



# National Fenestration Rating Council Incorporated

**NFRC 601-2010**

NFRC Unit and Measurement Policy

---

© 2010 NATIONAL FENESTRATION RATING COUNCIL, INC.

**PREPARED BY:**

National Fenestration Rating Council  
6305 Ivy Lane, Suite 140  
Greenbelt, MD 20770  
Voice: (301) 589-1776  
Fax: (301) 589-3884  
Email: [info@nfr.org](mailto:info@nfr.org)  
Website: [www.nfr.org](http://www.nfr.org)



## ***FOREWORD***

The National Fenestration Rating Council, Incorporated ("NFRC") has developed and operates a uniform rating system for energy and energy-related performance of fenestration products. The Rating System determines the U-factor, Solar Heat Gain Coefficient (SHGC), and Visible Transmittance (VT) of a product, which are mandatory ratings for labeling NFRC certified products and are mandatory ratings for inclusion on label certificates, and are supplemented by procedures for voluntary ratings of products for Air Leakage (AL), and Condensation Resistance. Together, these rating procedures, as set forth in documents published by NFRC, are known as the NFRC Rating System.

The Rating System employs computer simulation and physical testing by NFRC-accredited laboratories to establish energy and related performance ratings for fenestration product types. The Rating System is reinforced by a certification program under which NFRC-licensed responsible parties claiming NFRC product certification shall label and certify fenestration products to indicate those energy and related performance ratings, provided the ratings are authorized for certification by an NFRC-licensed certification and Inspection Agency (IA).

The requirements of the rating, certification, and labeling program (the "Certification Program") are set forth in the most recent versions of the following as amended, updated or interpreted from time to time:

- NFRC 700 Product Certification Program (the "PCP")
- NFRC 705 Component Modeling Approach ("CMA") Product Certification Program (the "CMA-PCP").

Through the Certification Programs and the most recent versions of its companion programs as amended, updated or interpreted from time to time:

- The laboratory accreditation program (the "Accreditation Program"), set forth in the NFRC 701 Laboratory Accreditation Program (the "LAP")
- The IA licensing program (the "IA Program"), set forth in NFRC 702 Certification Agency Program (the "CAP")
- The CMA Approved Calculation Entity ("ACE") licensing program (the "ACE Program") as set forth in the NFRC 708 Calculation Entity Approval Program (the "CEAP"),

NFRC intends to ensure the integrity and uniformity of NFRC ratings, certification, and labeling by ensuring that responsible parties, testing and simulation laboratories, and IAs adhere to strict NFRC requirements.

In order to participate in the Certification Programs, a manufacturer / responsible party shall rate a product whose energy and energy-related performance characteristics are to be certified in accordance with mandatory NFRC rating procedures. At present, a manufacturer/responsible party may elect to rate products for U-factor, SHGC, VT, Air Leakage, Condensation Resistance, or any other procedure adopted by NFRC, and to include those ratings on the NFRC temporary label affixed to its products, or on the NFRC Label Certificate. U-factor, SHGC and VT, AL, and Condensation Resistance rating reports shall be obtained from a laboratory, which has been accredited by NFRC in accordance with the requirements of the NFRC 701.

The rating shall then be reviewed by an IA which has been licensed by NFRC in accordance with the requirements of the NFRC 702. NFRC-licensed IAs also review label format and content, conduct in-plant inspections for quality assurance in accordance with the requirements of the NFRC 702, and issue a product Certification Authorization Report (CAR), or approve for issuance an NFRC Label Certificate for site-built or CMA products and attachment products. The IA is also responsible for the investigation of potential violations (prohibited activities) as set forth in the NFRC 707 Compliance and Monitoring Program.

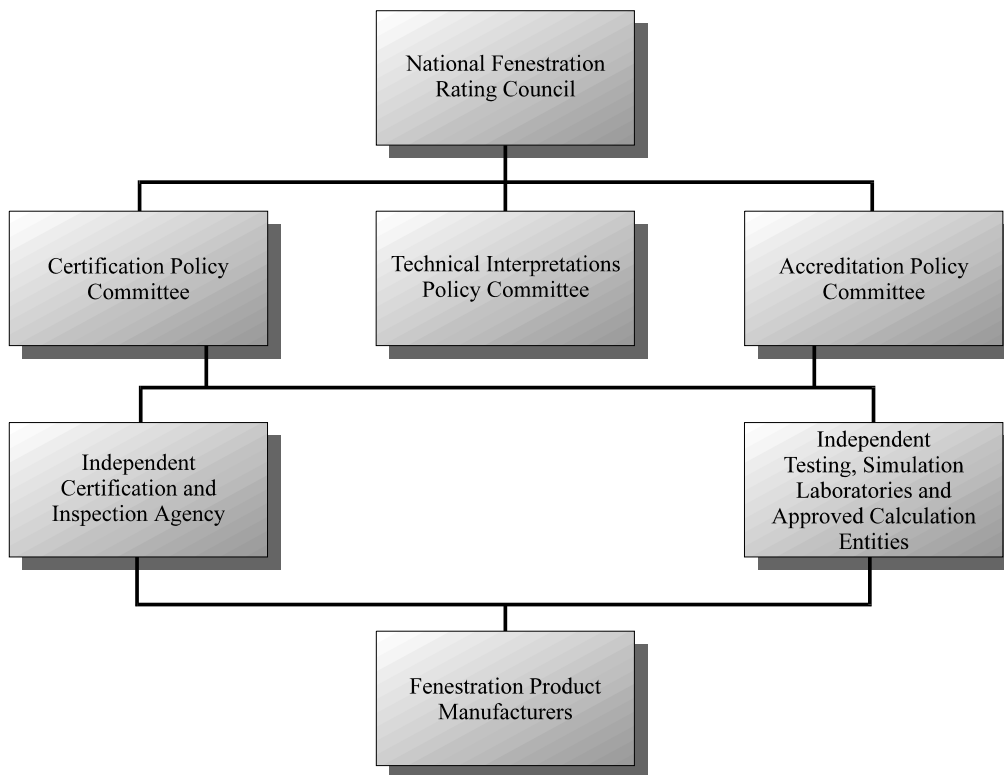
Ratings for products that are labeled with the NFRC Temporary and Permanent Label, or products that are listed on an NFRC Label Certificate, in accordance with NFRC requirements, are considered to be NFRC-certified. NFRC maintains a Certified Products Directory (CPD), listing product lines and individual products selected by the manufacturer/responsible party for which certification authorization has been granted.

NFRC manages the Rating System and regulates the Product Certification Program (PCP), Laboratory Accreditation Program (LAP) and Certification Agency Program (CAP) in accordance with the NFRC 700 (PCP), the NFRC 701 (LAP), the NFRC 702 (CAP), the NFRC 705 (CMA-PCP), and the NFRC 708 (CEAP) procedures, and conducts compliance activities under all these programs as well as the NFRC 707 Compliance and Monitoring Program (CAMP). NFRC continues to develop the Rating System and each of the programs.

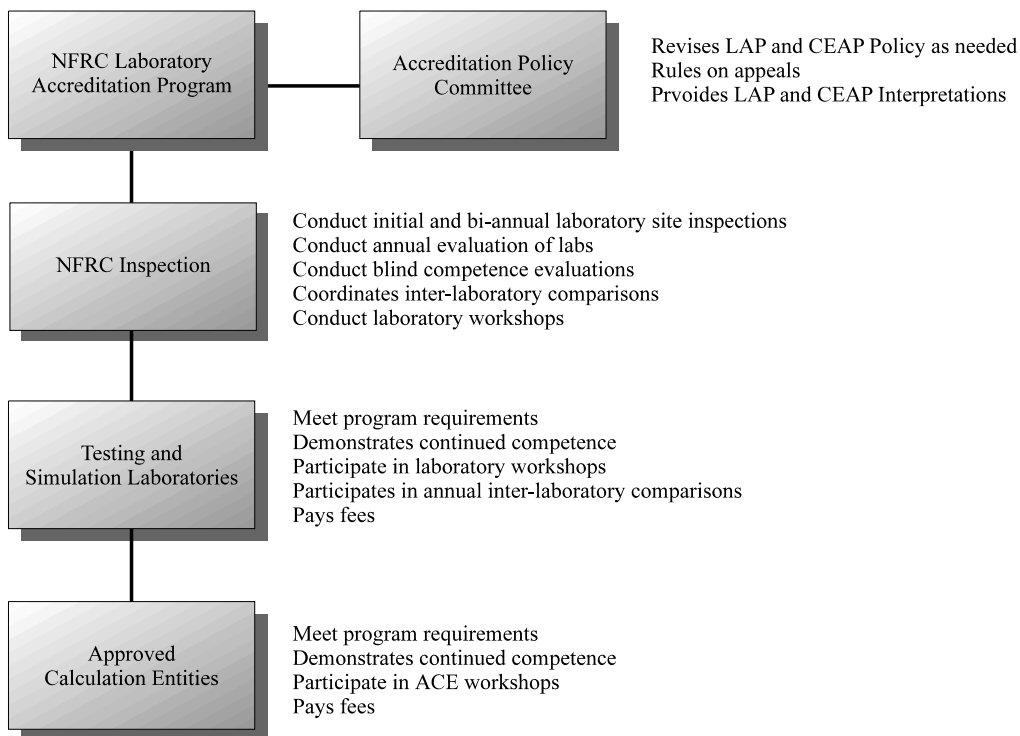
NFRC owns all rights in and to each of the NFRC 700, NFRC 701, NFRC 702, NFRC 705, NFRC 707, NFRC 708 and each procedure, which is a component of the Rating System, as well as each of its registration marks, trade names, and other intellectual property.

The structure of the NFRC program and relationships among participants are shown in Figure 1, Figure 2, and Figure 3. For additional information on the roles of the IAs and laboratories and operation of the IA Program and Accreditation Program, see the NFRC 700 (PCP), NFRC 701 (LAP), and NFRC 702 (CAP) respectively.

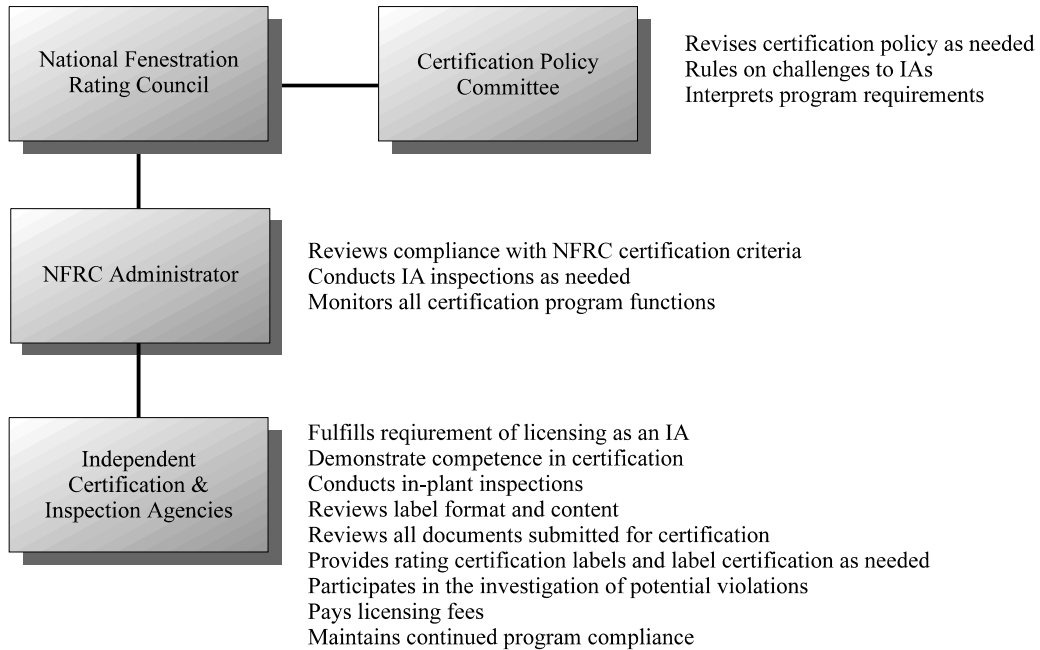
**Figure 1**



**Figure 2**



**Figure 3**



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

National Fenestration Rating Council  
6305 Ivy Lane, Suite 140  
Greenbelt, MD 20770  
Voice: (301) 589-1776  
Fax: (301) 589-3884  
Email: [info@nfrc.org](mailto:info@nfrc.org)  
Website: [www.nfrc.org](http://www.nfrc.org)



### ***DISCLAIMER***

NFRC certification is the authorized act of a manufacturer/responsible party in: (a) labeling a fenestration or related attachment product with an NFRC Permanent Label and NFRC Temporary Label, or (b) generating a site built or CMA label certificate, either of which bears one or more energy performance ratings reported by NFRC-accredited simulation and testing laboratories and authorized for certification by an NFRC-licensed IA. Each of these participants acts independently to report, authorize certification, and certify the energy-related ratings of fenestration and related attachment products.

NFRC does not certify a product and certification does not constitute a warranty of NFRC regarding any characteristic of a fenestration or fenestration-related attachment product. Certification is not an endorsement of or recommendation for any product or product line or any attribute of a product or product line. NFRC is not a merchant in the business of selling fenestration products or fenestration-related products, and therefore cannot warrant products as to their merchantability or fitness for a particular use.

NFRC THEREFORE DISCLAIMS ANY AND ALL LIABILITY THAT MAY ARISE FROM OR IN CONNECTION WITH SERVICES PROVIDED BY, DECISIONS MADE BY OR REPORTS OR CERTIFICATIONS ISSUED OR GRANTED BY ANY NFRC-ACCREDITED LABORATORY, NFRC-LICENSED IA OR ANY PRODUCT MANUFACTURER/ RESPONSIBLE PARTY; RELIANCE ON ANY NFRC PRODUCT DESCRIPTION, SPECIFICATION, RATING, TEST OR CERTIFICATION, WHETHER APPEARING IN A REPORT, A PRODUCT CERTIFICATION AUTHORIZATION OR A PRINTED OR ELECTRONIC DIRECTORY, OR ON A LABEL, OR ON A LABEL CERTIFICATE; OR THE SALE OR USE OF ANY NFRC-RATED OR CERTIFIED PRODUCT OR PRODUCT LINE; INCLUDING BUT NOT LIMITED TO DAMAGES FOR PERSONAL OR OTHER INJURY, LOST PROFITS, LOST SAVINGS OR OTHER CONSEQUENTIAL OR INCIDENTAL DAMAGES.

NFRC program participants are required to indemnify NFRC from and against such liability.



## Table of Contents

<b>Foreword</b> .....	<b>ii</b>
<b>Disclaimer</b> .....	<b>vi</b>
<b>1. Unit Policy</b> .....	<b>1</b>
1.1 POLICY FOR METRIC/INCH-POUND IN NFRC PROCEDURES AND DOCUMENTS...	1

---

# 1. UNIT POLICY

---

The following policy shall apply to all NFRC Technical Procedures, Program Documents, supplemental documents and other applicable tools:

## 1.1 Policy for Metric/Inch-pound in NFRC Procedures and Documents

- a. SI units (Metric) shall be listed first, with inch-pound in parentheses: X.XX (X.XX)
- b. SI units (metric) shall be the primary unit unless otherwise specified.
- c. The converted number shall carry the same level of precision as the primary number.
- d. Conversion from SI units (metric) to inch-pounds shall be to the same precision. (IEEE/ASTM SI 10-2002)
- e. For rating purposes, using NFRC-approved simulation software tools, the rounding shall only be performed on the rating after the rating has been determined in metric units and the calculations, including conversions, are complete.
- f. Data from NFRC-approved simulation software tools to be used in NFRC approved upload spreadsheets shall be obtained in the following manner: data obtained from NFRC Approved Software will be at 15 decimals and truncated to 6 decimals.
- g. Values from NFRC Approved Software which are listed in all NFRC CPD Upload Spreadsheets shall contain 6 decimals, where applicable.
- h. Rounding of numerical values shall be per Section B.6 Rounding Values in IEEE/ASTM SI 10-2002 except item (c).
- i. Conversion factors used shall be per Table A.1 in IEEE/ASTM SI 10-2002 unless otherwise specified.