

## LOAD TESTING OF ALUMINIUM CAPPING SYSTEM

|                                                                                                          |                       |                              |
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|                                                                                                          | <b>Job Number:</b>    | 093499                       |
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|                                                                                                          | <b>Date of Issue:</b> | 24 <sup>th</sup> August 2009 |

### 1.0 INTRODUCTION

Two styles of aluminium wall capping system were tested under simulated wind suction load when fixed over a 3m length with a corner detail.

### 2.0 SAMPLE DESCRIPTION

Aluminium capping system 1.9mm thick x 650mm wide x 100mm deep at a straight length of 3000mm, with a corner section of 1.9mm thick x 750mmx750mm. These were supplied to be clip-fixed onto aluminium brackets positioned at 1500mm centres. The brackets were supplied 2.9mm thick x 150mm wide.

Aluminium capping system for use on a 2.5° pitch, 1.9mm thick x 650mm wide x 100mm deep leg on one side and 72mm deep leg on the other at a straight length of 3000mm, with a corner section of 1.9mm thick x 750mmx750mm. These were supplied to be clip-fixed onto aluminium wall brackets positioned at 1500mm centres.

### 3.0 TEST METHOD

A series of air bags attached to a common manifold, were placed below the capping system, the reaction was taken by the laboratory strong floor. A uniformly distributed load was applied to the capping system in 0.2kN/m<sup>2</sup> increments to 1.68kN/m<sup>2</sup>, then released. This load was applied twice more before increasing the load to failure. A deflection reading was taken at each load increment.

### 4.0 RESULTS

| Test       | Support Type                     | Maximum Load (kN/m <sup>2</sup> ) | Wind speed (m/sec) | Wind Speed (mph) | Mode of Failure                                                                                    |
|------------|----------------------------------|-----------------------------------|--------------------|------------------|----------------------------------------------------------------------------------------------------|
| No pitch   | Fully supported on plywood       | 27.8                              | 213                | 477              | Capping did not fail. Test stopped due to extreme deflection. Capping did not detach from brackets |
| 2.5° pitch | Supported on cantilever brackets | 10.8                              | 130                | 291              | Capping did not fail. Test stopped due to extreme deflection. Capping did not detach from brackets |

### 5.0 CONCLUSION

The capping system with no pitch achieved a simulated wind suction load of 27.8kN/m<sup>2</sup> and the capping system on a cantilevered bracket on a 2.5° pitch achieved 10.8kN/m<sup>2</sup>. According to CP3 Chapter V, 1.68kN/m<sup>2</sup> is the maximum wind load expected in the Outer Hebrides once every 10 years at 10m above sea level. Although CP3 has been replaced by BS6399 this is still a good guide as to the required performance of the capping system under extreme load.

Authorised by,



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