Certified Alaska Tough

COLD CLIMATE HOUSING RESEARCH CENTER

***Certified Alaska Tough** distinguishes building products that can withstand the extreme climate conditions of Alaska, while meeting strict energy efficiency standards*

Product Line

Residential windows, excluding skylights and roof windows.

Certification criteria

1. Excellent thermal performance:

a. U-factor of less than or equal to 0.20
b. NFRC certification required

2. Superior air, water and structural (AWS) performance:

a. North American Fenestration Standard performance grade of 45 or better
b. NAFS performance class can be R, LC, CW or AW, but the product certification is intended for residential applications
c. AWS certification to AAMA/WDMA/CSA 101/I.S.2/A440 required through AAMA or WDMA

3. Exceptionally airtight:

a. Measured air leakage via ASTM E283
b. The air leakage rate must not exceed the Canadian A3 level for operable windows (0.1 cfm/ft2) and must not exceed the Canadian fixed level for fixed windows (0.04 cfm/ft2). It is not required that both infiltration and exfiltration be measured; either shall suffice for demonstrating compliance with the A3 air leakage level.

Background

While windows are often the weakest thermal and structural component in the building envelope, they are crucial for needs ranging from aesthetics, to ventilation, to emergency egress. Such needs place a high demand on windows used in the North due to the climatic extremes encountered, such as extended low temperatures, high wind speeds, and wind-driven rain. Accounting for all these performance demands is necessary to ensure that homeowners in cold climate regions have access to windows known to be truly Alaska Tough.

CCHRC's certification program will not duplicate existing product testing, but instead will build upon the framework for testing that is now industry standard. Good thermal and structural performance is fundamental, and these aspects are covered well by testing under the NFRC certification program and the North American Fenestration Standard. A window that is Alaska Tough should pass and score highly on such tests without qualification. Therefore CCHRC will require documentation of thermal performance and structural performance as a prerequisite for our certification program.

It is CCHRC's goal to establish a rigorous certification program that is respected by homeowners, builders and window manufacturers, and remains accessible to window manufacturers of many sizes. The U-factor requirement of 0.20 or less is far more stringent than Energy Star and IECC criteria. However, this requirement is feasible to achieve with triple-pane windows, as demonstrated by several manufacturers that already meet this requirement. The structural performance grade of 45 or better is equivalent to the highest wind load requirement in the IBC within Alaska. There are manufacturers of residential windows within and outside Alaska that currently meet this requirement. This combination of stringent thermal and structural performance requirements will help ensure that windows are well suited for Alaska and other cold climate regions.

Misc info and Definitions

Energy Star, Northern Climate Zone, Version 6.0 – U-factor max of 0.27, for any solar heat gain coefficient (SHGC).

IECC 2012, Climate Zone 8 – U-factor max of 0.32, any SHGC, air leakage max of 0.3 cfm/sq.ft. (1.5 L/s/m2).

AAMA	American Architectural Manufacturers Association
BEES	Building Energy Efficiency Standards
IBC	International Building Code
IECC	International Energy Conservation Code
NFRC	National Fenestration Rating Council
SHGC	Solar Heat Gain Coefficient
WDMA	Window and Door Manufacturer's Association

JAN.2015

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