



## NFRC 2012 Continuing Education Course Catalog

### Introduction

The National Fenestration Rating Council (NFRC) provides continuing education courses taught by industry experts. These courses offer unique insight to those seeking to make their homes and buildings more energy efficient. NFRC's ratings programs play a vital role in achieving greener, more sustainable buildings, and its continuing education courses are a solid investment in your organization's future. They will prepare your staff to better serve your customers by strengthening their expertise, which will ultimately improve your stature among your stakeholders.

*All of the courses listed here are approved for AIA continuing education learning units. NFRC 106 is both AIA and USGBC approved.*

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### **Title: NFRC 101. How Does the NFRC Rating System Work?**

**Intended Audience:** Introductory

**Program Length:** 60-90 minutes

**Learning Units:** 1

#### **Program Description:**

This facilitator-led program is a lecture supplemented by a PowerPoint presentation and handouts.

The program discusses NFRC energy performance ratings as the nation's primary mechanism for achieving or exceeding fenestration building energy code compliance. The program explains the exacting process that drives the development and implementation of this mechanism. It guides participants on a journey, beginning with how NFRC creates databases containing fenestration component energy performance information and showing how fenestration product manufacturers use these data to design their products.

#### **Learning Objectives:**

- 1) Understand how to interpret the NFRC energy performance rating label.

- 2) Understand NFRC placement in ASHRAE and IECC codes and learn how to use the NFRC label to meet/exceed building energy codes.
  - 3) Understand how simulators use NFRC ratings to confirm thermal performance and how laboratories confirm performance, authorizing manufacturers to affix the NFRC labels to their products.
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**Title: NFRC 102. Energy Codes and Fenestration**

**Intended Audience:** Intermediate

**Program Length:** 90-120 minutes

**Learning Units:** 1.5

**Program Description:**

This facilitator-led program is a lecture supplemented by a PowerPoint presentation and handouts.

The program will reference the International Energy Conservation Code (IECC), ASHRAE 90.1, and the International Residential Code. It places particular emphasis on those sections that refer to requirements for fenestration products (windows, glazed doors, skylights and curtain walls) in both residential and commercial buildings.

**Learning Objectives:**

- 1) Participants will learn the fenestration standards referenced in the energy codes.
  - 2) Participants will learn the impact that windows have on the energy efficient performance of buildings.
  - 3) Participants will have a better understanding of the fenestration requirements in building energy codes.
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**Title: NFRC 103. Fenestration and Energy Efficiency**

**Intended Audience:** Intermediate

**Program Length:** 120-150 minutes

**Learning Units:** 2

**Program Description:**

This facilitator-led program is a lecture supplemented by a PowerPoint presentation and handouts.

Fenestration energy use accounts for nearly 25 percent of the energy used in homes and commercial buildings. This course looks at how building designers can capture significant energy savings by carefully selecting energy efficient fenestration products.

**Learning Objectives:**

- 1) Understand fenestration contribution to energy efficiency, particularly how NFRC's energy ratings help design professionals manage heating and cooling loads.
  - 2) Understand how strategically selecting windows can increase occupant comfort and improve worker productivity while emphasizing NFRC's third-party status.
  - 3) Understand how to reduce building energy consumption using energy efficient fenestration.
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**Title: NFRC 104. Advanced Fenestration Systems**

**Intended Audience:** Intermediate

**Program Length:** 120-150 minutes

**Learning Units:** 2

**Program Description:**

This facilitator-led program is a lecture supplemented by a PowerPoint presentation and handouts.

The program provides a fundamental understanding of how the NFRC rating system works. It also provides insight on the contribution advanced fenestration systems make to improved energy efficiency and explains what makes certain fenestration systems more energy efficient than others.

**Learning Objectives:**

- 1) Understand the long-term benefits advanced fenestration products provide.
- 2) Understand how advanced fenestration products improve energy efficiency, leading to the increased resale value of buildings.

- 3) Understand the role of advanced fenestration systems in the integrated design process.
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**Title: NFRC 105. Allied Interest Information: Fenestration and Energy Performance Overview**

**Intended Audience:** Intermediate

**Program Length:** 60-90 minutes

**Learning Units:** 1

**Program Description:**

This facilitator-led program is a lecture supplemented by a PowerPoint presentation and handouts.

The program discusses fenestration energy codes across the United States and delves into how the latest legislative initiatives impact the fenestration industry, particularly manufacturers.

**Learning Objectives:**

- 1) Understand the latest legislative initiatives and how they impact the way the fenestration industry does business.
  - 2) Understand more about the impact of the stimulus package, particularly the sections on energy efficiency and the tax credit for fenestration products.
  - 3) Understand the latest international fenestration initiatives from global experts.
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**Title: NFRC 106. An Introduction to Window Retrofits for Residential and Commercial Buildings**

(AIA and USGBC Approved)

**Intended Audience:** Introductory

**Program Length:** 60 minutes

**Learning Units:** 1

**Program Description:**

This facilitator-led program is a lecture supplemented by a PowerPoint presentation and handouts.

This is an introductory program that discusses how home and building owners can achieve improved energy efficiency through retrofitting windows. It explains how heat is lost and gained through windows, examines common challenges in the retrofit market, and identifies solutions. The course discusses available funding to facilitate window retrofit project and includes an in-depth analysis of the business benefits that resulted from retrofitting the windows in the Empire State Building.

**Learning Objectives:**

1. Identify and implement solutions to common challenges in the window retrofit market.
  2. Explain and describe how effectively retrofitting windows improves building heat loss, heat gain, and energy consumption.
  3. Identify and explain the economic benefits of window retrofits in a commercial project.
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**Title: NFRC 107. Introduction to the Component Modeling Approach (CMA) Program, Part One**

**Intended Audience:** Intermediate

**Program Length:** 60-90 minutes

**Learning Units:** 1

**Program Description:**

This facilitator-led program is a lecture supplemented by a PowerPoint presentation and handouts.

The program provides and introductory analysis of the 2009 International Energy Conservation Code (IECC) and ASHRAE 90.1-2007 door, window, and skylight (fenestration) requirements. It also discusses the basics of how code-compliant fenestration is used in the energy envelope and how the manufacturer shows compliance using the NFRC 100, 200, and the NFRC certification program. The program provides an in-depth discussion of the methods for meeting certification and labeling requirements for site-built and factory-supplied fenestration. It also offers an overview of third-party performance simulation information, plans submittal process, Label Certificate validation by an NFRC accredited inspection and certification agency.

The program will also demonstrate the use of NFRC's CMAST (component modeling approach software tool) as both a design tool for developing specifications for high-performance fenestration systems and as an integral part of NFRC's commercial certification program. The target audience is architects, glazing subcontractors, design professionals, jurisdictional building plans examiners, and field inspectors.

**Learning Objectives:**

1. Understand the 2009 IECC and ASHRAE 90.1 – 2007 fenestration energy requirements for commercial construction.
2. Understand the NFRC 100 and NFRC 200 documents and the NFRC commercial fenestration certification program and how it facilitates proof of compliance with building energy codes.
3. Understand how the NFRC Component Modeling Approach (CMA) Program and associated software (CMAST) are used as design and compliance tools for developing validation specifications for fenestration energy-related performance requirements.

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**Title: NFRC 108 – Introduction to the Component Modeling Approach (CMA) Program, Part Two.**

**Intended Audience:** Advanced

**Program Length:** 240 minutes

**Learning Units:** 4

**Program Description:**

This facilitator-led program is a lecture supplemented by a PowerPoint presentation and handouts.

The program provides in-depth analysis of the 2009 International Energy Conservation Code (IECC) and ASHRAE 90.1-2007 door, window and skylight (fenestration) requirements. It also includes a discussion on the basics of how code-compliant fenestration is used in the energy envelope and how the manufacturer shows compliance using NFRC 100, 200, and the NFRC certification program. While both the residential and commercial certification programs are reviewed, the emphasis is on commercial (non-residential) construction. Related to non-residential construction, the program offers an in-depth discussion of the methods for meeting certification and labeling requirements for site-built windows, including third party performance simulation information, plans submittal requirements, Label Certificate validation by an

NFRC accredited inspection and certification agency, and the use of NFRC's CMAST (component modeling approach software tool) for certification and as a design tool for specifying high-performance fenestration. The target audience is architects, glazing subcontractors, design professionals, jurisdictional building plans examiners and field inspectors.

**Learning Objectives:**

1. Understand the role of NFRC related to providing high-performance fenestration for energy-efficient construction.
  2. Understand the NFRC 100 and NFRC 200 documents and the NFRC certification programs and how they facilitate proof of compliance with building energy codes.
  3. Understand how the NFRC Component Modeling Approach (CMA) Program and associated software (CMAST) are used as design and compliance tools for developing validation specifications for fenestration energy-related performance requirements.
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**Title: NFRC 109. NFRC and Green Building – Business Benefits**

**Intended Audience:** Intermediate

**Program Length:** 60 Minutes

**Learning Units:** 1

**Program Description:**

This facilitator-led program is a lecture supplemented by a PowerPoint presentation and handouts.

The program offers a non-technical perspective on NFRC's third-party certification system is a tool for facilitating green building and sustainability. This course explains that while many people focus on technical considerations such as U-factor and Solar Heat Gain, truly understanding window ratings and the value of NFRC's third-party certification program requires knowing why energy is important and why buildings matter.

**Learning Objectives:**

1. Understand how to choose windows strategically to control heating and cooling loads in buildings.

2. Understand how the NFRC rating system complements the LEED rating system.
3. Understand how the NFRC rating system facilitates greener buildings and improve return on investment by reducing operating costs, returning higher rents, facilitating faster leasing, securing greater occupancy, and generating higher resale value.

*Please contact Tom Herron, NFRC's Senior Manager, Communications and Marketing, at 240-821-9505 or [therron@nfr.org](mailto:therron@nfr.org) to discuss scheduling and pricing. All of NFRC's continuing education courses are available as Webinars.*