



# Component Modeling Approach FAQs

The National Fenestration Rating Council's (NFRC) new 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 Component Modeling Approach (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 use for California Title 24 Energy Standard compliance purposes for non-residential (and residential high-rise, four habitable stories or greater) site-built fenestration. However, the National Fenestration Rating Council (NFRC) and the California Energy Commission (CEC) are exploring the potential of including manufactured (factory-built) fenestration products in future revisions of Title 24 non-residential requirements. 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 any non-residential fenestration. In California, CMA is approved for non-residential site-built fenestration. Therefore, if the skylight is site-built, then CMA can be used for Title 24 compliance purposes.

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

Not the same model. California makes a direct reference to CMA, however, any energy code referencing NFRC 100 (for U-factor rating) and NFRC 200 (for Solar Heat Gain Coefficient and Visible Transmittance rating) will benefit from using the CMA method to generate the ratings. CMAST is based on NFRC 100 and 200 requirements and produces virtually the same U-factor, Solar Heat Gain Coefficient (SHGC), and Visible Transmittance (VT) ratings that 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>.

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*NFRC provides accurate, credible energy performance ratings for windows, curtain walls, doors, skylights, and fenestration attachments. For more information on NFRC, please visit our Web site at [www.nfrc.org](http://www.nfrc.org) or contact NFRC directly at 301-589-1776.*

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

Yes, it is likely that more accurate values from CMA will have an impact on HVAC load calculations. Our discussions with engineers have indicated that, in most cases, ASHRAE-recommended values are utilized to perform load calculations. The CEC alternative default values, NA6, calculated using the 'Alternate 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 (e.g., possibly reducing HVAC capacity).

### **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?**

Not at this time. Currently, CMAST only can do the reverse. A user will pick the components (glazing, frame, 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 1.1.10) can generate energy-related performance values (SHGC, U-factor, VT) and output a file describing detailed angular-dependent values for SHGC and VT for EnergyPlus. The software developers of CMAST expect to add a DOE-2 output file option by mid-2010.

This is not to say, however, that energy-related performance values derived from CMAST (SHGC, U-factor, VT) cannot yet be used in DOE-2 based building simulation programs like eQuest and EnergyPro. A user can take the values generated by CMAST and manually input them in these software programs. The primary difference between using the detailed output file and entering the values manually into the software is that the angular dependent calculations from CMAST will not be taken into account in the manual input method.

### **How will the DOE-2 output file ultimately be imported into simulation software such as EnergyPro and eQUEST?**

At this time, EnergyPro does not have a method to import the detailed DOE-2 output file. This feature will have to be programmed into EnergyPro. eQuest, however can import the detailed DOE-2 output file using the "Input Window Report File" function. Please refer to eQuest documentation for further help on this topic.

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

No. 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. To obtain a 'CMA Label Certificate' for compliance purposes, the user generating the certificate from CMAST must be employed by an NFRC Approved Calculation Entity (ACE) Organization.

The ACE Organization can be either a 'Manufacturer ACE' or 'Independent ACE' Organization. Please note: only ACE Organizations, that 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 before they produce CMA Label Certificates. Additionally, Independent Certification and Inspection Agencies (IAs) will perform spot-checks 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, they will be taking on the role of the Specifying Authority. As such, they will contract with NFRC and must purchase the Label Certificate.

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

Training costs typically range from \$100 - \$300. The cost depends on various factors such as the membership status of the ACE candidate (NFRC members will pay a reduced fee). As ACE training typically occurs prior to the NFRC Membership Meetings, training fees are reduced for individuals who also attend the meeting. Future plans call for ACE training to be conducted via webinar, however, neither the dates nor fees for such training have been established as of yet. Check back at the NFRC CMA training page: [www.nfrc.org/cmaprogram.aspx](http://www.nfrc.org/cmaprogram.aspx).

### **When and where is the next 2010 ACE training?**

NFRC will conduct the next ACE training session in conjunction with its Spring Membership Meeting in New Orleans (April 12-15, 2010); for more information, visit the NFRC CMA training page: [www.nfrc.org/cmaprogram.aspx](http://www.nfrc.org/cmaprogram.aspx).

### **When does the 6-month free trial for CMAST end?**

The 6-month CMAST free trial will lapse 6 months after you download and install the software. For example, if CMAST is downloaded February 1, 2010, the software would expire August 1, 2010. CMAST can be downloaded at <http://cmast.nfrc.org>.

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

Yes. For questions and technical inquiries, NFRC provides a free support service through a web-based portal run by SupportSuite. In order for NFRC to provide superior customer service for CMAST and the associated certification program, users are to submit a "ticket" (written entry) via the CMA SupportSuite application. This assures that questions or concerns go directly to the person who is most qualified to provide assistance. The web-based SupportSuite can be accessed at: <http://support.nfrc.org>.

## **Questions?**

*NFRC is here to support you.*

*Please contact us for additional information:*

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