

THERMO SHIELD®

thermal insulation coating

City of Kingston
Mentone Office
Roof Refurbishment



Corrosion Control | Asset Protection | Thermal Insulation





STAGE 1 – Roof restoration / preventative protection for asset protection

Works commenced in November 2013 at the City of Kingston, Brindisi street offices to the roof in areas that were beginning to show surface rusting.

Major area for concern was that the roof areas that were suffering from surface rusting, has significant amounts of infrastructure permanently fixed to the roof.

If (when) the surface rusting moved to widespread corrosion and the roof would in need of replacement - the cost of un-installing the air conditioning duct work, air conditioning units, gas lines, water lines & roof safe walkways, hand rails, steps etc.... Would result in a MAJOR project at significant expense.

In addition to this, roof replacement and loss of air conditioning, gas use, hot water & potentially other services – would result in sever inconvenience to staff within, lead to areas of the building be un-usable or the combination of above reason, coupled with the noise factor could even lead to office closure, due the need to replace a roof.

Stage 1 of the project encompassed three areas:

1. The plant room / gantry area
2. Plant room landing
3. Meeting room roof



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City of Kingston

Below are photos of the plant room, or gantry.
You can see that it is the epicentre for the buildings air conditioning system.

The roof below it all – was in need of restoration (as you will see later in the report)



You can see from above that there is a huge investment in air conditioning assets, that are permanently fixed to a small roofing area.

If the roof below this area were the completely corrode through – the cost of replacement would be simply frightening... & also result in major disruption to the office use itself.

Below are a series of photos from the meeting room roof area.
Purpose of the photos is to demonstrate how many permanent fixtures rely on the roof being in a stable and structurally sound condition.



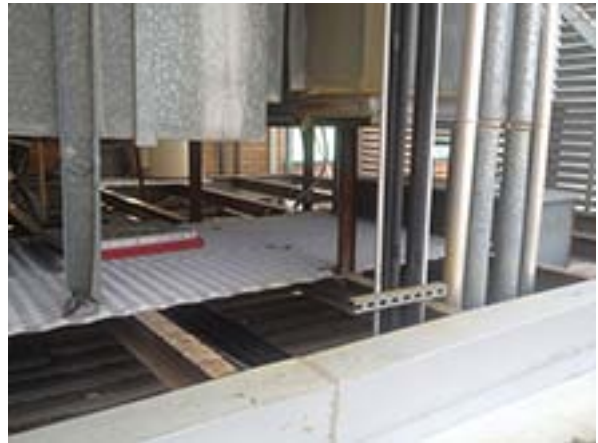
If the above roof were to rust/corrode through, the cost of roof replacement would 'blow out' to an unnecessarily huge price tag – due to the painstaking (and specialised) efforts required to uninstall & reinstall the MANY & various permanent fixtures on the roof!

With appropriate knowledge, products, processes & maintenance – the roof lifespan will live far beyond - what was looking to be a far too premature end.

PROJECT SUMMARY

Works first started on the plant room/gantry area.
Walkways were cut, removed and the below area was cleaned.

A de-greasing wash was required to remove significant amounts of oily residue.



You can see from the below photo how the roof was covered heavily in dirt and oil & grease – which is a certain precursor for corrosion:



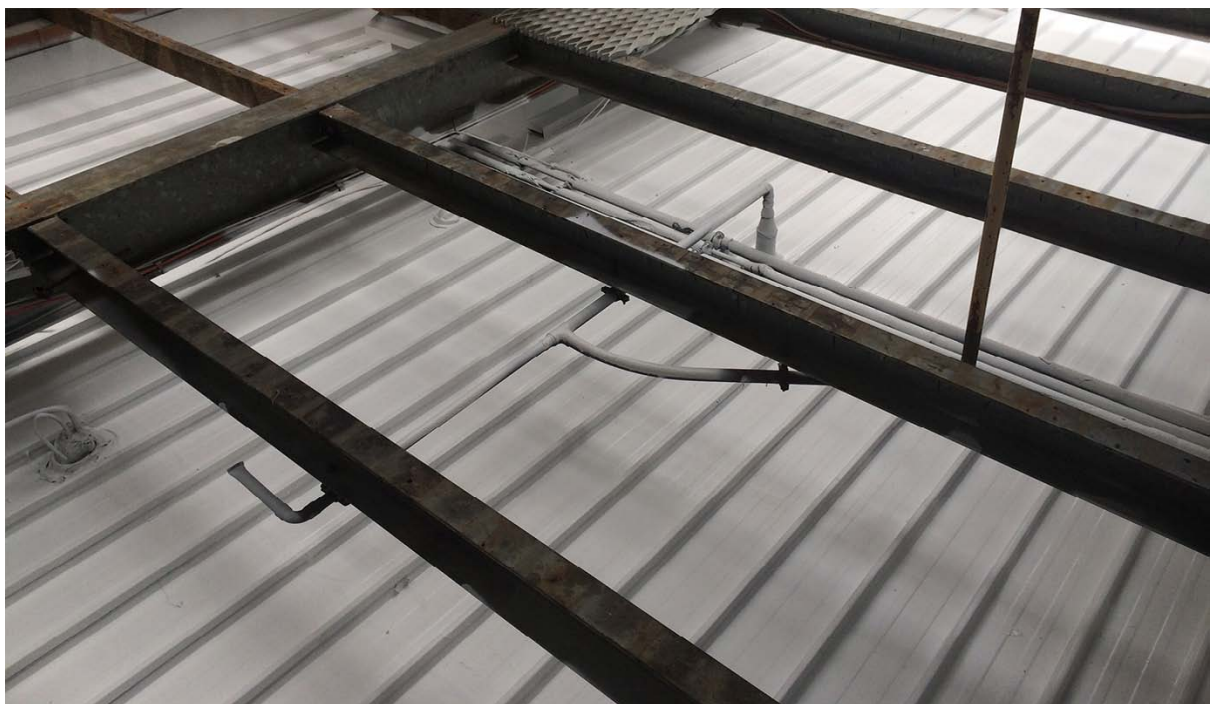
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City of Kingston

The cleaning process was quite arduous & time consuming.
Following the degreasing & power washing, we applied a heavy duty 2 part, water based etch primer to ensure maximum product 'contact'.

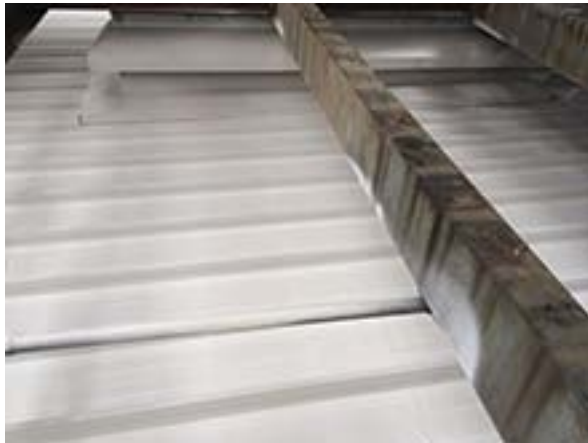
You can see from the below mid progress photo below – that following both the degreaser and high pressure water that the roof condition came up better than expected therefore, didn't require full rust conversion:



Below is a wide angle photo of the finished plant/gantry area.
The coating was applied extremely thick to ensure maximum protection of the aging metal:



Below are a series of additional photos following the completed area:



The above & below photos demonstrate the comprehensiveness of the coverage. When coating a roof with a relatively steep pitch – each coat is applied focusing on a particular direction, meaning there may be areas of “shadow”. However on the subsequent coats, the angle of approach is reversed and any shadows are well sealed.

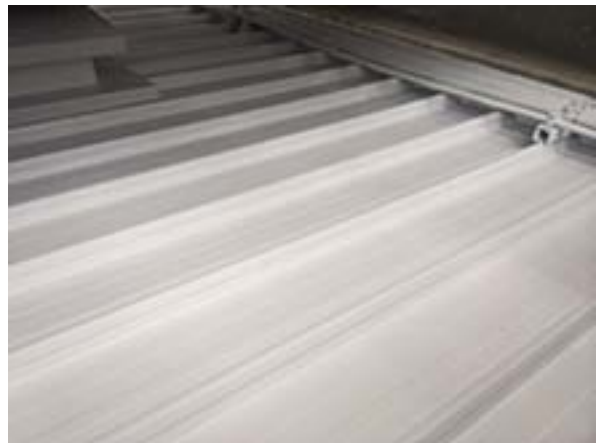


Last point to mention on the plant/gantry areas is that in total – 3 coats were applied and the result is a well sealed, thick coverage of ceramic coating has left a ‘protective blanket’ that will ensure the underlying metal remains free of corrosive elements exposure.

Below photos show the preparations for the plant/gantry area landing.
The roof had areas of corrosion that were treated.

You can see from the below photos the area was effected by mould & grime.
The mould inhibitors in the Thermoshield coating will greatly aid the prevention of this.





The landing area was more effected by rust than the plant/gantry area – but we are very pleased with the results.

MEETING ROOM ROOF

Meeting room roof compromised of two separate sections – one area made up of zinc alume speed deck & over the meeting room itself, was galvanised steel kliplok.

The galvanised steel portion of the roof appeared much older & suffering from areas of quite advanced surface rusting.

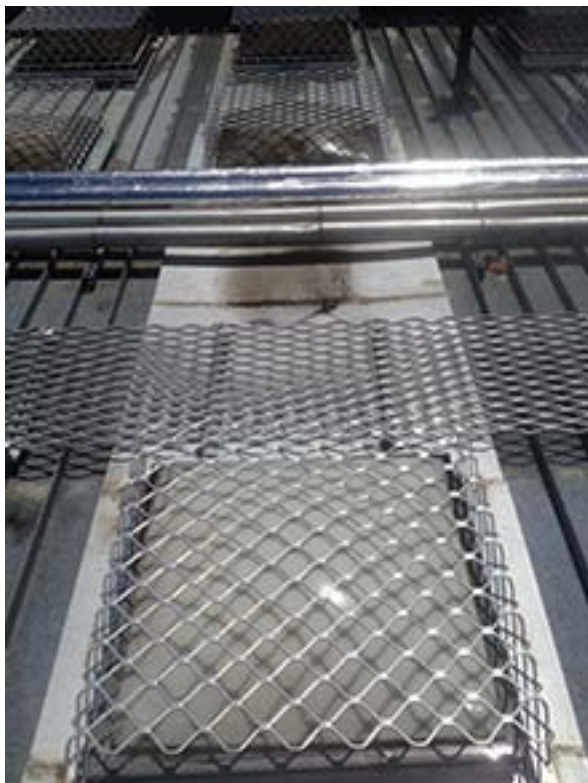
The zinc alume sheeting was in better condition, however under the duct/pipe work the rusted pipes had flaked onto the sheeting and had isolated areas of advanced surface rusting that was in need of immediate repair.

Over page are a series of photos detailing the condition of the roof and the preparations taken for rust conversion & also rust prevention.

As always, the roof comprehensively power washed –Below two photo show the difference between cleaned & uncleaned. There is a clear 'line' of clean steel and steel heavily covered in grime & mould:



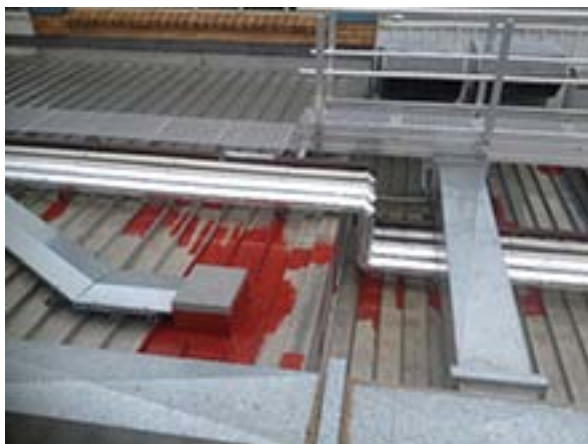
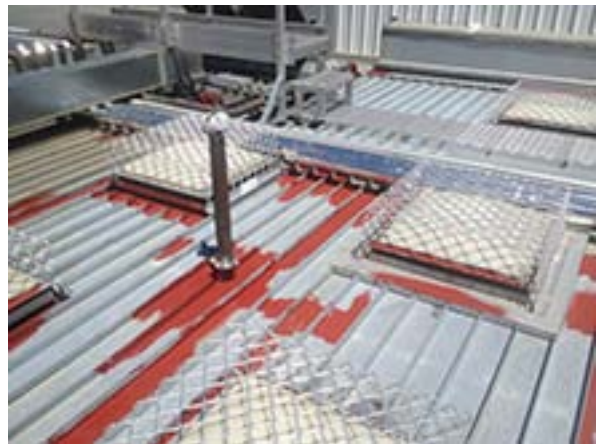
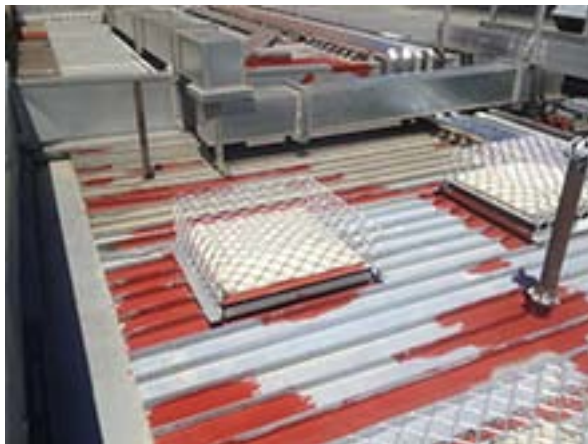
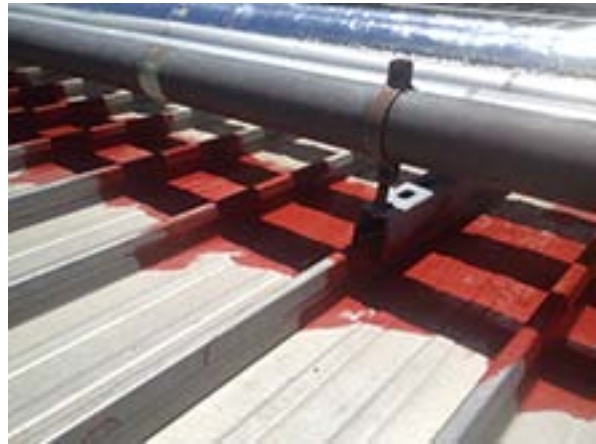
Below two photos show the massive difference between a cleaned & an uncleaned skylight:



Following the comprehensive power washing (minimum 3,000 psi), rust conversion commenced.

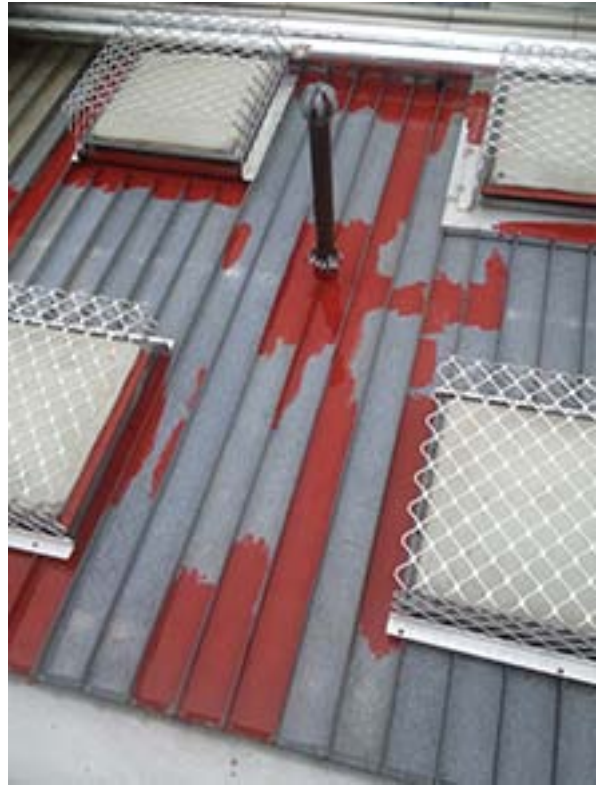
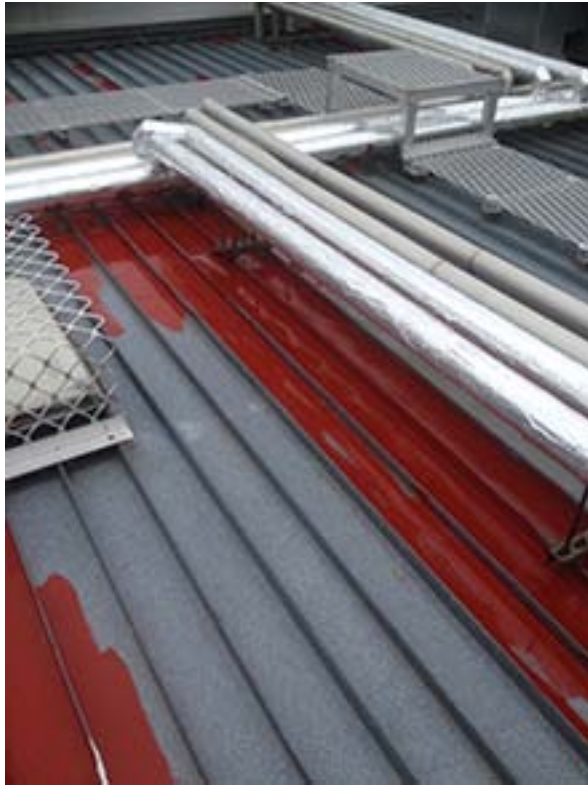
Under all pipe work showed heavy surface rusting & on the older 'gal' sheeting, widespread surface rusting was treated prior to coating.

You can see from the below photos, how widespread rusting was across the meeting room area, which is highlighted by the vivid red of the rust converter:



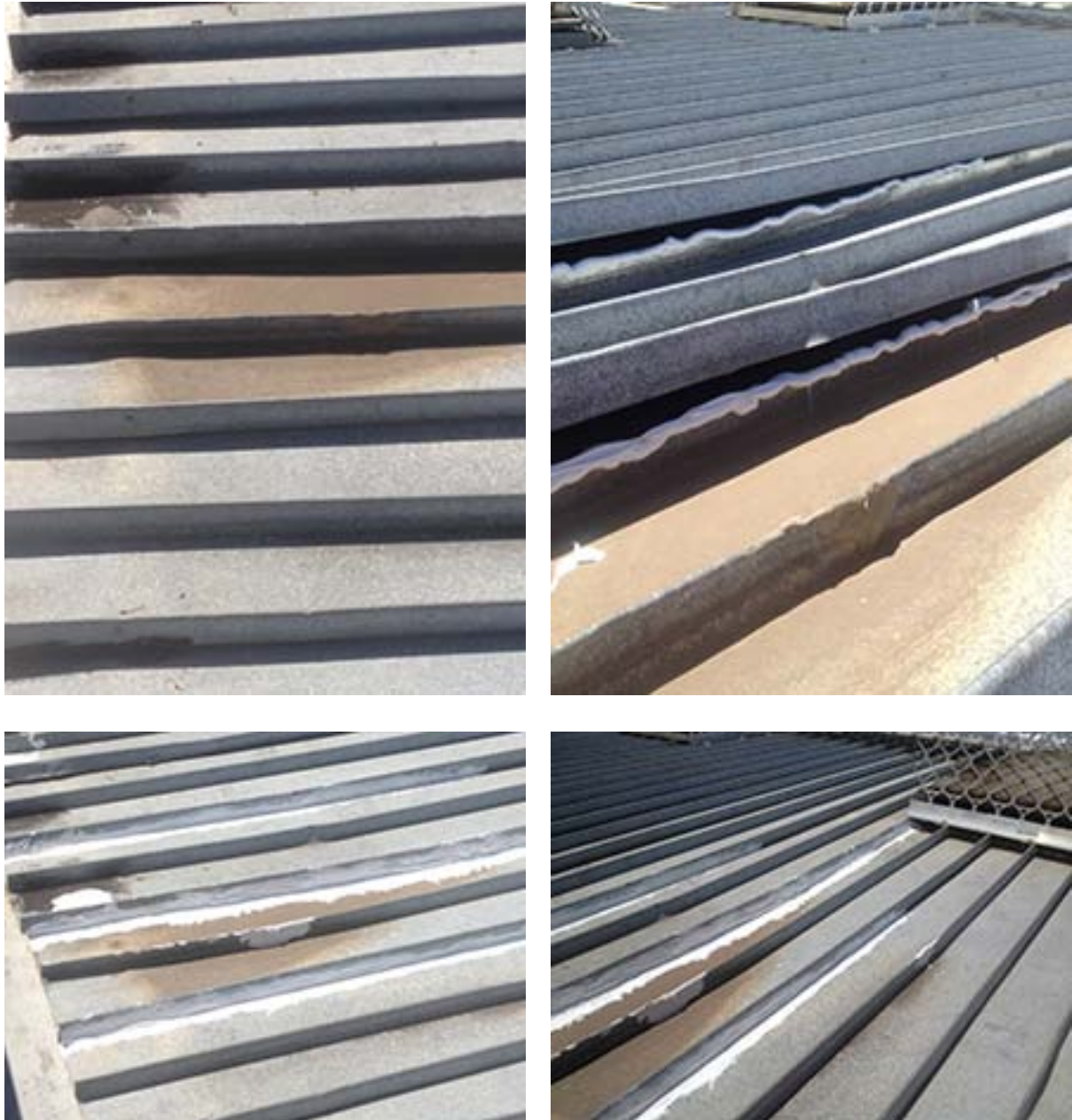
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City of Kingston

Below are additional photos showing the cleanliness of the roof sheeting which ensures maximum coating contact – also shown is the care taken to apply rust conversion by hand:



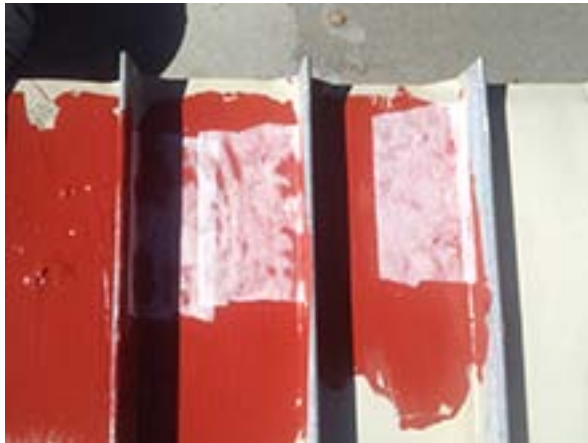
Below is an area of 'gal' kliplok that had come loose & quite spongy. This would cause quite significant waterproofing issues if left untreated.

You can see that the loose sheets were lifted, sealed with (paintable) silicone then re-set correctly to avoid water pooling:



Along the sheet ends nearing the box gutter, significant care was taken to convert rust then provide a waterproofing layer of protection. Over page shows the stages of steps taken to treat the affected areas.

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City of Kingston



MEETING ROOM – THERMOSHIELD CERAMIC COATING

The coating process resulted in two very thick coats, which has resulted in a thick 'blanket' to encase the metal beneath. This will result in long term roof protection underneath the many & various assets permanently fixed to it.

As a result of the coating, reports from the Mentone office facilities staff there has been noticeable differences in temperature and cooling equipment efficiency.

On a 40 degree day, staff inside who sat near the A/C vents commented that it was 'too cold' in many areas.

The points noted/communicated back to us from the client were:

- ***Whilst the thermostat was set at 20degrees, the air coming from the vent was being expelled at 12degrees.***
- ***Cold water was 'hitting' the air condition units at 6degrees. Because the pipes travelled across the roof, if left uncoated, the water would heat up, much like a solar heating on a pool would work.***

You can tell that if a room was being conditioned to a constant 20degrees, it would cool down far more quickly, if cooler air was entering the room. This means the units wouldn't have to work for the same length of time, that they previously had been.

If air condition units will work more efficiently, if they water received it cold, rather than warm, which would result in reduced load and electricity, input requirements.

In addition to lower internal temperatures to begin with - the combination of the (above) listed benefits, all contributes to the overall energy efficiency gains.

Below are the finished shots from a great project we are well proud of:



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City of Kingston



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Below is a photo of the last coat being applied – along with additional finished shots:



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City of Kingston

Below photos show are overspray being cleaned off the skylights:



Below photos further show care taken to clean overspray – where necessary:



Last are two wider angle photos of the completed – stage 1
Upon completion – we couldn't be more pleased knowing the roof has been
comprehensively sealed for protection. We hope Kingston are also well pleased!

