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Questions on the use of this procedure should be addressed to:

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NFRC 2010 Technical Interpretations Manual (G2A27)
Interpretation Requested:

When revising a report to add a new glass option to an existing matrix and the new glass option has a better center-of-glass U-factor, is it required to report using an additional SHGC / VT 0.0 and 1.0 table for the new options?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
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Pertinent Document:

NFRC 200 - 2010

Referenced Sections: Referenced Pages:
4.5.B Page 10

Interpretation:

No. The initial SHGC / VT 0.00 and 1.00 table shall be used for the entire certification cycle and will be modified upon recertification.
**Interpretation Requested:**

How should a door which is designed to be installed in a variety of curtain wall / storefront systems be rated?

Background: NFRC 100 discusses wood, fiberglass, and steel doors and provides default framing systems for use in rating. Storefront doors are typically aluminum systems which are designed to interface with a wide variety of storefront / curtain wall systems. Example drawings included.

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</table>

**Pertinent Document:**

NFRC 100-2010

**Referenced Sections:**

Section 5.2 of NFRC 100

**Referenced Pages:**

Page 37

**Interpretation:**

The door shall be rated in the curtain wall/storefront system framing it is installed.

See examples on following pages.
Technical Committee Revisions to Initial Interpretation:
Interpretation Requested:

Concealed vents are a type of 4-sided structurally glazed window that are commonly used in commercial fenestration. Since there is no exposed framing on the exterior of the window, the window obtains its strength by attaching directly to a curtain wall. For validation testing purposes it is necessary to include the support framing in the test. However, since concealed vents are never installed as single openings but are part of a larger glazed wall system, it should be permitted that the simulations are done to the centerline of the support framing system into which they are installed. This is consistent with footnote 4 of table 4-3 which allows simulations to be done to the centerline of the verticals and horizontals. The validation test size would continue to be based on the size for the operator size in table 4-3 including the full frame of the glazed wall system. Simulating the full frame penalizes the product since half of the frame is already being included in the glazed wall simulations. See example of a concealed vent installed into a curtain wall system below. Requested interpretation on the following two questions is requested:

How are concealed vents to be tested?
How are concealed vents to be simulated and rated?

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<tr>
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Pertinent Document:

NFRC 100 - 2010

Referenced Sections:

Table 4-3

Referenced Pages:

Page 25

Interpretation:

All vents designed to go into glazed walls shall be tested and rated as a stand-alone product, using the appropriate operator type from Table 4-3 of NFRC 100.
Technical Committee Revisions to Initial Interpretation:
## NFRC Technical Interpretation – 2010

### Interpretation Requested:

Can a manufacturer obtain U-factor, SHGC and VT ratings for exterior bi-fold doors (a.k.a. folding walls) using NFRC’s current technical procedures (NFRC 100 and 200)? If so, how?

<table>
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### Pertinent Document:

NFRC 100-2010, NFRC 200-2010

### Referenced Sections:

- NFRC 100, Section 5.2
- NFRC 200, Section 2.1

### Referenced Pages:

- Page 36
- Page 2

### Interpretation:

Yes, exterior bi-fold doors (folding walls) shall be rated and tested as a single or double swinging door.

### Technical Committee Revisions to Initial Interpretation:

The revision to this TI was a decision by the Board of Directors Steering Committee to change the term bi-fold doors to exterior bi-fold doors (a.k.a. folding walls).
**NFRC Technical Interpretation – 2010**

**Interpretation Requested:**
How is an Entry Door product (with and/or without glass lites) rated when supplied with a pre-installed storm door from the manufacturer?

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<tr>
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</table>

**Pertinent Document:**
NFRC 100-2010

**Referenced Sections:**
NFRC 100, Section 5.2

**Referenced Pages:**
Page 38

**Interpretation:**
The product shall be rated with the storm door and associated parts removed from the assembly, or as Test Only for each configuration.

**Technical Committee Revisions to Initial Interpretation:**

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NIERC TI-2010-07
Entry Door with Storm

NFRC 2010 Technical Interpretations Manual
Interpretation Requested:

If a manufacturer has simulated a full lite door and wishes to add the option of substituting an opaque infill system which contains panels or a combination panels and glazing for the existing glazing. May the manufacturer simulate the infill system utilizing the simplifications described in NFRC 100 Section 5.2.4 to reduce the number of individual products required to represent the product line and include the results of this simulation with the results of the existing full lite simulation?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
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Pertinent Document:

NFRC 100-2010

Referenced Sections: NFRC 100, Section 5.2 and 5.2.4

Referenced Pages: Pages 39-41

Interpretation:

Yes. The manufacturer may model and rate single swing doors using WINDOW to calculate the full lite door per the model size, but may also use the Entry Door Spreadsheet methodology to calculate the ⅓, ½, and ⅔ lite options.

Technical Committee Revisions to Initial Interpretation:
**NFRC Technical Interpretation – 2010**

**Interpretation Requested:**

Are embossed panel, or stile and rail panel, doors/sidelights ¼ lite, ½ lite, ¾ lite and full lite sizes defined by Table 5.1 or NFRC 100 Section 5.2.6 Figure 5-1?

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<th>Date Requested</th>
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**Pertinent Document:**

NFRC 100-2010

**Referenced Sections:**

<table>
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<th>Referenced Sections:</th>
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<tbody>
<tr>
<td>NFRC 100 Section 5.2, Table 5.1</td>
<td>Pages 39-43</td>
</tr>
<tr>
<td>NFRC 100 Figure 5-1</td>
<td></td>
</tr>
</tbody>
</table>

**Interpretation:**

It is defined by Table 5-1 when using the simplification option per section 5.2.5.1. If the simplification is not used, then the actual configuration of panel and glazing sizes shall be rated.

**Technical Committee Revisions to Initial Interpretation:**
NFRC Technical Interpretation – 2010

**Interpretation Requested:**
How do we model the trapped air spaces within any spacer system?

<table>
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**Pertinent Document:**
NFRC 100-2010

**Referenced Sections:**
NFRC 100, Section 4.3.1

**Referenced Pages:**
Page 22

**Interpretation:**
Create a new solid material called “still air cavity” with a conductivity of 0.024 W/m-K.
Note: The 0.024 W/m-K is the same conductivity used in the 3-D modeling calculation for Bolts, etc.

**Technical Committee Revisions to Initial Interpretation:**
# NFRC Technical Interpretation – 2010

**Interpretation Requested:**

How are corrugated plastic panels that are manufactured and installed without frames rated for U-factor and SHGC?

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**Pertinent Document:**

NFRC 100-2010, NFRC 102-2010, NFRC 200-2010 and NFRC 201-2010

**Referenced Sections:**

NFRC 100-2010, Section 4.3.2.2

NFRC 200-2010, Section 2.1.1 & 4.6

**Referenced Pages:**

Page 25

Pages 3 & 13

**Interpretation:**

**U-factor** – Section 4.3.2.2 of NFRC 100-2010 shall be adhered to.

**SHGC** – A specimen sized per 1000mm x 1000mm shall be tested per NFRC 201 as center-of-glazing. The SHGC of the product shall be the tested center-of-glazing.

**Technical Committee Revisions to Initial Interpretation:**
# NFRC Technical Interpretation – 2010

**Interpretation Requested:**
Are additional profiles attached to the perimeter of a window frame to be modeled as part of the same product line? Is it an individual product within a product line?

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Reapproved 12/08/2010

**Pertinent Document:**
NFRC 100-2010

**Referenced Sections:**
Section 4.2.5.B

**Referenced Pages:**
Page 20

**Interpretation:**

No. The fenestration product with the additional attached profile is to be treated as a separate product line. (See the example below)
Technical Committee Revisions to Initial Interpretation:

Head

Stacked Head

Stacked Head

Frame
Interpretation Requested:

What are the differences (if any) in the simulation procedure for Tubular Daylighting Devices which have a square bottom diffuser section? Is there any variation to account for the diffuser section being larger than the tube diameter?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
--- | --- | ---
01/19/2006 | 03/15/2006 | 03/15/2006

Pertinent Document:

NFRC 100-2010 and NFRC 200-2010

Referenced Sections:

Table 4-3
Section 5.4

Referenced Pages:

Page 26
Page 55

Interpretation:

For non circular diffuser, for simulation use the circular diffuser with surface area equal to actual non circular diffuser surface area.

Technical Committee Revisions to Initial Interpretation:
Interpretation Requested:
Can one group the test-only COG options including between-glass shades based on the known COG properties without between-glass shades?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
---|---|---
03/13/2006 | 03/15/2006 | 03/15/2006

Pertinent Document:
NFRC 100-2010 and NFRC 200-2010

Referenced Sections: Referenced Pages:
Section 4.2.4.1 | Page 18
Section 4.2.3 | Page 8

Interpretation:
Yes.
U-Factor: For each group, the group leader shall be the tested COG option including the between-glass shade corresponding to the simulated COG option (without the between-glass shade) with the highest COG U-value in accordance with the section 4.2.4.1 in NFRC 100.
SHGC: For each group, the group leader shall be the tested COG option including the between-glass shade corresponding to the simulated COG option (without the between-glass shade) in accordance with the Section 4.2.3 and rules of Table 4-1 in NFRC 200.

Technical Committee Revisions to Initial Interpretation:
**NFRC Technical Interpretation – 2010**

**Interpretation Requested:**
What is the size for the large Calibration Transfer Standards (CTS) if a lab has to test 2000mm by 2000mm size sample?

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**Pertinent Document:**
NFRC 102-2010

**Referenced Sections:**
5.1.3 (A)

**Referenced Pages:**
8

**Interpretation:**
For the largest CTS the minimum width shall be 72” and the minimum height shall be 80”. A laboratory is allowed to build a larger size CTS at their discretion.

**Technical Committee Revisions to Initial Interpretation:**
Please provide a general clarification of how a glazed wall system must be simulated to rate a glazed wall system with a U-channel glazing system, which does not require intermediate vertical or horizontal framing members due to its unique U-channel glazing system construction?

The NFRC standard configuration for glazed wall systems requires a two-lite system with an intermediate vertical mullion. If the manufacturer has a standard intermediate mullion available, it should be used. If an intermediate mullion is not available, the intermediate mullion should be created by using two frame jambs back-to-back. The center-of-glass U-factor is determined by ASTM C1363 testing.
NFRC Technical Interpretation – 2010

**Interpretation Requested:**

Please provide general clarification on modeling a store front system given in Figure 1 and how to select a typical cross section for modeling the intermediate verticals as jamb in a window wall system.

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**Pertinent Document:**

NFRC 100-2010

**Referenced Sections:**

Table 4-3, Footnote #5 & Section 5.6

**Referenced Pages:**

26; 65 – 67

**Interpretation:**

The store front system shall be simulated as a Glazed Window Walls System. As per footnote #5, Window Walls shall be simulated and tested with intermediate verticals as jamb (using half of jamb for U-factor tag) and standard head and sill members. If the intermediate verticals are not the same, then they can either be simulated as different product lines, or grouped, if applicable. The horizontals in the storefront system, other than the door transom, shall be ignored. The door and transom, if present shall be each simulated separately. For door and transom use standard jamb definition (i.e., full U-factor tag).
Figure 1

Technical Committee Revisions to Initial Interpretation:
NFRC Technical Interpretation – 2010

Interpretation Requested:
For doors with integral shading devices, how do we rate the multiple sizes - ¼, ½, ¾, and full?

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Reapproved 12/08/2010

Pertinent Document:
NFRC 100-2010 & NFRC 200-2010

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<tr>
<td>NFRC 100, Sections 2.1.H &amp; 4.2.2.D</td>
<td>3 &amp; 16</td>
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<tr>
<td>NFRC 200, Section 2.1.1.A</td>
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Interpretation:
Determine the least deviation from 1 meter by 1 meter (39” by 39”) and the resultant conductance value can be used for all product types specified in Table 1 of NFRC 100.
**NFRC Technical Interpretation – 2010**

**Interpretation Requested:**

How can a non-standard size Tubular Daylighting Device be rated using the test-only methodology?

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**Pertinent Document:**

NFRC 100-2004 and NFRC 200-2004

**Referenced Sections:**

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**Interpretation:**

The Tubular Daylight Device U-Factor at standard size shall be calculated using equation 4-1.

\[
U_{\text{mod}} = \frac{(U_{\text{rep}} A_{\text{rep}})}{A_{\text{mod}}}
\]

Where:

- \(U_{\text{mod}}\) = U-Factor at model size
- \(U_{\text{rep}}\) = U-Factor at representative size (test size)
- \(A_{\text{rep}}\) = area at representative size
- \(A_{\text{mod}}\) = area at model size

The Tubular Daylight Device SHGC value at standard size shall be calculated using the following equation.

\[
\text{SHGC}_{\text{mod}} = \frac{(\text{SHGC}_{\text{rep}} A_{\text{rep}})}{A_{\text{mod}}}
\]

Where:

- \(\text{SHGC}_{\text{mod}}\) = SHGC at model size
- \(\text{SHGC}_{\text{rep}}\) = SHGC at representative size (test size)
- \(A_{\text{rep}}\) = area at representative size
- \(A_{\text{mod}}\) = area at model size

**Technical Committee Revisions to Initial Interpretation:**
**NFRC Technical Interpretation – 2010**

**Interpretation Requested:**
If the sill of a sliding glass door is designed set into the building; installed so that it extends beyond the rough opening, is it considered an appendage and therefore not modeled?

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<td>06/10/2008 Reapproved 12/08/2010</td>
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**Pertinent Document:**
NFRC 100-2010

**Referenced Sections:**
Section 4.2.5.A, 4.2.5.B

**Referenced Pages:**
Page 20

**Interpretation:**
No, although the integral framing member (in this case the sill) extends beyond the rough opening and is not exposed after installation, it shall be modeled in the following manner:
A rectangular wood block (pine or equivalent) ½” x H” (height from the bottom of the sill cavity to the finish floor line) shall be placed from at the edge of the frame on both the exterior and interior.
A rectangular wood block shall be sized to fit the exterior and interior area void created between the ½” block and the sill roller track.
If applicable, any remaining center void that is intended to be filled with material (i.e., concrete) when the unit is installed, a rectangular wood block shall be sized to fit the area.

See accompanying drawings:
Technical Committee Revisions to Initial Interpretation:

This void shall be filled with a rectangular wood block only if the area contains material when installed, i.e. Concrete.
NFRC Technical Interpretation – 2010

Interpretation Requested:
May a non-operable version of an operable product type (X) as listed in Table 4-3 be included in the simulation of the operable product?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
--- | --- | ---
04/17/2008 | 06/10/2008 | 06/10/2008

Reapproved 12/08/2010

Pertinent Document:
NFRC 100-2010

Referenced Sections: Section 4.4 and Table 4-3
Referenced Pages: Pages 25 and 26

Interpretation:
Yes.
Any changes to render the product non-operable must comply with section 4.2.
For example, this allows a Fixed Casement (O) to be included within the same product line as a Casement (X).

Technical Committee Revisions to Initial Interpretation:
Interpretation Requested:
The Dynamic Attachments for Swinging Doors methodology in NFRC 100 and 200 requires rating of the Reference Door with the blinds up and the blinds down and closed. The blinds up case can be simulated. The blinds down and closed case cannot currently be simulated.

Is it acceptable to perform whole product (reference door + attachment) testing to determine these ratings (NFRC 102 for U-Factor and NFRC 201 for SHGC)?
Is it acceptable to use a single U-Factor test to represent both reference products?
Is it acceptable to use a single SHGC test to represent both reference products?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
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08/05/2008 | 10/15/2008 | 10/15/2008

Reapproved 12/08/2010

Pertinent Document:
NFRC 100-2010 and NFRC 200-2010

Referenced Sections: | Referenced Pages:
--- | ---
NFRC 100, Section 5.7 | 68
NFRC 200, Section 5.8 | 27

Interpretation:
Yes. Current language requires to test glazing system with in-between shading device in closed position and to use tested conductance to simulate whole product performance; however, significant frame portions are required to mount the glazing system, so it is deemed acceptable to test the whole product (reference door + attachment).

No.

Technical Committee Revisions to Initial Interpretation:
NFRC Technical Interpretation – 2010

Interpretation Requested:
Can ASTM C518 be used to measure the effective thermal conductivity of non-homogeneous specimens, such as composite spacer products or materials that cannot be extruded in sufficient thickness, which cannot otherwise be simulated due to material component construction and limitations of the NFRC software?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
---|---|---
04/24/2009 | 06/16/2009 | 06/16/2009

Reapproved 12/08/2010

Pertinent Document:
NFRC 100-2010
NFRC 101-2010

Referenced Sections:  Referenced Pages:
NFRC 100, Section 4.3.1.B | 22
NFRC 101, Section 5 | 8

Interpretation:
Yes, ASTM C-518 testing is acceptable for obtaining effective thermal conductivity values for materials and components that cannot be simulated and/or provided as a homogeneous specimen for testing. Limitations to this allowance are:

As stated in NFRC 101, three (3) samples shall be tested and the tested values shall be within 10%.

The test specimen must be assembled of parallel lengths of the sample material having thickness no less than 12.7 mm (1/2”) and that no gaps exist between the lengths of material that may allow for air within the test specimen assembly. In cases where the chamber needs to be protected or the specimen cannot be properly sealed, the specimen shall be prepared sandwiched between two pieces of ¼” thick glass.
Orientation of the test specimen material is such that the heat flux in the test assembly is in the same direction across the test specimen assembly as when the component is installed in an insulating glass unit.

The test specimen assembly construction is such that the heat flux is predominantly uniform across the test area and that areas of localized heat flux variation is minimized.

*Technical Committee Revisions to Initial Interpretation:*
**NFRC Technical Interpretation – 2010**

**Interpretation Requested:**

1. Can a total product test be used to determine a center-of-glass SHGC (SHGC\textsubscript{cog})?

2. When a total product is tested for SHGC with an integral blind or solar screen, can we calculate the SHGC\textsubscript{cog}?

3. Can the calculated SHGC\textsubscript{cog} be used for other product lines with the same glazing and integral blind or solar screen?

<table>
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<th>Date Requested</th>
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<tr>
<td>08/10/2009</td>
<td>08/18/2009</td>
<td>08/18/2009 Reapproved 12/08/2010</td>
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</tbody>
</table>

**Pertinent Document:**

NFRC 200-2010

**Referenced Sections:**

Sections 4.5 & 4.7

**Referenced Pages:**

Pages 10 & 13

**Interpretation:**

1. Yes, only in the case that a COG test cannot be performed and the sample size shall include a 1m x 1m glass area, as required per TI-2004-07. The center-of-glass SHGC shall be calculated as follows:

   \[ \text{SHGC}_{\text{cog}} = \frac{(\text{SHGC}_{\text{total}} - \text{SHGC}_0)}{\text{SHGC}_1 - \text{SHGC}_0}, \]

   where:

   - \( \text{SHGC}_{\text{total}} \) will be from the NFRC 201 test,
   - \( \text{SHGC}_0 \) and \( \text{SHGC}_1 \) will be from Window 5.2 for the product with custom size (same size as the NFRC 201 test sample).

2. Yes, this only applies when the integral blind or solar screen is between the panes of glass as defined in NFRC 100, Section 2.1.H.

3. Yes. As long as interpretations in #1 and #2 are applied.

**Technical Committee Revisions to Initial Interpretation:**
Clarification of Dual Seal (D) vs. Single Seal (S) for reporting of spacer codes.

The NFRC now requires that the simulation and thermal test labs upload report summaries to the NFRC website. If the simulation and test lab validations do not match exactly, the uploads are rejected by the IA and a new corrected upload is required from each lab.

Recently, there have been rejections of uploads from IA’s due to non-matching spacer codes between simulation and validation labs, specifically with the use of (S) vs. (D). Thus, it is requested that there be a clear definition made by the NFRC.

(1) When there is only one material type of sealant on both the sides and bottom of the spacer, would the simulation and test lab report a single sealed or dual sealed spacer system?

(2) When there are two different material types of sealant applied to a spacer would the simulation and test lab report this as a dual seal spacer system?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
---|---|---
Revised 03/03/2010
Reapproved 12/08/2010

Pertinent Document:

Referenced Sections:
Simulation Manual, Section 2.7
Simulation Lab User's Manual, Section 3.3

Referenced Pages:
Page 2-14
Page 7

Interpretation:
(1) In the simulation manual, section 2.7, it states that there is a primary seal (edge of spacer to glass) that helps to hold the unit together and to prevent moisture intrusion and that a secondary seal (below spacer) is used to provide structural strength. It does not state that the sealant needs to be two different materials in order to be considered a dual sealed spacer.
Thus, if a spacer is sealed both on the sides and below the spacer, it should be reported as a dual sealed spacer.

(2) If a spacer has more than one type of sealant material it will automatically be considered a dual sealed spacer.

**Technical Committee Revisions to Initial Interpretation:**

The revision to this TI was to add question #2, with corresponding answer.
**NFRC Technical Interpretation – 2010**

**Interpretation Requested:**

If a manufacturer does not build an embossed sidelight or raised panel sidelight product in a size near the NFRC Table 4-3 size how does the simulator determine the daylight opening/panel width and height dimensions for the standard NFRC size?

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<th>Date Requested</th>
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**Pertinent Document:**

NFRC 100-2010 and NFRC 200-2010

**Referenced Sections:**

- NFRC 100 Table 4-3
- NFRC 100 Figures 5-2a, 5-2b, 5-3

**Referenced Pages:**

- Page 26
- Pages 4-46

**Interpretation:**

The stile and rail (PFD) dimensions are held constant and the panel (PFD) dimensions are equally adjusted to account for the difference between the as built and as rated sizes.

**Technical Committee Revisions to Initial Interpretation:**
Interpretation Requested:

Grouping a frame component in CMA states that change in frame length perpendicular to the fenestration plane is allowed. Table 5.9.3 for aluminum products states that the maximum length is the group leader. When an aluminum unit is being lengthened solely by increasing the length of the thermal break, (see diagram below) should the group leader be determined by the component with the highest heat loss?

<table>
<thead>
<tr>
<th>Date Requested</th>
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Pertinent Document:

NFRC 100-2010

Referenced Sections:  Referenced Pages:
NFRC 100, Section 5.9.2 85
NFRC 100, Table 5.9.3 86

Interpretation:

Frame grouping in NFRC 100 Section 5.9.5.2 for metallic frames shall only apply when the width and material of any thermal break (if present) does not change.
According to the NFRC Simulation Manual when modeling a skylight, the Jamb members are to be assigned a cross section type of “Sill” and the gravity vector set to “Right”. In CMAST, the cross section type must be compatible with the location of the frame member, so a member with a cross-section type of Sill cannot be used as a Jamb when building a frame assembly in CMAST. What is the proper way to model these members in Therm, or import them to CMAST so they can be used correctly?

For products simulated at a slope, model the Jambs as Jamb and Vertical Intermediates as Vertical Meeting Rail so that the components can be used in CMAST. Set the gravity vector to the right.

Technical Committee Revisions to Initial Interpretation:
**NFRC Technical Interpretation – 2011**

**Interpretation Requested:**
Can a fabric shade between the glass be simulated and rated in the fully retracted position?

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**Pertinent Document:**
THERM 6.3 / WINDOW 6.3 NFRC Simulation Manual

**Referenced Sections:**
Section 8.11

**Referenced Pages:**
Pages 8-119 through 8-129

**Interpretation:**
Yes. The technique shown in Section 8.11 of the Simulation Manual shall be used, provided the shade system is designed to be stacked in the retracted position, with a solid block of “Cellulosic Fiber, Cotton Fiber” as the shade material in the model (See Model on next page)
### NFRC Technical Interpretation – 2011

**Interpretation Requested:**

If an ACE needs to generate a certificate for a product using a Frame Assembly (FA), is the ACE limited to using Approved Frame Components from a single Framing Product Line (FPL)?

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<th>Date Requested</th>
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</table>

**Pertinent Document:**

CMAST Manual

**Referenced Sections:**

Appendix C

**Referenced Pages:**

Pages 144-146

**Interpretation:**

No, the CMAST Manual, Section 3.5.2.1, allows assembly of an FA using any approved frame component.

**Technical Committee Revisions to Initial Interpretation:**
# Interpretation Requested:

NFRC 200 4.7.A.iii requires that the Frame and Divider SHGC to be calculated with default absorptance values. Is it required to simulate all frame and divider products for U-factor using the same default absorptance values?

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## Pertinent Document:

NFRC 200

### Referenced Sections:

Section 4.7.a.iii

### Referenced Pages:

Pages 14

## Interpretation:

No, since U-factor is not affected by absorptance, only the individual products used to generate the Zero and One values called for in section 4.5 need to be calculated using the default absorptance values.

## Technical Committee Revisions to Initial Interpretation:
NFRC Technical Interpretation – 2011

Interpretation Requested:

Clarify the ambient test temperature conditions required for conducting an NFRC 102 test?

<table>
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Pertinent Document:

NFRC 102-2010

Referenced Sections: Section 7

Referenced Pages: Page 6

Interpretation:

The following temperature conditions shall be used:

Interior Temperature: 21.0 C (69.8 F) +/- 0.3C (+/- 0.5 F)

Exterior Temperature: -18.0 C (-0.4 F) +/- 0.3C (+/- 0.5 F)

The conditions above were published in NFRC 102-2004 and were inadvertently not included in NFRC 102-2010.

Technical Committee Revisions to Initial Interpretation:
NFRC Technical Interpretation – 2011

Interpretation Requested:

When simulating the default steel frame for doors, what sill should be used?

<table>
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<td>06/02/2011</td>
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</table>

Pertinent Document:

NFRC 100-2010

Referenced Sections: Section 5.2.4.B

Referenced Pages: Page 40

Interpretation:

An aluminum non-thermally broken sill with a sill wall thickness of 1.4 mm to 1.6 mm (0.055 in to 0.065 in) and no substrate, as indicated in Section 5.2.4.B of NFRC 100-2010. (The attached drawing may be used.)

Technical Committee Revisions to Initial Interpretation:
### NFRC Technical Interpretation – 2011

#### Interpretation Requested:

Can a door with two slabs, one in front of the other, be rated by simulation assuming that the projected dimensions of the lite cutouts are the same for ¼, ½, ¾ and full lites and assuming the product is sold as a system?

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<td>03/01/2011</td>
<td>03/15/2011</td>
<td>08/25/2011</td>
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#### Pertinent Document:

NFRC100-2010, NFRC 200-2010, TI-2010-07

<table>
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<tr>
<td>NFRC 100-2010 (Section 5.2)</td>
<td>37-49</td>
</tr>
<tr>
<td>NFRC 200-2010 (Section 5.2)</td>
<td>18</td>
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</table>

#### Interpretation:

Yes, so long as there is not a significant overlap (equal to or less than 25.4mm (1") between the vision area of one door and the opaque area of the other.

#### Technical Committee Revisions to Initial Interpretation:
NFRC Technical Interpretation – 2011

Interpretation Requested:

How does a simulator represent a very thin metal foil that is less than 0.005” thick?

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Pertinent Document:

NFRC Simulation Manual

Referenced Sections: Section 6

Referenced Pages: 6-1

Interpretation:

To simulate a very thin metal foil, increase the thickness by a multiple and divide its conductivity by the same multiple. Draw the foil at x times the thickness and use a conductivity equivalent to 1/x of the conductivity found in NFRC101. The modified thickness shall not exceed 0.005”.

Technical Committee Revisions to Initial Interpretation:

TIPC approved a revision on October 25, 2011 to allow the multiplier of the metal thickness to be any value rather than limiting it to an integer, as was initially interpreted.
**Interpretation Requested:**

NFRC 100 Section 5 for Swing Doors makes multiple references to using default assemblies (frames, sills, door lite frames, etc). Are these considered component changes as defined in NFRC 100 Section 4.2.1.F even though the physical shapes may be different?

<table>
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**Pertinent Document:**

NFRC 100

**Referenced Sections:**

Section 5 and 4.2.1

**Reference Pages:**

13, 36-50

**Interpretation:**

Yes

**Technical Committee Revisions to Initial Interpretation:**
**Interpretation Requested:**

When simulating a product with a metallic frame, what interior boundary conditions and surface emissivities shall be applied?

<table>
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**Pertinent Document:**

NFRC 100-2010
NFRC 101-2010

**Referenced Sections:**

Table 4-2 of NFRC 100
Appendix A, B, and C of NFRC 101

**Referenced Pages:**

Page 24
Pages 18-26

**Interpretation:**

Non-thermally broken metallic frames shall use Aluminum, thermally improved metallic frames shall use Thermally Improved Aluminum; and, and thermally-broken metallic frames shall be use Thermally Broken Aluminum Boundary Conditions.

Metallic surfaces shall be assigned the emissivity per NFRC 101 for exposed, painted, or anodized as appropriate. Surfaces to be considered exposed shall follow the same rules as aluminum frames but with the emissivity appropriate for that material.

**Technical Committee Revisions to Initial Interpretation:**
**Interpretation Requested:**

May a simulator group dividers based on COG values alone?

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<td>11/28/2011</td>
<td>01/09/2012</td>
<td>03/06/2012</td>
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**Pertinent Document:**

NFRC 100-2010

**Referenced Sections:**

Section 4.2.4.1

**Referenced Pages:**

Pages 18-19

**Interpretation:**

No, dividers may not be grouped by COG alone. Section 4.2.4.1 clearly requires that all COG options be identified and simulated. Any dividers that violate the 3mm rule for any glazing option shall be simulated in the lowest COG option that requires modeling.

**Technical Committee Revisions to Initial Interpretation:**
Interpretation Requested:

When a manufacturer combines both an SDL bar less than 25.4mm and one greater than 25.4mm in the same product, how is this product evaluated?

Date Requested: 03/05/2012
Initial Interpretation Date: 04/10/2012
Final TIPC Approval Date: 04/10/2012

Pertinent Document:
NFRC 100 and 200

Referenced Sections:
- NFRC 100, Section 4.2.4.1D
- NFRC 200, Section 4.5C

Referenced Pages:
- Page 18
- Page 11

Interpretation:

An individual product that includes both SDL < 25.4mm and SDL ≥ 25.4mm shall be evaluated by grouping it with the SDL bar option ≥ 25.4 mm.

Note: This TI does not apply to grilles-between-glass or true divided lites (TDL).

Technical Committee Revisions to Initial Interpretation:
The Board of Directors required clarification to address instances where the SDL bar option may be equal to 25.4mm. The interpretation was revised to read ≥ 25.4mm to account for that omission.
Interpretation Requested:
When rating a product using CMAST, what solar absorptance should be used for curtain wall, storefront, and other glazed wall framing systems used in other commercial product types such as unit windows?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
--- | --- | ---
03/13/2012 | 04/10/2012 | 04/10/2012

Pertinent Document:
NFRC 101, NFRC 200

Referenced Sections: Referenced Pages:
NFRC 101 Section 5.3 NFRC 101 page 12
NFRC 200 Section 4.5.D NFRC 200 page 11

Interpretation:
When a framing system used for curtain wall / window wall / sloped glazing is also used in other product types, the frame absorptance shall be 0.5 in the CMAST program.

Technical Committee Revisions to Initial Interpretation:
NFRC Technical Interpretation – 2012

Interpretation Requested:

1. How should a mid-rail be included in a sliding glass door?
2. How should this situation be handled in CMAST?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
--- | --- | ---
12/07/2012 | 12/14/2012 | 12/14/2012

Pertinent Document:
NFRC 100

Referenced Sections: | Referenced Pages:
--- | ---
NFRC 100, Section 5.2 | 36

Interpretation:

1. The mid-rail shall be modeled as a single horizontal true divided lite grid member in a standard NFRC product simulation.

2. Until such time CMAST has the ability to include dividers/grids, a sliding door with a mid-rail cannot be rated by CMAST.

Technical Committee Revisions to Initial Interpretation:
Interpretation Requested:

How can a Bi-Parting Sliding Door be modeled for inclusion in CMAST?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
---|---|---
12/07/2012 | 12/14/2012 | 12/14/2012

Pertinent Document:

NFRC 100

Referenced Sections: Referenced Pages:

| NFRC 100, Table 4-3 | 27 |
| NFRC 100, Section 5.2 | 36 |

Interpretation:

The product shall be treated as a sliding glass door, provided it is a full-lite door panel.

All components except the operable jamb shall be modeled using standard techniques. The operable jamb shall be modeled using the centerline approach.

When being entered by an ACE as a complete product, the four panel unit will be entered as two separate sliding glass doors, using the centerline jamb component.

See following page for illustration of a bi-parting door.
Technical Committee Revisions to Initial Interpretation:
**NFRC Technical Interpretation – 2012**

**Interpretation Requested:**

1. For a product to qualify as a Pivoted Window, does the pivot axis need to be fixed in place within the frame?
2. For a product to qualify as a Pivoted Window, does the sash travel need to traverse both the interior and exterior planes of the frame during operation?
3. Can a Projected or Casement window which uses a sliding top, bottom, or side-mounted pivot point be rated as a Pivoted Window?

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**Pertinent Document:**

NFRC 100, NFRC 600

**Referenced Sections:**

NFRC 100 Table 4-3, NFRC 600 Section 3

**Referenced Pages:**

NFRC 100 Page 27, NFRC 600 Page 14

**Interpretation:**

1. Yes. A Pivoted Window must pivot about a fixed axis within the frame.
2. Yes. A Pivoted Window sash shall traverse both the interior and exterior planes of the frame during operation.
3. No. In this case, the pivot axis is not a fixed axis and the sash traverses only one plane of the frame during operation.

**Technical Committee Revisions to Initial Interpretation:**

NFRC TI-2012-06
Pivoted Window

February 5, 2012
**NFRC Technical Interpretation – 2013**

**Interpretation Requested:**

Can a product with a glazing component that is test only for COG values (such as a translucent panel) be rated for CR using the simulation procedure?

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**Pertinent Document:**

NFRC 500-2010

**Referenced Sections:**

Section 4.2.1

**Referenced Pages:**

Pages 3-4

**Interpretation:**

No. For glazing components that must be tested for COG values, the CR test procedure must be used to obtain a CR rating.

**Technical Committee Revisions to Initial Interpretation:**
### Interpretation Requested:

Can a manufacturer obtain U-factor, SHGC and VT ratings for an exterior bi-fold window using NFRC’s current technical procedures (NFRC 100 and 200)? If so, how?

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### Pertinent Document:

TI-2010-05, NFRC 100-2010, NFRC 200-2010

### Referenced Sections:

- NFRC 100, Section 5.2
- NFRC 200, Section 2.1

### Interpreted Sections:

Page 36

### Technical Committee Revisions to Initial Interpretation:

Yes, an exterior bi-fold window shall be rated and tested as a double casement.
NFRC Technical Interpretation – 2013

Interpretation Requested:

Can a very thin (less than 0.127mm, or 0.005" thick), non-metal layer (Keff < 10 W/m-K) used as a vapor barrier in a spacer assembly be excluded from the THERM model?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
--- | --- | ---
06/04/2013 | 06/19/2013 | 06/19/2013

Pertinent Document:

NFRC Simulation Manual

Referenced Sections: Section 6

Referenced Pages: 6-1

Interpretation:

Yes, but any change in the surface emissivity shall be applied.

Technical Committee Revisions to Initial Interpretation:
When rating a composite product (multiple types within a common frame), which contains only two Product Types, one of which is a fixed lite (Fixed, Sidelite, and/or Transom), may the rating of the non-fixed Product Type within the common frame be used to represent the entire assembly?

Example 1: DH/FX/DH in one common frame. This product receives the performance rating of the DH.

Example 2: Awning with a fixed lite above separated by an integral mullion, one common frame. This product receives the performance rating of the awning.

Example 3: Single side-hinged door leaf with a side-lite separated by an integral mullion in a common frame. This product receives the performance rating of the side-hinged door.

Yes- Section 4.5.2 of NFRC 100 allows this type of assembly to be rated in this manner.
**NFRC Technical Interpretation – 2014**

**Interpretation Requested:**

May a door with individually hinged, moved and stacked sash panels against the frames be classified and modeled as a swinging door with frame, as defined in NFRC 100?

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**Pertinent Document:**

NFRC 100-2010, NFRC 200-2010, NFRC Technical Interpretation Manual 2010

**Referenced Sections:**

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<td>38</td>
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<td>NFRC 200-2014, Section 2.1</td>
<td>2</td>
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<tr>
<td>NFRC Technical Interpretation Manual 2010</td>
<td>TI-2010-05</td>
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</table>

**Interpretation:**

Yes.

**Technical Committee Revisions to Initial Interpretation:**
NFRC Technical Interpretation – 2014

**Interpretation Requested:**

When simulating a steel side-hinged entry door with galvanized steel skin that is painted on the interior and exterior surfaces, is it correct to use an emissivity of 0.9 for the painted surface rather than the emissivity of 0.2 of the unpainted galvanized steel?

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**Pertinent Document:**

WINDOW / THERM NFRC Simulation Manual
NFRC 101-2014

**Referenced Sections:**

- Simulation Manual, Section 8.6
- NFRC 101, Appendix A

**Referenced Pages:**

- 8-73
- Pages 21 & 22

**Interpretation:**

Yes.

**Technical Committee Revisions to Initial Interpretation:**
**NFRC Technical Interpretation – 2015**

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<th>Interpretation Requested:</th>
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<tbody>
<tr>
<td>TI 2010-04 makes it clear that a concealed vent in a glazed wall system is to be simulated as stand-alone product without surrounding glazed wall system framing. Since many of these systems are not designed to be assembled as stand-alone product some surrounding framing system must be included for testing. Clarify how concealed vents in glazed wall systems are to be assembled for testing.</td>
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<th>Date Requested</th>
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<tr>
<td>03/19/2015</td>
<td>05/12/2015</td>
<td>05/12/2015</td>
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</table>

**Pertinent Document:**

TI-2010-04

**Referenced Sections:**

None

**Referenced Pages:**

None

**Interpretation:**

A concealed vent in a glazed wall system may be installed in a generic frame (such as wood or foam) for testing. The frame may be modified to accommodate dropped or stepped glazing if required. The chosen frame material shall be included in the simulation of the test sample only.

**Technical Committee Revisions to Initial Interpretation:**

NFRC TI-2015-01
Concealed Vents

NFRC 2010 Technical Interpretations Manual
NFRC Technical Interpretation – 2015

Interpretation Requested:

1) Can laminated glass layers which incorporate embedded Building Integrated Photovoltaics (BIPV) be assumed to have the same U-factor as the clear laminated glass version?

2) Can SHGC and VT component testing be used in situations where component U-Factor for glazing can be assumed to have the same U-factor as clear glass?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
--- | --- | ---
04/17/2015 | 05/12/2015 | 07/07/2015

Pertinent Document:
ANSI/NFRC 100-2014
ANSI/NFRC 200-2014

Referenced Sections: Referenced Pages:
ANSI/NFRC 100-2014 Section 4.2.5.H 22
ANSI/NFRC 200-2014 Section 2.1.1 3-4
ANSI/NFRC 200-2014 Section 2.1.2 4

Interpretation:

1) Yes, as indicated in NFRC Section 4.2.5.H.
2) Yes. SHGC calculations will be done using component testing per NFRC 201. VT calculations will be done using component testing per NFRC 202.

Technical Committee Revisions to Initial Interpretation:
Interpretation Requested:

Should inline reveals (Figure 1a) and offset reveals (Figure 1b) fixed to a window or door frame be included in the simulation model?

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<tr>
<td>02/04/2015</td>
<td>05/12/2015</td>
<td>06/09/2015</td>
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Pertinent Document:

THERM 6.3/WINDOW 6.3 NFRC Simulation Manual

<table>
<thead>
<tr>
<th>Referenced Sections</th>
<th>Referenced Pages</th>
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<tbody>
<tr>
<td>6.3.4</td>
<td>67</td>
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</table>
**Interpretation:**

No. Under NFRC rules the reveal whether inline, or offset would be defined as a jamb extender. Section 6.3.4 of the NFRC Simulation Manual states, "ANSI/NFRC 100 specifically excludes certain options on fenestration products which are not modeled in THERM. These options include:…Optional jamb, head and sill extensions."

Windows and doors installed with inline reveals (Figure 1a) and offset reveals (Figure 1b) shall be modelled without the reveals attached.

**Technical Committee Revisions to Initial Interpretation:**
NFRC Technical Interpretation – 2015

**Interpretation Requested:**

Is a curtainwall system which is intended to be used in a residential application allowed to use the Section 5.9.5.2, "Simplifications to Frame Component" and Table 5.5- Frame Group Leader for all Metallic, Aluminum, Thermally-Improved Aluminum, and Thermally-Broken Aluminum Frame of ANSI/NFRC 100-2014?

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</table>

**Pertinent Document:**

ANSI/NFRC 100-2014

**Referenced Sections:** 5.9.5.2

**Referenced Pages:** 79-80

**Interpretation:**

No. Scope is limited to fenestration installed in commercial buildings as defined in NFRC 600.

**Technical Committee Revisions to Initial Interpretation:**
Interpretation Requested:

What sign convention relative the planar angle of rotation should be used when determining the Surface Tilt Angle ($\Sigma$) as it would be applied to calculating a given test condition’s Relative Solar Altitude Angle (RSALT) in NFRC203-2014, Procedure for Determining Visible Transmittance of Tubular Daylighting Devices?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
--- | --- | ---
09/21/2015 | 10/13/2015 | 10/13/2015

Pertinent Document:

NFRC 203-2014

Referenced Sections: Referenced Pages:
Section 3; Definitions | Page 3
Figure 3-3 | Page 4

Interpretation:

The sign convention associated with the Surface Tilt Angle ($\Sigma$) as applied to the Relative Solar Altitude Angle calculation (RSALT = $\beta - \Sigma$) is as follows (as shown in the attached, augmented Figure 3-3 below):

A clockwise rotation of the Specimen “Horizon” relative to the Ground Plane yields a positive (+) Surface Tilt Angle ($\Sigma$); a counterclockwise rotation of the Specimen “Horizon” relative to the Ground Plane yields a negative (-) Surface Tilt Angle ($\Sigma$).
Technical Committee Revisions to Initial Interpretation:
Interpretation Requested:
How can the effective conductivity of specialty glazing products, such as stiff insulating translucent panels or infill panels where homogeneous solid materials are in direct contact, be determined for use creating glass library options in Window6/7?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
---|---|---
12/16/2015 | 01/19/2016 | 01/19/2016

Pertinent Document:
NFRC Simulation Manual (W6 and W7)

Referenced Sections: Section 2.5.2, 2.6.7, 8.5.4
Referenced Pages: 2-6, 2-10, 8-70

Interpretation:
For homogeneous solid materials in direct contact, the \( K_{eff} \) is only dependent on the conductivity and depth of each of the materials. Therefore:
\[
K_{eff} = \frac{RT}{DT}
\]
where:
\[
RT = \sum \frac{d}{k} = \text{Total Resistance} = \text{sum of the depth(d) of each material layer divided by the conductivity (k) of that material layer as listed in NFRC 101.}
\]
And
\[
DT = \sum d = \text{Total Depth} = \text{sum of the depth all the material layers.}
\]
In Window 6/7, create a new glazing layer in the glass library as outlined in Section 8.5.4.3 using the calculated \( K_{eff} \) and using the emissivity(ies) from NFRC 101.

This is for a center-of-glazing scenario for importing a glazing layer from WINDOW, only. Any edge effect (e.g. aluminum wrapped around the edge) shall be modeled in THERM.

Technical Committee Revisions to Initial Interpretation:
Interpretation Requested:

When a door pre-hanger that uses multiple doorlites in the same door slab add up the total glass area of all the doorlites in the door slab and rate the door system with the appropriate 1/4, 1/2, 3/4, or full lite door rating?

Date Requested: 06/02/2016  
Initial Interpretation Date: 07/19/2016  
Final TIPC Approval Date: 07/19/2016

Pertinent Document:
ANSI/NFRC 100-2014

Referenced Sections: Section 5.2, Tables 5-1 and 5-2
Referenced Pages: 41-42

Interpretation:

Yes

A door system which has multiple doorlites in the same door slab shall be rated as a 1/4, 1/2, 3/4, or full-lite by;

1) adding the total glass area by daylight opening size of all the doorlites in the door slab; and by;
2) using the conventional surface area definitions of 1/4, 1/2, 3/4, or full-lites as shown in ANSI/NFRC 100, Section 5.2.5.1, Tables 5-1 (doors) and 5-2 (sidelites).

Note: This does not apply to doors with true-divided lites.
Technical Committee Revisions to Initial Interpretation:

Surround Panel

Insulation material which is part of the product

Product which protrudes from the tube
# NFRC Technical Interpretation – 2016

**Interpretation Requested:**

How is the Thermal Opening Area of a TDD to be determined when additional insulation materials have been added to the exterior of the tube in the area where it passes through the surround panel (“the building’s thermal envelope”)?

How should the surround panel be constructed in this situation?

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<td>06/24/2016</td>
<td>07/19/2016</td>
<td>07/19/2016</td>
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</table>

**Pertinent Document:**

ANSI/NFRC 100-2014, NFRC 102-2014

**Referenced Sections:**

ANSI/NFRC 100, Sections 4.1.2 & 5.4

NFRC 102, Annex A3

**Referenced Pages:**

12, 52-55

13-25

**Interpretation:**

**Question 1:**
The Thermal Opening Area should be determined by the tube area at the interior most plane of the building thermal envelope. In this case, the additional material added to the tube is serving as a portion of the building’s thermal envelope.

**Question 2:**
The surround panel opening shall be sized to fit the shape of the product. Any surround panel removed which is not filled in by the product geometry is left open to the interior space.

**Technical Committee Revisions to Initial Interpretation:**
**NFRC Technical Interpretation – 2017**

**Interpretation Requested:**

Does Section 4.2.1.H.iii of NFRC 100 apply to products other than swinging doors? For instance, can an inswing and outswing casement window be put in the same product line if only the frame is modified?

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<tr>
<td>3/3/2017</td>
<td>03/21/2017</td>
<td>03/21/2017</td>
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</table>

**Pertinent Document:**

ANSI/NFRC 100-2014 E0A1

**Referenced Sections:**

| 4.2.1.H.iii  | 15 |

**Interpretation:**

No. That section only applies to swinging door products. All other products with inswing and outswing options must be separate product lines.

**Technical Committee Revisions to Initial Interpretation:**
Interpretation Requested:

Does TI-2010-20 apply to all frame cases (head, sill and jamb) in products designed so that the integral framing member extend beyond the rough opening and are not exposed after installation (embedded in the structure)?

If not, how are these products simulated and tested?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
---|---|---
8/10/2017 | 10/17/2017 | 10/17/2017

Pertinent Document:

ANSI_NFRC 100_2017_E0A1

Referenced Sections: Section 4.2.5.A, 4.2.5.B, 4.2.1, 4.2.2, 4.2.3

Referenced Pages: Page 14, 16, 17, 21

Interpretation:

No. TI-21010-20 applies only to the sill sections described.

Products which are designed to be embedded or partially embedded in the surrounding structure would be simulated and rated as a separate product lines using wood as described in the simulation process below.

If the design allows multiple installations such as, but not limited to, fully enclosed within the rough opening, partially embedded in the surrounding structure or fully embedded in the surrounding structure, each installation option shall be simulated separately. Different installation options can be included in one product line or included in a validation matrix provided the rules in ANSI/NFRC 100 for doing so are followed. Embedded products shall be tested installed directly into the test chamber mask wall without wood attached.

Embedded in the surrounding structure only includes products embedded in the structural elements of the building beyond the rough opening. This does not include products covered solely by exterior siding, sheathing or trim and/or interior finish materials or trim.
Simulation process:
In all cases where the integral framing member fully or partially extends beyond the rough opening and is not exposed after installation, it shall be modeled in the following manner:
A rectangular wood block (generic Coniferous wood) $\frac{1}{2}$” x H” (height from the bottom of the integral framing member to the top of the concealing materials) shall be placed at the edge of the frame on both the exterior and interior.

A rectangular wood block shall be sized to fit any exterior or interior area where a void is created between the $\frac{1}{2}$” block and integral frame.
If applicable, any remaining voids, that are intended to be filled with material (i.e., concrete) when the unit is installed, shall be filled with a rectangular wood block sized to fit the void.

See the attached drawings illustrating this process.

**Technical Committee Revisions to Initial Interpretation:**
A simulator required clarification on creating separate product lines for each embedment option as well as testing each option. The interpretation was revised to allow for different installations in the same product line or included in a validation matrix if allowed by ANSI/NFRC 100. Installation of the test specimen was also clarified and new illustrations were attached.
Test sample testing and modeling

Mask Wall

BC=NFRC100-2010 Exterior
U-Factor Tag = SHGC Exterior

BC=Interior (Frame Type)
U-Factor Tag = Frame
**NFRC Technical Interpretation – 2017**

**Interpretation Requested:**

Diffuse glazings and interlayers cannot currently be measured for optical properties. Can a diffuse glass or interlayer be rated in the same manner as obscure glass, with the ratings deemed identical to the clear glass or interlayer equivalent?

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<td>10/06/2017</td>
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**Pertinent Document:**

ANSI/NFRC 100-2017, ANSI/NFRC 200-2017

**Referenced Sections:**

4.2.5.H (100), 4.5.G (200)

**Referenced Pages:**

Page 22 (100), Page 13 (200)

**Interpretation:**

Yes.
**Interpretation Requested:**

How is a sliding pocket door simulated, tested, and rated when it is offered in single panel configurations?

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<td>03/12/2018</td>
<td>04/25/2018</td>
<td>04/25/2018</td>
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</table>

**Pertinent Document:**

ANSI/NFRC 100

**Referenced Sections:**

| Table 4-3 | 28 |

**Interpretation:**

Due to sliding door product types being limited to XO and XX configurations per Table 4-3, single panel sliding pocket doors will be simulated and tested as a single panel door and will be rated using a single panel side hinged door product type.

**Technical Committee Revisions to Initial Interpretation:**
**NFRC Technical Interpretation – 2018**

**Interpretation Requested:**
Pivot Windows utilize a single lite of glass, but may incorporate multiple cross-section geometries within a single head, sill, and/or jamb. Entry of multiple cross-section results within a single perimeter member is not supported by the WINDOW software. How can ratings be calculated for these products?

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<td>03/20/2018</td>
<td>06/12/2018</td>
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</table>

**Pertinent Document:**
THERM 7/WINDOW 7 Simulation Manual

**Referenced Sections:**
4.4; 7.1

**Referenced Pages:**
Page 4-6; 7-1

**Interpretation:**
If multiple geometries exist within a single frame perimeter section (i.e. head, jamb, or sill), each geometry shall be modeled in THERM separately. The models for each frame section with the highest frame U-Factor shall be used in WINDOW to represent that frame section.

**Technical Committee Revisions to Initial Interpretation:**
Interpretation Requested:
Pivot Windows are defined in NFRC 100 and have unique operating characteristics. This style of operation and construction can also be used for similar products in door applications.

1) Can a Pivot Door be rated under the NFRC program?
2) If so, what product type and model size shall be used from Table 4-3?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
---|---|---
03/20/2018 | 06/12/2018 | 06/12/2018

Pertinent Document:
THERM 7/WINDOW 7 Simulation Manual

Referenced Sections: 4.4; 7.1
Referenced Pages: Page 4-6; 7-1

Interpretation:
1. Yes. Modeling shall be performed as described in TI-2018-02 – Pivot Window
2. Swinging Door with Frame (960mm x 2090mm)

Technical Committee Revisions to Initial Interpretation:
Interpretation Requested:
NFRC 100 Section 4.1.4 states, “Products meeting the definition of a Dynamic Glazing Product shall be rated at their Fully ON/CLOSED and Fully OFF/OPEN Positions.

Does a manufacturer need to simulate both positions or does that section mean the modeling is performed ONLY at the Fully ON/CLOSED or the Fully OFF/OPEN position?

Date Requested | Initial Interpretation Date | Final TIPC Approval Date
--- | --- | ---
06/29/2018 | 07/21/2018 | 07/21/2018

Pertinent Document:
NFRC 100, and NFRC 700

Referenced Sections: | Referenced Pages:
--- | ---
NFRC 100 Section 3. Definitions | Page 6
NFRC 100 Section 4.1.4 | Page 14

Interpretation:
The intent of the language was to require modeling only at the Fully ON/CLOSED or Fully OFF/OPEN positions, and no other positions. A manufacturer does not have to model dynamic glazing products in both positions. If only one position is modeled, it shall be the Fully OFF/OPEN position.

Technical Committee Revisions to Initial Interpretation: