



NFRC Certified Simulator Training Workshop
July 18-21, 2017
Bloomington, MN
Supporting Document

Successful completion of this workshop, and take-home exams, will garner the attendee the status of “NFRC Certified Simulator.” To apply as an NFRC Accredited Simulation Laboratory, per NFRC 701, an individual with a NFRC certified simulator status is mandatory. Laboratory accreditation requires a minimum of one certified simulator with the technical competency to serve as the Simulator-in-Responsible-Charge (SIRC).

The NFRC has accredited simulation and accredited physical testing laboratories:

- **Simulation** laboratory (computer modeling) which performs testing procedures in accordance with the ANSI/NFRC 100 (U-factor), ANSI/NFRC 200 (SHGC), and NFRC 500 (Condensation Resistance).
- **Physical** testing laboratory which can perform any of the following procedures: NFRC 102 (U-factor), NFRC 201 (SHGC), NFRC 202/203 (VT), ANSI/NFRC 400 (Air Leakage), and NFRC 500 (Condensation Resistance).

Highlights of the Workshop:

- The workshop will be held at the Best Western Plus at Mall of America, 1901 Killebrew Drive, Bloomington, MN; call 952-854-8200. Hotel Accommodations at the Best Western Plus Mall of America include breakfast, free internet, and free shuttle to and from the Minneapolis/St. Paul International Airport. A block of rooms has been reserved; please mention "National Fenestration Rating Council" or "NFRC" for the negotiated rate of \$119/night. Lunch will be provided by NFRC for all registrants for the four days of the workshop.
- The registration fee covers training on-site, administering and grading your take-home exams, and the future mandatory attendance to an online workshop (via GoTo Webinar) to train you on CMAST (Component Modeling Approach Software).
- **Making travel arrangements: Please be sure to schedule hotel and any outgoing transportation with the following in mind:**
 - Training schedule begins at 8:00 a.m. Tuesday morning. Please fly in from your destinations on Monday. I've had attendees schedule the last flight of the day and their flight was cancelled so please plan accordingly. Tuesday is the most important day since it anchors all the training to follow on Wednesday through Thursday. On Tuesday – Thursday, the day will end at 5:00 p.m. On Friday, a quick review of the week begins at 8:00 a.m. and the in-class exam of a window using WINDOW7/THERM7 will be administered shortly thereafter.

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- Once you've finished the exam on Friday, and have been given the okay that you have successfully completed the in-class exam, you are free to leave. For those that are very familiar with THERM/WINDOW for routine window simulations, you should be able to complete the exam in less than 2 hours and so feel free to book airplane ride home in the afternoon.
- Please be sure to bring a laptop, as one will not be provided for the training.
- All software shall already be loaded and working prior to the workshop. Do not wait to do this for we cannot delay our training to wait on a few that did not do this. You also are required to make sure the software works. This workshop is for experienced simulators and not beginners. If you have any problems loading the software prior to the training, please do not hesitate to contact NFRC staff.
- The workshop is a 4-day compilation of intense training so a working knowledge of all programs is **highly recommended**. Please see below for recommended resources for review prior to the workshop.
- It will also be helpful, but not necessary, to understand the NFRC technical documents. These documents will only be reviewed briefly, particularly the ANSI/NFRC 100 & ANSI/NFRC 200. See links below for how to download these documents. Copies of these documents will be provided to you on a USB-stick on the first day of the class.

Important Resources for your use/information:

Please download any document pertaining to the laboratory accreditation that interests your company. It will be glad to answer any questions when you have had the time to review our program and technical documents.

Home page to all program documents: <http://nfrccommunity.site-ym.com/page/ProgramDocs>

- Testing Laboratory information is located within the LAP section*
- Inspection Agency information is located within the CAP section
- Product certification information is located within the PCP section
- Fees for membership and participants are located under Fee Schedule**

*The NFRC LAP contains all the required information to become an NFRC Accredited Laboratory and Certified Simulator

**The fee schedule contains the initial and yearly costs for NFRC Accredited Laboratories and Certified Simulators

Home page to simulation-based technical documents:
<http://nfrccommunity.site-ym.com/page/Techdocs>

The 2017 procedures are the most current technical documents.

- THERM 7 / WINDOW 7 NFRC Simulation Manual (January 2016 version)
- ANSI/NFRC 100 – U-Factor (Simulation) – Procedure for Determining Fenestration Product U-Factors

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- NFRC 101– Material library – Procedure for Determining Thermo-Physical Properties of Materials for Use in NFRC-Approved Software Programs
- ANSI/NFRC 200 – SHGC (Simulation) – Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence
- NFRC 500 – Condensation Resistance (Simulation / Physical Testing) – Procedure for Determining Fenestration Product Condensation Resistance Values
- NFRC 303 – Procedure to create a laminate in Optics for NFRC Certification
- NFRC 304 – Creating an Applied Film in Optics for NFRC Certification

Home page to Simulation Software Programs:

<http://www.nfrc.org/industry/certification/product-certification-program/heat-transfer-modeling-software/>

- There are four main software programs used to simulate products in accordance with ANSI/NFRC 100, ANSI/NFRC 200, and NFRC 500 (THERM7, WINDOW7, OPTICS6, CMAST 1.2.12)

The approved software programs can be downloaded at the following links:

- LBNL <http://windows.lbl.gov/software/>
- THERM <http://windows.lbl.gov/software/therm/therm.html>
- WINDOW: <http://windows.lbl.gov/software/window/window.html>
- Optics: <http://windows.lbl.gov/software/optics/optics.html>
- CMAST: <http://cmast.nfrc.org/>
 - Training for CMAST is not covered during this workshop; therefore, do not attempt to download and install prior to workshop
 - You can also get more info about CMA by [clicking here.](#)

We look forward to meeting you and pleased that you are interested in becoming an NFRC Certified Simulator.

Please contact us at your convenience for any assistance.

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