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December 2, 2019

Mr. Ben Heald  
Symonite Panels  
72 Ellice Road  
Glenfield  
Auckland, 0629 New Zealand

**RE: NFPA 285 Data Extension for a Wood-Framed Wall with a Solid Aluminium Panel**

Dear Mr. Heald:

Architectural Testing, Inc., an Intertek company (“Intertek-ATI”), has been asked to provide an Engineering Judgment (EJ) regarding the extension of the conclusions of fire tests to other similar systems utilizing an alternative aluminium clad panel. The base data was acquired from fire tests that were conducted at our York (PA, USA) Fire Test Laboratory and at the Thomas Bell-Wright International Consultants (TBWIC) facility in Dubai, UAE. The tests were conducted in accordance with NFPA 285, *Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components*. In the Intertek tests, additional instrumentation was provided 3.5 m (nominal 11-ft. 5-3/4-inches) above the window opening in the specimen to provide data for compliance with Clause C3—*Fire affecting areas beyond the fire source*, Performance Provision C3.5 of the *New Zealand Building Code* (2012).

The referenced tests include, but are not limited to, Intertek-ATI Project No. I7576.01-121-24, Intertek-ATI Project No. I8506.01-121-24, and TBWIC Test Reference No. SL064. The suggested product substitution is based on the known and observed performance of the products in various fire tests. This EJ should not be considered a Design Listing or as part of a Product Certification process. Our conclusions are from a fire protection perspective only. As a result of our observations, review, and research, we have the following comments:

**PURPOSE OF ENGINEERING JUDGEMENT:**

This EJ evaluates the use of Alucolux by Symonite in lieu of the proprietary 4mm Arconic Reynobond® FR cladding panels in test I8506.01 or in lieu of the 3 mm Arconic Reynodual® cladding panels in test I7576.01. Alucolux is a 3mm solid, aluminium sheet material with a 2-3 coat PVDF multi-bake finishing system. The product has been certified to be noncombustible per EN 13501-1.

**GENERAL:**

The NFPA 285 fire tests conducted at Intertek-ATI were with non-load bearing wood stud framing. The studs were nominal 2 in. x 6 in. (42mm x 145mm) and spaced 24-inches (1025 mm) o.c. Thermal insulation was installed in the stud cavities. Interior wall coverings were 5/8-inch Type X gypsum board (plaster board). Mineral wool fire safing (min. 4.0 pcf) was installed at the floor edge.

**SPECIFIC DETAILS OF THE BASE SYSTEMS:**

In test I7576.01, 13mm (1/2-inch) thick proprietary GIB® Weatherline® Exterior Plasterboard (exterior sheathing) panels manufactured by Winstone Wallboards were installed over the full exterior of the assembly. The sheets were fastened to the framing with #6 x 1-5/8 in. long screws every 12-inches o.c. All vertical joints were covered with approved 60 mm (2-3/8 in.) wide weathertight sealing tape. All

horizontal joints were covered with approved 100 mm (4-inch) wide weathertight sealing tape. The exterior cladding was proprietary 3mm Arconic Reynodual® aluminium cladding panels which were fabricated by Symonite Panels to be utilized in their WAB-Vented Fixing System.

In test I8506.01, 6 mm (1/4-inch) thick proprietary James Hardie™ Rigid Air Barrier (RAB™) Board composed of solid, fiber cement, pre-cladding panels were installed over the full exterior of the assembly. The RAB sheets were fastened to the framing with 40 x 2.80 mm cement nails every 600 mm (24-inches) o.c. All board joints were covered with 75 mm (3-inch) wide flashing tape. The exterior cladding was proprietary 4mm Arconic Reynobond® FR cladding panels which were fabricated by Symonite Panels to be utilized in their WAB-Vented Fixing System. Reynobond® FR Aluminum Composite Material (ACM) panels with a *fire-resistant (FR) core*. FR is manufactured just like Reynobond® PE (polyethylene), but with a fire-resistant mineral core that has a higher resistance to fire.

#### **REQUESTED SUBSTITUTIONS AND FINDINGS:**

1. *Use of NFPA 285 as a qualifying fire test for exterior walls containing wood framing.* Although, as a member, not speaking for the NFPA Technical Committee, this appears to be the direction in which the NFPA Standard is moving. By our observations, the wood-framing portions of the wood-based systems generally appear to perform acceptably. **We concur with the proposed substitution.**

2. *Use of a 3mm Symonite Alucolux panel system substituting for the tested exterior claddings.* Test data indicate that noncombustible materials (even those with relatively low melting points) tend to do well in NFPA 285 testing (all other factors being equal). **We concur with the proposed substitution.**

#### **CONCLUSIONS:**

We believe on reasonable grounds that the suggested cladding substitution of Reynodual® or Reynobond® FR with 3mm Alucolux is reasonable and consistent with good fire protection engineering practice. It is critical that only the approved substitution be considered to both materials and construction methods (fenestration details like headers, air gap, introduction of other combustible materials, etc.). NFPA 285 is an assembly test. Without careful analyses, changes to the system may change performance.

This concludes our comments. Our opinions are subject to review and approval by local Authorities Having Jurisdiction. The findings in this letter report may not apply to other systems even if conditions appear similar. If you have any questions, please contact me.

For Architectural Testing, Inc.:

Karl D. Houser, P.E., LEED AP  
Senior Fire Protection Engineer  
Building Science Solutions

KDH:wam

cc: Ms. Gillian Stopford, Vulcan Fire Engineering