



PROGRAM BOOKLET

(Agendas, Draft Minutes, & Committee Rosters enclosed)

NFRC Fall Membership Meeting

San Diego, California

September 25-27, 2017



2017 NFRC
MEMBERSHIP MEETING

Components of Change: Idea to Reality
September 25-27, 2017 San Diego, California

National Fenestration Rating Council

6305 Ivy Lane, Suite 140

Greenbelt, MD 20770

301/589-1776

www.nfrc.org



NFRC 2017 Fall Membership Meeting
 September 25-27, 2017, San Diego, CA
Program Booklet



Table of Contents

Electronic Program Booklet

Flash Drive Versions Onsite/no printed booklets will be available

NFRC 2017 Fall Membership Meeting Schedule-at-a-Glance	4
NFRC's Fall Membership Meeting: Special Notes	5
Upcoming Meetings and Reminders	7
 <u>NFRC Meeting Essentials: Agendas, Rosters, Draft Minutes</u>	
Monday - 9/25/2017	
Opening Session	10
 Tuesday - 9/26/2017	
<i>Task Groups</i>	
NFRC 700 Certification Streamline Process Task Group Agenda	12
Ventilation Ratings Task Group Agenda	14
Vacuum Insulating Glazing (VIG) Task Group Agenda	16
Residential Component-Based Calculation Task Group Agenda	18
CMAST Advisory Task Group Agenda	20
Diffuse Glazing Task Group Agenda	22
Tubular Daylighting Devices (TDD) Task Group Agenda	24
 <i>Regulatory Affairs Committee</i>	
Regulatory Affairs Committee Agenda, Draft Minutes, and Roster	26
 Wednesday - 9/27/2017	
 <i>Research and Technology Committee Block</i>	
Research Subcommittee Agenda and Draft Minutes	30
Optical Properties Subcommittee Agenda and Draft Minutes	33
Thermophysical Properties Subcommittee Agenda and Draft Minutes	37
Research and Technology Committee Agenda, Draft Minutes, and Roster	40
 <i>Technical Committee Block</i>	
CMA (Technical) Subcommittee Agenda and Draft Minutes	44
Condensation Resistance Subcommittee Agenda and Draft Minutes	47
Daylighting Subcommittee Agenda and Draft Minutes	50
Software Subcommittee Agenda and Draft Minutes	53
U-factor Subcommittee Agenda and Draft Minutes	56
Solar Heat Gain Subcommittee Agenda and Draft Minutes	60
Ventilation Subcommittee Agenda and Draft Minutes	63
Technical Committee Agenda, Draft Minutes, and Roster	66



NFRC 2017 Fall Membership Meeting
 September 25-27, 2017, San Diego, CA
Program Booklet

Ratings Committee Block

[NFRC 700 PCP Certification Subcommittee Agenda and Draft Minutes](#) 70
[NFRC 705 CMA-PCP Certification Subcommittee Agenda and Draft Minutes](#)..... 73
[Ratings Committee Agenda, Draft Minutes, and Roster](#) 76

[Closing Session Agenda](#)..... 80

Additional Resources:

[NFRC Staff Directory](#) 82
[Guidelines for Orderly Conduct of NFRC Meetings](#) 83
[You have a VOICE - The NFRC Document Ballot Cycle – Details](#) 85
[NFRC Antitrust Compliance Procedures](#) 87
[Duties of Meeting Chairpersons](#)..... 89
[Duties of Members Attending NFRC Meetings](#) 90
[Getting Involved with NFRC](#)..... 91
[Acronyms/Terminology](#) 93
[Hotel Map](#)..... 96

* Subcommittees will run consecutively as time allows; groups listed on the table of contents/ schedule will go in order, but date/time is not guaranteed.





NFRC 2017 Fall Membership Meeting

San Diego, California

Meeting Schedule

Orange = Bel Aire Ballroom
 Purple = Fairbanks A

Time (all PT)	Monday 9/25/2017	Tuesday 9/26/2017	Wednesday 9/27/2017
	A continental breakfast will be provided Tuesday and Wednesday from 7:00 a.m. – 8:00 a.m.		
8:00 a.m.		NFRC and ISO/IEC 17065: Presentation and Panel Discussion 8:00 a.m. – 9:00 a.m.	Research and Technology Committee Block 8:00 a.m. – 10:00 a.m.
8:30 a.m.			Subcommittees to Convene:* <ul style="list-style-type: none"> • Research SC • Optical Properties SC • Thermophysical Properties SC Research and Technology Committee will convene after short break once all Subcommittees have adjourned.
9:00 a.m.		NFRC 700 Certification Process Streamline TG 9:00 a.m. – 10:00 a.m.	Diffuse Glazing TG 9:00 a.m. – 10:00 a.m.
10:00 a.m.	NFRC Approved Calculation Entity (ACE) Training Separate Registration Required Additional information can be found HERE. 10:00 a.m. -12:00 p.m.	Ventilation Ratings TG 10:00 a.m. – 10:30 a.m.	Prospective Leaders Network: NFRC Community – Navigating the Member Website 10:00 a.m. – 10:30 a.m.
10:30 a.m.		CAP/LAP Workshop 10:30 a.m. – 11:30 a.m.	Prospective Leaders Network: Components of Certification 10:30 a.m. – 11:30 a.m.
11:00 a.m.		Vacuum Insulated Glass TG 11:30 a.m. – 12:00 p.m.	Technical Committee Block 10:00 a.m. – 12:00 p.m. Subcommittees to Convene:* <ul style="list-style-type: none"> • CMA (Technical) SC • Condensation Resistance SC • Daylighting SC • Software SC Technical Committee will reconvene after lunch.
11:30 a.m.			
12:00 p.m.	Lunch on your own 12:00 p.m. – 1:30 p.m.		Networking Lunch 12:00 p.m. – 1:00 p.m.
1:00 p.m.			Technical Committee Block continued 1:00 p.m. – 3:00 p.m. Subcommittees to Convene:* <ul style="list-style-type: none"> • U-factor SC • Solar Heat Gain SC • Ventilation SC Technical Committee will convene after short break once all Subcommittees have adjourned.
1:30 p.m.	REGISTRATION OPENS	Idea to Reality: Putting NFRC Data to Use LBNL and EPA Presentations 1:30 p.m. – 2:30 p.m.	
2:00 p.m.	First Time Attendee Orientation 2:00 p.m. – 2:30 p.m.		
2:30 p.m.		Residential Component-Based Calculation TG 2:30 p.m. – 3:00 p.m.	Prospective Leaders Network: Basics of CMAST 2:30 p.m. – 3:00 p.m.
3:00 p.m.		CMAST Advisory TG 3:00 p.m. – 4:00 p.m.	Tubular Daylighting Devices TG 3:00 p.m. – 4:00 p.m.
3:30 p.m.	Opening Session 3:30 p.m. – 6:00 p.m.		Ratings Committee Block 3:00 p.m. – 4:30 p.m. Subcommittees to Convene:* <ul style="list-style-type: none"> • NFRC 700 PCP Certification SC • NFRC 705 CMA-PCP SC Ratings Committee will convene after short break once all Subcommittees have adjourned.
4:00 p.m.	<ul style="list-style-type: none"> • The State of NFRC • Policy Committee Reports • Panel Discussion: Fenestration in the Energy Codes • Legal Report • BOD Nominee Introductions • Member Recognition and Awards 	Regulatory Affairs Committee 4:00 p.m. – 5:30 p.m.	
4:30 p.m.			
5:00 p.m.			
5:30 p.m.			Closing Session 5:00 p.m. – 6:00 p.m.
6:00 p.m.	Member Reception 6:00 p.m. – 8:00 p.m. Tom Ham's Lighthouse 2150 Harbor Island Dr.	Prospective Leaders Network Reception Open to invited Prospective Leaders 6:00 p.m. – 8:00 p.m.	

NOTES:
 Schedule Subject to Change
 *Subcommittees posted under each committee block will run consecutively as time allows. Groups listed will go in order but time/date is not guaranteed.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet



NFRC's Fall Meeting: SPECIAL NOTES

Meeting Hotel

Sheraton San Diego Hotel & Marina
1380 Harbor Island Dr.
San Diego, CA 92101
619-291-2900

NFRC Program Booklet

NFRC is once again going **green**: NOTE - there will be **no printed copies of this program book available** onsite, **ONLY** flash drives with the electronic version. If you need hard copies, please print before coming to the meeting or you will need to use the hotel's business center. Included on the flash drives will be the program booklet, ballots and ballot summaries, motion forms, and task group notes pages. All items can also be accessed online via the [NFRC meeting page](#), prior to the conference.

Monday, September 25, 2017

First Time Attendee Orientation 2:00 p.m. – 2:30 p.m.: *Bel Aire Ballroom*

This short orientation will give you an overview of what to expect over the next 2 days. It will include topics such as committee structure, how to vote, and how to get involved. If you are a first time attendee, or just want to refresh your memory, we look forward to seeing you there.

Opening Session 3:30 p.m. – 5:30 p.m.: *Bel Aire Ballroom*

The meeting will kick off on Monday afternoon with the Opening Session immediately followed by the reception at 6:00 p.m. (details below)

NFRC Member Reception 6:00 p.m. – 8:00 p.m. [Tom Ham's Lighthouse](#)

All NFRC meeting attendees and registered guests are invited to the networking reception on Monday evening. Please plan on joining the brightest minds in the fenestration-energy industry for refreshments, snacks, spirits, and great company. It is a short walk from the hotel.

The address for Tom Ham's Lighthouse is:

2150 Harbor Island Drive
San Diego, CA 92101

Tuesday, September 26, 2017

Meetings Start 8:00 a.m.: The NFRC Membership Meeting will continue with task group meetings on Tuesday, a variety of Prospective Leaders Network (PLN) sessions, and the Regulatory Affairs Committee meeting.

Wednesday, September 27, 2017

Committee Blocks Convene at 8:00 a.m.: The Research and Technology Committee Block will begin on Wednesday morning, followed by the Technical Committee Block (10:00 a.m. – 12:00 p.m.). There will be a networking lunch from 12:00 pm. – 1:00 p.m. and then the Technical Committee block will resume through 3:00 p.m. The Ratings Committee Block will run from 3:00 p.m. – 4:30 p.m. All subcommittee meetings will run in scheduled order within the Committee Block in the Bel Aire Ballroom.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Closing Session at 5:00 p.m.: The Board of Directors will meet in a closing session on Wednesday afternoon. All registered attendees are welcome to observe the meeting and take advantage of a period for questions and comments for Board consideration.

Outside of the Meeting:

The meeting hotel is located on Harbor Island. For a thin strip of land directly south of the airport, Harbor Island packs a lot into its two miles of real estate. Large hotels, marinas and several view-centric restaurants, including Island Prime, Costerra and Tom Ham's Lighthouse, call this island home. A shoreline path complete with a steady ocean breeze keeps walkers, joggers, skaters and bikers cool while they enjoy panoramic views of the San Diego skyline, Coronado Island and the Big Bay. Several grassy areas provide ample picnic spots. Harbor Island is also an ideal place to enjoy the city lights by night.

SAN DIEGO FOOD FLAVORS

Called one of "America's best cities for foodies," by *Travel & Leisure* magazine, San Diego's culinary scene is a burgeoning, vibrant mix of locally inspired flavors, from delightfully simple to sophisticatedly artful. The city's proximity to the ocean and Mexico has greatly influenced both the local cuisine and culture. From fish tacos to groundbreaking Cali-Baja fine dining, San Diego's gastronomic scene sits at the intersection of two culinary styles: California cuisine, distinguished for its devotion to fresh local ingredients and farm-to-table roots, and Mexico's Baja Med cuisine, a food revolution that combines traditional Mexican ingredients with those of the Mediterranean. So bring your curiosity and a hearty appetite.

CRAFT BEER CULTURE

San Diego's craft brew scene has garnered respect from around the globe. With more than 130 breweries and a collection of distinctive distilleries throughout the county, along with a wealth of local talent, San Diego has earned props as one of "One of the World's Top Beer Cities," according to *Beer Connoisseur*. Pioneer brewers like Karl Strauss Brewing, Ballast Point and Stone Brewing Co. put San Diego on the craft beer map.

SAN DIEGO UNCORKED

Wine drinkers have cause to rejoice too, with more than 100 dynamic wineries located in all corners of the county and ample opportunities to sip local varieties at restaurants, wine bars and urban tasting rooms in the city. In San Diego's wine region you won't find busloads of tourists or over-the-top estates, but rather small owner-driven boutique wineries that offer friendly tours and tastings in intimate settings that reflect the laid-back San Diego lifestyle.

- **Other Activities:**
 - Over 180 restaurants will be participating in restaurant week in San Diego. [Check the website for participating restaurants and make your reservations early.](#)
 - For other information and activities, check out the [San Diego Tourism site.](#)



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet



Voting at the Membership Meeting

- ✓ NFRC will distribute voting cards at onsite registration to member companies (one per member company) and those holding proxies*.
- ✓ After each motion attendees will be asked to hold up the appropriate card to vote on all motions up for vote at the meeting.
- ✓ NFRC Staff will count visible cards to obtain voting results.
- ✓ **Voting Card Polling will be used Tuesday and Wednesday, September 26-27, at the Committee and Subcommittee Meetings.**
- ✓ Members will be responsible for obtaining their voting cards through the registration staff prior to voting; Members will be responsible for ensuring the appropriate representative of the Member Company is in possession of the Voting Card prior to the need to vote.

**Proxies must be received prior to the start of the NFRC Meeting. They must be filled out and signed by a member representative from the absent organization.*

Upcoming Meetings and Reminder

We hope to see you in St. Louis for the NFRC 2018 Spring Committee Meeting. Registration and other helpful information will be available in January 2018.

NFRC 2018 Spring Committee Meeting
March 19-21, 2018
St. Louis, Missouri
Select Task Groups, Subcommittees, and Committees will meet

NFRC 2018 Fall Membership Meeting
October 9-11, 2018
Albuquerque, New Mexico
Select Task Groups, Subcommittees, and Committees will meet

Ballots for Spring 2018 Committee Meeting will be due January 24, 2018.

The Spring 2018 ballots will be open for comment February 2 – February 23, 2018.

Ballots for Fall 2018 will be due August 15, 2018.

The Fall 2018 ballots will be open for comment August 24 – September 13, 2018.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Reminder: Your Feedback is Valued!

We look for our stakeholder's feedback to help us improve all meeting processes. Please take a moment to access the NFRC's online meeting evaluation - a quick, easy-to-use online survey – the link to which will be sent via email shortly after the conclusion of the NFRC's Spring 2017 Committee Meeting.

Or

Send an email with any thoughts, questions, or suggestions for improvement to the [NFRC Meetings and Membership Manager, Jessica Finn](#).

Presentations from the meeting will be posted within the next few weeks to recap any important items you want to review from the week's meeting.

Thank you for your continued participation in the NFRC programs. We hope you enjoy the spring and summer and we look forward to seeing you at future NFRC meetings.

Questions? Contact [Jessica Finn](#), NFRC Meetings and Membership Manager, prior to the meeting or onsite.





NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

Use box below to type any meeting notes you would like to capture



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

Opening Session

Monday, September 25, 2017

3:30 p.m. – 5:30 p.m.

Chair: *Paul Bush, Vitro Architectural Glass*

1. **Welcome to Alexandria and Review of Schedule and Logistics – J. Finn**
2. **NFRC Chairperson’s Welcoming Remarks - P. Bush**
3. **The State of NFRC – D. Callahan (CEO), R. Clayton, T. Barnett, T. Herron**
4. **Legal Report – Scott Meza**
5. **Policy Committee Chair Reports**
 - a. Accreditation Policy Committee - J. McFee
 - b. Technical Interpretation Policy Committee - T. Culp
 - c. Certification Policy Committee – K. Vilhauer
 - d. Verification Policy Committee – S. Strawn
 - e. Panel Discussion – Components of Change: Energy Codes and Fenestration
 - f. Board of Director Nominee Introductions
 - g. Member Recognition
6. **Adjourn**



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

NFRC 700 Certification Process Streamline Task Group

Tuesday, September 26, 2017

9:00 AM – 10:00 AM PST

Chair: Steve Strawn, *JELD-WEN*

1. Call to Order

- a. Welcome to All Attendees ... Cell phones & laptops to silent mode
- b. Antitrust Reminder
- c. NFRC Meeting Guidelines

2. Appoint Recording Secretary (Task Group Participant)

3. Review and Approve Agenda

4. New Business

- a. Presentation of Kaizen Summary

5. Adjourn

SCOPE

Review all requirements of NFRC Product Certification Procedures with the goal of removing non-value added steps to streamline the whole certification process.

Committee Chain: * Ratings Committee * NFRC 700 PCP Certification Subcommittee * NFRC 700 Certification Process Streamline Task Group

NFRC Staff Liaison: Sherri Wendt, Applications Support Specialist * swendt@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Ventilation Ratings Task Group
Tuesday, September 26, 2017
10:00 a.m. – 10:30 a.m.
Chair: *Ray Garries, MI Windows and Doors, Inc.*

1. **Call to Order**
 - a. Welcome to All Attendees ... Cell phones & laptops to silent mode
 - b. Antitrust Reminder
 - c. NFRC Meeting Guidelines
 2. **Appoint Recording Secretary ([TASK GROUP PARTICIPANT NAME])**
 3. **Review and Approve Agenda**
 4. **Unfinished Business**
 - a. Review of current status and timeline of CPD prep and certification readiness.
 - b. Discussion on Andersen request to modify less than 30-degree projected window calculation and rating.
 - c. Discussion on timeline to release standard.
 5. **New Business**
 - a. None.
 6. **Adjourn**
-

SCOPE

Scope is entered here.

Committee Chain: *[COMMITTEE NAME] Committee * [SUBCOMMITTEE NAME] Subcommittee * [TASK GROUP NAME]
NFRC Staff Liaison: [STAFF], [TITLE]* [STAFF EMAIL ADDRESS]



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

VIG Task Group

Tuesday, September 26, 2017

11:30 a.m. – 12:00 p.m.

Chair: David Cooper, *Guardian Industries*

1. **Call to Order**
 - a. Welcome to All Attendees ... Cell phones & laptops to silent mode
 - b. Antitrust Reminder
 - c. NFRC Meeting Guidelines
 2. **Appoint Recording Secretary ([TASK GROUP PARTICIPANT NAME])**
 3. **Review and Approve Agenda**
 4. **Unfinished Business**
 - a. None
 5. **New Business**
 - a. Review RFP status / issues
 - i. COG standard and procedure
 - b. Plan sample builds for testing
 - i. Acquire VIG samples from manufacturers
 1. Need the THM files for the VIG
 - ii. Ship to Milgard
 - iii. Need THM files for the frames
 - iv. Assemble into frames
 - v. Ship frames to chosen lab
 - vi. Set up test and run
 - vii. Publish results
 - c. Plan Modeling portion of the RFP
6. **Adjourn**
-

SCOPE

The VIG TG mission is to conduct the necessary research, using recognized science and NFRC published procedures to accurately define, rate and label performance characteristics of fenestration incorporating VIG component(s).



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Residential Component Based Calculation Task Group

Tuesday, September 26, 2017

2:30 p.m. – 3:00 p.m.

Chair: *Steve Strawn, JELD-WEN*

Co-Chair: *Margaret Webb, IGMA*

1. Call to Order

- a. Welcome to All Attendees Cell phones & laptops to silent mode
- b. Antitrust Reminder
- c. NFRC Meeting Guidelines

2. Appoint Recording Secretary

3. Review and Approve Agenda

4. Business

- a. Ballot responses summary
- b. Status of research
 - i. Grids – Manufacturers & WESTLab
 - ii. COG, Skylights, & 0/1 – Intertek
 - iii. SGD & BBG – WESTLab
 - iv. Spandrels – Spandrel TG
 - v. Condensation Index – Condensation TG
- c. Software – Excel & training
- d. Implementation Plan

5. Adjourn

SCOPE

To develop an alternate component based procedure to generate U-factor, SHGC, VT, and Condensation Resistance, and at the appropriate time Daylighting and Ventilation for use by the residential window and patio door manufacturers.

Committee Chair: Technical Committee * Residential Component Based Calculation Task Group
NFRC Staff Liaison: Scott R. Hanlon, Director, Program Operations * shanlon@nrc.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

CMAST Advisory Task Group

Tuesday, September 26, 2017

3:00 p.m.-4:00 p.m.

Chair: *Catherine Best, Benson Industries, Inc.*

1. **Call to Order**
 - a. Welcome to All Attendees ... Cell phones & laptops to silent mode
 - b. Antitrust Reminder
 - c. NFRC Meeting Guidelines
 2. **Appoint Recording Secretary ([TASK GROUP PARTICIPANT NAME])**
 3. **Review and Approve Agenda**
 4. **Unfinished Business**
 - a. Update the master list of issues, bugs, other after the CMAST updates
 - b. CMAST algorithm improvement, there is a solution, to be rolled out with the update of Therm7/Window7 – need timeline for the update. Need specification and proposal.
 - c. CMA CPD – when items should be removed from the CPD (705, Section 4.2.D) [Waiting for time limit as decided by 705 TG]
 5. **New Business**
 - a. Review Bid Report Changes
 6. **Schedule Next Conference Call**
 - a. DAY, MONTH ##, 2014@ TI:ME – TI:ME APM EST
 7. **Adjourn**
-

SCOPE

The CMAST Advisory Task Group is responsible for providing feedback about the usability of the CMAST software, and also for reviewing the CMA Technical/Ratings documents and CMAST User's Manuals, to provide feedback to the pertinent technical and ratings Task Groups.

Committee Chain: *Technical Committee * Software Subcommittee * CMAST Advisory Task Group
NFRC Staff Liaison: Stewart Nicholas, Manager of NFRC Software Applications* snicholas@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Diffuse Glazing Task Group

Tuesday, September 26, 2017

9:00 a.m. – 10:00 a.m.

Chair: *Jacob Jonsson, Lawrence Berkley National Lab*

1. **Call to Order**
 - a. Welcome to All Attendees ... Cell phones & laptops to silent mode
 - b. Antitrust Reminder
 - c. NFRC Meeting Guidelines
 2. **Appoint Recording Secretary ([TASK GROUP PARTICIPANT NAME])**
 3. **Review and Approve Agenda**
 4. **Presentation of TG work to date**
 5. **Unfinished Business**
 - a. Review of NFRC 300
 - b. Review of NFRC 301
 - c. Review of NFRC 302
 - d. Other documents
 6. **New Business**
 7. **Adjourn**
-

SCOPE

Find a way to obtain spectral data for diffuse glazing in a manner that would allow WINDOW calculations of IGUs. Determine best practice how to obtain data and verify the accuracy of these practices.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

Use box below to type any meeting notes you would like to capture



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

TDD Task Group

Tuesday, September 26, 2017

3:00 p.m. – 4:00 p.m.

Chair: *Neill Digert, Solatube International*

1. Call to Order

- a. Welcome to All AttendeesCell phones & laptops to silent mode
- b. Antitrust Reminder
- c. NFRC Meeting Guidelines

2. Appoint Recording Secretary

3. Review and Approve Agenda

4. Unfinished Business

- a. Discuss process for harmonizing sunset and retesting requirements across TDD rating protocols. Update to be provided by Steve Urich.
- b. Review of TDD task group member rating experience to date.
 - i. Discuss ability or desire to drop HTDD category.
- c. Discuss use of SkyVision simulation tool as a rating option to eliminate the test-only requirement.

5. New Business

- a. TDD Code Language Activities.

6. Adjourn

SCOPE

The Tubular Daylighting Device Task Group mission is to do what is required, using recognized science and NFRC published procedures to accurately define, simulate, test and label thermal performance characteristics for Tubular Daylighting Devices.

Committee Chain: *[COMMITTEE NAME] Committee * [SUBCOMMITTEE NAME] Subcommittee * [TASK GROUP NAME]
NFRC Staff Liaison: [STAFF], [TITLE]* [STAFF EMAIL ADDRESS]



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25 - 27, 2017, San Diego, CA

Program Booklet

Regulatory Affairs Committee

Tuesday, September 26, 2017

4:00 p.m. – 5:30 p.m.

Chair: *Garrett Stone, Stone Mattheis Xenopoulos & Brew, PC*

1. Call to Order

- a. Welcome to All AttendeesCell phones & laptops to silent mode
- b. Antitrust reminder
- c. NFRC meeting guidelines
- d. Review committee voting requirements: one vote per member company listed on the roster.

2. Appoint Recording Secretary – NFRC Staff

3. Roll Call / Establish Quorum

4. Approve Minutes from October 4, 2016 meeting in Denver, CO

5. Review and Approve Agenda

6. Reports

- a. Codes update
- b. EPA ENERGY STAR update

7. Unfinished Business

8. New Business

9. Adjourn

SCOPE

The Regulatory Affairs and Marketing Committee is responsible for:

- *Developing and coordinating NFRC's relationship with and the use of NFRC's ratings by Federal, state, and local government, international rating organizations, code development, professional and trade organizations and other voluntary programs; and*
- *Developing and coordinating all NFRC communications, newsletter, publications, press releases, and other informational and educational materials and projects.*

Committee Chain: * Regulatory Affairs Committee

NFRC Staff Liaison: Tom Herron, Director, Business Development and Marketing * therron@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****

Regulatory Affairs and Marketing Committee

Tuesday, October 4, 2016

8:00 a.m. – 10:00 a.m.

Chair: Garrett Stone, Stone Mattheis Xenopoulos & Brew, PC

1. G. Stone called the meeting to order at 8:03 a.m.
2. R. Merrifield was appointed recording secretary.
3. Minutes from September 2015 (Minneapolis, MN) were approved as presented.
4. The agenda was reviewed and approved as modified.
5. Reports
 - a. EPA ENERGY STAR – D. Anderson
 - b. Codes Update
 - c. Panel Discussion
 - d. Marketing and Communications Yearly Report – T. Herron
6. Fenestration Organization Updates
 - a. Fenestration Canada
 - b. AAMA
 - c. WDMA
 - d. IGMA
 - e. Keystone Certifications
 - f. Other
7. Unfinished Business
8. New Business
9. The meeting was adjourned at 10:25 a.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Regulatory Affairs Committee Roster*

As of 9/7/2017

Company Name

AGC Glass Company North America	Milgard Manufacturing, Inc.
American Architectural Manufacturers Association	National Certified Testing Laboratories
Andersen Corporation	NT Window, Inc.
Associated Laboratories, Inc.	Oak Ridge National Laboratory
Associated Materials, Inc.	ODL Inc
Birch Point Consulting, LLC	Oldcastle Building Envelope
California Energy Commission	Pella Windows and Doors
Cardinal Glass Industries, Inc.	PGT Industries
Champion Window and Patio Rooms Company	Pilkington North America, Inc.
Chelsea Building Products	ProVia Door, Inc.
Custom Window Systems, Inc.	Roetzel & Address
Door and Access Systems Manufacturers Association	SaintGobain Solar Gard, LLC
Eastman, Performance Films Division	Solatube International, Inc.
Efficient Windows Collaborative	Stone Mattheis Xenopoulos & Brew, PC.
Element Materials Technology	Sunrise Windows Ltd
Etisk Consulting	Therma-Tru Doors
Guardian Industries Corp.	VEKA Inc.
Hanita Tek	VELUX America LLC
Insulating Glass Manufacturers Alliance	Vitro Architectural Glass
International Window Film Association	Western Window Systems
Intertek-ATI	WESTLab
Intigral	WinBuild, Inc.
JELD-WEN, inc.	Window and Door Manufacturers Association
Keystone Certifications, Inc.	
Kolbe & Kolbe Millwork Company, Inc.	
Lawrence Berkeley National Laboratory	
Marvin Windows and Doors	
Marvin Windows and Doors	
Masonite International Corporation	
Mathews Brothers Company	
MI Windows and Doors	

**Committee Membership requires members to sign up onsite at meeting (or by [sending an email](#) while attending meeting) for inclusion on roster/voting rights. Please note, if two consecutive meetings are missed without a voting representative being at the meeting (checked via meeting registration) the company will be dropped and interested parties must sign up once again.*

Only those organizations that have paid NFRC membership dues as of September 6, 2017, will be eligible to vote at the meeting.

*If you notice a problem, PLEASE contact the staff of NFRC as soon as possible. **Discrepancies cannot be addressed after September 21, 2017:** jfynn@nfr.org*



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

Research Subcommittee

Wednesday, September 27, 2017

Block Period: 8:00 a.m. – 10:00 p.m.

Chair: *Bipin Shah, WinBuild, Inc.*

Vice Chair: *Peter Lyons, Peter Lyons & Associates*

1. Call to Order

- a. Welcome to All AttendeesCell phones & laptops to Silent Mode
- b. Antitrust reminder
- c. NFRC Meeting Guidelines
- d. Review subcommittee voting requirements: one vote per Member Company

2. Appoint Recording Secretary (Staff)

3. Approve Minutes from March 2017 meeting in Alexandria, VA

4. Review and approve agenda

5. Reports

- a. VIG Task Group Report (D. Cooper)
- b. Diffuse Glazing One Page Review Task Group (D. Cooper)

6. New Business

- a. Vacuum Insulating Glazing – RFP
- b. Reaffirm NFRC 703 for 2018 cycle

7. Adjourn

SCOPE

The Research Subcommittee is to act as a repository for research requests. These requests will be prioritized and recommendations passed to the Research and Technology Committee. The Research Subcommittee is to function as an intermediary for the collection, coordination, and publication of research and test data pertinent to the NFRC organization and its membership. The purpose of this coordinated effort is to provide concise, useful information such as reports of tests in progress and accumulated test results.

Committee Chain: Research & Technology Committee * Research Subcommittee
NFRC Staff Liaison: Scott R. Hanlon, Director, Program Operations * shanlon@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****

Research Subcommittee

Monday, March 27 & 28, 2017

Block Period: 4:00 p.m. – 5:30 p.m.

Block Period: 8:00 a.m. – 10:00 a.m.

Chair: *Bipin Shah, WinBuild, Inc.*

Vice Chair: *Peter Lyons, Peter Lyons & Associates*

1. B. Shah called the meeting to order at 8:00 a.m.
2. S. Wendt (staff) was appointed recording secretary.
3. Minutes from October 2016 (Denver) were approved as presented.
4. The agenda was reviewed and approved as modified.
5. Reports
 - a. NFRC 703 Research Program Manual TG – (M. Bhandari)
 - i. B. Shah reported the work is complete for the task group. This task group will be suspended.
 - b. Vacuum Glazing TG - (David J. Cooper)
 - i. D. Cooper reported the TG is has reviewed all documents. RFP open for comment.
6. New Business
 - a. Vacuum Glazing - RFQ
 - i. D. Cooper gave a presentation on the RFP for vacuum glazing on the objectives and scope of the project.

MOTION: T. Zaremba / D. Cooper Move to forward the Vacuum Insulated Glazing RFP to the R&T Committee for approval. Motion passes UVV.
 - b. Diffuse Glazing – One Page
 - i. J. Jonsson presented a research project on the measurement procedure. Next steps will be to pursue a simulation method.

MOTION: J. Jonsson / T. Culp Move to approve the Diffuse Glazing One Page and forward to the R&T Committee for approval. And that the One Page submitted to the Board will include a statement to how this applies to NFRC strategic objectives. Motion passes UVV.
 - c. A new task group was created a Diffuse Glazing One Page Review Task Group. Volunteers as follows:
D. Cooper, C. Curcija, J. Hayden, J. Baker.
7. The meeting was adjourned at 8:30 a.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

Optical Properties Subcommittee

Wednesday, September 27, 2017

Block Period: 8:00 a.m. – 10:00 p.m.

Chair: *Jacob Jonsson, Lawrence Berkeley National Laboratory*

Vice Chair: *Dave Cooper, Guardian Industries*

1. Call to Order

- a. Welcome to All AttendeesCell phones & laptops to Silent Mode
- b. Antitrust reminder
- c. NFRC Meeting Guidelines
- d. Review subcommittee voting requirements: one vote per Member Company

2. Appoint Recording Secretary (Staff)

3. Approve Minutes from March 2017 meeting in Alexandria, VA

4. Review and Approve Agenda

5. Reports

- a. NFRC Glazing participant ILC update – (J. Jonsson)
- b. Non-Planar Simulation Task Group – (C. Curcija)
- c. Fritted Glass Task Group – (J. Jonsson)

6. Unfinished Business

- a. Status of laminates with embedded coatings

7. New Business

- a. Reaffirm NFRC documents for 2017 cycle

8. Adjourn

SCOPE

The Optical Properties Subcommittee shall be responsible for determining, reviewing, and maintaining solar optical properties data for glazing materials and systems for use in NFRC procedures. The Optical Properties Subcommittee shall report to the Research and Technology Committee.

Committee Chain: Research & Technology Committee * Optical Properties Subcommittee
NFRC Staff Liaison: Jen Padgett, Applications Support Specialist * jpdagett@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****

NFRC Optical Properties Subcommittee

Monday, March 27, 2017

Research & Technology Committee Block: 4:00 p.m. – 5:30 p.m.

Chair: *Jacob Jonsson, Lawrence Berkeley National Laboratory*

Vice Chair: *Dave Cooper, Guardian Industries*

1. J. Jonsson called the meeting to order at 4:16 p.m.
2. S. Wendt (staff) was appointed recording secretary.
3. Minutes from October 2016 (Denver) were approved as presented.
4. The agenda was reviewed and approved as presented.
5. Reports
 - a. Non-Planar Simulation Task Group – (C. Curcija)
 - i. J. Jonsson reported the task group has not met.
 - b. Fritted Task Group – (J. Jonsson)
 - i. J. Jonsson gave a presentation on best practices to obtain data and that ballots are to be reviewed in new business. Additional ballots will be presented at future meetings as tasks provided in the presentation are completed.

The task group will be modifying its name to “Diffuse Glazing Task Group” and the scope as follows:
“Find a way to obtain spectral data for diffuse glazing products in a manner that would allow WINDOW calculations of IGUs. Determine best practice how to obtain data and verify the accuracy of these practices.”
6. Unfinished Business
 - a. Status of laminates with embedded coatings
 - i. J. Jonsson reported there has been no new task group formed to do the work and the business will be ended.
7. New Business
 - a. NFRC 300 Ballot
 - i. Milgard Manufacturing: K. Vilhauer (Section 2.2.3) – NEG

MOTION: K. Vilhauer / M. Bhandari move to send the ballot back to task group for removal or give a definition. Motion passes by UVV.
 - ii. Associated Laboratories, Inc.: B. Schultz (General) – NEG

MOTION: J. Hayden / C. Curcija move to send the negative back to Task Group. Motion passes by UVV.
 - iii. Vitro Architectural Glass: M. Buchanan (Scope) – APC

Withdrawn. Will be taken into consideration by the TG.
 - iv. Birch Point Consulting, LLC.: T. Culp (General) – Abstain with Comment

Withdrawn. Will be taken into consideration by the TG.
 - b. NFRC 301 Ballot



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

- i. Associated Laboratories, Inc.: B. Schultz (Section 2) – NEG
 - MOTION:** J. Hayden / B. Shah move to find this negative editorial. Motion passes by UVV.
 - MOTION:** J. Hayden / B. Shah move to ballot forward to the R&T Committee for approval and recommend implementation upon publication. Motion passes UVV.
- c. NFRC 302 Ballot
 - i. Associated Laboratories, Inc.: B. Schultz (Section 3.1) – NEG
 - MOTION:** B. Shah / J. Hayden move to find this negative substantive and send back to the task group with recommendation to add new standard as presented by J. Jonsson. Motion passes by UVV.
 - ii. Milgard Manufacturing: K. Vilhauer (Section 3.4) – APC
 - Will be taken into consideration by the TG.
 - iii. Vitro Architectural Glass: M. Buchanan (Section 3.7.G) – APC
 - Will be taken into consideration by the TG.
8. The meeting was adjourned at 5:12 p.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

Thermophysical Properties Subcommittee

Wednesday, September 27, 2017

Block Period: 8:00 a.m. – 10:00 a.m.

Chair: *Dr. Charlie Curcija, Lawrence Berkeley National Laboratory*

Vice Chair: *Peter Lyons, Peter Lyons & Associates*

1. Call to Order

- a. Welcome to All AttendeesCell phones & laptops to silent mode
- b. Antitrust Reminder
- c. NFRC Meeting Guidelines
- d. Review Subcommittee Voting Requirements: one vote per member company

2. Appoint Recording Secretary (NFRC STAFF)

3. Approve Minutes from March 2017 meeting in Alexandria, VA

4. Review and Approve Agenda

5. Reports

- a. NFRC 101 TG Report - J. Hayden, Pella, Inc.
- b. NFRC 101 Generic Material Electronic Database Development - C. Curcija, LBNL

6. Unfinished Business

- a. Thermophysical Properties ILS Update - Staff

7. New Business

- a. NFRC 101 Section 5.1.7.1 Ballot

8. Adjourn

SCOPE

The Thermophysical Properties Subcommittee is responsible for developing and maintaining NFRC 101. It is also responsible for the review and approval of the submitted data in accordance with these documents. This subcommittee reports to the Research and Technology Committee.

Committee Chain: Research & Technology Committee * Thermophysical Properties Subcommittee
NFRC Staff Liaison: Steve Urich, Senior Manager, Programs * surich@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****

Thermophysical Properties Subcommittee

Tuesday, March 28, 2017

Block Period: 8:00 a.m. – 10:00 a.m.

Chair: Dr. Charlie Curcija, Lawrence Berkeley National Laboratory

Vice Chair: Peter Lyons, Peter Lyons & Associates

1. C. Curcija called the meeting to order at 8:47 a.m.
2. S. Wendt (staff) was appointed recording secretary.
3. Minutes from October 2016 (Denver) were approved as presented.
4. The agenda was reviewed and approved as presented.
5. Reports
 - a. NFRC 101 TG – (J. Hayden)
 - i. J. Hayden reported that the TG has met and will continue its work to identify all the sources in Appendix A and B.
 - b. Thermophysical Properties ILS update – (staff)
 - i. D. Anderson provided a summary of the ILS. NFRC Staff will send it to the NFRC 101 Task Group for review and upon approval will be provided to the subcommittee.
 - c. NFRC 101 generic material electronic database development – (C. Curcija)
 - i. C. Curcija reported he has been working on the NFRC 101 materials document for better incorporation into the Therm program for the database.
6. New Business
 - a. None
7. The meeting was adjourned at 8:56 a.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Research and Technology Committee

September 27, 2017

8:00 a.m. – 10:00 a.m.

Chair: *Bipin Shah, WinBuild, Inc.*

Co-Chair: *Lisa Winkler, Eastman, Performance Films Division*

1. Call to Order

- a. Welcome to All Attendees Cell phones & laptops to silent mode
- b. Antitrust Reminder
- c. NFRC Meeting Guidelines
- d. Review Committee Voting Requirements: one vote per member company listed on the roster.

2. Appoint Recording Secretary (NFRC STAFF)

3. Roll Call/Establish Quorum

4. Approve Minutes from March 2017 meeting in Alexandria, VA

5. Review and Approve Agenda

6. Reports

- a. Optical Properties Subcommittee – J. Jonsson, D. Cooper
- b. Thermophysical Properties Subcommittee – C. Curcija, P. Lyons
- c. Research Subcommittee – B. Shah, Peter Lyons

7. New Business

- a. None

8. Adjourn

SCOPE

The Research and Technology Committee is responsible for developing and maintaining accurate technical data used to support the NFRC rating procedures.

Committee Chain: Research & Technology Committee

NFRC Staff Liaison: Scott R. Hanlon, Director, Program Operations * shanlon@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

*** DRAFT MINUTES ***

Research & Technology Committee

Tuesday, March 28, 2017

Block Period: 8:00 a.m. – 10:00 a.m.

Chair: *Bipin Shah, WinBuild, Inc.*

Vice Chair: *Lisa Winkler, Eastman, Performance Films Division*

-
1. Bipin Shah called the meeting to order at 9:09 a.m.
 2. S. Wendt (staff) was appointed recording secretary.
 3. Roll call was taken and a quorum was established
 4. Minutes from October 2017 (Denver) were approved as presented.
 5. The agenda was reviewed and approved as presented.
 6. Reports
 - a. Optical Properties Subcommittee – (J. Jonsson, D. Cooper)
 - i. J. Jonsson provided information to the Committee.

The Fritted Task Group will be modifying its name to “Diffuse Glazing Task Group” and its scope to the following: “Find a way to obtain spectral data for diffuse glazing products in a manner that would allow WINDOW calculations of IGUs. Determine best practice how to obtain data and verify the accuracy of these practices.”
 - ii. J. Jonsson brought one ballot for approval:

NFRC 301 Ballot

MOTION: J. Jonsson / J. Hayden move the NFRC 301 Ballot forward for approval to the Board and recommend implementation upon publication. Motion passes UVV.

Note: The NFRC 300 and 302 were also balloted are returned to the TG for re-work, however they do not affect the changes in the 301 and it can be implemented upon publication.
 - b. Thermophysical Properties Subcommittee – (C. Curcija, P. Lyons)
 - i. C. Curcija reported the ILS will sent to the NFRC 101 Task Group for review and upon approval will be provided to the subcommittee.
 - c. Research Subcommittee – (B. Shah, Peter Lyons)
 - i. B. Shah reported that the NFRC 703 Research Program Manual TG has been suspended and a Vacuum Insulated Glazing RFP and Diffuse Glazing One Page is being brought to the committee for approval and forward to the Board.

MOTION: J. Hayden / M. Bhandari move to approve the Vacuum Insulated Glazing RFP and forward to the Board for approval and recommended to issue for bid. Motion passes UVV.

MOTION: J. Jonsson / M. Hutchinson move to approve the Diffuse Glazing One Pager to and forward to the Board for approval and that the One Pager submitted to the Board will include a statement to how this applies to NFRC strategic objectives. Motion passes UVV.

Statement as follows: This diffuse glazing research serves the NFRC mission to provide fair, accurate and credible energy performance ratings. This promotes the NFRC 2017 proposed goals for new energy-related procedures and the strategic objective to promote the marketing and education.

A new task group was created a Diffuse Glazing One Pager Review Task Group.
 7. New Business
 8. The meeting was adjourned at 9:21 a.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Research & Technology Committee Roster*

As of 9/7/2017

Company Name

AGC Glass Company North America	Masonite International Corporation
American Architectural Manufacturers Association	Mathews Brothers Company
Andersen Corporation	MI Windows and Doors
Associated Laboratories, Inc.	Milgard Manufacturing, Inc.
Associated Materials, Inc.	MMM Group
Benson Industries	National Certified Testing Laboratories
Birch Point Consulting, LLC	Oak Ridge National Laboratory
California Energy Commission	ODL Inc
Cardinal Glass Industries, Inc.	Oldcastle Building Envelope
Cascade Windows	Pella Windows and Doors
Chelsea Building Products	PGT Industries
Door and Access Systems Manufacturers Association	Pilkington North America, Inc.
Eastman, Performance Films Division	Pleotint
Efficient Windows Collaborative	Plygem
Element Materials Technology	Quanex Building Products
Etisk Consulting	Quast Consulting and Testing, Inc.
Guardian Industries Corp.	Roetzel & Andress
Hanita Tek	SaintGobain Solar Gard, LLC
Humann Building Solutions, USGBC LEED TAG	Solatube International, Inc.
Insulating Glass Manufacturers Alliance	Sunergy Consulting
International Window Film Association	Sunrise Windows Ltd
Intertek-ATI	Technoform
Intigral	Therma-Tru Doors
JELD-WEN, inc.	UL, LLC
Kawneer	University of Florida
Keystone Certifications, Inc.	VEKA Inc.
Kolbe & Kolbe Millwork Company, Inc.	VELUX America LLC
Lawrence Berkeley National Laboratory	Vitro Architectural Glass
Madico, Inc.	Wasco Products, Inc.
Manko Window Systems, Inc.	Western Window Systems
Marvin Windows & Doors	WESTLab
	WinBuild, Inc.
	Window and Door Manufacturers Association
	Windsor Windows and Doors
	Wiss, Janney, Elstner Associates
	World Millwork Alliance

**Committee Membership requires members to sign up onsite at meeting (or by [sending an email](#) while attending meeting) for inclusion on roster/voting rights. Please note, if two consecutive meetings are missed without a voting representative being at the meeting (checked via meeting registration) the company will be dropped and interested parties must sign up once again.*

Only those organizations that have paid NFRC membership dues as of September 6, 2017, will be eligible to vote at the meeting.

*If you notice a problem, PLEASE contact the staff of NFRC as soon as possible. **Discrepancies cannot be addressed after September 21, 2017:** jfinn@nfr.org*



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

CMA (Technical) Subcommittee

Wednesday, September 27, 2017

Block Period: 10:00 a.m. – 3:00 p.m.

Chair: *TBD*

Vice Chair: *Mahabir Bhandari, Oak Ridge National Laboratory*

1. Call to Order

- a. Welcome to All AttendeesCell phones & laptops to silent mode
- b. Antitrust Reminder
- c. NFRC Meeting Guidelines
- d. Review Subcommittee Voting Requirements: one vote per member company

2. Appoint Recording Secretary (NFRC STAFF)

3. Approve Minutes from March 2017 meeting in Alexandria, VA

4. Review and Approve Agenda

5. Reports

- a. CMA Technical TG – Ken Nittler
- b. CMA Improvement Implementation TG – T. Culp

6. Unfinished Business

- a. New Chair

7. New Business

8. Adjourn

SCOPE

To maintain a component based nonresidential procedure for fenestration products that will yield accurate energy performance data for use in code compliance and for meaningful building energy analysis.

Committee Chain: Technical Committee * Component Modeling Approach Subcommittee

*NFRC Staff Liaison: Steven Urich, Senior Manager, Programs * surich@nfr.org*



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****

CMA (Technical) Subcommittee

Tuesday, March 28, 2017

Block Period: 10:00am – 2:30pm

Chair: TBD

Vice Chair: Mahabir Bhandari, Oak Ridge National Laboratory

1. M. Bhandari called the meeting to order at 1:20 EDT p.m.
2. S. Hanlon was appointed recording secretary.
3. Minutes from October 2016 (Denver) were approved as presented.
4. The agenda was reviewed and approved as modified.
5. Reports
 - a. CMA Technical TG – S. Urich reported that the TG reviewed and prioritized all previous uncompleted tasks.
 - b. CMA Improvement Implementation – T. Culp that the TG has successfully passed the ballot changes to the 4-point algorithm. The TG has been disbanded.
6. New Business
 - a. New Chair – if interested
7. The meeting was adjourned at 1:27 EDT p.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

Condensation Resistance Subcommittee

Wednesday, September 27, 2017

Block Period: 10:00 a.m. – 3:00 p.m.

Chair: Kevin Vilhauer, Milgard Manufacturing, Inc.

Vice Chair: Steve Harp, Associated Materials

1. **Call to Order**

- a. Welcome to All AttendeesCell phones & laptops to Silent Mode
- b. Antitrust reminder
- c. NFRC Meeting Guidelines
- d. Review subcommittee voting requirements: one vote per Member Company

2. **Appoint Recording Secretary (Staff)**

3. **Approve Minutes** from March 2017 meeting in Alexandria, VA

4. **Review and approve agenda**

5. **Reports**

- a. Condensation Resistance Task Group (D. Anderson)

6. **New Business**

- a. NFRC 500 Condensation Resistance Ballot
- b. NFRC 501 Condensation Resistance Ballot
- c. Harmonization Efforts with AAMA, CSA, ASTM

7. **Adjourn**

SCOPE

The Condensation Resistance Subcommittee is responsible for developing and coordinating NFRC 500: Procedure for Determining Fenestration Product Condensation Resistance Values and NFRC 501: User Guide to the Procedure for Determining Fenestration Product Condensation Resistance Rating Values.

Committee Chain: Technical Committee * Condensation Resistance Subcommittee
*NFRC Staff Liaison: Scott R. Hanlon, Director, Program Operations * shanlon@nfr.org*



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****

Condensation Resistance Subcommittee

Tuesday, March 28, 2017

Technical Committee Block: 10:00 a.m. – 02:30 p.m.

Chair: Kevin Vilhauer, Milgard Manufacturing, Inc.

Vice Chair: Steve Harp, Associated Materials

-
1. K. Vilhauer called the meeting to order at 1:09 p.m.
 2. S. Urich was appointed recording secretary.
 3. Minutes from October 2016 (Denver) were approved as presented.
 4. The agenda was reviewed and approved as presented.
 5. Reports
 - a. Condensation Resistance Task group – (K. Vilhauer)
 - i. K. Vilhauer reported documents were reviewed and the TG will draft revisions for review.
 - ii. D. Anderson – UL will be the new TG chair.
 6. New Business
 - a. Harmonization efforts with AAMA
 - i. D. Anderson – AAMA working on a surface temperature analysis on full scale mock ups.
 - ii. D. Anderson – ASTM has a new group to parallel what the CR TG is doing with NFRC. ASTM needs members for that group.
 7. The meeting was adjourned at 1:14 p.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

Daylighting Subcommittee

Wednesday, September 27, 2017

Technical Committee Block: 10:00am – 12:00pm

Chair: *Ray Garries, MI Windows and Doors, Inc.*

Vice Chair: *Roger LeBrun, VELUX-America Inc.*

1. **Call to Order**

- a. Welcome to All Attendees ... Cell phones & laptops to silent mode
- b. Antitrust Reminder
- c. NFRC Meeting Guidelines
- d. Review Subcommittee Voting Requirements: one vote per member company

2. **Appoint Recording Secretary (NFRC STAFF)**

3. **Approve Minutes** from March 2017 meeting in Alexandria, VA

4. **Review and Approve Agenda**

5. **Review of Past Recommendations**

- a. Actions taken between March and September, 2017

6. **Unfinished Business**

- a. None

7. **New Business**

- a. Preview of new method
- b. Preview of new and proposed rating examples

8. **Adjourn**

SCOPE

To create a rating system for daylighting potential utilizing the existing NFRC VT rating combined with known, bright day incident illuminance values.

Committee Chain: Technical Committee * Daylighting Subcommittee

NFRC Staff Liaison: *Una Moneypenny, Sr. Manager, Product Development* * umoneypenny@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****

Daylighting Subcommittee

Tuesday, March 28, 2017

Technical Committee Block: 10:00 a.m. – 02:30 p.m.

Chair: Ray Garries, MI Windows and Doors

Vice Chair: Roger LeBrun, VELUX-America Inc.

1. R. Garries called the meeting to order at 1:02 p.m.
2. S. Urich was appointed recording secretary.
3. Minutes from October 2016 (Denver) were approved as presented.
4. The agenda was reviewed and approved as presented.
5. Reports
 - a. Actions taken during conference calls or via ballots between October 2016 and March 2017
 - i. R. Garries reported the TG has selected the method TDD used to determine the VT Annual rating. Working with DOE on simulation tools.
6. New Business
 - a. None
7. The meeting was adjourned at 1:06 p.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

Software Subcommittee

Wednesday, September 27, 2017

Block Period: 10:00 a.m.-12:00 p.m.

Chair: *Catherine Best, Benson Industries, Inc.*

Vice Chair: *Ryan Harnden, Matthews Brothers*

1. Call to Order

- a. Welcome to All Attendees ... Cell phones & laptops to silent mode
- b. Antitrust Reminder
- c. NFRC Meeting Guidelines
- d. Review Subcommittee Voting Requirements: one vote per member company

2. Appoint Recording Secretary ([NFRC STAFF NAME])

3. Approve Minutes from March 2017 meeting in Alexandria, VA

4. Review and Approve Agenda

5. Reports

- a. WINDOW / THERM Approval TG – J. Hayden
- b. CMAST Advisory TG – C. Best
- c. CPD Advisory TG – J. Gordon

6. New Business

7. Adjourn

SCOPE

The scope of the Software Subcommittee is to:

- *Develop guidelines for the development of software tools and their documentation as used in NFRC ratings;*
- *Review and prioritize software development requests;*
- *Provide oversight for software development efforts; and*
- *Develop and maintain software acceptance criteria.*

The purpose of this effort is streamlined, robust, accurate and well documented software that fulfills NFRC core mission.

Committee Chair: *Technical Committee * Software Subcommittee

NFRC Staff Liaison: Stewart Nicholas, Manager of NFRC Software Applications* snicholas@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****
Software Subcommittee

Tuesday, March 38, 2017

Block Period: 1:00 p.m.-2:30 p.m.

Chair: Catherine Best, Benson Industries, Inc.

Vice Chair: Ryan Harnden, Matthews Brothers

1. C. Best called the meeting to order at 1:16 p.m.
2. M. Scism was appointed recording secretary.
3. Minutes from October 2016 (Denver, CO) were approved as presented.
4. The agenda was reviewed and approved as presented.
5. Reports
 - a. WINDO / THERM Approval TG – (J. Hayden)
 - i. J. Hayden reported the TG remains dormant
 - b. CMAST Advisory TG – (C. Best)
 - i. C. Best reported that there will be meetings in the future.
 - c. CPD Advisory TG – (J. Gordon)
 - i. J. Gordon reported – nothing to report.
6. New Business
7. The meeting was adjourned at 1:19 p.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

Use box below to type any meeting notes you would like to capture



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

U-factor Subcommittee

Wednesday, September 27, 2017

Block Period: 10:00 a.m. – 3:00 p.m.

Chair: *Anthony Cinnamon, Wiss, Janney, Elstner Associates, Inc.*

Vice Chair: *Bipin Shah, WinBuild, Inc.*

1. Call to Order

- a. Welcome to All Attendees ... Cell phones & laptops to Silent Mode
- b. Antitrust reminder
- c. NFRC Meeting Guidelines
- d. Review subcommittee voting requirements: one vote per Member Company

2. Appoint Recording Secretary (Staff)

3. Approve Minutes from March 2017 meeting in Alexandria, VA

4. Review and approve agenda

5. Reports

- a. TDD Task Group (N. Diegert)
- b. Door Task Group (S. Jaspersen)
- c. Testing Laboratory Task Group (M. Thoman)
- d. Skylight Task Group (R. LeBrun)
- e. Simulators Task Group (L. Turner)
- f. Spandrel Validation Task Group (A. Cinnamon)

6. New Business

- a. NFRC 100 Rounding ballot
- b. NFRC 100 Trendline ballot

7. Adjourn

SCOPE

The U-factor Subcommittee is responsible for developing and coordinating NFRC 100: The Technical Procedures for Determining Fenestration Product U-Factors.

Committee Chain: Technical Committee * U-factor Subcommittee
NFRC Staff Liaison: Scott R. Hanlon, Director, Program Operations * shanlon@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****

U-factor Subcommittee

Tuesday, March 28, 2017

Technical Committee Block: 10:00 a.m. – 02:30 p.m.

Chair: Anthony Cinnamon, Wiss, Janney, Elstner Associates, Inc.

Vice Chair: Bipin Shah, WinBuild, Inc.

1. A. Cinnamon called the meeting to order at 10:54 a.m.
2. S. Urich was appointed recording secretary.
3. Minutes from October 2016 (Denver) were approved as presented.
4. The agenda was reviewed and approved as presented.
5. Reports
 - a. TDD Task Group – (N. Digert)
 - i. N. Digert reported TG is reviewing NRCan SkyVision software tool, and grouping of product options and components for test simplification.
 - b. Door Task Group – (S. Jaspersen)
 - i. S. Jaspersen gave a presentation on the status of the Simplified Door Rating method. TG will determine when the validation test gets done. TG will work on updating documents, make recommendations to policy committees on 701 and 702 documents.
 - c. Testing Laboratory Task Group – (M. Thoman)
 - i. M. Thoman reported no actions. ASTM working on 4th surface low e coatings for test. Reported there doesn't seem to be an issue with testing 4th surface low e coating products. ILC for 2017 is a 4th surface low e specimen. More data will be available once the ILC is done.
 - d. Skylight Task Group – (R. LeBrun)
 - i. R. LeBrun reported no actions.
 - e. Simulators Task Group – (L. Turner)
 - i. L. Turner reported no actions.
 - f. Spandrel Validation Task Group – (A. Cinnamon)
 - i. A. Cinnamon reported TG met to report on their progress and reviewed a modeling guide from RDH in Canada to move towards a validation and simulation procedure. Will be looking to do 1 more test this year.
6. New Business
 - a. NFRC 100 VIG Ballot
 - i. WESTLab: J. Baker (General) – NEG
MOTION: J. Baker / B. Sitlinger move to find this negative persuasive and substantive and place the language in a more appropriate section or document. Motion passes by UVV.
 - ii. UL LLC: D. Anderson (4.3.2.2) – NEG – Withdrawn
 - iii. Intertek: M. Thoman (4.3.2.2) – NEG
MOTION: M. Thoman / B. Sitlinger move to find this negative persuasive and substantive and produce evidence the test method works. Motion passes with 1 no vote.



NFRC 2017 Fall Membership Meeting September 25-27, 2017, San Diego, CA Program Booklet

- iv. MI Windows and Doors: B. Sitlinger (4.3.2.2) – NEG - Withdrawn
 - v. Pella: J. Hayden (General) – NEG -
MOTION: J. Hayden / J. McFee move to find this negative persuasive and editorial and refer back to TG for consideration. Motion passes by UVV.
 - vi. Vitro Architectural Glass: M. Buchanan (2.1, 2.4.3.3) – NEG - Withdrawn
 - vii. JELD-WEN, Inc.: S. Strawn (2.1) – NEG - Withdrawn
 - viii. Quanex: D. Hauck (3) – NEG - Withdrawn
 - ix. Velux America LLC: R. LeBrun (3) – NEG - Withdrawn
 - x. Associated Laboratories, Inc: B. Schultz (3) – NEG - Withdrawn
 - xi. YKK AP America, Inc: I. Zuniga (6) – NEG
MOTION: J. Baker / D. Anderson move to find this negative persuasive and editorial and return to TG for consideration. Motion passes by UVV.
- b. NFRC 100 Rounding Ballot
- i. Gienow Canada/PlyGem: D. Goldsmith (General) – NEG
MOTION: J. Baker / S. Strawn move to find this negative non-persuasive and move all negatives back to staff for further review. Motion passes by UVV.
 - ii. Intertek: M. Thoman (Section 5.9.6.1) – NEG – Withdrawn based on previous action.
 - iii. Turner Engineering & Consulting: L. Turner (Section 5.9.6.1) – NEG Withdrawn based on previous action.
 - iv. Pella: J. Hayden (Section 4.6.4) – NEG - Withdrawn based on previous action.
 - v. Pella: J. Hayden (Section 5.9.6.1) – NEG - Withdrawn based on previous action.
7. The meeting was adjourned at 11:35 a.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

Solar Heat Gain Coefficient Subcommittee

Wednesday, September 27, 2017

Block Period: 10:00 a.m. – 3:00 p.m.

Chair: *Lisa Winckler, Eastman, Performance Films Division*

Vice Chair: *Brad Schultz, AAMA*

1. Call to Order

- a. Welcome to All Attendees ... Cell phones & laptops to Silent Mode
- b. Antitrust reminder
- c. NFRC Meeting Guidelines
- d. Review subcommittee voting requirements: one vote per Member Company

2. Appoint Recording Secretary (Staff)

3. Approve Minutes from March 2017 meeting in Alexandria, VA

4. Review and approve agenda

5. Reports

- a. TDD Task Group – N. Digert

6. New Business

- a. None

7. Adjourn

SCOPE

The Solar Heat Gain Subcommittee is responsible for developing and coordinating NFRC 200: Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and Visible Transmittance at Normal Incidence.

Committee Chain: Technical Committee * Solar Heat Gain Coefficient Subcommittee

*NFRC Staff Liaison: Scott R. Hanlon, Director, Program Operations * shanlon@nrc.org*



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****

Solar Heat Gain Coefficient Subcommittee

Tuesday, March 28, 2017

Block Period: 1:00 p.m. – 2:30 p.m.

Chair: Lisa Winckler, Eastman, Performance Films Division

Vice Chair: Brad Schultz, AAMA

1. L. Winckler called the meeting to order at 11:36 a.m.
2. M. Scism was appointed recording secretary.
3. Minutes from October 2016 (Denver, CO) were approved as presented.
4. The agenda was reviewed and approved as presented.
5. Reports
 - a. TDD Task Group – (N. Digert)
 - i. N. Digert reported – reported TG is reviewing NRCan Skyvision software tool, and grouping of product options and components for test simulation.
6. New Business
 - a. NFRC 200 – VIG Ballot
 - i. Company: T. Culp – NEG

MOTION: J. Hayden / S. Strawn move to find this negative persuasive and substantive and move back to TG for consideration. Motion passes by UVV.
 - ii. Quanex: D. Hauck (Section 3) – NEG

MOTION: D. Hauck / J. Hayden move to find this negative persuasive and substantive and move back to TG for consideration. Motion passes by UVV. (Comment, consider a more generic term for pillar – M. LeFrance)
 - iii. UL: D. Anderson – NEG: Withdrawn
 - iv. Pella: J. Hayden – NEG: Withdrawn
 - v. Vitro: M. Buchanan (Section 3) – NEG: Withdrawn
 - vi. Westlab: J. Baker – NEG: Withdrawn
7. The meeting was adjourned at 11:45 a.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

Ventilation Subcommittee

Wednesday, September 27, 2017]

Block Period: 1:00 p.m. – 3:00 p.m.

Chair: *Ray Garries*

Vice Chair: *None*

1. Call to Order

- a. Welcome to All AttendeesCell phones & laptops to silent mode
- b. Antitrust Reminder
- c. NFRC Meeting Guidelines
- d. Review Subcommittee Voting Requirements: one vote per member company

2. Appoint Recording Secretary ([NFRC STAFF NAME])

3. Approve Minutes from March 2017 meeting in Alexandria, VA

4. Review and Approve Agenda

5. Reports

- a. Actions taken during conference calls or via ballots between March and September.

6. Unfinished Business

- a. None.

7. New Business

- a. None.

8. Adjourn

SCOPE

To create a NFRC Ventilation rating system utilizing net clear opening less a screen factor.

Committee Chain: *Technical Committee * Ventilation Subcommittee
NFRC Staff Liaison: Michelle Scism mscism@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****
Ventilation Subcommittee

March 28, 2017

Technical Block Period: 10:00 a.m. – 12:00 p.m.; 1:30 p.m.-2:30 p.m.

Chair: Ray Garries, MI Windows and Doors, Inc.

Vice Chair: Joe Jonely, AMSCO Windows

1. R. Garries called the meeting to order at 10:03 a.m., provided the antitrust reminder, meeting guidelines, etc.
2. U. Money Penny was appointed recording secretary.
3. Minutes from October 2016 meeting in Denver, CO were approved as presented.
4. The agenda was reviewed and approved.
5. Unfinished Business
 - a. Review of Denver presentation. Review of scope of committee. Background and benefits to rating provided.
6. New Business
 - a. Challenge from Anderson representative on the validity of the rating.
 - b. Discussion on standardization, the benefits of an apples-to-apples rating, Board direction, completing the method, and getting the task done.
 - c. Decision was to take today's discussion to the open Board meeting at 4pm today for their review to determine if there's anything sufficient and relevant to move forward.
7. The meeting was adjourned at 10:51 a.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

NFRC Technical Committee

September 27, 2017

10:00 a.m. – 3:00 p.m.

Chair: *Michael Thoman, Intertek, Inc.*

Vice Chair: *Catherine Best, Benson Industries, Inc.*

1. Call to Order

- a. Welcome to All Attendees Cell phones & laptops to silent mode
- b. Antitrust Reminder
- c. NFRC Meeting Guidelines
- d. Review Committee Voting Requirements: one vote per member company listed on the roster.

2. Appoint Recording Secretary (NFRC STAFF)

3. Roll Call/Establish Quorum

4. Approve Minutes from March 2017 meeting in Alexandria, VA

5. Review and Approve Agenda

6. Reports

- a. Daylighting Subcommittee - T. Metcalfe, R. Garries
- b. Ventilation Subcommittee - R. Garries, TBD
- c. Component Modeling Approach Subcommittee - M. Bhandari, TBD
- d. Condensation Resistance Subcommittee - K. Vilhauer, S. Harp
- e. U-factor Subcommittee - A. Cinnamon, B. Shah
- f. Solar Heat Gain Subcommittee - L. Winckler, B. Schultz
- g. Software Subcommittee - C. Best, R. Harnden
- h. Residential Component Based Calculation Task Group - S. Strawn, M. Webb

7. Future Document Cycle – ANSI

8. New Business

- a. None

9. Adjourn

SCOPE

The Technical Committee is responsible for developing rating system tools and procedures necessary to ensure the technical accuracy of the rating system.

Committee Chain: Technical Committee
NFRC Staff Liaison: Scott R. Hanlon, Director, Program Operations * shanlon@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****
NFRC Technical Committee

Tuesday, March 28, 2017

Technical Committee Block: 10:00 a.m. – 2:30 p.m.

Chair: Michael Thoman, Intertek, Inc.

Vice Chair: Catherine Best, Benson Industries, Inc.

1. M. Thoman called the meeting to order at 1:38 p.m.
2. S. Urich was appointed recording secretary.
3. Minutes from October 2016 (Denver) were approved as presented.
4. The agenda was reviewed and approved as modified.
5. Reports
 - a. Daylighting Subcommittee (R. Garries, R. LeBrun)
 - i. R. Garries reported no action items. Continuing work on new method.
 - b. Ventilation Subcommittee (R. Garries, TBD)
 - i. R. Garries reported no action for Technical Committee. Report on meeting will be given at the BOD meeting
 - c. Component Modeling Approach Subcommittee (TBD, M. Bhandari)
 - i. M. Bhandari reported CMA Improvement TG was disbanded.
 - d. Condensation Resistance Subcommittee (K. Vilhauer, S. Harp)
 - i. K. Vilhauer reported Dennis Anderson is new Condensation Resistance TG chair
 - e. U-factor Subcommittee (A. Cinnamon, B. Shah)
 - i. A. Cinnamon reported VIG ballot was sent back to TG. NFRC 100 Rounding ballot was sent back to staff for further review.
 - f. Solar Heat Gain Subcommittee (L. Winckler, B. Schultz)
 - i. L. Winkler reported VIG ballot was sent back to TG.
 - g. Software Subcommittee (C. Best, R. Harnden)
 - i. C. Best reported no action items.
 - h. Residential Component Based Calculation Task Group (S. Strawn, M. Webb)
 - i. S. Strawn reported the TG is working on a grid add-on. TG is scheduling a face to face meeting and will work towards a ballot for the fall.
6. Future Document Cycle - ANSI
 - a. ANSI Ballot Cycle report – comment period is done. One editorial comment was made. Task Group must meet to finalize publication.
7. New Business
 - a. SDR Work – TG
 - i. Door TG asked which TG needs to determine when to do the validation testing and whether that TG is the Test Lab Task Group. The Door TG needs to make that determination. Door TG will report to Ratings for PCP changes.
8. The meeting was adjourned at 1:54 p.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Technical Committee Roster*

As of 9/7/2017

Company Name

AGC Glass Company North America	MI Windows and Doors
American Architectural Manufacturers Association	Milgard Manufacturing, Inc.
Andersen Corporation	National Certified Testing Laboratories NW (Sub)
Associated Laboratories, Inc.	Oak Ridge National Laboratory
Associated Materials, Inc.	ODL Inc
Benson Industries	Oldcastle Building Envelope
Birch Point Consulting, LLC	Pella Windows and Doors
California Energy Commission	PGT Industries
Cardinal Glass Industries, Inc.	Pilkington North America, Inc.
Cascade Windows	Pleotint
Chelsea Building Products	Plygem
CLEB Laboratory inc.	Quanex Building Products
Door and Access Systems Manufacturers Association	Roetzel & Address
Eastman, Performance Films Division	SaintGobain Solar Gard, LLC
Efficient Windows Collaborative	Solatube International, Inc.
Element Materials Technology	Sunergy Consulting
Energi Fenestration Solutions	Sunrise Windows Ltd
Etisk Consulting	Technoform
Guardian Industries Corp.	Therma-Tru Doors
Hanita Tek	Turner Engineering & Consulting, Inc.
Insulating Glass Manufacturers Alliance	UL, LLC
International Window Film Association	VEKA Inc.
Intertek-ATI	VELUX America LLC
Intigral	Vitro Architectural Glass
JELD-WEN, inc.	Wasco Products, Inc.
Kawneer	WESTLab
Keystone Certifications, Inc.	WinBuild, Inc.
Kolbe & Kolbe Millwork Company, Inc.	Window and Door Manufacturers Association
Lawrence Berkeley National Laboratory	Windsor Windows and Doors
Madico, Inc.	Wiss, Janney, Elstner Associates
Manko Window Systems, Inc.	World Millwork Alliance
Marvin Windows and Doors	
Masonite International Corporation	
Mathews Brothers Company	

**Committee Membership requires members to sign up onsite at meeting (or by [sending an email](#) while attending meeting) for inclusion on roster/voting rights. Please note, if two consecutive meetings are missed without a voting representative being at the meeting (checked via meeting registration) the company will be dropped and interested parties must sign up once again.*

Only those organizations that have paid NFRC membership dues as of September 6, 2017, will be eligible to vote at the meeting.

*If you notice a problem, PLEASE contact the staff of NFRC as soon as possible. **Discrepancies cannot be addressed after September 21, 2017:** jfinn@nfr.org*



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

NFRC 700 PCP Certification Subcommittee

Wednesday, September 27, 2017

Block Period: 3:00 p.m. – 4:30 p.m.

Chair: *Jason Seals, AAMA*

Vice Chair: *Brad Schultz, ALI*

1. Call to Order

- a. Welcome to All Attendees ... Cell phones & laptops to silent mode
- b. Antitrust Reminder
- c. NFRC Meeting Guidelines
- d. Review Subcommittee Voting Requirements: one vote per member company

2. Appoint Recording Secretary (NFRC STAFF)

3. Approve Minutes from March 2017 meeting in Alexandria, VA

4. Review and Approve Agenda

5. Reports

- a. NFRC 700 PCP Review Task Group – T. Seese
- b. Certification Process Streamline Task Group – S. Strawn
- c. Ventilation Rating Task Group – R. Garries

6. Unfinished Business

7. New Business

- a. NFRC 700 Air Leakage Ballot
- b. NFRC 700 Applied Films Ballot

8. Adjourn

SCOPE

To create and maintain Product Certification Program (PCP) document and procedures.

Committee Chain: *Ratings Committee * NFRC 700 PCP Certification Subcommittee
NFRC Staff Liaison: Steven Urich, Senior Manager, Programs * surich@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****

NFRC 700 PCP Certification Subcommittee

Tuesday, March 28, 2017

Ratings Block Period: 2:30 pm – 3:30 pm EDT

Chair: Jason Seals, AAMA

Vice Chair: Brad Schultz, Associated Laboratories, Inc.

1. J. Seals called the meeting to order at 2:30 p.m.
2. S. Wendt was appointed recording secretary.
3. Minutes from October 2016 (Denver) were approved as presented.
4. The agenda was reviewed and approved as modified.
5. Reports
 - a. NFRC 700 PCP Review Task Group – (J. McFee)
 - i. J. McFee reported the task group has worked on revising the air leakage report language for a fall ballot. The task group is continuing to meet to harmonize the language in the 700 with the language in the 702 regarding plant inspections.
 - b. Certification Process Streamline Task Group – S. Strawn
 - i. S. Strawn reported that staff has been preparing for the Kaizen event which will be gathering in June 2017 and provide an update to the subcommittee at the fall 2017 membership meeting.
 - c. Ventilation Rating Task Group – R. Garries
 - i. R. Garries reported that the only remaining work is for the CPD software and the project will be considered complete.
6. New Business
 - a. Door Task Group (S. Jaspersen)
 - i. S. Jaspersen reported that the Door Task Group will report to the subcommittee for certification requirements needed in the SDR door rating method and work with the NFRC 700 PCP Review Task Group.
7. The meeting was adjourned at 2:41 pm



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

NFRC 705 CMA-PCP Certification Subcommittee

Wednesday, September 27, 2017

Block Period: 3:00 p.m. – 4:30 p.m.

Chair: *Catherine Best, Benson Industries*

Vice Chair: *Mason Fritz, EFCO*

1. Call to Order

- a. Welcome to All Attendees ... Cell phones & laptops to silent mode
- b. Antitrust Reminder
- c. NFRC Meeting Guidelines
- d. Review Subcommittee Voting Requirements: one vote per member company

2. Appoint Recording Secretary (NFRC STAFF)

3. Approve Minutes from March 2017 meeting in Alexandria, VA

4. Review and Approve Agenda

5. Reports

- a. NFRC 705 CMA-PCP TG – C. Best
- b. CMAST Advisory TG – C. Best

6. Unfinished Business

7. New Business

- a. NFRC 705 Specifying Authority Ballot

8. Adjourn

SCOPE

To maintain a component-based certification and rating procedure for fenestration products that will yield accurate energy performance data for use in code compliance and for meaningful building energy analysis. The certification and rating program shall be credible, simple, cost-effective, fair, uniform, and useful.

Committee Chain: * Rating Committee * NFRC 705 CMA PCP Subcommittee
NFRC Staff Liaison: Steven Urich, Senior Manager, Programs * surich@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****

NFRC 705 CMA-PCP Certification Subcommittee

Tuesday, March 28, 2016

Ratings Block Period: 2:30 pm – 3:30 PM MDT

Chair: Catherine Best, Benson Industries

Vice Chair: Sneh Kumar, TRACO

-
1. C. Best called the meeting to order at 2:41 p.m.
 2. S. Wendt was appointed recording secretary.
 3. Minutes from October 2017 (Denver) were approved as presented.
 4. The agenda was reviewed and approved as presented.
 5. Reports
 - a. NFRC 705 CMA-PCP Task Group – (C. Best)
 - i. C. Best reported the TG has not met.
 - b. CMAST Advisory Task Group – (C. Best)
 - i. C. Best reported the task group will work on improvement items.
 6. New Business
 - a. NFRC 705 VIG Ballot
 - i. AAMA, J. Seals – (Section 1.3) NEG 001

MOTION: J. Seals / J. Hayden Move to find the negative persuasive and substantive and send it back to task group. Motion passes UVV.
 - ii. UL, LLC, D. Anderson – (Section 1.2) NEG 002

Handled by previous negative.
 - iii. WestLab, J. Baker – (Section 1.2) NEG 003

Handled by previous negative.
 - iv. Pella Windows and Doors, J. Hayden – (Section 1.2) NEG 004

Handled by previous negative.
 - b. Appoint new vice chair.
 - i. Mason Fritz has volunteered to be the new vice-chair for the subcommittee.
 7. The meeting was adjourned at 2:55 p.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

NFRC Ratings Committee

September 27, 2017

3:00 p.m. – 4:30 p.m.

Chair: *John McFee, Window and Door Manufacturer's Association*

Vice Chair: TBD

1. Call to Order

- a. Welcome to All Attendees Cell phones & laptops to silent mode
- b. Antitrust Reminder
- c. NFRC Meeting Guidelines
- d. Review Committee Voting Requirements: one vote per member company listed on the roster.

2. Appoint Recording Secretary (NFRC STAFF)

3. Roll Call/Establish Quorum

4. Approve Minutes from March 2017 meeting in Alexandria, VA

5. Review and Approve Agenda

6. Reports

- a. NFRC 700 PCP Certification Subcommittee – J. Seals, B. Schultz
- b. NFRC 705 CMA-PCP Certification Subcommittee – C. Best, M. Fritz

7. New Business

- a. None

8. Adjourn

SCOPE

The NFRC Ratings Committee is responsible for developing programs to assure the uniform application of ratings including the NFRC Label for NFRC technical procedures.

Committee Chain: Ratings Committee

NFRC Staff Liaison: Scott R. Hanlon, Director, Program Operations * shanlon@nfr.org



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

***** DRAFT MINUTES *****
NFRC Ratings Committee

Tuesday, March 28, 2017

Ratings Committee Block: 02:30 p.m. – 03:30 p.m.

Chair: TBD

Vice Chair: *John McFee, Window and Door Manufacturer's Association*

1. J. McFee called the meeting to order at 3:07 p.m.
2. S. Urich was appointed recording secretary.
3. Minutes from October 2016 (Denver) were approved as presented.
4. The agenda was reviewed and approved as presented.
5. Reports
 - a. NFRC 700 PCP Certification Subcommittee – J. Seals, B. Schultz
 - i. J. Seals reported the Door Task Group will be reporting to the SC for PCP revisions for the simplified door rating method.
 - b. NFRC 705 CMA-PCP Certification Subcommittee – C. Best, TBD
 - i. C. Best reported Mason Fritz, EFCO will be the new Vice Chair of the SC. Approved by Ratings Chair.
6. New Business
 - a. NFRC 700 Applied Film Program – Staff Presentation
 - b. NFRC 700 / 702 Plant Audit and QCS
 - c. Chair for Ratings Committee
7. The meeting was adjourned at 3:21 p.m.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Ratings Committee Roster*

As of 9/7/2017

Company Name

AGC Glass Company North America
American Architectural Manufacturers
Association
Andersen Corporation
Associated Laboratories, Inc.
Associated Materials, Inc.
Atrium Corporation
Benson Industries
Birch Point Consulting, LLC
California Energy Commission
Cardinal Glass Industries, Inc.
Cascade Windows
Chelsea Building Products
Door and Access Systems Manufacturers
Association
Eastman, Performance Films Division
Efficient Windows Collaborative
Element Materials Technology
Energi Fenestration Solutions
Etisk Consulting
Guardian Industries Corp.
Hanita Tek
Insulating Glass Manufacturers Alliance
International Window Film Association
Intertek-ATI
Intigral
JELD-WEN, inc.
Kawneer
Keystone Certifications, Inc.
Kolbe & Kolbe Millwork Company, Inc.
Lawrence Berkeley National Laboratory
Madico, Inc.
Manko Window Systems, Inc.
Marvin Windows and Doors

Masonite International Corporation
Mathews Brothers Company
MI Windows and Doors
Milgard Manufacturing, Inc.
MMM Group
National Certified Testing Laboratories
Oak Ridge National Laboratory
ODL Inc
Oldcastle Building Envelope
Pella Windows and Doors
PGT Industries
Pilkington North America, Inc.
Plygem
Quanex Building Products
Roetzel & Andress
SaintGobain Solar Gard, LLC
Solatube International, Inc.
Sunergy Consulting
Sunrise Windows Ltd
Technoform
Therma-Tru Doors
UL, LLC
University of Florida
VEKA Inc.
VELUX America LLC
Vitro Architectural Glass
Wasco Products, Inc.
WESTLab
WinBuild, Inc.
Window and Door Manufacturers Association
Windsor Windows and Doors
World Millwork Alliance

**Committee Membership requires members to sign up onsite at meeting (or by [sending an email](#) while attending meeting) for inclusion on roster/voting rights. Please note, if two consecutive meetings are missed without a voting representative being at the meeting (checked via meeting registration) the company will be dropped and interested parties must sign up once again.*

Only those organizations that have paid NFRC membership dues as of September 6, 2017, will be eligible to vote at the meeting.

*If you notice a problem, PLEASE contact the staff of NFRC as soon as possible. **Discrepancies cannot be addressed after September 21, 2017:** jfinn@nfr.org*



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Meeting Notes:

Use box below to type any meeting notes you would like to capture



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

Closing Session

Wednesday, September 27, 2017

5:00 p.m. –6:00 p.m.

Chair: *Paul Bush, Vitro Architectural Glass*

Vice Chair: *Daniel Huard, Humann Building Solutions, USGBC*

1. **Call to Order**
 - a. Roll Call/Establish Quorum
 - b. Welcome to All Attendees ... Cell phones & laptops to silent mode
2. **Review and Approve Agenda**
3. **Approval of Previous Board Meeting Minutes**
4. **Appoint Recording Secretary (NFRC Staff)**
5. **NFRC Membership Meeting Action Items**
 - a. Research and Technology Committee - B. Shah
 - b. Technical Committee - M. Thoman
 - c. Ratings Committee - J. McFee
6. **Board Action Items**
7. **New Business**
8. **Adjourn**

Board of Directors

NFRC Staff Liaison: Deborah Callahan, Chief Executive Officer * dcallahan@nfr.org



NFRC 2017 Fall Membership Meeting
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NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Fall 2017 NFRC Staff Directory

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Headquarters * 6305 Ivy Lane, Suite 140 * Greenbelt, Maryland 20770
Phone: 301-589-1776 * Fax 301-589-3884



Guidelines for Orderly Conduct of NFRC Meetings

The following general guidelines apply to meetings of NFRC Committees and Subcommittees. As guidelines, committee/subcommittee chairs have the discretion in how rigidly to enforce these requirements (subject to being overruled by the members on a specific issue pursuant to a 2/3 majority). The intent is that committee/subcommittee chairs will use their good judgment in applying these rules to assist NFRC in conducting its meetings in an orderly fashion, while giving interested parties a reasonable opportunity to present their views. However, nothing in these guidelines, nor any flaw in committee and/or subcommittee conduct or procedure, will be construed to prohibit the NFRC Board from taking action on any matter if it deems it necessary in the best interests of the organization.

1. All material to be presented or discussed at an NFRC scheduled meeting shall be published as a listed item of the NFRC meeting agenda. The initial agenda shall be published 30 calendar days in advance of the meeting. All significant written or electronic presentations or documents to be handed out during the NFRC meeting shall be submitted to the committee chair and NFRC staff for review and determination of compliance with any applicable NFRC requirements. The presentations shall be submitted to the respective chair, who in turn would provide a copy to NFRC staff, no later than 15 calendar days before the NFRC meeting date. Any revisions to a published agenda shall be made by the chair no later than 12 calendar days before the NFRC scheduled meeting. The final meeting agenda shall be published by NFRC staff no later than 10 calendar days before a scheduled NFRC meeting. Issues not included on the published agenda can be brought up as announcements or for preliminary discussion only. No final action is to be taken on any item not specifically listed on the published agenda.
2. At a scheduled NFRC meeting, no person shall present his/her view until the chair recognizes the person to do so.
3. Minutes shall reflect all written ballot responses that are declared to be negatives and/or approved with comments and shall also reflect how each was addressed.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

4. All motions put forth in an NFRC meeting **MUST** be typed or written down on a designated Motion Form to be formally presented to the group and incorporated into the meeting minutes. Chairs shall provide enough time for the NFRC staff to type or collect any written motions and register them in the meeting minutes. The chair shall not proceed to a vote on an issue or to the next issue or agenda item until minute taker advises the chair that the needed action item has been duly registered, the motion form has been received, and the motion has been read to the group.

5. The minute taker shall register all action items in the meeting minutes. The minutes should try to contain a short summary of the proponent's reason for making the motion, so as to provide background for the intent. If modifications are made to the motion, there should also be a short summary of the intent for the modification. Unless recognized by the chair, minute taker shall not list any issues/notes other than the action items and short summary in meeting minutes.

6. Rules of common courtesy and Roberts Rules of Order generally apply to the conduct of NFRC meetings.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

You have a VOICE - The NFRC Document Ballot Cycle – Details

NFRC - What is a Document Ballot?

The NFRC is grateful for its diverse community of volunteers who stand committed to keeping the NFRC's programs relevant and work diligently through task groups and subcommittees under the Research and Technology Committee, Technical Committee, and Ratings Committee. Much of the work concentrates on putting forth updates/changes to the NFRC's programs and technical documents as well as proposals for future research and research-related items.

The NFRC's document balloting process occurs two times per year--prior to the NFRC's Annual (Fall) and Committee Week meetings (Spring). This consensus-based process works to ensure that every company that participates through membership has an opportunity to share their expertise in the development and future success of the NFRC's varied programs.

- As ballots are reviewed, members are asked to vote one of three ways for each document up for review: Approve, Do Not Approve (Negative), or Abstain. Once the ballot cycle concludes (deadline for this cycle was August 31, 2017) all responses will be organized and a summary will be available for review approximately one week prior to the meeting.

These responses will then be discussed, reviewed, and voted on at the subcommittee meeting (upcoming meeting in San Diego, CA, September 25-27, 2017).

Please note, below is a full description on the processing/categorization of these responses as well as the corresponding action as it will relate to the future of the ballot. [Review ballot summaries from current meeting \(also located on flash drive given to each registered attendee at registration\).](#)

✓ **Approve & Abstain Responses**

These responses are tallied and require no action by the subcommittee.

✓ **Processing of Negative Votes (Do Not Approve) on Written Ballots**

Subcommittees shall resolve negative votes on a subcommittee ballot at the next meeting. All negative votes must be submitted with specific written explanation for the basis or rationale for the negative vote and/or recommended alternative language. Important Note -

In the event that a negative vote is filed without a specific written explanation for the basis or rationale for the negative vote and/or recommended alternative language, the committee or subcommittee chair, and/or NFRC's staff, shall make a reasonable effort to contact the voter to request the voter to provide to the chair and NFRC staff in writing the required explanation and/or recommended alternative language. If NFRC staff or the chair is unable to reach the voter or if the voter declines to provide the required information within the required time-frame set by the chair or NFRC staff, the negative vote shall be ruled non-germane (see description below, under categorization of Negative Votes).



Program Booklet

Categorization of Negative Votes

Based on the content of the negative vote, the negative votes shall be classified by the committee or subcommittee chair in the following categories:

Negative Categorized as Substantive

Substantive is defined as a proposal or comment that materially changes the general intent, technical content, or substantive meaning of the applicable language in the ballot.

Result of approving a substantive motion

Substantive motions shall result in the ballot being referred back to the subcommittee, task group, or submitter. **NOTE:** Unless otherwise determined by the subcommittee chair, only the language subject to the substantive negative shall be rebalotted.

Negative Categorized as Editorial

Editorial is defined as a comment that seeks to clarify, but does not change, the general intent, technical content, or substantive meaning of a rating procedure or program document, and includes correction of typographical errors, change of non-technical information, or elimination of ambiguous or redundant language.

Result of approving an editorial motion

Editorial motions shall result in NFRC staff making modifications to address negatives categorized as editorial. If necessary a task or work group may be formed to provide staff with recommended editorial language, or the committee or subcommittee may elect at that meeting to make the modification.

Negative Categorized as Non-Germane

Non-Germane is defined as comments that are deemed unrelated to the balloted issue or a negative vote submitted without required information.

Result of identifying a non-germane motion

Non-Germane motions shall require no further action by the subcommittee.

Negatives Withdrawn

Negative votes withdrawn by the voter shall require no additional action by the subcommittee or committee.



Program Booklet

NFRC Antitrust Compliance Procedures

NFRC is committed to requiring the organization and its members and representatives to be in full compliance with all federal and state antitrust laws, rules and regulations. NFRC recognizes that some of its members and participants may be potential competitors and NFRC wishes to scrupulously avoid any discussion or activity that could lead to, or be reasonably perceived as leading to, improper restraints on competition. NFRC's Board of Directors has adopted the following procedures to assist the organization and its constituents to maintain full compliance with these antitrust laws. These procedures apply to all NFRC members, directors on NFRC Board of Directors, officers, NFRC staff, and all participants in NFRC sponsored meetings and task groups and to all other meetings attended by individuals as representatives of NFRC.

Avoiding Improper Agreements and Discussions Among Competitors

1. Express of implicit agreements or discussions among competitors as to prices or price levels relating to their products and services is expressly prohibited. In addition, no discussion is permitted of any elements of a company's operations which might influence pricing such as:
 - a. how prices are determined and when they are issued;
 - b. costs of operations, supplies, labor or services;
 - c. allowances for discounts and rebates;
 - d. raw materials and costs and production and inventory matters;
 - e. terms of sale or products, including credit arrangements; or
 - f. profit margins and mark ups.

2. Competitors may not discuss or reach agreements not to compete with each other in any form. The following are examples of improper anti-competitive conduct prohibited by federal and state antitrust laws:
 - a. division of geographic market territories;
 - b. limitations on the nature of business to be carried on or the products to be sold; or
 - c. agreements to sell products for a specific market only.

3. Discussions or agreements to boycott or refrain from doing business with other commercial entity are also expressly prohibited in any form. Examples of these illegal boycotts include the following:
 - a. agreements not to pursue a new technology;
 - b. agreements about blacklisting or unfavorable reports about particular companies including their financial situation; or
 - c. agreements not to do business with identified vendors, customers and others.



Program Booklet

Compliance Education and Monitoring

1. It is NFRC's policy to periodically acquaint NFRC members, members of NFRC's Board of Directors, staff and other participants in the organization with the policies and procedures set forth in the Antitrust Compliance Procedures. As part of that compliance effort, NFRC will take the following steps to better ensure that NFRC meets these legal requirements:
 - a. Legal counsel for NFRC will brief NFRC Board and staff from time to time as to the requirements of the antitrust laws and the application of those laws to the activities of the organization;
 - b. NFRC Board and Chief Executive Officer will keep NFRC legal counsel informed of current and projected activities of NFRC and, as appropriate, request an antitrust review of those activities which will be shared with the Board.
 - c. NFRC legal counsel will be consulted on the agendas for NFRC meetings and the purpose of those meetings. Minutes of all NFRC sponsored meetings will be maintained and submitted to legal counsel for review for anti-trust implications;
 - d. At any meetings attended by persons who are acting on behalf of NFRC where discussion relates to matters with antitrust implications, the NFRC representative shall request that the discussion be stopped and ask that the request be made a part of the minutes of the meeting. If others continue such discussion, the NFRC representative shall leave the meeting and request that the minutes show that s/he left the meeting at that point and why s/he left. The NFRC representative shall immediately report the incident to NFRC's Chief Executive Officer who shall promptly inform the Board of the incident.
 - e. It is NFRC's policy that a copy of these Antitrust Compliance Procedures be given to each officer, director, committee member, official representative of member companies and NFRC employees at least annually and that the same be read, and/or disseminated, at all NFRC sponsored meetings.

Adopted by the NFRC Board of Directors - January 30, 2003



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

Duties of Meeting Chairpersons

The chairperson of each committee is responsible for well-planned and fair meetings. Since many interests are generally present at NFRC meetings, it is the duty of the chairperson that all interests be heard and fairly dealt with. The chairperson of each committee, subcommittee and task groups shall use the most recent edition of *Robert's Rules of Order*. The chairperson is also responsible for the management of the work of the group. It is up to the chair to assure that the work of the group is proceeding as scheduled and to oversee the work of the group during periods between meetings.

The following are some suggestions for the chair.

- Members should understand why the group exists and what are the expected goals.
- At the beginning of each meeting, determine quorum and identify voting members (one vote per voting member for subcommittees or one vote per voting member listed on the roster). For each task group, determine a well represented group of industry professionals.
- Review past minutes and recommendations and, if appropriate, make them part of the agenda.
- Distribute an agenda in time for the group Members to prepare themselves. One of the first items on the agenda should be approval of the minutes from the last meeting, if not already approved by letter ballot or other means.
- Determine if any items are to be added to the agenda.
- Follow up with Members who have been assigned tasks to assure they are completed.
- During the meeting, follow the agenda. Make sure items are covered, and if action is to be taken, it should be completed prior to moving on to the next agenda item.
- If the discussion is not related to the agenda item under consideration, ask that it be held until the proper time on the agenda.
- Make sure all assenting and dissenting views are heard before taking any action.
- After any action or vote is taken, repeat the decision and announce the vote for, against, and abstentions ensuring that the group understands. Do not move on to another agenda item until this is done.
- Only enter into discussions to expedite the business of the group, such as keeping the discussion on the appropriate topic.
- Before adjourning the meeting, review all votes taken, recommendations made or assignments given. Group participants should leave a meeting knowing what was decided and who is responsible for tasks prior to the next meeting.
- Make all assignments clear and concise and give a time when they should be completed.
- Be aware of the general principles regarding antitrust and tax exemption compliance provided by NFRC and remind your members of those principles from time to time. If you are concerned about the legal implications of any of the committee's actions or deliberations, contact NFRC's Chief Executive Officer and ask for input from NFRC's legal counsel, as appropriate.



Duties of Members Attending NFRC Meetings

- Be prepared to complete any assignments given within the time scheduled.
- Review agendas and be prepared to address the appropriate items.
- Speak only to the agenda items under consideration.
- Know the functions of the group.
- Be able to support views with facts or reasonable conclusions.
- Be a positive influence on all group actions.
- Respect other views.
- Make sure that actions to be taken, assignments given, or activities to be continued are understood.
- Read all materials provided prior to the meeting.
- Committee Membership Responsibilities:
 - To become a committee member, the designated member representative shall attend a meeting of the Committee and sign the appropriate Committee sign-up sheet. A Committee member may vote at the first Committee meeting the organization is included on the roster.
 - Committee members are expected to be experts on, or representatives of an organization directly involved in, the issues to be considered by the Committee.
 - Committee members shall be designated voting representatives, or designated alternate, of NFRC Members.
 - Acceptance of a position on a committee implies an agreement to participate constructively and consistently in committee proceedings.
 - After establishing committee membership, failure to attend two consecutive meetings without the approval of the chairperson will result in the removal of the committee member from the committee roster. Exercising of a proxy for more than two consecutive meetings does not constitute attendance.



Getting Involved with NFRC

Guide to the different levels of participation

TASK GROUPS

NFRC Definition & Purpose: Task groups are formed by Chairs of the subcommittees from members and non-members and are responsible for researching and developing specific issues presented to them by the Chair. Task Group findings and recommendations are reported to the Subcommittee responsible for its formation. Task groups are dissolved at the conclusion of its mission.

Current Listing Available under “Groups”: <https://nfrccommunity.site-ym.com/>

Requirements and Details:

- All interested public welcome to join and participate.
- No NFRC membership or attendance requirements to be listed or participate as member of an NFRC Task Group.
- If interested in participation – name must be given to Chair of the task group.

SUBCOMMITTEES

NFRC Definition & Purpose: Subcommittees are formed from the membership at the discretion of the appropriate Committee Chair and with the approval of the Board of Directors. They are responsible for tasks given to them by the Committee as they relate to the development of specific programs or procedures. Subcommittee findings and recommendations are reported to the Committee responsible for its formation.

Current Listing Available under “Groups”: <https://nfrccommunity.site-ym.com/>

Requirements and Details:

- NFRC Membership qualifies for one vote per Subcommittee - *Membership Listing can be found at <https://nfrccommunity.site-ym.com/?page=MemberList>.*
- ALL voting members of the NFRC are automatically subcommittee members and are allowed ONE VOTE per company at the subcommittee level.
- Ballots are issued via the NFRC website (<https://nfrccommunity.site-ym.com/?page=Ballots>) and voted on prior to NFRC Membership meetings – subcommittee membership qualifies one to vote on these ballots. (*One vote per member company*)
- Subcommittee meetings held at the NFRC Membership Meetings often hold final votes for balloted items. **All voting members present are qualified to vote regardless of previous meeting attendance.** *One vote per Member Company.*
- Information on becoming an NFRC Member can be found at <https://nfrccommunity.site-ym.com/?page=MembershipApp> or by emailing membership@nfrc.org.



NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA

Program Booklet

COMMITTEES

NFRC Definition & Purpose: Committees are mandated by the Bylaws or formed at the direction of the Board of Directors from the membership. They are generally responsible for the establishment of NFRC procedures and programs which are presented to the Board of Directors for final approval before implementation.

Current Listing Available under “Groups”: <http://nfrccommunity.site-ym.com/>

- Members Appointed by Board:
 - [Accreditation Policy Committee](#)
 - [Certification Policy Committee](#)
 - [Technical Interpretations Policy Committee](#)
 - [Verification Policy Committee](#)

- NFRC Member Supported (see below for details):
 - [Regulatory Affairs Committee](#)
 - [Ratings Committee](#)
 - [Research and Technology Committee](#)
 - [Technical Committee](#)

- Open Committee: (see below for details):
 - [ANS Standards Committee](#)

Requirements and Details:

- NFRC Committee Rosters (aka Committee Membership) are either BOARD appointed or are made up of interested member companies (Companies paying dues for NFRC Membership).
- To JOIN Member Supported COMMITTEE – Member must attend one meeting - signing the roster being sure to mark interest in having name added to the roster (becoming a voting member of the committee).
- Only one vote is allowed per NFRC dues paying Member Company.
- Member Name/Company Name will be added to the Committee Roster at the next meeting.
- Member Name/Company Name will be DROPPED from Roster if Representative misses TWO CONSECUTIVE COMMITTEE MEETINGS (absent for Roll Call)
- All current committee rosters are posted on the NFRC website prior to committee meetings for membership review or by contacting the Committee Chair or the NFRC’s membership department at membership@nfrc.org.





NFRC 2017 Fall Membership Meeting
September 25-27, 2017, San Diego, CA
Program Booklet

ACRONYMS/TERMINOLOGY*

NFRC – *National Fenestration Rating Council – a nonprofit research/educational organization (501(c) 3) that develops and administer energy-related rating and certification programs that serve the public by providing fair, accurate, and credible information on fenestration performance.*

ACE – Approved Calculation Entity: An individual, who has attended an NFRC Calculation Training Workshop, completed and passed all necessary examinations, and has obtained a Certificate of Approval which qualifies him or her to carry out performance calculations of fenestration products for certification using the Component Modeling Approach.

AM – Air Mass: The ratio of the mass of atmosphere along the actual observer-to-sun line to the mass that would exist if the observer was at sea level, at standard barometric pressure, and if the sun was directly overhead (at the zenith).

AMC – Attachment Manufacturer's Certificate.

APC - Accreditation Policy Committee: A standing committee whose members are appointed by the NFRC Board of Directors to manage the NFRC Laboratory Accreditation Program (LAP). See the NFRC 710: Operating Policies Manual for further details.

APD – [Applied Films Product Directory](#)

ASL/ATL – Accredited Simulation/Testing Laboratory: Computer simulation or testing laboratory that has met NFRC Laboratory Accreditation Program (LAP) requirements, has entered into a NFRC laboratory License Agreement, and received a NFRC Certificate of Accreditation, none of which has been revoked.

CAMP – Compliance and Monitoring Program: NFRC administers this program that monitors program activity and assists and educates architects, builders, code officials and other regulatory agencies. The governing document for this program is the NFRC 707.

CAP – Certification Agency Program: NFRC administers this program which includes a set of rules and procedures by which an independent certification and inspection agency becomes licensed and operates. The governing document for this program is the NFRC 702.

CEAP – Calculation Entity Approval Program: NFRC administers this program that contains the rules and requirements for becoming an Approved Calculation Entity (ACE) and ACE Organization in the CMA Program. The governing document for this program is the NFRC 708.

CMA – Component Modeling Approach: A new rating methodology being developed by NFRC to address fenestration in commercial buildings.

CMA PCP – Component Modeling Approach Product Certification Program: NFRC administers this program which contains the rules and requirements for component manufacturers/participants seeking spacer and frame component approval and Specifying Authorities seeking product certification by requesting a CMA Label Certificate. The governing document for this program is the NFRC 705.

CMASST CPD – [Component Modeling Approach Software Tool Certified Products Directory](#): A freely accessible, web-based directory administered by NFRC that provides energy rating information for non-residential fenestration products as well as NFRC-approved components, and a listing of all CMA Label Certificates

CPC – Certification Policy Committee: A standing committee whose members are appointed by the NFRC Board of Directors to manage the NFRC Certification Agency Program (CAP) and to provide interpretations for the NFRC Product Certification Program (PCP). See the NFRC 710: Operating Policies Manual for further details.

CPD – [Certified Products Directory](#): A directory of fenestration products in electronic form, listing fenestration products and their performance ratings, for which product certification authorization has been granted by a licensed IA (inspection agency), and can be searched by the public.

CPD Number – Certified Products Directory Number: A unique identification number assigned by NFRC via the CPD to an authorized product.

*Additional terminology can be found in [NFRC 600: Glossary and Terminology](#).



NFRC 2017 Fall Membership Meeting September 25-27, 2017, San Diego, CA **Program Booklet**

CTS – Calibration Transfer Standard: An insulation board that is faced with glazing, instrumented with temperature sensors between the glazing and the insulation board core, which is used to calibrate the surface heat transfer coefficients and the surround panel.

FMC – Fenestration Manufacturer's Certificate: An FMC may be used by a manufacturer under specific conditions in the event that a properly applied NFRC temporary label has been removed, or at the manufacturer's discretion upon request from a responsible party (i.e., building code official, builder, homeowner, etc.)

Fenestration – Products that fill openings in a building envelope, such as windows, doors, skylights, curtain walls, etc., designed to permit or limit the passage of air, light, vehicles, or people.

Fenestration Attachment – A device (such as, but not limited to, shades, films, or blinds) designed to be physically attached to, incorporated with or covering a fenestration product.

Film: Fenestration attachment products which consist of a flexible adhesive-backed polymer film which may be applied to the interior or exterior surface of an existing glazing system. See Fenestration Attachment.

HTDD – Hybrid Tubular Daylighting Device: A tubular daylighting device (TDD) whose light transmitting tube consists of more than one material and/or has more than one geometry throughout its length. Typically used with suspended ceilings or to illuminate spaces without ceilings.

IA - Independent Certification and Inspection Agency: An organization or person authorized by license to conduct specified services for the Certification Program.

IAC – Inter-Agency Comparison: Organization, performance, and evaluation of certification authorization processes by two or more certification agencies in accordance with predetermined results and/or submissions.

IG/IGU – Insulating Glass Unit: A preassembled unit comprising lites of glass, which are sealed at the edges and separated by dehydrated space(s). The unit is normally used for windows, window walls, picture windows, sliding doors, patio doors, or other types of fenestration. (**SIG** – Sealed Insulating Glass Unit)

ILC – Interlaboratory Comparison: Organization, performance, and evaluation of the same test sample or simulation by two or more laboratories in accordance with predetermined conditions.

IRC – Individual-in-responsible-charge: The individual(s) responsible for assuring that the quality of services offered and provided by an Licensed Certification Program are in full compliance with the NFRC 700, NFRC 702, and NFRC 705. An IRC shall participate in any workshops associated with the NFRC 702.

IVP – The Independent Verification Program: A requirement because of NFRC's status as an approved Certification Body (CB) for the EnergyStar® Windows Program. This is a program that will verify the performance ratings of EnergyStar® qualified and NFRC certified and labeled fenestration products sold in the market that agrees with the performance ratings listed in the NFRC Certified Products Directory. This program will use procedures that complement the inspection and validation testing requirements of the NFRC 700. A pilot program is scheduled for implementation in late 2011 and to continue through 2012. Full implementation is anticipated during 2013 upon the approval of the Board.

KD – Knocked Down Product: A fenestration product supplied by a licensed manufacturer/responsible party in an unassembled or partially assembled state, which requires further assembly at the jobsite.

LAP – Laboratory Accreditation Program: NFRC administers this program which contains the rules and requirements for licensed, accrediting thermal test and computer simulation laboratories. The governing document for this program is the NFRC 701.

OAVA – Outdoor Air Ventilator Assembly: An apparatus independent from but installed into a fenestration product for controlling the transfer of air through the product.

OWL – Outdoor Wetted Length: Measured from the interface between frame and glazing to the first adiabatic boundary on the outdoor side.

PCP – Product Certification Program: NFRC administers this program which contains the rules and requirements for licensed manufacturers/participants to label windows (and responsible parties to produce Label Certificates). The governing document for this program is the NFRC 700.

RH – Relative Humidity: The ratio of the amount of water vapor in the air compared to the maximum amount of water vapor that the air could hold at a particular temperature and pressure.

*Additional terminology can be found in [NFRC 600: Glossary and Terminology](#).



NFRC 2017 Fall Membership Meeting September 25-27, 2017, San Diego, CA **Program Booklet**

SIRC – Simulator-In-Responsible-Charge: The individual(s) responsible for assuring that the quality of services offered and provided by an Accredited Simulation Laboratory are in full compliance with the LAP. An SIRC shall have successfully completed an NFRC Simulation Accreditation Workshop, passed an NFRC Simulation Accreditation Examination, attended an NFRC Annual Accreditation Workshop, and participate in any ILC evaluations in accordance with the LAP.

Site-Built Program – A rating program developed in 1999 by NFRC to rate non-residential fenestration products.

TB - Thermally Broken Members: System members with a minimum of 5.30 mm (0.210 in) separation provided by a thermal break.

TI - Thermally Improved Members: System members with a separation ≥ 1.60 mm (0.062 in) provided by either a thermal break or open air space that may be interrupted by short thermal bridges between the interior and exterior surfaces.

TDD - Tubular Daylighting Device): A non-operable device primarily designed to transmit daylight from a roof surface to an interior ceiling surface via a tubular conduit. The device consists of an exterior glazed weathering surface, a light transmitting tube with a reflective inside surface and an interior sealing device, such as a translucent ceiling panel. See also “Hybrid Tubular Daylighting Device.”

NFRC Energy Performance Ratings

AL- Air Leakage: The volume of air flowing per unit time per unit area through a fenestration system due to air pressure or temperature difference between the outdoor and indoor environment. (NFRC 400).

Condensation Resistance – A relative indicator of a fenestration product's ability to resist the formation of condensation at a specific set of environmental conditions. The higher the Condensation Resistance value the greater the resistance to the formation of condensation. (NFRC 500).

SHGC – Solar Heat Gain Coefficient: A rating that expresses the percentage of incident solar heat transmitted through a fenestration product; the lower the SHGC, the less solar heat gain (NFRC 200 and NFRC 201).

U-factor – Thermal Transmittance: A rating that expresses the rate of heat flow through the fenestration product. The lower the U-factor, the less heat is allowed to transfer through the fenestration product (NFRC 100 and NFRC 102).

VT – Visible Transmittance: A rating that expresses the percentage of visible light transmitted through a fenestration product (NFRC 200).

Other Important Acronyms:

AAMA – American Architectural Manufacturers Association
AEC – Aluminum Extruders Council
AFRC – Australian Fenestration Rating Council
ANSI – American National Standards Institute
ASE – Alliance to Save Energy
ASHRAE – American Society of Heating, Refrigeration and Air-conditioning Engineers
ASTM International – formerly known as ASTM, The American Society of Testing and Materials
BIM – Building Information Modeling
CEC – California Energy Commission
CSA – Canadian Standards Association
DASMA – Door and Access System Manufacturers Association
EWC – Efficient Windows Collaborative
GANA – Glass Association of North America

ICC – International Code Council
-IECC – International Energy Conservation Code
-IBC – International Building Code
-IRC – International Residential Code
IGCC – International Glass Certification Council
IGMA – Insulating Glass Manufacturers Alliance
ISO – International Organization of Standardization
IWFA – International Window Film Association
LBNL – Lawrence Berkeley National Laboratories
LEED – Leadership in Energy and Environmental Design
NGA – National Glass Association
Title 24 – Building Energy Standard for California
WDMA – Window and Door Manufacturers Association

*Additional terminology can be found in [NFRC 600: Glossary and Terminology](#).



2017 NFRC MEMBERSHIP MEETING

Components of Change: Idea to Reality
September 25-27, 2017 San Diego, California



NFRC Networking Reception

Monday, 6:00 p.m. – 8:00 p.m.

Tom Ham's Lighthouse

2150 Harbor Island Drive, San Diego, CA 92101



Sheraton San Diego Hotel and Marina

1380 Harbor Island Drive
San Diego, CA 92101
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