

# HSE ALERT/LESSON LEARNED

## ALERT/BULLETIN # 002

### High Winds Dislodge Perimeter Screen



Figure 1. Dislodged Screen



Figure 2. Screen stabilized by push-pull props

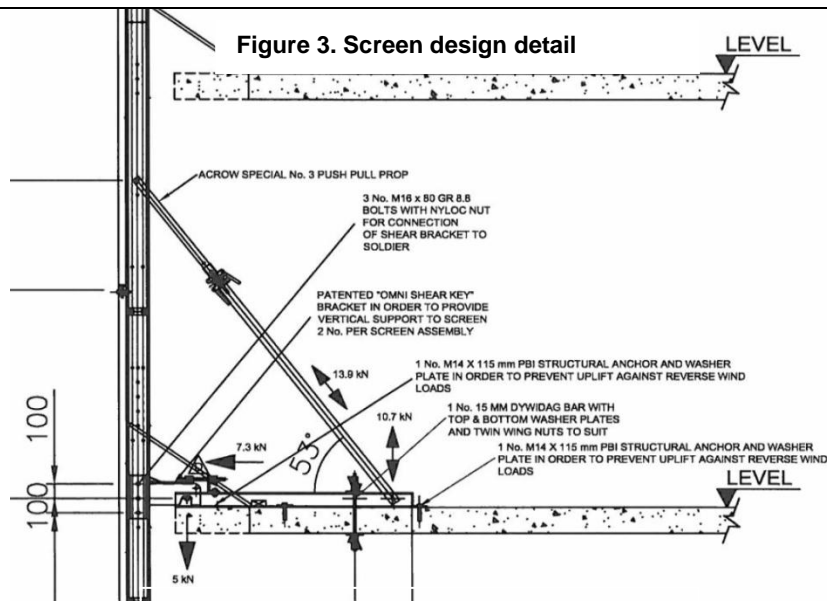
|                                   |  |
|-----------------------------------|--|
| <p><b>Summary</b></p>             | <p>The top seven [7] metres of a fourteen [14] metre high perimeter screen dislodged from its support base during high winds when two [2] connecting “Z bars” sheared, causing the screen to fall into the construction site. The screen remained connected to the structure of the building via the push-pull props as displayed in Figure 2. No one was injured as personnel had relocated from the top deck due to the high winds.</p> <p>In the days leading up to the incident, high winds had been experienced. At the time of the incident a severe wind gust exceeding 206k/m per hour (56m/sec) struck the CBD area of Melbourne – this is cyclone speed.</p> <p>The site was evacuated and the screen temporarily made safe until it could be safely removed from site.</p> <p>Prior to recovering the screen, the remaining screens on site were inspected by the temporary engineer and additional strapping was placed around the shear key to provide additional support in preventing uplift.</p> <p>A recovery method was developed and the screen safely retrieved.</p> |
| <p><b>Further Information</b></p> | <p><b>Screen Design Detail</b></p> <p>As illustrated in Figures 3 &amp; 4 the shear key bracket provides vertical support to the screen and the Z bars provide a horizontal connection to the shear key which sits on support needles, stabilized by push-pull props.</p> <p>A post incident inspection of the screen, confirmed that the screens were installed in accordance with the engineered drawings.</p> <p>The perimeter screens are not generally designed or rated to withstand cyclone load winds unless specifically required. However calculation on the screen confirmed that the perimeter screens at the project were designed to withstand the wind loads on the day of the incident.</p>  |

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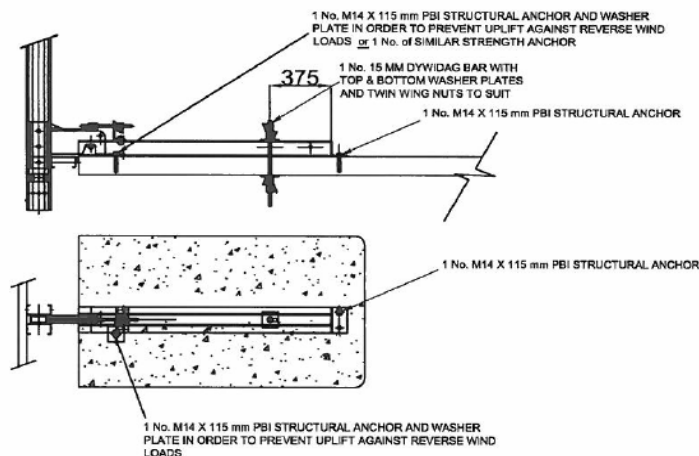
The Z bars have been independently tested to assure that the bar load characteristics were correct; testing confirmed that the Z bars were of the correct load. Z Bar are readily available item on site and may be subjected to structural damage or misuse which can potentially undermine their structural integrity.

Shade cloth was installed on this screen approximately 500mm above the prop level point and extended 1500mm in height and the screens full width of 300mm did not affect the wind load calculations.

A combination of all the contributing factors above and the environmental conditions on the day resulted in the screen becoming dislodged.



**Figure 4. Shear key bracket design detail**



**SUPPORT BRACKET FIXING DETAIL**

**Preventive Measures**

To provide extra support to the perimeter, temporary metal strapping over the shear key and onto the main support bracket as illustrated in Figure 5 should occur; this should prevent unnecessary bending on the Z bars in use.

Further to this a simple captive bracket is being designed to be installed over the shear key in lieu of the metal strap.

Although the screens are designed to withstand strong wind loads of 56m/sec, after periods of high winds all screens are to be inspected for structural integrity and made safe where necessary.

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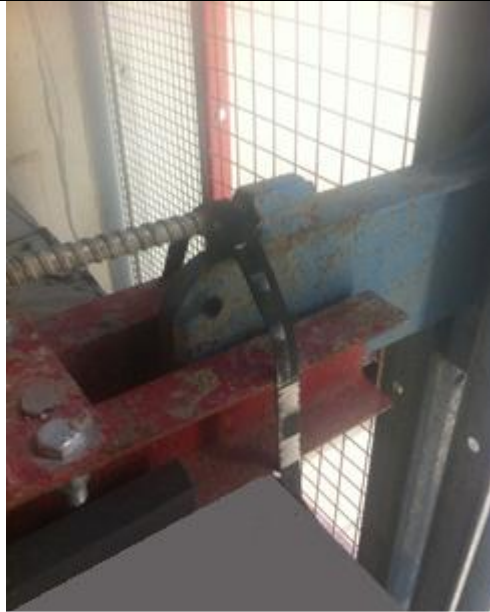


Figure 5. Strapping around the shear key

**Corrective action:**

|  |  |  |  |   |  |   |
|--|--|--|--|---|--|---|
| <input checked="" type="checkbox"/> Review existing SWMS or equivalent | <input type="checkbox"/> Change existing checklist | <input type="checkbox"/> New procedure | <input checked="" type="checkbox"/> Reinforce preventative measures with Tool Box Talk | <input checked="" type="checkbox"/> Lesson Learned industry share | <input type="checkbox"/> Provide reference material to suppliers | <input type="checkbox"/> Change to HSE MS |
|--|--|--|--|---|--|---|

***This alert is issued in the interests of learning and for the development and implementation of better safety outcomes on Probuild projects. Please consider actions as appropriate and share in Team meetings.***

***Should any further information be required, please discuss with any member of the HSE Team.***