The Facts about the Component Modeling Approach (CMA)

For the past 20 years, the National Fenestration Rating Council (NFRC) has provided a fair, accurate, and credible rating and labeling system for windows, doors, and skylights used in residential construction. Now NFRC is providing the non-residential market with a powerful and exciting online program known as the Component Modeling Approach (CMA).

What is CMA?

CMA is a groundbreaking concept in the non-residential fenestration industry. It offers performance information on fenestration components through an online database. This is essentially a library that houses data on a wide variety of fenestration components and is available all the time from anywhere in the world.

CMA shows how changing one component affects overall energy efficiency and provides information on which components can be combined. Ultimately, the information obtained from CMA can be used to determine a whole product energy performance rating for a fenestration system.

This rating information is incorporated into a CMA Label Certificate for product validation. The label certificate lists the performance for all fenestration systems for a given building project.

Furthermore, any products certified for a particular project can be used in subsequent projects without recertification. Finally, components and certified products are maintained indefinitely in CMA.

How is CMA organized?

CMA is organized into three primary components:

Glazing	Frame	Spacer
Optical/spectral data from the International Glazing Database	Thermal performance data of frame cross-sections	Thermal performance of spacer component materials

Why did NFRC create CMA?

NFRC developed CMA to:

- Ease market transformation in the commercial fenestration industry by encouraging broad access and use of CMA.
- Provide a fair, level playing field among competitors for marketing energy-efficient fenestration products and components.
- Assist the building code community through the use of the CMA for determining the compliance of fenestration products to state and local energy codes.

(Over)

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 or contact NFRC directly at 301-589-1776.

What's in it for me?

Architects and builders:

- Designing envelope/fenestration systems for maximum energy efficiency – whether for solar control, energy efficiency, daylighting, or passive solar design
- Comparing the energy performance of different fenestration components and products, and making more informed choices
- Enforcing – relate specified performance to installed performance

Building officials, state government employees, and others involved in code development and enforcement:

- Establishing realistic prescriptive energy codes for fenestration products (windows, doors, curtain walls, skylights)
- Determining if fenestration products meet local energy codes

Government- and utility-run energy-efficiency programs:

- Promoting advanced building technology
- Establishing demand-side management programs based on fenestration product performance
- Determining if the products installed meet the performance requirements of those voluntary programs

Manufacturers/contractors:

- Standardizing bid reports, showing that your products meet both the building specification and the local energy code requirements
- Determining and reporting the energy benefits of new designs or technology accurately
- Utilizing the most efficient components using a reliable design tool

How can I learn more about CMA?

Please contact NFRC at cmainfo@nfrc.org for more details.

Component Modeling Approach

User/Company Approval Process

Step 1

- Go to http://cmast.nfrc.org/ and register both yourself and your company. This is needed for any CMAST activity (approved components to be uploaded, an ACE to prepare a label certificate, etc). There is a tutorial on the NFRC website that better explains the registration process. Please see this link: http://www.nfrc.org/CMA/docs/CMAST-Tutorial-1-How-to-Register.pdf

Step 2

- Once NFRC staff is notified of your registration, they will review it. They will send a "Supplemental Registration Form" for completion. This will allow staff to better understand the role desired and what capacity CMAST will be used.

Step 3

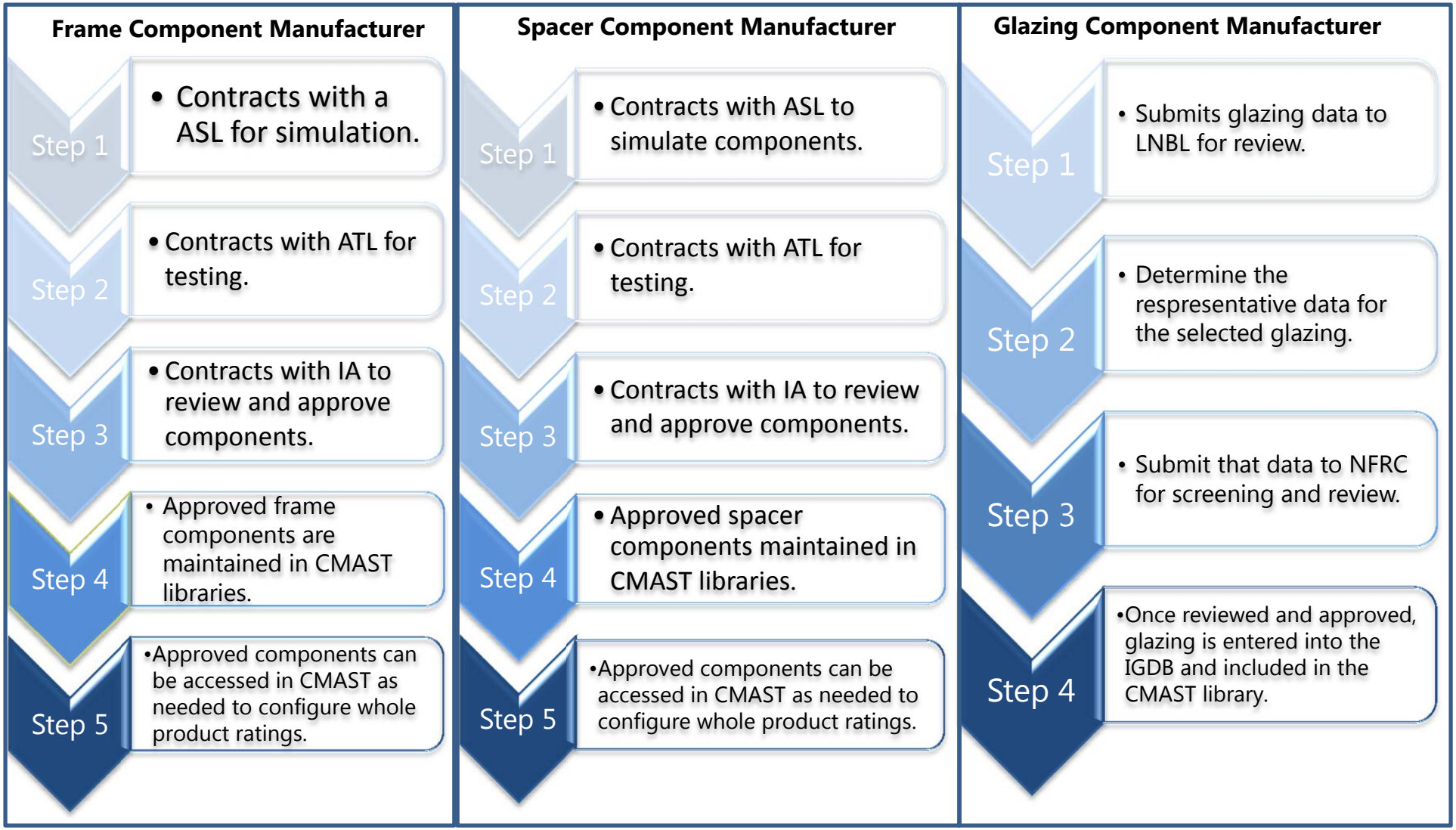
- After NFRC staff has reviewed the Supplemental Registration Form, they will approve the registration.

Step 4

- A notification will be automatically sent from CMAST when this process has been completed.

Component Modeling Approach

CMA Component Approval Process



For the appropriate fee schedule please visit our website.
http://nfrccommunity.site-ym.com/?page=ProgramDocs

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Component Modeling Approach

How to Submit a Frame Component

Step 1

- Select a Certification & Inspection Agency (IA)
- Select a Simulation Laboratory (ASL)
- Select a Test Laboratory (ATL)
- Work with the ASL regarding test specimen

Step 2

- Send drawings, BOM's and products specs to the ASL
- ASL performs computer simulations and issues a report to you
- You instruct the ASL to release the report to your selected IA
- You instruct the ASL to upload the related THERM files into the CMAST library

Step 3

- Send test sample to ATL for Framing Product Line validation testing purposes
- You instruct the ATL to release report to your selected IA

Step 4

- IA reviews both simulation and test reports and component data
- IA validates Framing Product Line
- IA approves frame components & updates the status in the CMAST libraries
- You will be notified of approval via email

For the appropriate fee schedule please visit our website.
http://nfrccommunity.site-ym.com/?page=ProgramDocs

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Component Modeling Approach

How to Submit Glazing for Approval in the IGDB

Glazing is approved through NFRC's Spectral Data Program (NFRC 300)

Step 1
- Participate in an NFRC Round Robin (Glazing suppliers submits specific samples to a Testing Laboratory or uses own testing facilities.).

Step 2
- Determine the respresentative data for the selected glazing.

Step 3
- Submit that data to NFRC for screening and peer review.

Step 4
- Once reviewed and approved, glazing is entered into the International Glazing Database (IGDB) and included in the CMAST component library.

For the appropriate fee schedule please visit our website.
http://nfrccommunity.site-ym.com/?page=ProgramDocs

Component Modeling Approach

How to submit my Spacer, Path II & III for CMA Approval

Step 1

- Choose an IA & Simulation Lab.

Step 2

- Work with the Simulation Lab and submit spacer drawings of spacer to be rated and placed into the CMAST library.

Step 3

- The Simulation Lab preforms simulations and submits data to IA for review and approval.

Step 4

- Once the simulation data is reviewed and approved by the IA, the spacer data is entered into the CMAST component library.

For the appropriate fee schedule please visit our website.
http://nfrccommunity.site-ym.com/?page=ProgramDocs

Component Modeling Approach

How to obtain a Label Certificate

Step 1
- Specifiying Authority completes the Specifying Authority Training Tutorial and contracts with an NFRC Approved Calculation Entity (ACE) and registers (see next page) with the CMA Program.

Step 2
- ACE calculates whole product performance ratings for fenestration products in a specified building project.

Step 3
- ACE then submits a CMA Label Certificate.

Step 4
- Specifying Authority pays for the CMA Label Certificate and enters into a license agreement with NFRC.

Step 5
- Specifying Authority downloads the CMA Label Certificate from the CMA web server.

For the appropriate fee schedule please visit our website.
http://nfrccommunity.site-ym.com/?page=ProgramDocs

Component Modeling Approach

Am I a "Specifying Authority"?

Step 1

- Are you a manufacturer trying to get a label certificate? Yes

Step 2

- Have you contracted an ACE for a label certificate for you or your client? Yes

Specifying Authority: The entity that specifies the fenestration products/systems and components, and identifies the suppliers to be used on a commercial or non-residential project in order to meet design and performance requirements. The Specifying Authority enters into a license agreement with NFRC and obtains an NFRC label certificate for a project. This entity may be, but is not limited to, an architect, engineer, or supplier.

If you are a specifying authority, use the SA Information to ACE form provided at the end of this guide.

Please see the NFRC website for any specifying authority questions you may have: http://www.nfrc.org/CMA/SA.aspx

Component Modeling Approach

CMAST Tutorials

Tutorial 1

- How to Build a Window Unit
  - http://www.nfrc.org/CMA/docs/CMAST-Tutorial-2-How-to-Build-a-Unit.pdf

Tutorial 2

- How to Assemble a Project
  - http://www.nfrc.org/CMA/docs/CMAST-Tutorial-3-How-to-Assemble-a-Project.pdf

Tutorial 3

- How to Submit a Project for Label Certificate
  - http://www.nfrc.org/CMA/docs/CMAST-Tutorial-4-How-to-Submit-a-Project-for-LC.pdf

Component Modeling Approach

Specifying Authority Instructions

Step 1
- Register with the CMA Program

Step 2
- Watch the Specifying Authority Video

Step 3
- Prepare the Specifying Authority Form for the ACE Organization

Step 4
- Submit the Specifying Authority Form to the ACE

Step 5
- Once the label certificate is completed, the Specifying Authority must log into CMAST web and pay for the label certificate, sign the license agreement and then obtain their label certificate.

For the appropriate fee schedule please visit our website.
http://nfrccommunity.site-ym.com/?page=ProgramDocs

Component Modeling Approach

Specifying Authority Form Instructions

The Specifying Authority Form is very essential in helping the ACE's get the right components configured for your label certificate.

Page 1
- Begin by including all the information regarding the Specifying Authority, Project, ACE Organization & Inspection Agency.

Page 2
- Continue by including all the manufacturer (framing, glazing, spacer) information.

Page 3
- Begins the frame component and framing assembly. The framing product line, product type, sill, jamb, head & mullion should all be filled in with NFRC product ID's. There should be a framing assembly 1, 2, 3 etc.

Page 4
- Continues with the spacer components and the spacer edge seal assembly. The manufacturer, height, spacer series, CMA CPD id, primary sealant, thickness & secondary sealant and thickness will need to be filled in. There should be a spacer edge seal assembly 1, 2, 3, etc.

Page 5
- Continues with the glazing components and the center of glazing assembly. The panes and glazing will need to be determined along with the gap width and gas fill. There should be glazing assembly 1, 2, 3, etc

Page 6
- Continue by combining your framing assemblies, spacer edge seal assemblies & center of glazing assemblies to make a whole product. Add additional pages as needed.

For the appropriate fee schedule please visit our website.
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SPECIFYING AUTHORITY PROJECT DATA FORM

This is a recommended template for the Specifying Authority (SA) to provide information to the Accredited Calculation Entity (ACE) for the purposes of generating a label certificate. The form, if utilized, is subject to being reviewed by the Inspection Agency (IA) and should be retained for auditing purposes by the ACE.

Specifying Authority Information

Company Name: _____

Contact Name: _____ Title: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ Fax: _____

Email address: _____

Project Information

Project Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Country: _____

Contact Name: _____ Title: _____

Phone: _____ Fax: _____

Email address: _____

NFRC Approved Calculation Entity (ACE) Organization

Company Name: _____

ACE/Contact: _____ Phone: _____

Email address: _____

NFRC Independent Certification and Inspection Agency (IA)

Company Name: _____

Contact Name: _____ Phone: _____

Email address: _____

Framing Supplier Information

Company Name: _____

Contact Name: _____ Title: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ Fax: _____

Email address: _____

Glazing Supplier Information

Company Name: _____

Contact Name: _____ Title: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ Fax: _____

Email address: _____

Spacer Supplier Information

Company Name: _____

Contact Name: _____ Title: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ Fax: _____

Email address: _____

Fenestration Product Specifications

Frame #	Framing Product Line:	*2011 Frame of the Year*			
1	Product Type:	*HSOX*			
Frame:	CMA CPD ID#	Frame:	CMA CPD ID#	Frame:	CMA CPD ID#
Sill:	*F-XYZ-5012*	Head:	*F-XYZ-5012*	Left Jamb:	*F-XYZ-5012*
Right Jamb:	*F-XYZ-5012*	Mullion:	*F-XYZ-5012*		

Frame #	Framing Product Line:				
2	Product Type:				
Frame:	CMA CPD ID#	Frame:	CMA CPD ID#	Frame:	CMA CPD ID#
Sill:		Head:		Left Jamb:	
Right Jamb:		Mullion:			

Frame #	Framing Product Line:				
3	Product Type:				
Frame:	CMA CPD ID#	Frame:	CMA CPD ID#	Frame:	CMA CPD ID#
Sill:		Head:		Left Jamb:	
Right Jamb:		Mullion:			

Frame #	Framing Product Line:				
4	Product Type:				
Frame:	CMA CPD ID#	Frame:	CMA CPD ID#	Frame:	CMA CPD ID#
Sill:		Head:		Left Jamb:	
Right Jamb:		Mullion:			

Frame #	Framing Product Line:				
5	Product Type:				
Frame:	CMA CPD ID#	Frame:	CMA CPD ID#	Frame:	CMA CPD ID#
Sill:		Head:		Left Jamb:	
Right Jamb:		Mullion:			

Insulating Glass Unit (IGU) Spacer Edge Seal Systems

Spacer #: *1*

Manufacturer: *Best Spacer Supplier* Height: *0.250*

Spacer series: *Aluminum*

CMA CPD ID# *S-XYZ-1020*

Primary Sealant: *Butyl* Thickness: *0.125*

Secondary Sealant: *PIB* Thickness: *0.375*

Spacer #: _____

Manufacturer: _____ Height: _____

Spacer series: _____

CMA CPD ID# _____

Primary Sealant: _____ Thickness: _____

Secondary Sealant: _____ Height: _____

Spacer #: _____

Manufacturer: _____ Height: _____

Spacer series: _____

CMA CPD ID# _____

Primary Sealant: _____ Thickness: _____

Secondary Sealant: _____ Height: _____

Spacer #: _____

Manufacturer: _____ Height: _____

Spacer series: _____

CMA CPD ID# _____

Primary Sealant: _____ Thickness: _____

Secondary Sealant: _____ Height: _____

Glazing Components

Glazing #: *1*

Pane 1: Thickness: *6mm* Surface / Coating: *LowE - Surface #2*

Gap Width: *0.50”* Gas Fill / %: *Argon 90%*

Pane 2: Thickness: *6mm* Surface / Coating: *Clear*

Gap Width: Gas Fill / %:

Pane 3: Thickness: Surface / Coating:

Glazing #:

Pane 1: Thickness: Surface / Coating:

Gap Width: Gas Fill / %:

Pane 2: Thickness: Surface / Coating:

Gap Width: Gas Fill / %:

Pane 3: Thickness: Surface / Coating:

Glazing #:

Pane 1: Thickness: Surface / Coating:

Gap Width: Gas Fill / %:

Pane 2: Thickness: Surface / Coating:

Gap Width: Gas Fill / %:

Pane 3: Thickness: Surface / Coating:

Glazing #:

Pane 1: Thickness: Surface / Coating:

Gap Width: Gas Fill / %:

Pane 2: Thickness: Surface / Coating:

Gap Width: Gas Fill / %:

Pane 3: Thickness: Surface / Coating:

A. ***Combined Project Components***							
Elevation (Optional):		*First Story*		Orientation (Optional):		*North*	
	Frame Assembly	Glazing Assembly	Spacer Assembly	Quantity	Size (in) Height	Width	Area Sq/Ft
Example	*F1*	*G1*	*S1*	*12*	*50*	*60*	*20.833*
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

B. ***Combined Project Components***							
Elevation (Optional):				Orientation (Optional):			
	Frame Assembly	Glazing Assembly	Spacer Assembly	Quantity	Size (in) Height	Width	Area Sq/Ft
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

C. ***Combined Project Components***							
Elevation (Optional):				Orientation (Optional):			
	Frame Assembly	Glazing Assembly	Spacer Assembly	Quantity	Size (in) Height	Width	Area Sq/Ft
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							