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TECHNICAL NOTE No.1

General Requirements for Testing Roof and Wall Cladding

1. INTRODUCTION

The Cyclone Testing Station (CTS) is an independent authority on the effects of high wind and related damage to low-rise building systems in Australia, South East Asia and the Pacific.

It provides a service to the building industry for testing the effects of wind forces on buildings and building components.

The CTS has the equipment and technical expertise to test existing and new roof and wall claddings to comply with Australian and International standards.

2. TESTING CLADDING

Manufacturers of wall and roof cladding may wish to produce load-span design tables for their products based on test results. For comprehensive tables to be developed, the following tests should be considered on each cladding profile and thickness:

1. Simulated Serviceability Wind Load Testing – same requirements all regions
2. Simulated Static Strength Wind Load Testing – non-cyclonic regions
3. Simulated Cyclic Strength Wind Load Testing – cyclonic regions
4. Concentrated Load Testing – same requirements all regions
5. Wind Driven Debris Impact Testing – cyclonic regions (optional)

3. SIMULATED WIND LOAD TESTING REQUIREMENTS

Spans

The Australian standard AS4040.0 require that each different roof or wall cladding product (i.e. different profile, thickness) be tested for three different spans, a short span, an intermediate span and a large span. The panels that have been tested are then able to have design wind strength load span tables prepared that will be valid for spans within the span range tested. Note that extrapolation beyond the spans physically tested is not permitted. However, it may be preferred to have just the span(s) that are used in practice tested to reduce the number of tests required.

Design Pressures

Target design pressures should be estimated for each span to be tested. Using these target values, CTS's research engineers can estimate test pressures that are required to obtain these design pressures.

4. FURTHER INFORMATION

Technical Note 2

Technical Note 2 provides further technical information regarding the test setup and procedures for simulated wind loading on roof and wall cladding.

Technical Note 3

Technical Note 3 provides further technical information regarding the test setup and procedures for concentrated load testing on cladding.

Technical Note 4

Technical Note 4 provides further technical information regarding the test setup and procedures for wind driven debris impact testing on building envelope components (cladding, windows, doors, etc).

Draft Guide to LHL Cyclic Testing

The Draft Guide to LHL Cyclic Testing provides further technical information regarding the test setup, procedures and interpretation for simulated wind load testing of metal roof cladding for cyclonic regions.

5. REFERENCES

- AS/NZS1170.0:2002 – Structural Design Actions – General Principles
- AS/NZS1170.1:2002 – Structural Design Actions – Permanent, Imposed and Other Actions
- AS/NZS1170.2:2011 – Structural Design Actions – Wind Actions
- AS1562.1:1992 – Design and Installation of Sheet Roof and Wall Cladding – Metal
- AS/NZS1562.2:1999 – Design and Installation of Sheet Roof and Wall Cladding – Corrugated Fibre-Reinforced Cement
- AS1562.3:2006 – Design and Installation of Sheet Roof and Wall Cladding – Plastic
- AS4040.0:1992 – Methods of Testing Sheet Roof and Wall Cladding – Introduction, List of Methods and General Requirements
- AS4040.1:1992 – Methods of Testing Sheet Roof and Wall Cladding – Resistance to Concentrated Loads
- AS4040.2:1992 – Methods of Testing Sheet Roof and Wall Cladding – Resistance to Wind Pressures for Non-Cyclone Regions
- AS4040.3:1992 – Methods of Testing Sheet Roof and Wall Cladding – Resistance to Wind Pressures for Cyclone Regions