

**AMERICAN SOCIETY OF HEATING, REFRIGERATING AND**

**AIR-CONDITIONING ENGINEERS, INC.**

**1791 Tullie Circle, NE, Atlanta, GA**

**404-636-8400**

**Technical Committee 4.4**

**Building Materials and Building Envelope Performance**

***These DRAFT minutes have not been approved and are not the official, approved record until approved by this committee.***

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**TC/TG/TRG MINUTES COVER SHEET**

(Minutes of all TC/TG/TRG Meetings are to be distributed to the individuals listed below within 60 days following the meeting.)

**TC/TG/SSPC: TC 4.4**

**TC Title: Building Materials and Building Envelope Performance**

**Date of Meeting: Monday, January 22, 2018. Meeting convened at 2:15 pm.**

**Location: Madison Room (1), Palmer House, Chicago, IL**

**DISTRIBUTION**

All members of TC 4.4 plus the following:

TAC Chair

Committee Liaisons

**ADDITIONAL DISTRIBUTION**

Manager of Standards

Manager of Research and Technical Services

## ASHRAE TC 4.4 MINUTES

### Building Materials and Building Envelope Performance

#### 1. Introductions/Roll Call/Attendance

The Chair, Rick Peters, called the meeting to order at 2:15pm, which was followed by roll call and introductions. Rick reminded the TC members to check their data in the sign in sheet.

A total of 36 committee members, corresponding members and guests were present. Attendance is shown below:

#### Voting Members and Officers Present:

<u>Name</u>	<u>Affiliation</u>	<u>Role</u>	<u>VM</u>
Richard E Peters	TBS Engineering	Chair	Voting Member
Diana Fisler	Johns Manville	Vice Chair	Voting Member
Manfred Kehrer	WJE	Secretary	Voting Member
Alejandra Nieto	Rockwool	Webmaster	Voting Member
Achilles Karagiozis	Owens Corning		Voting Member
Patrick Noonan	Knauf insulation		Voting Member
Jan Kosny	Fraunhofer/USA		Voting Member
Chris Schumacher	RDH		Voting Member
Fitsum Tariku	British Columbia Institute of Technology		Voting Member
Stanley D. Gatland, II	Certainteed		Voting Member
Florian Antretter	Fraunhofer IBP		VM (Non Quorum)
David Yarborough	R&D Services		Voting Member
Roderick Jackson	ORNL		Voting Member

**Number of voting members present: 13 (1 non-quorum)**

#### Voting Members and Officers Absent

<u>Name</u>	<u>Affiliation</u>	<u>Role</u>	<u>Notes</u>
Theresa A Weston	Dupont	Standards Chair, 90.2	Voting Member
Paulo Tabares	Colorado School of Mines	Program Chair	Voting Member
Paul Shipp	USG		Voting Member
Wahid Maref	Ecole de Technologie Superieure		Voting Member
Hua Ge	Concordia University		Voting Member

#### Corresponding/Provisional Members Present

<u>Name</u>	<u>Affiliation</u>
Fiona Aldous	WJE
Marcus V Bianchi	Owens Corning
Peter Adams	Morrison Hershfield
Huojun Yang	NDSU
Laverne Dagleish	ABAA, Handbook Chair
Andre Desjarlais	ORNL
Philip Boudreaux	ORNL

Bradley Thomas Carmichael	JRS Engineering
Stephen O Barefoot	CertainTeed Gypsum
Aleksander S Andjelkovic	Trg Dositeja Obradovica
Charles Cottrell	NAIMA
Doug Kinninger	Fi-Foil Company Inc.
Hakim H Elmahdy	
Elena Enache-Pommer	The Dow Chemical Company
Wes Hall	Reflectix Inc.
Michael Salonvaara	Owens Corning
Sam J. Taylor	
Charlie Petty	Lamtec

## Visitors Present

<u>Name</u>	<u>Affiliation</u>
Neal Holcroft	NRC
Ed Light	Building Dynamics
Greg Johnson	Johnson Associates
Henry Harvey	CLEARResult
AJ Rao	USG

## 2. Report From the Chair

Rick Peters reported that:

RAC is prioritizing research topics related to the residential sector. By including residential applicability in our RTAR's, we should expect to see a higher percentage of positive responses from RAC.

CEC has a standing request for future society meeting program track requests. The selection of program tracks for each meeting falls on the Technical Program chair for that meeting so the requests should be submitted to CEC and they will either forward it or direct you to the appropriate person.

CEC is looking for volunteers to provide technical expertise in supporting content development and quality control for society technical program at meetings. Please respond to requests for reviewers when the topic falls within your knowledge base.

ASHRAE announced their 125th anniversary for 2019-20 and is requesting papers that highlight advances made in our industry since 1920. Submissions/Abstracts should be sent to the historical committee and are due by March 9, 2018.

## 3. Approval of Long Beach meeting minutes, June 26, 2017 Minutes

The draft minutes from the June, 2016 meeting in Long Beach, CA were posted ASHRAE Website for review. A motion has been raised by Manfred Kehrer and seconded by David Yarborough to approve the Long Beach meeting minutes with the following changes of updating Wahid Maref's employment status and correcting Sam Taylor's member status to Corresponding Member.

**VOTE: For 12, Against 0, Abstaining 0; CNV, MOTION CARRIED**

## 4. Program Subcommittee

As the program subcommittee chair Paulo Tabares was not able to join this TC meeting, Diana Fisler read Paulo's suggestion for sponsoring the upcoming Houston Program as follow:

**Track 5: Residential - Modern Buildings in Hot and Humid Climates**

Modeling durable buildings in hot and humid climates and their impact to HVAC systems  
(recycle seminar that was not approved, with a slightly change to hot and humid)

Proposed Chair: Paulo Tabares (Colorado School of Mines)

Potential Speakers:

- Simon Palin (ORNL). What is behind Building Science Advisor?
- Jason Woods (NREL). EnergyPlus simulation tool with new moisture buffering model: Field validation and input guidance for residential buildings
- Florian Antretter (Fraunhofer). Whole building hygrothermal modeling for durable buildings
- Peter Adams (Morrison Hershfield). HVAC Systems Interactions with the Building Envelope

Thermal bridging in hot and humid climates and their impact to HVAC systems

Proposed chair: Fitsum

Potential Speakers:

- Alex McGowan Case Study from Dubai
- Lew Harriman
- Don Snell, Case Studies

Thermal Bridging Basics

Proposed chair: Diana Fisler

- Alex McGowan
- Jay Crandell
- Jan Kosny

**Track 7: Research Summit**

2D and 3D Dynamic Models.

Proposed Chair: Jan Kosny

Potential Speakers:

- Jonathan Humble
- TBD
- TBD

Co-sponsoring of the following TC 6.9 Program:

Thermal Energy Storage at the Small Scale: Technologies and Applications for Residential and Small Commercial Buildings

- Paulo Tabares: Graphical visualization of residential potential cost savings from energy storage under time-of-use electric rates
- Charlie Upshaw: Residential thermal storage systems for isolated microgrid scenarios
- Stephen Bourne: A high-density, PCM-based thermal storage system for residential buildings
- Sajith Wijesuriya: Phase change materials optimization for precooling with forced convection in a residential building.

A motion has been raised by Diana Fisler, seconded by Peter Adams to sponsor the three above mentioned programs and to co-sponsor one above mentioned program.

**VOTE: For 12, Against 0, Abstaining 0; CNV, MOTION CARRIED**

## **5. Research Subcommittee**

### **Abbreviations**

MORTS = Manager of Research and Technical Services  
PES = Proposal Evaluation Subcommittee  
PMS = Project Monitoring Subcommittee  
RAC = Research Administration Committee  
RFP = Request for Proposals  
RL = Research Liaison  
RP = Research Project  
RTAR = Research Topic Acceptance Request  
TRP = Tentative Research Project  
URP = Unsolicited Research Proposal  
WS = Work Statement

### **Project Status Updates**

#### **1696-RP**

**Thermal, Moisture and Air Transport Property Values for New Building and Insulating Materials** (WS authors: Alex McGowan, Steve Cornick).

The PMS acknowledged that progress has been made, though the PMS came to the agreement that RAC should be asked for a 1 year no-cost extension until June 2019. A motion has been raised by Achilles Karagiozis, seconded by David Yarborough, to submit this request for a no-cost extension to RAC.

**VOTE: For 11, Against 0, Abstaining 1; CNV, MOTION CARRIED**

#### **1759-TRP**

**Impact of Air-Flow on Thermal Performance of Airspaces behind Cladding (Phase 1 of 2)** (WS authors: Jay Crandell, David Yarbrough, Jonathan Humble).

The PES agreed on a recommendation to the TC regarding the potential bidders. See EXECUTIVE SESSION: 1759-TRP-R under "New Business".

#### **1718-WS**

**Development of a Method to Determine the Moisture Transport Properties of a Roof Shingle System under Real Conditions** (WS author: Manfred Kehrler; cosponsored by TC 1.12).

Manfred Kehrler updated the WS according to RAC's recommendations and circulated it to the TC before the meeting. Roderick Jackson informed himself, whether recent ORNL studies are

referenced in the WS. A motion was raised by David Yarborough and seconded by Jan Kosny to accept the updated WS with the condition to include the recent ORNL reference.

**VOTE: For 11, Against 0, Abstaining 1; CNV, MOTION CARRIED**

### **1730-WS**

**Mass Flow Rate Correlations for Standard Venting Strategies and Components in Attic Spaces with Sloped Roofs** (Authors: Anthony Fontanini, Dave Roodvoets; cosponsored by TCs 4.3 and 4.7).

Draft WS has been created though is not yet ready to be voted on.

### **Draft RTAR**

**Develop Performance Metric, and a Process for the Measurement, Evaluation and Prediction of Speech Privacy in High Performance Buildings** (Author: Kenneth Roy, TC 2.6).

No update since Long Beach.

### **Draft RTAR**

**Characterization of Residential Indoor Moisture Generation based on Survey and Laboratory Measurements** (Authors: Simon Pallin and Fitsum Tariku, TC 1.12).

Revised draft was sent out for TC review Jan. 16, 2018. Further input wanted by the authors from the TC.

### **Draft RTAR**

**Hygrothermal Properties of Aged Construction Materials** (Author: Steve Cornick). Draft by Steve Cornick has been dormant for several years. Topic was identified as a priority in the recent brainstorming/prioritization exercise. Recently revised by Neal Holcroft. Sent out for TC review Jan. 19, 2018. Achilles offered to collaborate with Neal on the next version.

### **Draft RTAR**

**Moisture Transfer in Building Materials at High Temperatures** (Author: Sam Glass). Topic discussed at research subcommittee 2017-1-29. Overlaps somewhat with 1718-WS on moisture transfer in roof shingle systems. Suggested that this RTAR be held while 1718 moves forward.

### **Draft RTAR**

**Development of Material Moisture Tolerance Criteria and Evaluation Methodology for Hygrothermal Analysis of Building Enclosures using ASHRAE 160** (Author: Jay Crandell, SSPC 160). Seeking co-sponsorship from TC 4.4. Second draft was sent out for TC review Jan. 16, 2018. Comments should be send back to Jay by beginning of March. RTAR will be transferred to TC 4.4 with potential co-sponsorship from SSPC 160.

## Draft RTAR

**Moisture Transfer in Building Materials at High Temperatures** (Author: Sam Glass). Topic discussed at research subcommittee 2017-1-29. Overlaps somewhat with 1718-WS on moisture transfer in roof shingle systems. Suggested that this RTAR be put on hold while 1718 moves forward.

No update since Long Beach.

## 5. Handbook Subcommittee

Laverne Dalgleish mentioned that the main focus is on the revision of chapter 44. The TC should be voting on the final revision by June which could be at the next meeting in Houston. Comments to be sent by 1st of March to Peter Adams to be incorporated the final version to vote on.

## 6. Standards Subcommittee

Updates were presented by the individual Liaisons to the TC as the Standards Subcommittee Chair Theresa Weston was not present.

**Std. 90.1: (Charles Cottrell):** Charles Cottrell mentioned that the main discussion is on thermal bridging. And how to come up with new requirements to address this topic.

**Std. 90.2: (Theresa Weston Liaison absent):** No update.

**Std. 160: (Achilles Karagiozis):** Achilles mentioned that the weather data task met on how to implement RP-1325 result into the standard. Furthermore, the subcommittee is working on how to incorporate models and performance criteria to address corrosion and freeze/thaw. A task group on air flow will be formed.

**Std. 189.1: (Diana Fisler):** Updated will be provided after the meeting.

**GPC34P "Energy Guideline for Historical Buildings and Structures" (Bill Rose):** Bill Rose mentioned that guide has been passed and will be published soon.

Ed Light: A Multidisciplinary task group with 1.12 has been started to define dampness in buildings. Next steps will be a practical assessment for the rating of dampness with regards to impact on health and the indoor environment.

## 7. Old Business

Sam Taylor mentioned the continuous activity by AIA and BETEC to look for resources of hygrothermal analysis for educational purposes and moisture control.

## 8. New Business

Mike Poucheck introduced himself as the new section 4 Research Liaison.

Discussion has been started about a TC 4.4 roadmap to get more influx of young people. The plan is to develop program to prioritize and execute on items within the scope of TC 4.4, to create a research



roadmap and to provide more continuity in the program topics. Achilles Karagiozis and Chris Schumacher are volunteering to create proposed roadmap.

EXECUTIVE SESSION: 1759-TRP-R

Voting members of TC4.04 met to vote on the recommendation of the PES regarding 1759-TRP-R. Members with conflicts and non-voting members were asked to leave the room. The final vote was 10/0/0 affirmative/negative/abstain. The motion to accept the recommendation of the PES passes.

## 9. Adjournment

Chris Schumacher moved a motion, seconded by Manfred Kehrer to adjourn the meeting at 4:15.

***Manfred Kehrer – Secretary, TC 4.4. Next meeting: Houston June 25, 2018***

Unapproved