



**IT WILL BEGIN
TO FINANCIALLY
CONTRIBUTE
TO THE VIKING
GROUP IN
ENERGY SAVINGS.**

WARM ROOF RETROFIT INSULATION & WATERPROOFING SOLUTION – VIKING GROUP HEAD OFFICE ADMINISTRATION

CHALLENGE: THE ADMINISTRATION BLOCK AT VIKING GROUP'S HEAD OFFICE IN OTARA HAD AN OLD STEEL ROOF (APPROXIMATELY 450M²) WITH MINIMAL SLOPE WHICH HAD BEEN LEAKING FOR DECADES.

One of its tenants, Viking Roofspec (a roofing and waterproofing materials supply company), was running the risk of becoming pigeon-holed alongside "the builder whose own house is never finished" or "the mechanic whose car is in pieces in the garage..."

The roof had been patched over the years but the time had come for a full replacement. The traditional method would normally have been to:

- Set up tarpaulins or alternative forms of overhead protection;
- Uplift the existing steel and then pay to have it dumped or collected for scrap;
- Commission a carpenter to re-pitch the roof;
- Supports to a minimum of 3 degrees slope;
- Reroof in long run steel.

Solution

Viking Roofspec decided to take alternative action and kill several birds with one stone:

Having recently launched its Viking Warm Roof System and single piece skylight called Drylight, Viking decided to install a warm roof and new skylights on top of the existing steel roof.

This would insulate, waterproof and add more natural light to the building in one fell swoop.

The decision was also made to monitor the energy efficiency of the Warm Roof and the skylights by comparing the electricity consumption within the offices before and after installation.

Process

So in January 2011, the Sales and Technical team at Viking Roofspec embarked on installing their own Warm Roof and skylights.

Rather than remove the existing steel roof, the Warm Roof was installed on top, negating the need for protection of the interior.

Having water-blasted the roof and removed old vents, skylights and other penetrations that would become redundant, the team began the installation process.

First, they cut 50mm thick polyisocyanurate insulation panels (R-value= R-1.1 per 25mm

thick) into 180mm wide strips and adhered them inside every second tray of the existing Brownbuilt steel roof profile (using Carlisle's F.A.S.T. 2-part polyurethane adhesive system applied with a specialised battery-powered caulking gun).

This covered 50% of the existing roof, whilst providing a sound base on which to install a second full layer of 63mm polyisocyanurate - also applied using F.A.S.T. adhesive. (a warm roof must provide 100% insulation cover where physically possible to be effective and classified as a proper warm roof).

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Next, the Viking Enviroclad heat-weldable TPO membrane was adhered on top of the insulation layer. Viking Enviroclad comes in 3.0m wide and up to 30.4 metres long rolls, minimising the number of joins on the roof compared with traditional membranes.

The installation team each took turns using the heat-welding equipment to vulcanise the seams, creating a watertight finish. White Enviroclad was chosen because of its solar reflectivity index (S.R.I) of over 90%, thus keeping the surface cool in the height of summer.

With the existing skylight plinths having been replaced with new timber ones, the membrane was dressed over each one and then proprietary 1220mm x 1220mm boot flashings were welded to the Viking Enviroclad, resulting in a stylish, watertight finish around the plinth.

The simple, single-piece Drylights were then placed on top and fixed into place.

Result

Aside from the pristine, watertight roof and Drylights rendering several-fold more natural light to the inside of the building, the real value of this exercise has shown itself in the ensuing months. Below are the electricity usage invoices comparing 2010 (pre Warm Roof installation) with 2011 (post installation):

Electricity Usage (\$)

Year	2010	2011
February	3708	3407
March	4710	3894
April	4221	3519

(The average saving per month is approximately \$600 / month).

The premium dollar value outlaid to install this 450m² Warm Roof compared to removing the old, re-pitching and installing a new 3 degree sloped steel roof, was approximately \$17,000. Based on the above monthly electricity bill savings, the cost difference of this Warm Roof would be amortised in 2.5 years after which time, it will begin to financially contribute to the Viking Group in energy savings.

Subnote:

Since writing this case study, Viking Roofs spec has secured a BRANZ Appraisal (713) for its Viking Warm Roof.

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