

Internal laboratory testing was performed to measure the effects of extreme heat on an air-water barrier clad in FastPlank® aluminum plank system.

1 Methodology

The laboratory replicated a common wall construction to include 2x 4 wood stud framing, insulation, sheathing (OSB), air-water barrier (Tyvek®) and FastPlank®.

A heat gun was applied directly to the exterior surface of FastPlank® to measure the maximum temperature reached by the air-water barrier. Multiple tests were performed to record the resonant temperature of the air-water barrier behind the aluminum plank siding.

2 Test Results

Prolonged exterior application of extreme temperatures recorded the aluminum plank reaching more than 125°C (257°F). While the air-water barrier exceeds its manufacturer rating, reaching temperatures as high as 114.7°C (238.5°F) it demonstrates no visible evidence of decomposition or deformation.

3 Summary

Extremely high temperatures applied to the exterior surface of FastPlank® aluminum siding and consequently the Tyvek® HomeWrap®, revealed no adverse effect on the materials.



ADDITIONAL RESOURCES

Dupont™

“Tyvek® can endure temperatures ranging from -70°C (-94°F) to 118°C (244.4°F). Tyvek® is dimensionally stable from -73°C (-99.4°F) to 100°C (212°F). Under tension, such as in printing or coating operations, we recommend that temperature not be higher than 79°C (174.2°F) to avoid deformation of Tyvek®”. Dupont® data sheets also specify Tyvek Tape® is rated for temperatures from -40°C (-40°F) up to 104.4°C (220°F).

Aluminum Consultants Group Inc.

“Solar radiation can develop material temperatures of 60°C (140°F) on bare aluminum and up to 82°C (180°F) on dark painted metal. Bare aluminum may see a total thermal excursion of 65.6°C (150°F), assuming a minimum of -23.3°C (-10°F) and a maximum of 60°C (140°F). By the same reasoning, dark painted metal may see a total thermal excursion of 87.7°C (190°F).”

Source: Warren Hunt Ph.D. and Lynne Karabin Ph.D.

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