

Projected Validation of the New NFRC Simulation and Testing Procedure

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Products analyzed (Total of 6 products analyzed):

- 2 Aluminum (TRR1999 and TRR2000)
- 1 T/B Aluminum (TRR2001)
- 2 Wood Aluminum clad (TRR1997 and TRR1998)
- Wood/Al skylight (commercial test and simulation)

These products were analyzed using old and new (proposed) NFRC simulation and testing methods. For simulation work, WINDOW 4.1 and THERM 2.1a were used to simulate products according to the old method (i.e., NFRC 100-1997), while THERM 5.1 and WINDOW 5.1 were used to simulate products according to the new method (i.e., NFRC 100-2002). The old and new test procedures (i.e., NFRC 100-1997 Test Procedure and NFRC 102-2002) differ only in the way the raw data is standardized, while the basic test remains the same. All products except for the skylight were NFRC Test Round Robin specimens and they were tested by average of 9 laboratories each. Table 1 summarizes results from these selected simulations and tests.

Table 1. Comparison between old and new procedures for selected windows.

ID	Type	File	Test	Sim	% Diff	Test	Sim	% Diff	% Diff Tests	% Diff Sim
			100-1997	100-1997		100-2002	100-2002			
1	Al HS	TRR1999	0.57	0.615	7.89	0.545	0.551	1.10	-4.39	-10.41
2	Al HS	TRR2000	0.56	0.615	9.82	0.542	0.551	1.66	-3.21	-10.41
3	T/B Al Fix	TRR2001	0.408	0.43	5.39	0.395	0.403	2.03	-3.19	-6.28
4	Wood/Al Fix	TRR1997	0.32	0.35	9.37	0.317	0.339	6.94	-0.94	-3.14
5	Wood/Al Fix	TRR1998	0.325	0.35	7.69	0.322	0.339	5.28	-0.92	-3.14
6	Al Skylight*	yyy	0.48	0.46	-4.17	0.52	0.46	-11.54	8.33	0.00
6a	Al Skylight**	yyy	0.48	0.46	-4.17	0.48	0.46	-4.17	0.00	0.00

Notes: * Test 100 - 2002 calculation done using proposed (ASTM C1199) AWM Method.
 ** Test 100 - 2002 calculation done using CTS method.

Conclusions:

- The new simulation and test procedures show high level of agreement and validation
- For skylight, currently proposed C1199 AWM method does not show validation
- It is recommended to use CTS method for skylight, for which the agreement is much better.