

JOHN YOLLAND AND ASSOCIATES LTD.

Consulting Environmental & Product Testing Engineers

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REPORT NO. 07/04D

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Opinion on compliance of System Kömmerling Gold "Tilt and Turn Inswing" with the requirements of NZS 4211: 1985 Specifications for Performance of windows (& Amendments).

On 15 August 2006, Performance tests were carried out on System Kömmerling Gold "Tilt and Turn Inswing" for Profine GmbH, to assess compliance with the requirements of AS 2047:1999 Windows in buildings – Selection and installation by the Prüfinstitut für Bauelemente GmbH, Zweibrücker Str. 217 D-66954 Pirmasens, Germany. The results in English, are presented in Test report F 2006 /08.

The Test report indicates that the test laboratory Prüfinstitut für Bauelemente GmbH (Testing Laboratory for building materials) is an accredited testing Laboratory to the German laboratory accrediting agency Deutscher Akkreditierungsstelle Technik Rat (German Accreditation Body for Technology).

REQUEST FOR OPINION

The clients, EuroWindows Ltd have commenced a licensed manufacture of uPVC windows and doors using the designs, uPVC extrusions and related components of Profine GmbH. EuroWindows Ltd are seeking an opinion that the test on the System Kömmerling Gold "Tilt and Turn Inswing" performed to assess compliance with the requirements on AS 2047:1999 using the associated test procedures detailed in AS 4420 parts 0 – 6, will provide test data that will permit an assessment of compliance with the current requirements of NZS 4211.

ASSESSMENT SUMMARY

The assessment of the test results evaluated in detail in the attached page indicates the following:

Opening strengths

No requirement for Hinged doors

Deflection under Serviceability Wind Pressure

Complies with High Wind Zone.

Air Leakage

Complies with the Level 2 air leakage requirement, based on opening joint length.

Water leakage

Complies with High /Very High Wind Zone requirements.

Ultimate Strength

Complies with High Wind Zone requirements.

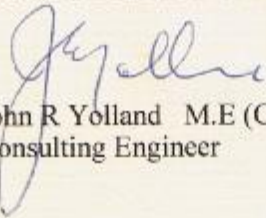
Overall Wind Zone rating

High Wind zone

DISCLAIMER

This assessment has been undertaken on the test results made by an accredited test laboratory on a sample of the described System Kömmerling Gold "Tilt and Turn Inswing" manufactured by the System Kömmerling licensors Profine GmbH. Provided that the New Zealand licensees EuroWindows Ltd, manufacture a similar window unit with identical design, components and workmanship, similar compliance performance would be expected.

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TEST REPORT ANALYSIS

Deflection under Serviceability Wind Pressure (on door stile)

Gauge width	2060 mm
Allowable deflection (span /360)	5.72 mm
Deflection at +600 Pa	5.86 mm (linear interpolation)
Deflection at -600 Pa	5.52 mm (linear interpolation)

Assessment : Complies with High Wind zone (Marginally exceeds positive deflection for very High Wind Zone)

Opening strengths

Sash area	2.51 m ²
Maximum initiating force	no requirement
Maximum sustaining force	no requirement

Assessment : No requirement

Air Leakage

Opening joint length	13.2 m
Overall area	7.9 m ²
Maximum permitted leakages at 150 Pa based on opening joint length are calculated as follows: - Level 2	7.92 l/s
Level 8	26.4 l/s

Positive Air Leakage Test (150 Pa)	3.6 l/s
Negative Air Leakage Test (150 Pa)	3.6 l/s

Assessment : Complies with the Level 2 air leakage requirement.

Water Leakage

Wind Zone:	Low/medium	High/Very High
Maximum Test Pressure	225 Pa	330 Pa

Tested to pressure of 450 Pa

Assessment : Complies with High /Very High Wind Zone requirements.

Ultimate Strength

Wind Zone:	Medium	High	Very High
Maximum Test Pressure	850 Pa	1200 Pa	1550 Pa

Tested to pressure of 1500 Pa

Assessment : Complies up to High Wind Zone requirements.