

Roofspec
Viking

Taking care of detail

Viking Enviroclad

Absolute waterproofing integrity





Viking Enviroclad possesses all the necessary attributes of a truly world-class membrane from both waterproofing and environmental perspectives.

Viking Enviroclad has been a proven performer worldwide for over 25 years and is manufactured by one of the world's largest and most technologically advanced manufacturers of waterproofing membranes, Carlisle Construction Materials.

Viking Enviroclad, a thermoplastic membrane system (T.P.O.), is part of the world's fastest growing roofing membrane category.



Viking Enviroclad is a mesh-reinforced, thermoplastic, heat-weldable waterproofing membrane which can be installed on most new substrate surfaces as well as over existing butyl or liquid membranes. It possesses strong UV and puncture resistance properties, and the reinforcing mesh provides latitudinal strength, meaning Enviroclad is extremely forgiving of structural movement.

It is suitable for low-slope and pitched roofs, gutters and parapets, pond-liners, balconies, under floating decks and roof gardens of commercial and residential buildings.



Energy Saving

Viking Enviroclad is highly-reflective, with the white surface option reflecting over 90% of the solar radiation that hits it. This will directly contribute to a reduction in a building's energy use and cooling costs.

Viking Enviroclad can be used as the waterproofing membrane for Viking's WarmRoof and WarmSpan systems, which will achieve even greater energy savings through their insulation components.

In the USA, Enviroclad is US ENERGY STAR® rated and Cool Roof Rating Council certified. In New Zealand, Viking Enviroclad is CodeMark certified; BRANZ appraised; and the reduction in energy consumption has been proven to positively contribute points to a building's Green Star rating.

Innovation & Sustainability

Viking Enviroclad's heat-welded seams (vulcanised at 400+ degrees Celsius) create stronger and flatter laps (robust, vulcanised seams for maximum watertightness). This technology also renders quicker installation time, while assuring watertight integrity, even when fully immersed.

Viking Enviroclad possesses other environmental benefits in addition to the energy savings from its solar reflective properties:

It is potability certified, meaning drinking water can officially, but more importantly, safely be collected off a Viking Enviroclad roof.

During the manufacturing process, off-cuts are 100% recyclable. Aged, installed Enviroclad is 100% recyclable due to the absence of chlorinators and plasticisers in TPO's chemistry which can cause problems with many PVC membranes. Enviroclad is also supplied cut-to-length if requested, meaning minimal waste.

The fact that Enviroclad is heat-welded, negates the need for oil-based splicing systems like tapes and primers. It can also be installed using mechanical fastenings, negating the need for adhesive if desired.

Viking Enviroclad can be applied over existing roofs, saving uplift and filling of the local land-fill with the old membrane. Viking Enviroclad is also available as a fleece-backed system (FBS), which is a more comprehensive re-roofing overlay solution. Read more on Enviroclad FBS on the next page.

Wider & Longer

Viking Enviroclad sheets are up to 3.66m wide by 30.4m long (111m²) compared to traditional membranes ranging between 10m² – 25m². The greater width and length of Enviroclad sheets mean fewer seams and therefore a clean-looking, watertight, cost-effective solution.

Peace of Mind - CodeMark Certified

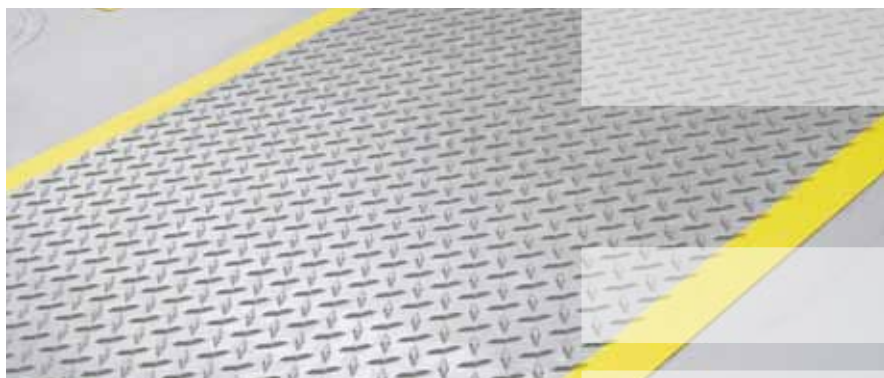
Viking Enviroclad is CodeMark certified. Viking Enviroclad's CodeMark assists specifiers and Councils by providing the highest level of assurance, reducing delays and additional information requests when submitting a consent application.

CodeMark certification means that compliance for the purpose of the building consent is guaranteed when specifying Viking Enviroclad in accordance with the stringent criteria of the CodeMark certificate.

A CodeMark certification provides you with peace of mind and quality assurance that you are choosing the right system.

BRANZ Appraised

Viking Enviroclad is BRANZ Appraised (no. 656, 2015).



BRANZ Appraised
Appraisal No.656 [2015]



CODEMARK™
Australia & New Zealand



Before



After



Enviroclad FBS – Fleece-backed Re-roofing System

Enviroclad FBS (fleece-backed system) is a membrane re-roofing solution consisting of 1.4mm of polyester fleece-backing factory-laminated to 1.14mm of TPO (thermoplastic polyolefin). It is mostly used as a solution for overlaying on top of a wide-range of existing roof surfaces such as old bitumen, malthoid or rough substrates such as concrete and tongue and groove sarking.

“Silk Purse”

The fleece-on the membrane's underside bonds with the substrate, partially forgiving the rough surface into which it “beds” itself; thus rendering a surprisingly smooth, aesthetic membrane surface finish. An unsightly, rough substrate would otherwise ‘telegraph’ more of its imperfection through the surface of any non-fleece backed single-ply membrane.

Reduction in Waste

In many instances, there is no need to dump the old roof surface, as FBS can be applied over a wide-range of existing roof surfaces such as bitumen, malthoid, concrete or tongue and groove sarking.* This leads to a reduction in waste, as the old roof surface doesn't fill-up landfills.

*(*Only if an invasive investigation has confirmed the integrity of the substrate. Please note: decayed substrates require complete replacement.)*

Reduction in Cost and ‘Churn’

Overlaying an existing membrane means there are no costs involved in stripping the current surface; redesigning, reconditioning or reconstructing the existing roof.

This also avoids the hassle of exposing the interior to adverse weather conditions – and therefore relocating people while the overlay takes place – an expensive process also known as ‘churn’.

Puncture Resistance

The fleece-backing of the FBS membrane adds additional puncture resistance to the existing puncture resistance of the Viking Enviroclad membrane, possessing a 33% greater puncture resistance than most high puncture resistant membranes.



**THE OWNERS
WERE THRILLED
WITH THE
TRANSFORMATION
THAT WOULD
PROLONG THE LIFE
OF THIS LOVELY
OLD LADY.**

HISTORICAL BUILDING GETS A FACELIFT – HANIA STREET, WELLINGTON

CHALLENGE: 21 HANIA ST IS THE ADDRESS OF A 71 YEAR-OLD BUILDING DESIGNED DURING THE DEPRESSION BY ARCHITECT EDMUND ANSCOMBE. THE BUILDING SERVED AS A CENTRE TO AID RETURNED SERVICEMEN AND WOMEN IN THEIR REINTRODUCTION TO CIVILIAN LIFE DURING WORLD WAR II.

It also became a factory for the manufacture of prosthetic limbs for disfigured soldiers. Its flat roof had been waterproofed several times using a bitumen-based liquid membrane; the layers of which had become brittle and cracked over the decades and had started to leak water through to the old sarking beneath.

Three years prior to the roofing project taking place, the building struggled to attract a purchaser because of the perceived exorbitant costs associated with re-cladding the 1300m² leaking flat roof (with next to no pitch). A church group eventually purchased the building with a view to embarking on its refurbishment. 21 Hania Street's heritage classification by the Historic Places Trust meant that the Wellington

City Council required a resource consent for any exterior work, with a view to keeping the building as close to the original design as possible.

Originally a quantity surveyor was commissioned to explore the option of pitching the roof for metal roofing which would require specially designed, engineered fixings to the original structure. This proved too expensive and troublesome, and as the building was occupied, opening the roof up meant too much cost and disruption. So another option was explored which involved a three layer torch-on system with the base sheet being mechanically-fastened. But Viking Roofspec put forward a better option...

Solution

The Property Manager Ian Kearney, eventually chose the Viking Enviroclad F.B.S. (fleece-backed system) for several reasons:

- It is designed to go over old membranes without having to tear them up. This means; (i) minimal disruption, none of the building's occupants would need to be re-located

- during the roofing process; (ii) labour and dumping costs would be saved and; (iii) the local landfill would be saved from 1300m² of asphalt.

- Removing all of the existing bitumen membrane in gutters. This allowed a more thorough inspection to take place in these

key areas whilst drying out any potential dampness and replacement of rotten substrate.

- Performing carpentry in a number of degraded areas including relining parapets, skylight plinths and new timber bracing for the high parapets.

See the results of this project on the next page

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The Viking Approved Applicator then set about installing 1300m² of Enviroclad F.B.S. with its 3.6m x 30.4m (109.8m²) rolls and F.A.S.T. adhesive system.

An additional insurance policy was adopted of mechanically fastening "Piranha" plates with screws (aluminium discs with teeth on the underside to grip the membrane), through to the original sarking just in case the bond between the old asphalt and sarking substrate wasn't as strong as perceived in some areas. These were installed at 300mm centres underneath the welded laps, and at 1.8m centres throughout the middle of the sheet.

To allow any residual moisture in the sarking to escape, no expense was spared on venting the roof. One-way, pressure release vents were installed and flashed with proprietary TPO pipe seals.

Result

In short, the 71 year-old building's roof had been given a "birthday". The owners were thrilled with the transformation of their tired; leaking; ugly; charcoal; asphalt roof, into a fully warranted; dove grey; cost-effective, but most importantly, watertight roof that would prolong the life of this

lovely old lady. They can have peace of mind seeing technical representatives from Viking Roofspec will be inspecting the roof not only post-installation, but on the 1st, 2nd, 5th, 10th and 15th years of the 20 year warranty period – all as part of the Viking Full System warranty process.

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Viking
Enviroclad
APEEL

Enviroclad APEEL is normal Enviroclad, coated with a durable protective film that is applied to the surface of the membrane at the time of manufacture. Viking Enviroclad's APEEL option with its inherent protective film, guards the surface of the Enviroclad membrane from scuffs and dirt accumulation during installation (and the construction process), eliminating the need to clean the roof surface with solvents once the project is complete.

Durable and easy to remove, APEEL protective film helps save time, labour and improves aesthetics as well as long-term reflectivity (which increases energy efficiency and helps to reduce cooling costs). Viking Enviroclad APEEL is ideal for re-roofing and new construction projects.

Enviroclad APEEL protective film will stay in place until it is ready to be lifted-off, at which time the film is easily removed by a single person. Strong adhesion levels allow the film to stay in place for up to three months, resisting the effects of heat, UV exposure, rain and wind. Once the film is removed, no residue remains on the membrane, providing the building owner with a clean, reflective roof that will continue to resist dirt pick-up long after installation.

Time and Labour Savings

It is understandably common practice for building owners to request that their new membrane roof be cleaned before they pay for it. But with Enviroclad APEEL, there is no need for an applicator to go through the labourious; sometimes toxic; and imperfect cleaning or power-washing process after installation. They simply remove the film, and the roof is ready for final inspection.

Enviroclad APEEL is available in both 1.14mm and 1.52mm thicknesses, in 3.05m wide and in grey (white is available on indent).



Before film removal



Before film removal



Film removal



Finished Roof





RhinoBond Mechanical Fastening

In line with the construction industry's continuous evolution, there are a growing number of substrate options onto which membranes are installed. A common question is whether Enviroclad can be laid over substrates other than plywood, concrete or rigid insulation. The main issue is adhesion. With the RhinoBond method of fixing, you can be certain that the strongest possible adhesion will be achieved...

What is RhinoBond?

RhinoBond is induction fastening technology, which is an alternative method of mechanically-fastening Enviroclad membrane to a wide range of substrates. The difference from other types of mechanical fastening is that it **doesn't** involve penetrating the membrane.

How does it work?

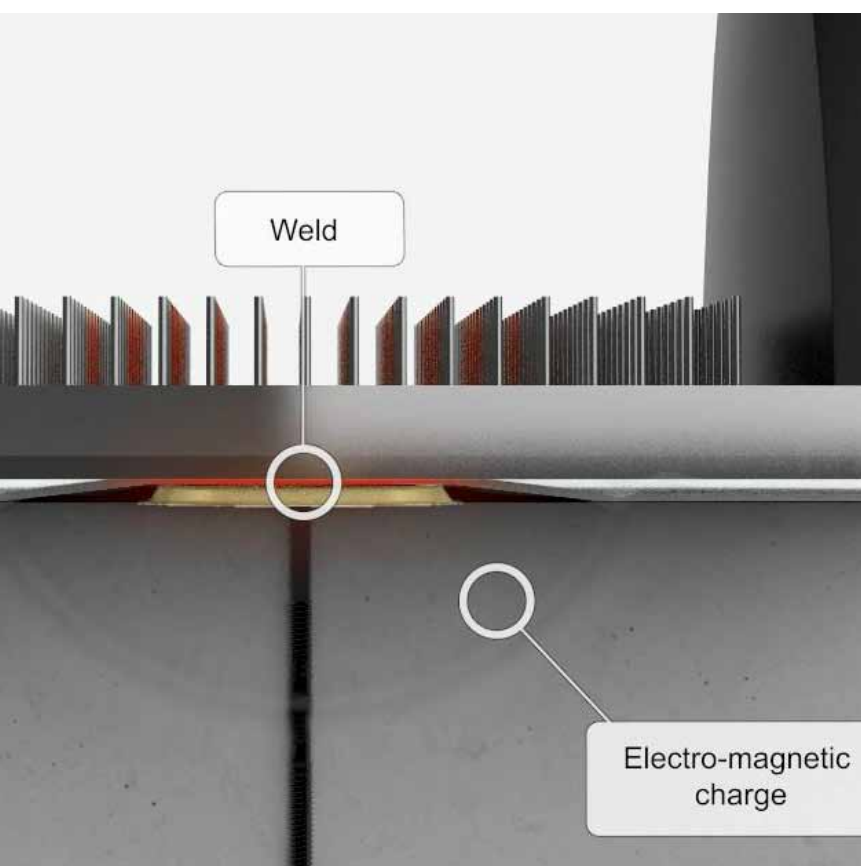
TPO-coated metal plates are fastened to the substrate in a grid pattern. Enviroclad membrane is laid over the plates and appropriately positioned on the roof as per a normal installation. The RhinoBond induction welding tool is placed above each of the RhinoBond plates (which are underneath the membrane surface).

The induction tool emits an electro-magnetic charge through the membrane, which activates the TPO coating on the surface of the plate below, resulting in a weld between the plate surface and the underside of the membrane (in less than five seconds). Weighted magnets are then placed over the plates to dissipate heat and ensure intimate contact between the bottom surface of the membrane and the integral hot-melt TPO coating on the plate's surface. This results in a superb weld.



Benefits of RhinoBond

- No adhesive required;
- No membrane penetration;
- Improved productivity – due to less fasteners and plates required than traditional mechanical fastening;
- Maximum wind uplift resistance;
- No narrow perimeter sheets required;
- Negates membrane flutter;
- Symmetrical wind load distribution;
- Negates membrane fatigue at seams;
- No weather or temperature dependence.



The Keys to Viking Enviroclad's Success

World Class Manufacturer

Carlisle Construction Materials of the USA (www.carlisleconstructionmaterials.com) is one of, if not the largest, manufacturer of EPDM and TPO waterproofing membranes in the world. Carlisle has been supplying the international market-place with world-class materials since the 1960s. It has a policy of aligning itself with distributors with similar values (like Viking); two of those values being a relentless emphasis on training along with the mantra of sticking with accredited 'systems' empirically tested in some of the world's most sophisticated laboratories.

Viking's Three-Staged Licensing Program

Viking Enviroclad is installed exclusively by Viking Approved Application companies. Every individual installer of Viking's single-ply membranes has been licensed at Viking's Licensing School. No installer has access to these materials unless he or she has been licensed. This policy has been instrumental in Viking Enviroclad having one of, if not the lowest, remedial rate in the industry.

Weldable Accessories

Viking Enviroclad is supplied as a complete system with a range of heat-weldable accessories to deal meticulously with changes in roof plane direction such as internal and external corners. It also comfortably flashes roof penetrations such as pipes; air conditioning units and substrate vents.

Weldable walkway rolls with a tread-plate pattern are specified to provide further protection to the roof surface by directing the flow of foot traffic when the roof is being inspected or serviced.

Proven Record

Having been launched internationally in 1990 and introduced in NZ in 2007, Viking Enviroclad has been successfully installed, and continues to perform superbly on buildings for significant organisations such as: Fonterra; Courier Post; Genesis Energy; Foodstuffs; Progressive Enterprises; Ryman Healthcare; Metlifecare; Ministry of Justice; Department of Corrections; Te Wananga O Aotearoa and Ballance Fertilisers to name a few.



Comprehensive Quality Assurance

Viking Enviroclad is backed by a 20 year warranty and your project may be eligible for the Viking Full System Warranty.*

The Full System Warranty covers both the materials and the installation in one document for the building owner.

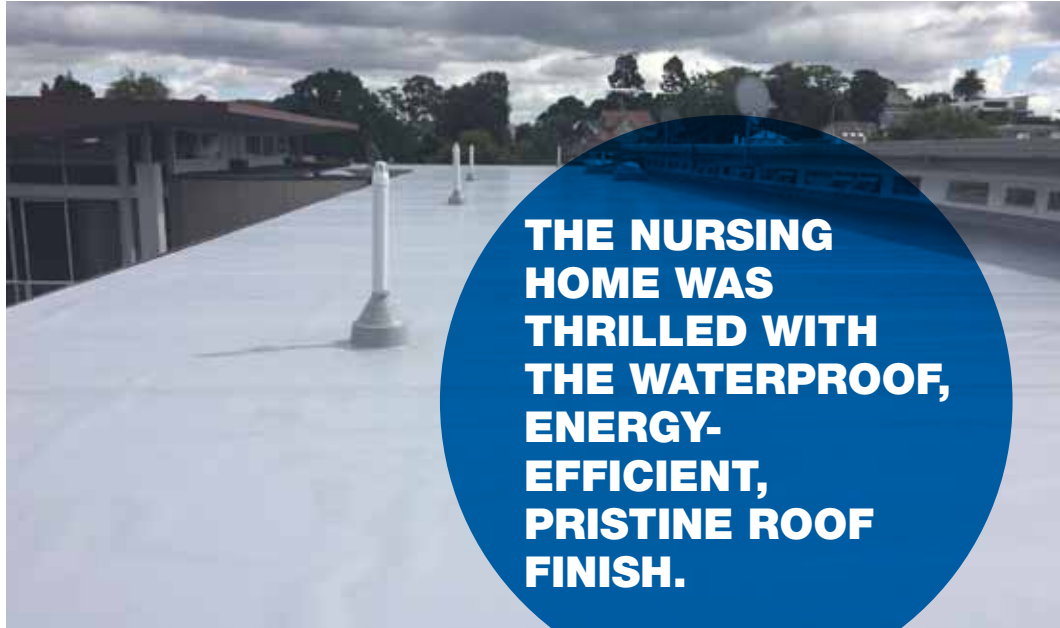
*Conditions Apply



Thermoplastic Competitor Comparison

	Viking Enviroclad	Competitor 1	Competitor 2	Competitor 3	Competitor 4	Competitor 5	Competitor 6
CodeMark Certified	✓						✓
BRANZ Appraised	✓	✓	✓		✓	✓	✓
Up to 3.66m wide	✓	✓					
1.14mm & 1.52mm thick	✓	✓					
Grey & White Options	✓					✓	
Fleece-back Option	✓	✓					✓
Cut-to-Length Service	✓	✓					
RhinoBond Technology	✓						
5000+ Projects	✓						
Water Potability	✓						
Manufacturer's Proprietary Adhesive	✓		✓	✓	✓		✓
Full System Warranty	✓	✓					
Training School	✓		✓				
APEEL Option	✓						
Custom-made Accessories Service	✓						

Solution	Viking Enviroclad	Viking Enviroclad FBS	Viking Enviroclad APEEL
Thickness	1.14mm and 1.52mm	2.5mm (including 1.4mm of fleece-backing)	1.14mm and 1.52mm
Roll width	3.05m and 3.66m	3.66m	3.05m
Roll length	30.4m	30.4m	30.4m
Colour	Grey and White (Tan available ex USA on indent)	Grey and White	Grey (White available on indent)
Cut-to-length	3.05m wide only	Yes	Yes



THE NURSING HOME WAS THRILLED WITH THE WATERPROOF, ENERGY-EFFICIENT, PRISTINE ROOF FINISH.

“I’D LIKE AN ‘APEEL – RHINO – WARM ROOF’ COMBO PLEASE!”

CHALLENGE – PART ONE:
A LARGE NURSING HOME IN CENTRAL AUCKLAND HAD THOUSANDS OF SQUARE METRES OF METAL TRAY ROOFING WITH MINIMAL PITCH; A FEW AREAS OF WHICH WERE IN A STATE OF DISREPAIR AND LEAKING.

These roofs needed to be sorted, but firstly, there were a few challenges:

Budget – the Trust Board didn’t have the income for the metal roof to be removed nor for carpenters to build a support structure to re-pitch a new one at the three degrees required for metal roofs. This would also affect existing window placements as well. Such work would be deemed as ‘Restricted Building Works’; all of which would require applying for a building consent.

Practicality – removal of a roof requires the relocation of people (called ‘churn’) which is inconvenient and expensive at the best of times, let alone when those people are elderly patients. Roof removal also requires the erection of shrink-wrapped scaffolding which adds to the above-mentioned costs.

Noise – projects like this can be noisy, which is the last thing people in the twilight of their lives need to be subjected to.

Solution – Part One:

One of Viking Roofspec’s Approved Applicators recommended that a Warm Roof overlay be installed on top of the existing roof. A Warm Roof is an insulation system (rigid panels) installed on top of a roof substrate with a membrane installed on top of it. The proposed solution would render several advantages:

The existing metal tray roof would remain in place, so the building would remain covered

and therefore no building inhabitants would need to be relocated.

No Restricted Building Works would be required for re-pitching the roof to three degrees, (seeing it had surpassed its minimum 15 year durability as required by the Building Code), so no windows would need to be replaced and no shrink-wrapped scaffold would be necessary.

Polyiso insulation would not only provide a flat surface for the membrane to be installed on, but it would render an R-value of R-3.0 which would make the building more energy efficient and comfortable for the patients. An additional bonus would be the fact that the insulation would reinforce the spanning strength of the existing metal roof as well.

See the results of this project on the next page

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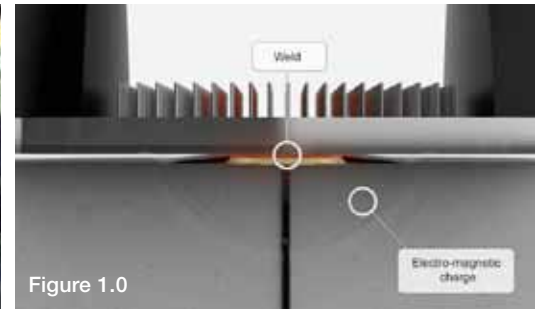
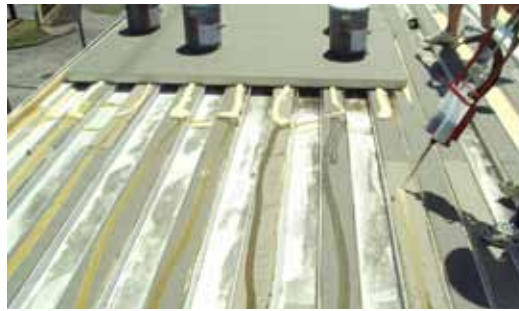


Figure 1.0



Before film removal



After film removal

CHALLENGE – PART TWO: THE BUILDINGS HAVE A NUMBER OF EXTRACTOR FANS, SO THE FUMES FROM AN ADHESIVE SYSTEM COULD FIND THEIR WAY INTO A BUILDING AND AFFECT THE PATIENTS AND STAFF.

A NUMBER OF OTHER TRADES (PLUMBING AND GLAZING) WOULD BE FOLLOWING THE ROOFING PROJECT, SO THERE WOULD BE A DANGER OF THE MEMBRANE SURFACE BEING DAMAGED (THE INSTALLER'S HANDY WORK BEING UNDONE).

Solution – Part Two:

Fumes! - To eliminate the use of potent adhesives, the RhinoBond system was commissioned. In short, RhinoBond is a method of mechanically-fastening a TPO membrane to the surface on which it will be installed (in this case, the Kingspan polyiso insulation layer), without penetrating the membrane. This is done with 75mm diameter TPO-coated Rhino-washers (plates), which are screwed through the insulation to the substrate in a grid pattern (600mm x 600mm) on top of which a roll of Enviroclad TPO membrane is then loose-laid. A RhinoBond induction machine is then positioned on top of the membrane above each plate, where it transmits an electromagnetic 'charge' through the membrane surface. This activates the polymers, thus fusing the TPO-coated plates to the underside of the membrane (see figure 1.0).

This state-of-the art system not only prevented any membrane penetration, but it maximised wind uplift resistance and most importantly for this customer, negated the use of potent adhesives.

Other bloody trades! - With plumbers and glaziers performing their work in behind the membrane installation team, it was important that the membrane remained protected and clean. To avoid gouging or puncturing from ladders and/or dropped chisels, hammers or knives etc, a geotextile protection course was loose-laid in strategic areas. But to avoid soiling of the whole roof; mostly from dirty boots which would then require solvent cleaning the whole area, Viking specified the use of Enviroclad 'APEEL'...Enviroclad APEEL is normal Enviroclad TPO membrane, but with a factory-applied protection film. This layer is left on – beyond the roofing installation for the duration of the building works until all trades have left. It is then simply peeled off, leaving a pristine membrane surface. The APEEL system was also developed so that a RhinoBond induction machine could still make a successful electromagnetic transmission through its film.

Result:

The Nursing Home Trust Board members were thrilled with the fact that they ended up with a low slope roof that was:

- Waterproof
- Energy-efficient though the Viking Warm Roof which uses Kingspan Polyiso board
- Solvent-free through the use of the RhinoBond mechanical fastening system
- Pristinely-finished thanks to the Enviroclad 'APEEL' TPO membrane with its protective film...
- Backed by warranties of substance.
- And all of the above had been achieved with minimal noise and disruption and most importantly, without the expensive and painful process of having to apply for consent and relocate its precious elderly inhabitants respectively.

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