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REPORT

WIND RESISTANCE TESTS ON A SHELTER PROVIDED WITH A PALMEX ROOF

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Prepared by:

A handwritten signature in black ink, appearing to read 'Robert Jutras', is written over a horizontal line.

Robert Jutras, P. Eng.



1. **INTRODUCTION**

Air-Ins Inc was retained by "Palmex International Inc." to carry out tests aiming at checking the tear strength of your Palmex type roof sheets under the effect of the wind. Two different configurations of sheets were tested, those were respectively the Domingo type and the Bora Bora type.

Tests were carried out at our laboratories on June 16, 2005 in the presence of Mr. Richard Maillé, Vice President de Palmex International Inc.

2. **TEST SETUP AND SAMPLE DESCRIPTION**

The test assembly consisted of a wood structure roof with two slopes of 7:12 or 30°, each slope offered a surface of approximately 3 m², (1,22 m by 2,44 m). This roof was supported by treated wood posts of 89 mm by 89 mm, which were supported on a steel structure. The whole setup was anchored at each corner to concrete weights on the ground.

The test assembly was positioned behind an Pratt and Whitney R-2800 engine equipped with a propeller of 4,11 m in diameter. Photographs in appendix illustrate the test assembly.

Each slope presented a different configuration of installation of the Palmex sheets in accordance with the installation description which follows:

Domingo installation

Elements : Palmex Domingo sheets
Screws or twisted nails (18 mm) with washer.
Palmex Ridge

Setting : The first 3 lines were installed with a 9 cm gauge.
Following lines with a 12,5 cm gauge to the roof top.
Each sheet was fixed with 5 screws on the right half of the roof and 5 twisted nails on the other half.
On 18 mm plywood sheathing.



The ridge sheets were installed at the top of the roof and each one was fixed with four screws on each side.

Bora Bora installation

Elements : Palmex Bora Bora sheets.
Palmex PVC sheet support rail.
Screws or twisted nails (18 mm) with washer.
Palmex Ridge

Setting : The first 3 lines were installed with a 9 cm gauge.
Following lines with a 11,5 cm gauge to the roof top.
Each sheet was fixed with 3 screws on the right half of the roof and 3 twisted nails on the other half

Spacing between rafters 50 cm.

The ridge sheets were installed at the top of the roof and each one was fixed with four screws on each side.

Note: The installation of the sheets and the preparation of the roof were carried out by the personnel of Palmex International Inc at our facility.

3. **TEST METHOD DESCRIPTION**

The tests were carried out by means of an Pratt and Whitney R-2800 engine equipped with a 4,11 m in diameter propeller. The Bora Bora type slope was tested first, we positioned the test prototype in order to generate a wind speed of about 90 Km/h, measured at a distance 2 m upstream of the roof, and this for 15 minutes. Thereafter we increased the speed of wind per 40 Km/h steps of 15 minutes each, by increasing the rpm of the engine. The maximum speed thus obtained was about 170 Km/h. This procedure was then repeated, after having changed the orientation of the test prototype, in order to expose to the direct wind the slope with the Domingo type sheets.

Please take note that this testing method is not standardized and consequently the results of the tests cannot be used as a confirmation of the product performance under real wind conditions, but as an indication of the potential of risk which a given wind speed would represent for the product.



4. **TEST RESULTS**

The two types of sheets underwent successfully the test describes in article 3 of this report. Indeed no wrenching, no tearing and no breaking of both type of sheets or their respective accessories could be noted during the tests and this for speeds of wind going up to 170 Km/h. Only the successive rising of the sheets could be noted at the time of the test and they all went back to their initial position without any damage after the test completion.