such as soffits, wall cladding under eaves, underside of gutters, fascia's, sheltered areas of garage doors and unwashed roof areas, more extensive manual washing is required. Similarly other high-risk areas,

around flues, under television aerials or overhanging trees and sites prone to mould, lichen, bird droppings or debris, need to have extensive manual washing.

All materials selected and supplied by Dimond Roofing® are warranted for external use only, to exceed the requirements of NZBC B.2.3 (1) for 15 years durability, providing the materials selected are suited to the environment and designed, detailed, and fixed and maintained in compliance with Dimond Roofing® instructions, the Roofing Code of Practice and good trade practice.

SYSTEM COMPONENTS & DESIGN GUIDELINES

3.1 Dimond Vapour Barrier:

CaVap Alu 1500 UV-AC

CaVap Alu 1500 UV-AC is an air and vapour barrier consisting of a multilayer aluminium composite, with a tear-resistant fabric reinforcement. The membrane is equipped on its underside with an all-over acrylate adhesive, that is covered by a siliconized polyethylene liner.

Refer to manufactures technical and installation data. These can be downloaded online at www.dimond.co.nz.

Technical Data

Weight (g / m ²)	160 ± 10%
Building material	E
sd- value (m)	>1.500
Tear resistance L/T (N/5 cm)	550/500
Elongation L / T (%)	20/15
Nail resistance L/T (N)	250
Average heat of combustion according to DIN 18234 (KJ / m ²)	<10.500
Temperature resistance (°C)	-30 to + 80
Working temperature (°C)	+ 5 to + 40

3.2 Dimond PIR Insulation Board

PIR Insulation board is available in two options Kingspan Therma TR28 and IKO Enertherm in multiple thicknesses to suit your required R Value.

- Density: 32 kg/m³
- Compression Strength:
 - 30-45mm: at 10% deformation ≥ 175 kPa (EN 826:1996)
 - 50-160mm: at 10% deformation ≥ 200 kPa (EN 826:1996)
- Thermal Conductivity (λ D W/(mK)) : 0.022mK
- Available as square edge
- Complies with EN1316:2012 for thermal performance

Refer to manufactures technical and installation data. These can be downloaded online at www.dimond.co.nz.

Selections Below

IKO Enertherm		Kingspan Therma TR28	
PIR Thickness (mm)	Thermal Resistance (RD m ² .K/W)	PIR Thickness (mm)	Thermal Resistance (RD m ² .K/W)
30	1.35	30	1.35
40	1.80	40	1.80
50	2.25	50	2.25
60	2.70	60	2.70
70	3.15	70	3.15
80	3.60	80	3.60
90	-	90	4.05
100	4.50	100	4.50
120	5.45	120	5.45
140	6.35	140	6.35
160	7.25	160	7.25

*Based on PIR only without the additional R value from surface effects and additional Advanced Non-Vented RetroFit System components.

3.3 Dimond Underlay

Thermakraft Covertex 403

Thermakraft Covertex 403 is a non self-supporting roof and wall underlay.

Refer to manufactures technical and installation data. These can be downloaded online at www.dimond.co.nz.

Thermakraft Covertex 403						
NZBC E2/AS1 Table 23 (NZS2295) Roof Underlay Properties	Absorbency	Vapour Resistance	pH of Extract	Shrinkage	Water Resistance	Air Resistance
Property Performance Requirement	≥ 150 gsm	≤ 7 MN.s/g	≥ 5.5 and ≤ 8	$\leq 0.5\%$	≥ 100 mm	≥ 0.1 MN.s/m ³
Property Performance	Pass	Pass	Pass	Pass	Pass	Pass*

Pro Clima Solitex Mento 1000 connect

Pro Clima Solitex Mento 1000 connect is a roofing underlay, with self-adhesive strips.

Refer to manufactures technical and installation data. These can be downloaded online at www.dimond.co.nz.

Pro Clima Solitex Mento 1000 connect						
NZBC E2/AS1 Table 23 (NZS2295) Roof Underlay Properties	Absorbency	Vapour Resistance	pH of Extract	Shrinkage	Water Resistance	Air Resistance
Property Performance Requirement	≥ 150 gsm	≤ 7 MN.s/g	≥ 5.5 and ≤ 8	$\leq 0.5\%$	≥ 100 mm	≥ 0.1 MN.s/m ³
Property Performance	Pass	Pass	Pass	Pass	Pass	Pass*

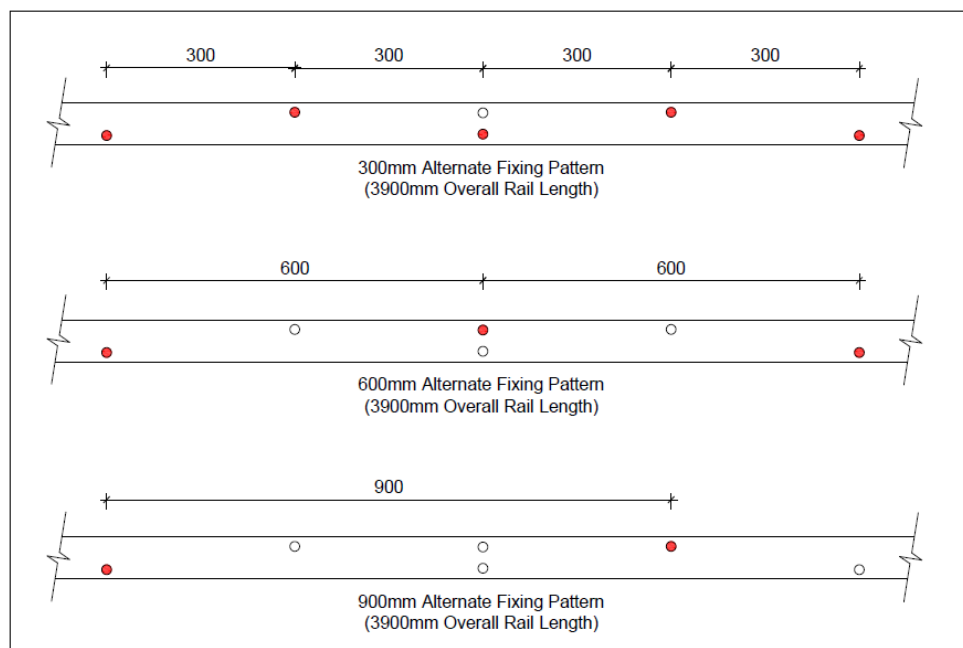
3.4 Dimond Vented Roof Rail

Dimond Vented Roof Rail is a 27mm high component which is manufactured out of G500 1.45mm BMT Z450 (450g/m²) galvanised steel.

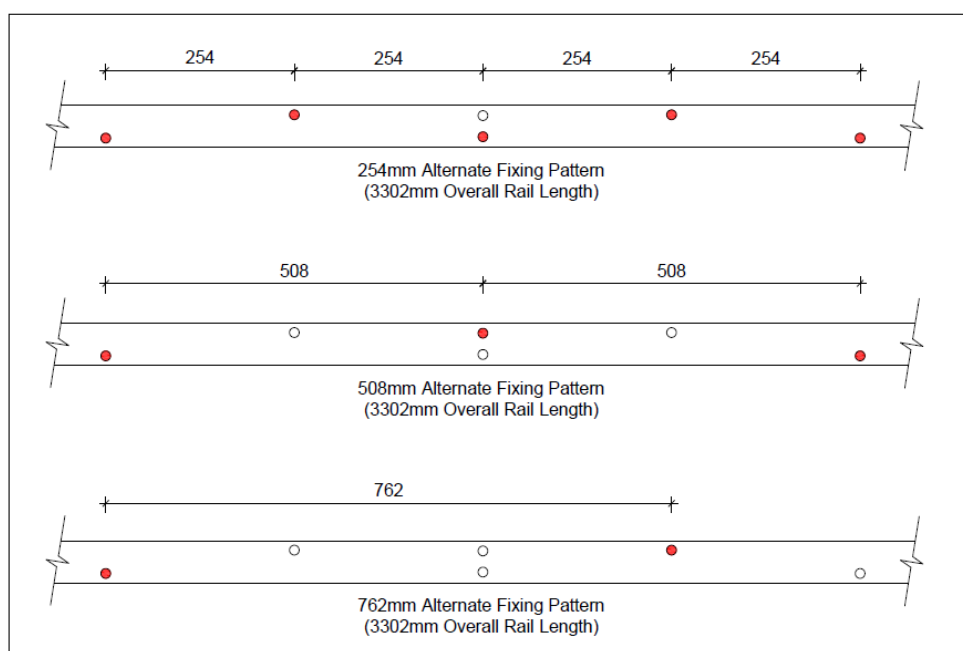
Fixing Configuration	SLS (kPa)	ULS (kPa)	Wind Zone
300mm Alternate Centres (Maximum)	3.49	4.88	Extra High & SED
600mm Alternate Centres (Maximum)	2.63	3.69	Extra High
900mm Alternate Centres (Maximum)	1.51	2.11	High

Dimond Vented Roof Rail Fixing Patterns

Dimond Base Sheet – BB900



Dimond Base Sheet – LT7



3.5 Dimond Top Sheet

All Dimond roof profiles can be used as a Dimond Top Sheet and are manufactured out of Pacific Coil Coaters ColorCote or New Zealand Steel COLORSTEEL product.

Product Variations (Thickness, Shape, and General Product Variables).

Refer to Table 2.1A, of the Dimond Technical Data, which summarises the general base and top Sheet material options available.

Manufactured using different coatings available from Pacific Coilcoaters or New Zealand Steel depending on the durability required for the environment the roof or wall will be installed in, in accordance with AS/NZS 2728. For more information refer to Table 2.1C of the Dimond Technical Data downloaded online at www.dimond.co.nz

Refer to environmental literature available from Pacific Coilcoaters or New Zealand Steel or contact Dimond Roofing® on 0800 766 377. Duraclad® is recommended for use in special areas such as fertiliser works or very severe marine.

Fixings

Fix Dimond Vented Roof Rails with 2 / 14 g -10 threads per inch Tek steel screws into steel purlins or type 17 into timber purlins. Two fixings required every 900mm centres for high wind zone and below and 600 centres for very high and extra high wind zones. Overall screw length varies and is dependent on the thickness of Dimond PIR Insulation Board.

Fix the Dimond Top Sheet using the appropriate length and fixing pattern of 12g or 14g screw into the Dimond Vented Roof Rails as per the dimond technical data.

Fixings must match or surpass the durability of the material they secure. Additionally, their metal or coating should be compatible with the cladding material if they come into contact. For pre-painted steel products, it's imperative that fasteners are factory colour-matched prior to installation.

Screw fasteners need to have adequate length to ensure they penetrate the supporting structure properly. Generally, for screws into timber, a minimum embedment of 30mm is recommended, while screws into steel should engage at least three threads. In severe environments, a minimum Class 4 rating is necessary, whereas very severe environments call for a Class 5 rating.

3.6 Acoustic Performance

The Advanced Vented System Acoustic performance guideline table (refer to the online literature www.dimond.co.nz) provides a design guide for expected performance based on acoustic laboratory testing and expert opinion from Marshall Day Acoustics. This information is given as a guide only for a reasonable expectation of performance since the as built performance will depend on construction details and quality of finish that are outside the scope of this statement and require consideration by an appropriately qualified acoustics engineer where the acoustic performance of a building is a critical design factor.

Dimond Roofing, a division of Fletcher Steel Limited, NZBN 9429037626563

Contacts: Technical Advice 0800 766 377 • Sales and Supply 0800 346 663

Website: <https://www.dimond.co.nz/>

Email: roofspec@dimond.co.nz

Address: 48 Victoria Street, Onehunga, Auckland 1061.

Place of Manufacture: Aotearoa New Zealand

Technical Manual: <https://www.dimond.co.nz/downloads>

Warnings/Bans: Not subject to any warning or ban under section 26 of the Building Act 2004.

DISCLAIMER: As part of Dimond Roofing's policy of continuing product and system development, we reserve the right, at any time and without notice, to discontinue or change the products, materials, design advice, features or specifications represented in the technical literature without incurring any liability. The information in this document is issued for general application in New Zealand, and should not be treated as a substitute for detailed technical advice in relation to requirements for individual projects in New Zealand or overseas. To the extent permitted by law, Dimond Roofing disclaim any liability for loss or damage incurred by the use of the information in this document and any technical literature issued by Dimond Roofing unless it is covered by a specific warranty agreement. Dimond Roofing, a division of Fletcher Steel Ltd. March 2025.

Warranty Statement:

All components in Dimond Advanced Roofing Systems are warranted by their individual manufacturer for use in Dimond Advanced Roofing Systems. Component warranties are subject to the terms and conditions set out by the individual manufacturer. Dimond Advanced Roofing Components must be installed, used, and maintained in accordance with the individual manufacturer's guidelines.

Contact us

Dimond Roofing®
or 0800 DIMOND (0800 346 663)

Dimond Roofing Specification Team:

Roofspec@dimond.co.nz

Technical Team:

Rooftech@dimond.co.nz

0800 766 377

Component warranties are subject to the terms and conditions set out by the individual manufacturer.

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