NEWSLETTER – SUMMER 2010

Thoughts from the Chairman

The Cyclone Testing Station has had a busy year and has made some great progress on important issues that should lead to safer and more resilient buildings - especially important as we enter the summer cyclone season.

This issue includes articles on windows and roller doors. These have been shown to warrant attention in previous high wind damage investigations in both cyclonic and non-cyclonic areas. Community education programs are also discussed.

Several of the articles in this newsletter also highlight the progress that is being made in the development of new cyclic test methods and the benefits that can be derived from these.

I would like to welcome new and returning staff to the Cyclone Testing Station. The articles included here highlight the wide range of projects and locations that the CTS team is activ

Doug Meecham BE MESc RPEQ Chairman, CTS Management Committee

Roller Doors and Sectional Doors

In January 2010 the Cyclone Testing Station wrote to Standards Australia to highlight an apparent inconsistency in design and test pressures for domestic garage doors. There are three different Standards that could be used to derive such pressures, AS/NZS 1170.2, AS 4055 and AS/NZS 4505. Unfortunately they do not give the same answers.

Standards Australia forwarded CTS s letter to the members of the relevant committees and sought their comment. Our understanding is that there was unanimous agreement that there is a problem and that this should be rectified.

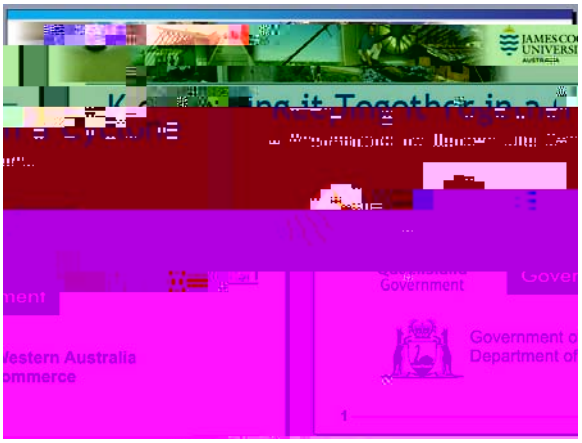
Standards Australia has now begun a project to amend AS/NZS 4505. CTS put forward a revision aimed at aligning the Standard with both AS 4055 and AS/NZS 1170.2, so that AS/NZS 4505 could apply to all doors, not just those used in residential applications. This is still work in progress. Until any such change occurs, manufacturers and suppliers of doors are encouraged to design and test using pressures derived from AS/NZS 1170.2.

Specifiers and certifiers should seek information to show that doors comply with the same pressures that apply to other cladding elements. This is a requirement of the BCA, to ensure that the entire building can resist a high wind event. For further information see CTS Information Bulletin No 4. Testing enquiries can be directed to cts.testing@jcu.edu.au or call Ulrich Frye on 07 47816091.

CTS Presentations in Darwin - “Keeping it together in a Cyclone”

With support from the Governments of NT, QLD and WA, the Station is undertaking a research and community education program to improve the resilience of housing and engineered buildings to severe wind events. As part of this program, the NT Government s *Department of Lands and Planning*, organized Station staff, Lex Somerville and Cam Leitch to fly to Darwin to give a presentation to buildi g certifiers, builders and designers. Graeme Stark, who was in Darwin for CTS business, also attended the presentations that ere held on three consecutive nights in August/September.

The hour-long presentations focussed on the importance of conne ions in the load path for houses. Topics covered included roof cladding, battens, window and door fixings, roller doors and durability and maintenance issues. The audience on each of the three nights comprised a mix of building certifiers, builders, engineers, manufacturers and des iers. Afterwards, many took the opportunity to ask questions and discuss the topics covered.



Cover Slide from the Presentation

Fabio Finocchiaro, the Senior Director, Building Advisory Services from the NT Government *Department of Lands and Planning* was very happy with the response and educa ional value of the presentations.

Windows

The Cyclone Testing Stati n had identified concerns over poor window fixing practices that had crept into the industry in recent years. These issues have been discussed at length with the Australian Window Association. Our staff also participated in seminars run by the Building Services Authority (BSA) during 2010 to speak about window fixing.

The CTS is pleased to advise that AWA has taken the initiative to develop a window fixing guide aimed at addressing the issues identified. This can be sourced from the AWA web site

Designers, fixers and certifiers are encouraged to ensure that this document or other relevant industry literature is followed to ensure that window fixing is adequate. Previous problems from field surveys and damage investigations has included a lack of packing, under-sized nails and inadequate numbers of nails. Even though the window itself may have been fit for purpose, the entire unit could be easily dislodged in a wind ev nt, as seen in the photo below from the Brisbane storms in November 20 0.

Photograph from CTS Technical Report No 55, showing window blown in as a unit as a result of poor fixing detail.

Solar Panels

One of the most significant changes to the building envelope on houses and other similar structures in recent years has been the widespread adoption of photo-voltaic (PV) solar panels for power generation. The rapid uptake has been supported by a range of government incentives.

It may be an obvious statement, but the sight and sound of the cladding under load was quite different to that of standard loading trials based on earlier test methods. With no repetitive cadence to the loading, the intermittent large peaks in the applied wind trace were all the more dramatic with the cladding creasing and popping, then suddenly flexing back to pulse randomly to the smaller applied pressure fluctuations for a few seconds or

pressure cycles at different frequencies and amplitudes and of course realistic wind pressure traces. The testing showed that the Dines units accurately represent the mean wind speeds but can deviate on the peak gusts of short duration.

The CTS with our fellow project stakeholders are using the experimental data to assess potential changes in the current and historical wind data extreme values. Initial findings are reported in two papers presented at the recent AWES

Jayasinghe and Ginger, *Probabilistic model of wind load on roof of low rise houses*,

Henderson, Morrison, Ginger and Miller, *Response of Dines Anemometer to simulated winds*,

Ginger, Leitch, Kim, Jayasinghe and Henderson, *Vulnerability of metal-clad, hot-rolled sheds subjected to wind loads*.

Wehner, Sandland, Holmes, Kim,

Cyclone Sunday Emergency Expo
14 Nov 2010, Townsville

Community awareness has always been a vision of CTS since its establishment in 1977. CTS has shared knowledge gathered through its extensive research studies and post cyclone damage investigations, with the local communities by being actively involved in various seminars, conferences and awareness programs.

This year, CTS along with other organisations including Emergency Management Queensland, Queensland Police Service and Bureau of Meteorology participated in the Cyclone Sunday Emergency Expo awareness event held on 14th November at the Strand Park in Townsville. The event was organised by Townsville Local Disaster Management

CTS Web Site

This newsletter, along with previous newsletters, is available from our web site at:
http://www.jcu.edu.au/cts

If you are aware of others who may wish to receive future newsletters, or if you wish to stop receiving future newsletters via email, simply contact us at cts.admin@jcu.edu.au and include the words SUBSCRIBE or UNSUBSCRIBE, as appropriate.

A wide range of other CTS publications is also available on the CTS web site. Some important recent publications include:

CTS Technical Report No 56, *Investigation of Housing and Sheds in Proserpine, Midge Point and Airlie Beach Following Tropical Cyclone Ului* by D. Henderson, C. Leitch, U. Frye, J. Ginger, P. Kim and N. Jayasinghe.

CTS Information Bulletin No 4, *Wind Resistance of Overhead Roller and Sectional Doors* by George Walker and Graeme Stark.

The Cyclone Testing Station wishes to thank all of our Benefactors and Sponsors for their continued support.