



# Component Modeling Approach Frequently Asked Questions

The National Fenestration Rating Council's (NFRC) Component Modeling Approach (CMA) Product Certification Program enables whole product energy performance ratings for commercial (non-residential) fenestration. CMA uses online performance data for the three primary components of a fenestration product – glazing, frame, and spacer – to generate overall product performance ratings for U-factor, Solar Heat Gain Coefficient (SHGC), and Visible Transmittance (VT). This information is incorporated into a CMA Label Certificate for code compliance.

## Does the CMA really “eliminate” the need for lab testing?

Lab testing (otherwise known as a validation test) of the framing product line is still conducted by accredited labs in order to validate the framing product lines placed in the CMA Software Tool (CMAST). Once validated, frame members associated with this framing product line can be NFRC-approved and entered into the CMAST library for unlimited use.

## Can CMA be used for site-built fenestration on residential projects?

Not at this time. In California, CMA is currently approved for California Title 24 Energy Standard compliance purposes for non-residential and residential high-rise (four habitable stories or greater) site-built fenestration. NFRC intended that CMA be used for any type of commercial fenestration.

## Can CMA be used for skylights?

Yes. CMA is designed by NFRC to be used for non-residential, site-built fenestration. If the skylight is site-built, CMA may be used.

## Have other states followed the California model to adopt CMA as a provision within their energy codes?

Other states have not adopted the exact same model. While California makes a direct reference to CMA, any energy code referencing NFRC 100 (for U-factor rating) and NFRC 200 (for solar heat gain coefficient [SHGC] and visible transmittance [VT] ratings) will benefit from using the CMA method to generate the ratings. CMAST is based on NFRC 100 and 200 requirements, as the existing NFRC non-residential site-built program does, but simplifies the calculation and compliance. Currently, 38 states reference ASHRAE 90.1 as their commercial building energy code; ASHRAE 90.1 references NFRC 100 and 200. For commercial energy code status by state, visit <http://bcap-energy.org/node/21>.

## Could energy-related performance values obtained using CMA have an impact on HVAC load calculations?

Yes, it is likely that values from CMA, which are more accurate than values in default tables or other generalized calculation methods, will have an impact on HVAC load calculations. NFRC discussions with engineers have indicated that, in most cases, ASHRAE-recommended values are utilized to perform load calculations. The CEC alternative default values, Na6, using the “Alternative Default Fenestration Procedure to Calculate Thermal Performance,” are based on ASHRAE methodology. Therefore, if CMA values are utilized for load calculation purposes, there may be a positive impact on HVAC load calculations, which may allow a possible reduction in HVAC equipment sizing.

## Could a user specify a window with a U-factor of 0.30 and SHGC of 0.30, and can CMAST provide assemblies that meet that criterion?

No, CMAST can do the reverse. A user will pick the components (glazing, frame, and spacer) and CMAST will provide the user with the associated energy-related performance values of that fenestration product (U-factor, SHGC, VT). However, the user can repeat the process with various components to get to the required U-factor and SHGC.

## When will the DOE-2 output files from CMAST be available for use in other simulation software (such as EnergyPro and eQuest)?

At present, CMAST (v 1.2.00) can generate energy-related performance values (U-factor, SHGC, VT) and output a file describing angular-dependent values for SHGC and VT for EnergyPlus. NFRC has added the DOE-2 output file option to the future CMAST improvement list.

### **Must one be certified by NFRC, or hire an Approved Calculation Entity (ACE), to utilize CMAST?**

Anyone can download, purchase, and utilize CMAST. For example, an energy consultant or architect could download CMAST and utilize the software to create a "CMA Pre-Bid Certificate." This certificate will not, however, include the NFRC logo and cannot be used for Title 24 compliance purposes or NFRC Certification. To obtain a "CMA Label Certificate" for compliance purposes, the user generating the certificate from CMAST must be employed by an NFRC-approved ACE Organization.

The ACE Organization can be either a "Manufacturer ACE" or an "Independent ACE" Organization. Please note: ONLY ACE Organizations, which by definition employ one or more approved ACE(s), are authorized to generate a Label Certificate.

### **Can the energy consultant responsible for the energy documentation print labels for his/her own projects if he/she is also an ACE?**

Yes. To ensure quality control, NFRC requires that an ACE undergo training and successfully pass the testing requirements before producing CMA Label Certificates. Additionally, IAs (NFRC Inspection Agencies) will perform audits on CMA Label Certificates to ensure that the ACE is correctly utilizing CMA. In this case, in which the energy consultant acts as the ACE and desires to generate a Label Certificate, they will be taking on the role of the Specifying Authority. As such, they will contract with NFRC and must purchase the Label Certificate.

### **What are the training costs of becoming an ACE?**

Since the ACE training is typically conducted via webinar and because of other mitigating cost factors, such as the membership status of the ACE candidate (NFRC members pay a reduced fee) it is difficult to provide an exact cost. Also, ACE training can occur in conjunction with the NFRC Membership Meetings; therefore training fees are reduced for individuals who also attend the meeting. Please refer to the NFRC CMA training page for specifics regarding fees and training dates: [www.nfrc.org/cmaprogram.aspx](http://www.nfrc.org/cmaprogram.aspx).

### **When does the six-month free trial for CMAST end?**

The six-month CMAST free trial will lapse six months after you download and install the software. For example, if CMAST is downloaded on February 1, the trial will expire on August 1 of the same year. CMAST can be downloaded at <http://cmast.nfrc.org>. This 6-month free trial is per company; therefore, any new user from the same company will have the free trial end at the initial 6-month period.

### **Does NFRC provide troubleshooting and other technical support for CMAST?**

Yes. For questions and technical inquiries, NFRC provides a Support and Information page on our website: <http://www.nfrc.org/CMASTSupportandInformation.aspx>. This webpage offers tutorials, FAQs, and the CMAST 1.2 User Manual. If your specific issue or question is not answered on that page, you can fill out a request for assistance (link found on that webpage) and submit it via email to [cmastupport@nfrc.org](mailto:cmastupport@nfrc.org) and NFRC staff will assist you.

### **Questions?**

NFRC is here to support you.

Please contact us for additional information:

#### **National Fenestration Rating Council**

6305 Ivy Lane, Suite 140

Greenbelt, MD 20770

Phone: 301-589-1776

Fax: 301-589-3884

Email: [cmainfo@nfrc.org](mailto:cmainfo@nfrc.org)

**NFRC administers an independent, uniform rating and labeling system for the energy performance of fenestration products, including windows, curtain walls, doors, and skylights.**

**For more information on NFRC, please visit our Website at [www.nfrc.org](http://www.nfrc.org) or contact NFRC directly at 301.589.1776.**