



PROJECT REPORT

Commercial Roof Restoration - Sydney Fish Markets

Project Description:



The Sydney Fish Market roof is 10,500 square metres in size (14,500 square metres including the sheeting profile). The roof comprised of eight individual roofs separated by long and shallow box gutters. The roof was in a bad state of repair with numerous significant leaks and a lot of corrosion and holes.





The system specified by **Cool & Dry Roofing** saved the client in excess of \$1.5m when compared to a total roof replacement cost. There was also no interruption to the operation of the Fish Market during the 5-month project.

The system entailed repairing all roof sheeting fixtures and fittings, modifying the inadequate box gutters to cope with severe storm conditions, covering the roof with a thick urethane acrylic UV stable trafficable membrane and finally, applying a top coat of a **Solarproof** heat re-radiating membrane to stop nearly all heat from entering the roof / facility.

The roof was over 40 years old, it has been previously patched and membrane coated. All previous repairs had not led to a long-term leak free roof with absence of rusting and severe sheeting degradation. The previous membrane extensively bubbled and was peeling off.

The low roof pitch and extremely shallow box gutters have been incapable of removing the water on the roof quickly enough during heavy rain periods and this aspect caused additional damage and leaks. (Due to a stramit panelling system below roofline leaks were difficult to locate)

Due to structural engineering issues, the box gutters were unable to be increased in depth or width, therefore a syphonic system was devised to rapidly take off water (11 litres per second) from the box gutters thereby enabling the existing box gutters to cope with the most severe storm conditions.

The system was installed throughout the 100m of box gutters and increased the box gutter capacity to cope with the heavy rainfall and reduce water build up on the roof surface thus minimising the risk of water ingress into the building and potential maintenance problems.



Horizontal downpipes were fitted from the underside of the roof including the main auction centre, administration offices, and seafood school.

These downpipes were connected to the existing down pipes at the top end of the pipes above the suspended ceiling, as the underground drainage system could not be accessed.

The installation was conducted out of working hours and avoided interruption to the function of over 20 different business operators that are based at the **Sydney Fish Markets**, which is one of the busiest auction centres in the world.

Prior to the installation of the syphonic systems, the box gutters were stripped of their top rusted skins and a membrane system incorporating a polyurethane top coat was applied in order to minimise risk of corrosion due to pooling rain water and condensation.



The sheeting profile has not been available for many years so replacement sheeting for those badly corroded areas was not available. In those areas and all holes/rust-affected areas, the rust was treated and the damaged/rusted areas and numerous holes were fibreglass/membrane patched prior to the main coatings being applied.

Ninety smoke stacks on the roof proved to be a ready source of numerous leaks in particular rain/wind conditions. These were sealed byway of rapid curing class 111 latex membrane (**Acrythane**) impregnated with polypropylene fibres prior to been coated with the top coat membranes and urethane sealants.



Over 500 metres of parapet wall cappings were removed and replaced with new colorbond metal capping.



Numerous mobile phone towers were repaired with new flashings and dektites as the existing ones had perished from the continued exposure to water and bird droppings.



Multiple air-conditioning units of all sizes and cable trays, mostly supported on wooden supports that invariably had rotted through. New aluminium supports were installed under all equipment after the extensive rust in these areas was treated.



A combination of airborne pollutants (60,000* cars per day pass directly over the fish market building) from motor vehicles, two cement works, salt laden water from the ocean, oils from food exhaust vents and extreme build up of condensation under cable trays created a very hostile environment which is particularly conducive to corrosion.



A rust converter was applied once the roof was pressure cleaned to expose all rust areas that were not evident on initial inspection. An epoxy two-pack primer was used as a base coat before applying the Acrythane system with fibre reinforcement and the insulation membrane.



Once the roof was repaired and coating systems applied, it was critical that trades people going onto the roof to undertake maintenance to the plant there or mobile phone towers, did not walk on the roof membrane and damage same. Therefore extensive aluminium walkways were installed throughout the roof.

The membranes employed were AcryFlex (polyurethane/acrylic trafficable UV stable membrane) at 1.5mm dc and **SOLARPROOF**, a heat re-radiating membrane designed to stop all heat transfer into the roof and underlying structure. The two additional advantages of **SOLARPROOF** will be **no sub structure movement due to heat expansion** and **a reduction in the air-conditioning power bill for the site.**

Finally a clear glaze coat was applied over the heat re-radiating membrane to ensure that dust build up on the roof could easily be cleaned.

An environmentally friendly corrosion treatment (**Metalreat**) was applied around all areas where bird droppings were causing corrosion. **Metalreat** was chosen to prevent the acid in the droppings from rotting the metal roofing and gutters.

A bird barrier was installed on all box gutters that also acts to stop leaves from causing blockages in the downpipes.



The project was completed on time and on budget – no accidents were reported and the client Sydney Fish Market, Pyrmont, experienced no disruptions to business operations.



An ongoing maintenance program will ensure the integrity of the coating and plumbing system will be maintained.