

**ASHRAE TC8.11**  
**Unitary and Room Air Conditioners and Heat Pumps**  
**Full Committee Agenda**

**2020 ASHRAE Summer Meeting**  
**~~Austin~~ Virtual Conference**

**Tuesday 6/9/2020, 4:00 - 6:30 PM EDT**

<https://zoom.us/j/98483120928?pwd=TWNDTld6dEo2cE40UmxmSWk1c1hGdz09>

**Subcommittee Meeting:**

**Monday 6/8/2020, 3:00 - 6:00 PM EDT**

<https://zoom.us/j/91705473794?pwd=STBRMmxTmZ4MWpScFVsTS95VzhFUT09>

**1. Call to order**

**Christensen**

Sign in: <https://tinyurl.com/TC811-attend>

**2. Review Scope**

Technical Committee 8.11 is concerned with products for use in comfort cooling and/or heating systems. The factory engineered vapor compression systems include: (1) unitary equipment which generally requires the field engineering of the product mounting and ducting, piping and electrical connections, (2) room air conditioners such as window mounted units and ductless split systems and (3) packaged terminal equipment. Specifically excluded are unitary combustion-engine driven systems.

**3. ASHRAE Code of Ethics Commitment**

**Christensen**

"In this and all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, integrity and respect for others, and we shall avoid all real or perceived conflicts of interests." See full ASHRAE Code of Ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>

**4. Introductions**

**All**

a. Determination of a quorum

Christensen

*VOTING MEMBERS FOR THIS MEETING (Need 7 for a Quorum)*

x	Chad Bowers	(6/2022)
x	Dane Christensen	(6/2020)
x	Henry 'Skip' Ernst	(6/2021)
x	Sivakumar Gopalnarayanan	(6/2020)
x	Chad Kirkwood	(6/2022)
x	Darin Nutter	(6/2021)

x	Kishan Padakannaya	(6/2021)
x	Bo Shen	(6/2021)
x	Kirk Stifle	(6/2023)
x	Chris Stone	(6/2022)
	Dutch Uselton	(6/2020)
	Jeff Warther	(6/2022)

**5. Agenda additions**

**All**

**6. Chair's Report**

**Christensen**

a. Chair's Goals

- i. Provide leadership to TC8.11 with integrity and purpose
- ii. Increase diversity among committee
  1. 3 new members at each TC meeting
  2. Established a YEA chair
- iii. Increase program engagements
- iv. Maintain TC research
- v. Ensure handbook chapters are revised on time with meaningful content
- vi. Support completion of ASHRAE 37
- vii. Modernize committee business meetings

- b. Announcements and Highlights from TC Chairs' Breakfast Meeting
  - i. TC reorg committee was dissolved in January
  - ii. TC ReOrg will be handled by new team within TAC lead by Larry Smith
  - iii. 4 TC mergers –
- c. New ASHRAE president has established new initiative area
  - i. Built environment of the future
    - 1. TAC has formed new task force to deal with COVID and environmental health
  - ii. Future of AHRAE
- d. CEC has sent out the track for Chicago
- e. Siva G has volunteered to be Low GWP MTG liaison for 8.11
- f. TC Continuation

## 7. Liaison reports (as they arrive)

### Liaisons

- a. MTG – Low GWP Refrigerants
  - i. Siva G has volunteered to be Low GWP MTG liaison for 8.11
  - ii. No meeting to report
- b. First meeting in Orlando
- c. Technical writer ready to develop a guide (will send an email) refrigeration and plant assessment guide
- d. AHRAE website ventilation control for on infectious diseases
  - i. Will form in July
- e. August 3 deadline for Chicago seminars at forums
- f. Refrigeration Technology

Siva G

Drew Welch

Carl Huber

Hwang

## 8. Approval of minutes from Orlando

Christensen

- a. Orlando minutes will be approved by letter ballot

## 9. Membership/Roster

Berg

Starting August 1<sup>st</sup>:

Name	Role	Voting
Chad Kirkwood	Chair	Yes
Kasey Worthington	Vice Chair	
Scott Creamer	Secretary	
Eric Berg	Research Chair	Yes
Chris Stone	Standards Chair	Yes
Robert Berry	Handbook Chair	
Grant Wheeler	Program Chair	
Darin Nutter	Webmaster	Yes

Name	Role	Voting
Henry Ernst		Yes
Kirk Stifle		Yes
Kishan Padakannaya		Yes
Bo Shen		Yes
Chad Bowers		Yes
Craig Bradshaw		Yes
Jon Winkler		Yes

If any guests will like to be part of the roster join via ASHRAE website

## 10. Subcommittee reports

- a. Programs
  - i. Summer 2020 Virtual Conference

Grant Wheeler

**Seminar 51: Cold Climate Heat Pumps: Innovation is Heating Up!**

- 1) "Performance of Cold Climate Heat Pumps in the Field" Tom Marsik, Ph.D., Cold Climate Housing Research Center
- 2) "Assessment of Energy Savings and Payback Period for Two Multi-Stage Cold Climate Heat Pumps" Bo Shen, Ph.D., ORNL
- 3) "Designing and Testing of a Packaged R-290 Cold Climate Heat Pump with External Flow Reversal" Davide Ziviani, Ph.D., Purdue University

>> Live Q&A Session is 11:40-noon Eastern, Monday 6/29. See the virtual conference program for more info.

Sessions are prerecorded with a scheduled live Q&A session

1<sup>st</sup> seminar Monday 6/29

- ii. Winter 2021/Chicago Tracks: (1) HVAC&R Fundamentals and Applications, (2) Systems and Equipment, Refrigeration and Refrigerants, (3) Environmental Health Through IEQ, (4) Building Performance and Commissioning for Operation and Management, (5) Energy Conservation, (6) International Design, (7) Standards, (8) Guidelines and Codes, (9) Mini-track based on Chuck Gullette's Presidential Theme-TBD

### **Program Ideas**

TC 8.1 & 8.2 – design challenges for positive displacement vs centrifugal compressors

Chris Stone - ASHRAE 37 updates

Omar - will discuss low GWP refrigerants

Chow Dane - global HVAC design for international efficiency design – Track 2

1 speaker from LBL,

UNEP related to global efficiency standard

Will reach out to someone from AHRI

Track 4 – Omar - COVID 19 difficult to study due to governmental partnership

6.3 TC potential co-sponsor How do you change the OD with ID to meet the need of COVID mitigation<sup>1</sup>

**Motion: Chad Kirkwood makes a motion to co-sponsor TC 8.1, 8.2 pending additional information**

**Siva G. seconds the motion**

Chad Bowers – yes

Skip – y

Siva – y

Chad – Y

Darrin – y

Kishan – y

Bo – y

Kirk – Y

Chris Stone – y

**Motion passes**

Discussion Deadline is august 3, Davide is going to be the go between and provide the exact definition and title.

Interest in connected communities - none

- iii. Summer 2021 Tracks: Not yet announced

b. Research

Eric Berg

Funds are a little tight, but encouraged to continue

- i. RP-1721: Oil Return and Retention in Unitary Split System Gas Lines with HFC and HFO Refrigerants Rite
  - 1. Data collected on 2 different refrigerants moving onto the 3<sup>rd</sup>
  - 2. Students gave a preview of modeling, so this does
  - 3. On track with a no cost extension

- ii. RP-1733: Develop Design Criteria for Psychrometric Air Sampler and Mixer Apparatus for Use in ASHRAE Test Standards Kirkwood

No cost extension to 2/21

Several mixers have been evaluated

Over wide range of airflow need to find the least restrictive mixer

Work on samplers to start soon, hopefully before the end of the year

- iii. RP-1743: Effect of Inlet Duct and Damper Design on ASHRAE 37/116 Fan Performance and Static Pressure Measurements Berg

Vote taken place on 11/4/2020 for a no cost extension

Vote results:

Kasey Worthington - Yes

Eric Berg - Yes

Chis Stone - Yes

Darin Nutter - Yes

Chad Bowers - Yes

Bo Shen – Yes

Craig Bradshaw - Yes

Kirk Stifle - Yes

Henry Ernst - Yes

Jon Winkler - Yes

Kishan Padakannaya – Yes

Chad Kirkwood – Chair Not Voting

Request for extension granted

Purpose to shorten the inlet duct due to height restrictions

OSU working on the design for 3 ton constant CFM which looked promising

Studying impact of barometric pressure

- iv. RP-1785: Refrigerant Charge Modeling in Coils for Residential Split Systems Rite

OSU grad students gave a 5-minute update on 6/8

On final steps of getting the coils sorted out

No data has been collected yet

PMS is having another meeting with PI in August to get an update

Will have a larger meeting during September once data is available

- v. RP-1824: Accounting for Barometric Pressure Impacts on Psychrometric Performance Testing of Unitary Air Conditioning and Heat Pump Equipment Winkler

University of LA kickoff meeting last April

Acquired software to be used

One of the goals is to consider how to specify inlet humidity conditions

Hypothesis is that humidity ratio would be better than WB temperature

OD room stratification

Scott Creamer – Work statement should be able to go out

Eric will send out for pre submission review

New ideas for measurements for dynamic measurement

- Tolerances for dynamic test fluctuate more
- If we are going to greenfield approach, how does the tolerances affect the results
- This is the foundational affects to new load-based testing
- Not sure if any sensitivity analysis has been done to study how tight the tolerances should be
- Need to evaluate if the instruments exist to drive what tolerances are needed
- Bob Berry volunteers to create an RTAR

Christian Bach – Is there any interest in reviewing the psychrometers design and airflow rate

Sampler distance of the interconnecting tube RP1460 that looks at the psychrometer

Was chasing ambient impacts not pressure impacts

If you don't record the properties at the point of measure will impact the final pressure measurement

As the sampling tree design changes this make this topic more important

RP1460 only used 1 diameter for the RTD, should it be a variable

Chris stone pointed out that this is an issue with finding wet sock material

Need to make sure that we have enough surface are for the wet sock to evaporate

No action needed

#### c. Handbook

Bob Berry

One of the chapters submitted without the ability to a final review Room Air and PTAC chapter 49 due to error in the ASHRAE process

- Residential Space Conditioning (2023 Handbook – HVAC Applications)  
-Looking for volunteers to review
- Unitary Air Conditioners and Heat Pumps (2024 Handbook – HVAC Systems and Equipment)
- Room Air Conditioners and PTACs (2024 Handbook – HVAC Systems and Equipment)

#### d. Standards

Chris Stone

- ANSI/ASHRAE Standard 16 – Method of Testing for Rating Room Air Conditioners and Packaged Terminal Air Conditioners (2016)  
***Discuss reaffirmation and/or revision.***  
Follow up on standard 16 to reaffirm  
Pat Collins, Byron, Chris, Scott Creamer - Chair, Eric Berg  
This one is fairly minor revisions, there are 3 or 4 things that need to be modified  
Should have a public review within 18 months
- ANSI/ASHRAE Standard 37 – Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment Stone
- ASHRAE Standard 116 – Methods of Testing for Rating Seasonal Efficiency of Unitary Air Conditioners and Heat Pumps no action (2010)  
116 was reaffirmed
- ANSI/ASHRAE Standard 137 – Methods of Testing for Efficiency of Space-Conditioning/Water-Heating Appliances that Include a Desuperheater Water Heater (*co-cognizant*) no action (RA 2017)
- ASHRAE 206 – Method of Testing for Rating of Multi-Purpose Heat Pumps for Residential Space Conditioning and Water Heating no action (RA 2017)

- vi. SPC 15.2P – Safety Standard for Air-conditioning and Heat Pump Systems in Residential Applications

- e. Web site

Darin Nutter

No update to report, and up to date

RP1824 needs to be added to the research

Standard 58 needs to be updated

## **11. Old Business**

No old business to report

## **12. New Business**

### **Dane C to summarize the discussion concerning virtual conference**

- a. Awards

No awards chairperson has been identified as of yet

This issue will be tabled until next meeting

- b. YEA

Vatsal Shah, Parveen Dhillon

First meeting held in Orlando

YEA leads were unable to attend this meeting

## **13. Adjourn**

Siva : Motion to Adjourn

Chad: 2<sup>nd</sup>

Vote: Unanimous

Adjournment at 5:25