

To: Vaughan Brown  
From: Mulford Plastics Ltd  
Subject: Performance-equivalent alternative proprietary aluminium carrier extrusions of LAB extrusion  
Project: Generic extrusions  
Job: Mulford Plastics Panelux® Panel Cladding systems  
Email: vaughan.brown@mulford.co.nz  
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## 1. Background

Mulford Plastics have a Panelux® Cladding System that has been tested and shown to be suitable for use as a cladding for residential and commercial applications. Mulford Plastics are proposing a performance-equivalent alternative proprietary aluminium carrier extrusions within the system and have engaged Knack Engineering Ltd to provide expert judgement on suitable substitution. Knack Engineering has reviewed the technical specifications, system components and test results to determine minimum performance-equivalent alternative proprietary aluminium carrier extrusions technical properties of the Mulford Plastics LAB extrusion to align with the tested system.

## 2. Review of Test Reports

The Panelux system has been tested to show compliance with NZBC Clause B1, C and E2 using the following evidence:

1. Clause B1 & E2 – Test Report 23-02, by IANZ accredited façadelab titled Testing of Panelux® 3mm Aluminium on PANELAB 'LAB' system in accordance with AS/NZS 4284:2008 'Testing of Building Façade's
2. Clause C – Test Report IGNL-9397-01-01C I01 Roo, by NATA accredited Ignis Labs in accordance with AS1530.1:1994

Both reports confirm compliance with NZBC clauses B1, E2 and C.

The AS/NZS4284 test used the system as detailed in Mulford PanelLux 3mm Solid Aluminium Panel technical specifications, v1.0, details 1.0-14.0.

Mulford Plastics propose to replace the LAB profile in the technical specifications with a generic extrusion. Knack Engineering has calculated the sectional and strength properties of the LAB in comparison to other profiles to determine equal or greater strength properties to align with the test results. The sectional properties comparison is detailed in drawing MUP-002-001 and show examples of some generic profiles that are performance-equivalent alternative proprietary aluminium carrier extrusions.

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The sectional properties of the LAB profile compared to performance-equivalent alternative proprietary aluminium carrier extrusions was determined to be as follows:

	LAB profile	Profile 1	Profile 2	Profile 3	TBA 1	TBA 2
<b>Area (mm<sup>2</sup>)</b>	106.3	160.3	200.1	138.2	180.8	113.4
<b>Weight (g/m)</b>	287.1	432.8	540.2	373.2	488.15	306.3
<b>I<sub>xx</sub> (mm<sup>4</sup>)</b>	1960.3	4019.2	10921.6	2954.0	6997.5	2731.0
<b>I<sub>yy</sub> (mm<sup>4</sup>)</b>	16024.3	32003.3	69850.4	19493.5	54395.5	18389.0

Table 1 – Summary of comparison of technical properties

### 3. Recommendation and substitution

The proposed profiles are shown to be significantly stronger than the LAB profile and are suitable as performance-equivalent alternative proprietary aluminium carrier extrusions for the LAB profile. Furthermore, any z-profile with sectional modulus I<sub>xx</sub> and I<sub>yy</sub> higher than the LAB, made of equivalent or better aluminium alloy (6060 T6) can also be deemed a performance-equivalent alternative proprietary aluminium carrier extrusions and will meet the strength requirements as tested.

Mulford Panelux system technical specifications detail the requirements for;

1. Required sealants
2. Connection, corner, end laps
3. Fabrication
4. Adhesives and finishing.

These form the basis for the testing and performance requirements to meet the appropriate Clauses of NZBC. Refer Mulford Panelux technical specifications for requirements and compatible products and systems.

Kind Regards



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