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Subject: Use of Fastplank Siding System in Fire-Resistance Rated Wall Assemblies

Dear Mr. Boila,

This letter has been prepared by Intertek Testing Services NA Ltd. (Intertek) to determine if the Fastplank Siding System can be installed on various fire-resistance rated wall assemblies without compromising the fire-resistance rating of the walls and to qualify the siding for an Intertek certification program in accordance with ASTM E119-2018b "Standard Test Methods for Fire Tests of Building Construction and Materials" and CAN/ULC S101-14 "Standard Methods of Fire Endurance Tests of Building Construction Materials".

As part of this evaluation, Intertek has directly or indirectly used the following referenced documents:

- 2021 International Building Code (IBC)
- 2020 National Building Code of Canada (NBCC)
- CCRR-0480
- Intertek Listing Report Spec ID: 68062
- ASTM E119-2018b "Standard Test Methods for Fire Tests of Building Construction and Materials"
- CAN/ULC S101-14 "Standard Methods of Fire Endurance Tests of Building Construction Materials"

The Fastplank Siding System consists of aluminum siding planks with fastening clips and trim accessories, serving as an exterior wall covering. Planks are extruded from 3/64-in. thick aluminum with a V-Notch™ profile, available in widths of 4 or 6 inches and in 16-foot lengths. The exterior surface is finished with a powder-coat paint and sublimination print. Currently, the siding system is under Intertek CCRR-0480 and Listed to various standards (see Spec ID 68062).

Fastplank has submitted component details for common construction of the base wall that their siding is installed over. The components of the walls proposed by Fastplank along with their individual ratings are summarized below:

Material	IBC Section 722.6	NBCC Appendix D (Load Bearing)	NBCC Appendix D (Non-Load Bearing)
3/8-in. Wood Structural Panel Bonded with Exterior Glue	5	-	-
15/32-in. Wood Structural Panel Bonded with Exterior Glue	10	-	-
19/32-in. Wood Structural Panel Bonded with Exterior Glue	15	-	-
1/2-in. Gypsum Wallboard	15	-	-
5/8-in. Gypsum Wallboard	30	-	-
1/2-in. Type X Gypsum Wallboard	25	25	25
5/8-in. Type X Gypsum Wallboard	40	40	-
Double 1/2-in. Gypsum Wallboard	40	50	80
Wood min. 2x4 Studs @ max. 16-in. o.c.	20	20	20
Insulation*	15	15	15

**See paragraphs below for further details on the specifications for the insulation material.*

The following rationales and Code sections have been used for justification to qualify the use of Fastplank siding system over fire-rated wall assemblies.

IBC Section 722.6:

The ratings outlined above for the IBC Section 722.6 are applicable to both load bearing and non-load bearing assemblies as per section 722.6.2 of the IBC. These values are also applicable only when the assembly is installed on framing members that are spaced 16 inches o.c. or less. The wood stud rating is applicable to nominal 2 x 4 studs. The calculated fire-resistance ratings are limited to not more than 1 hour.

The insulation as per this section (Table 7.22.6.2(5) of 2021 IBC) is defined as: glass fiber mineral wool batts weighing not less than 2 pounds per cubic foot (0.6 pounds per square foot of wall surface) or rockwool or slag material wool batts weighing not less than 3.3 pounds per cubic foot (1 pound per square foot of wall surface), or cellulose insulation having a nominal density not less than 2.6 pounds per cubic foot.

As per section 722.6.2.1, the fire resistance rating of a wood frame assembly is equal to the time assigned to the membrane on the fire-exposed side, the time assigned to the framing members and the time assigned for additional contribution by other protective measures such as insulation. The membrane on the unexposed side shall not be included in determining the fire resistance of the assembly.

NBCC Appendix D:

The insulation as per this section (Table D-2.3.4.-G) is defined as: wood stud walls, sheathed with gypsum board or lath and plaster where the spaces between the studs are filled with preformed insulation of rock or slag fibres conforming to CAN/ULC-S702.1, "Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification," and with a mass per unit area of not less than 1.22 kg/m2 of wall surface.

The fire-resistance rating of a framed assembly depends primarily on the time during which the membrane on the fire-exposed side remains in place. These assigned times are the individual contributions of each component to the overall fire-resistance rating of an assembly, which is permitted to be derived using the component additive method described. In the component additive method, the fire-resistance rating of a framed assembly is calculated by adding the time assigned for the membrane on the fire-exposed side to the time assigned in for the framing members and then adding any time assigned for additional protective measures, such as the inclusion of insulation or of reinforcement for a membrane.

Using the component additive method, to attain a minimum rating of 1 hour for a wood framed assembly, an uninsulated assembly should have a membrane with a minimum assigned time of 40 minutes since the wood studs have an assigned time of 20 minutes. This narrows down the membrane options for the fire exposure side to only include 5/8-in. Type X gypsum (for both load bearing and non-load bearing per the IBC and only load bearing per the NBCC) and double 1/2-in. gypsum wallboard. Assemblies designed accordingly may use insulation as an optional component.

To attain a minimum rating of 1 hour for a wood framed assembly, an insulated assembly should have a membrane with a minimum assigned time of 25 minutes since the wood studs have an assigned time of 20 minutes and insulation have an assigned time of 15 mins. This allows the membrane on the fire exposure side to include 5/8-in. gypsum wallboard (for IBC only) and 1/2-in. Type X gypsum wallboard as well as 5/8-in. Type X gypsum wallboard (for the both load bearing and non-load bearing per the IBC and only load bearing per the NBCC) and double 1/2-in. gypsum wallboard.

Additionally, framing and membrane fastening requirements specified in the IBC and NBCC shall also be taken into consideration when applying this method of calculated fire-resistance ratings for wall assemblies.

With the fire-rated assemblies shown above, Fastplank is to be installed over the exterior side of the wall. Using Harmathy's rules and the above assigned times, a number of assemblies that include the Fastplank siding systems may be deemed meeting a 1 hour fire resistance rating. Harmathy's second rule of fire resistance states:

"The fire endurance of a construction does not decrease with the addition of further layers."

The above rule is valid if the new layer, if applied to the exposed surface, must not produce additional thermal stresses in the construction and does not penetrate the base wall significantly. The Fastplank siding system is currently Listed to ASTM E136 and CAN/ULC S114 where the base material is classified as non-combustible. Therefore, the siding system will not apply additional thermal stresses to the assembly.

Based on the above, Intertek will create a new Design Listing to reflect the conclusion of this evaluation. The resultant design listing will be limited to not more than a 1 hour fire-resistance rating. Multiple combinations

of the components of these assemblies will be captured within the design listing. Intertek will also update Spec ID 68062 to add ASTM E119 and CAN/ULC S101.

If you have any questions regarding this letter report, please do not hesitate to contact the undersigned.

Sincerely,

INTERTEK TESTING SERVICES NA, LTD.

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