

	<b>SUBJECT</b>	Thames Library
	<b>DATE</b>	20 April 2015
	<b>PURPOSE</b>	<b>Pressure Test of East Facing Window Frame &amp; Recommended Actions</b>

Issue	Comments	Action
Context	<p>The Library building was designed and constructed in the 1980's. A number of issues were reported over the years with leaking windows on the eastern face of the building. The repair /remodelling of the eastern face of the building was recommended and calculated by Architects/Engineers to be ~\$500,000.</p> <p>This is a significant sum of money, as the original building was constructed for just under \$900,000.</p> <p>Further industry specialist feedback suggested that spending \$500,000 as proposed in the Architectural/Engineering reports might not resolve all the issues.</p>	Nil
Construction	<p>The large window panels are made up of aluminium frames and compression rubber seals. Aluminium channels allow for drainage.</p> <p>The window frames were placed at floor level. In some instances the floor level is less than 100mm to the outside ground level. There is no damp proof course or bituminous seal visible at floor level. Timber edging was added to garden areas along window frames, which seemed to have stopped water ingress at floor level.</p> <p>Flows should be diverted at the top of the window frames by sufficiently sized and constructed flashing. The existing flashing consists of a number of sections and in some places do not extend far enough to divert water from the top of the window frames. Some instances of water ingress are visible at the north-eastern corner of the building – water damage to internal MDF window frames/box outs.</p> <p>The two triangular feature windows on the eastern face of the building have also raised concern in the past with regards to leakage and loose rubber seals.</p>	Nil

Industry Feedback on the Removal/ Replacement of Window Frames	<p>A window specialist was approached in 2014 regarding a quotation for the replacement or repacking of the window frames. A number of limitations were highlighted during the course of the discussion.</p> <ul style="list-style-type: none"> <li>• The work would be disruptive and expensive.</li> <li>• Guarantees will not be provided on any refurbishment work completed</li> <li>• Work proposed is potentially not required as the cause for water ingress may be due to something other than the windows... (Flashing for instance)</li> <li>• Condensation could be the cause of water stains on sills and carpet damage</li> <li>• The work if any should be scoped once a pressure test was completed on the building as part of routine maintenance.</li> </ul>	Nil
Inspection method	<p>The inspection was scheduled to coincide with routine chemical wash / pressure cleaning of the building exterior (17 April 2015).</p> <p>Only moderate pressure was applied to window seals and frames thereby mimicking no more than a typical storm event.</p> <p>As the windows were washed from the outside the interior seals and window surrounds were monitored for any signs of ingress.</p> <p>The process was completed within a two-hour period.</p>	Nil
Findings/ Observations	<p>There was no evidence throughout the pressure cleaning process of any leaks in and around the ground floor window frames or triangular feature windows.</p>	Nil
Limitations of Testing Method	<p>Time spent on individual window frames were limited and there was no opportunity to see the effect of ground level splash on the bottom edge of the frames.</p> <p>The volume of water used in pressure cleaning exercise is also significantly less than a rain event.</p>	Nil
Recommended Actions	<p>From the initial pressure wash exercise it was evident that a short duration storm would not have any effect on the window frames. It is however recommended that:</p> <ol style="list-style-type: none"> <li>1. Loose silicone sealant on exterior flashing is removed and new suitable silicone sealant applied on all flashing to ground floor window frames and triangular window frames. This is also an ongoing maintenance item.</li> <li>2. Triangular window (Exterior) framework will need to be inspected and any deteriorated or rotten timber replaced.</li> <li>3. Triangular Window (Exterior) to the southeast of the building needs its rubber seals repacked.</li> <li>4. Triangular window (interior) frames be cleaned and monitored for ingress / condensation run-off (the recently installed air conditioning system should be sufficient to resolve condensation issues during winter months).</li> </ol>	Immediate Minor Maintenance

<p>Next Major Maintenance Exercise or Scheduled Renovation</p>	<p>The Architect/Engineering report suggested that ground floor window frames be removed, brickwork applied to replace the lower level row of windows and the altered window frames reinstalled. This removal/rebuild process would provide adequate opportunity to also replace the flashing and any damaged timber framework.</p> <p><b>Current Recommendations are as follows:</b></p> <ol style="list-style-type: none"> <li>1. It is not currently proposed that the window frames or flashing be replaced, but it is recommended that the flashing be replaced at some point in future and that silicone sealant is applied annually until such time as the replacement takes place. Note that the application of sealant alone is not ideal and remains a stopgap measure (unintended effects may include entrainment of water behind flashing).</li> <li>2. The damaged carpet edges (water damage) could be trimmed along the ground floor windows, a water bar or bituminous sealant applied and alternative floor covering installed (tiles for instance). Alternatively the water bar treatment should be included as part of the current carpet's replacement.</li> <li>3. The water damaged MDF window frame (interior northeast) should also be removed and replaced. It needs to be considered whether it would be advantageous to replace all internal MDF window frame material at the same time. This work would need to be scheduled just prior to the painting of the interior.</li> <li>4. Similar pressure wash inspections will need to be scheduled for window frames and roof. The roof wasn't inspected, but track record of these roof sheets installed at the Library suggest that roof sheets will need to be lifted off and inspected while rusting nails are replaced during the next scheduled roof maintenance work.</li> </ol> <p>These recommendations are not as effective as the measures proposed in the Architect/Engineering reports, but it allows for ongoing monitoring/improvement, as and when required without the need for significant capital layout and without altering the look and feel of the library building.</p>	<p>Long Term Building Maintenance Schedule</p>
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