



## TECHNICAL ALERT No. 07/2

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# Low-High-Low, a Standardized Cyclic Test Method for Cyclonic Areas

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### Introduction

During a severe cyclonic event, elements of the building envelope are subjected to highly fluctuating wind loads which can cause fatigue in the material, greatly reducing its strength. Over the last twenty years or so, two different cyclic test methods have been used to evaluate the fatigue performance of building materials and systems for use in cyclonic areas. DABM is used in Northern Territory and TR440 (now AS4040.3) is used in Queensland and Western Australia.

### Background and Summary of the Low-High-Low Test

In May 2006, the Building Code of Australia introduced a requirement that all metal roofing systems used in cyclonic regions shall demonstrate performance to a new standardised cyclic test method. This method is known as the Low- High-Low (LHL) test method, based on the low, then high, then low pressure sequence, used to simulate the wind loads resulting from the passage of a severe tropical cyclone, across a building.

The LHL test is considered to better represent a typical cyclic regime than previous test methods. One key advantage is that it will replace the two different cyclic test methods, discussed above. The existence of one new method means that building components and systems can be tested once for the whole of Australia, thus saving costs.

### Regulatory Test Requirements

BCA 2006 also included a 2-year phase-in period, so that DABM and AS4040.3 results can still be used until at least May 2008. Australia has a state-based regulatory system and not all states introduce changes to their legislation immediately. This may offer manufacturers another month or two, but still means that there is less than 12 months to respond to these changes.

### Scope of Test

Roof claddings are certainly subjected to fluctuating wind loads and should be tested using the LHL method. They should also be tested with their immediate supports as part of the system. Typically, this means that the test setup should include the cladding, its fasteners, battens and batten fasteners

### Recommended Action

Cladding and batten manufacturers need to ensure that their products that are specified for use in metal roof assemblies in cyclonic areas of Australia are tested using LHL, prior to the nominated cut-off date.

For further information, please contact the Station Manager, Cam Leitch, at the address above.