

## **ASHRAE TC8.7 Variable Refrigerant Flow Committee**

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**Location: Webinar /Date: January 22, 2021**

**Call to Order:** Chairman Mohan called the meeting to order.

**Welcome/Introductions:** Chairman Mohan welcomed all attendees. At 12:13 CST, 36 participants online

**Minutes Approval:** Summer 2020 Webinar draft minutes were sent out to the committee members prior to this meeting. Minutes were unanimously approved at this meeting.

#### **Agenda Review/Updates:**

**Chair's Comments:** Mohan on TC Chair Breakfast meeting web conference:

Breakfast Highlights:

Kevin Mercer TC 8 level activities: TC activity form and roster for 2021-2022 due Next Week, Jan 26, 2021. Each TC must submit a Reaffirmation statement each year.

Mohan asked if there are any changes needed for this TC, any recommendations to merge with other TCs, or other re-organization suggestions. None were verbalized.

TC Reorganization Committee final report on website: Several TCs will be merged: 3.2 and 3.3, 8.10 and 8.12, 9.4 and 9.8, 7.3 and 7.8.

Sept 1 is due date for TC8.7 nominations.

ASHRAE Published an updated MOP

ASHRAE Strategic Vision thru 2024:

- Position ASHRAE as essential Knowledge resource
- Maximize Member value
- Optimize ASHRAE Org structure

John Cummings has been asked by SSPC 90.1 to report at the bi-annual meetings. 8.7 Chairman must formally request ability to report at 90.1. Set up a formal SSPC 90.1 Liaison. Mohan will proceed with this process.

#### **Subcommittee Reports:**

**Handbook** – Mohan reported that Chapter 18 has not been updated yet online or in print. Delay in the updating process, but as of last week the TC 8.7 work is top priority to get the updated info on the online version. Thanks to everyone who assisted on the update. The print version update should happen at the next printing.

**Membership** – Madhav's update was read by Mohan. 115 total members on roster. Some suggestions for inclusion: Doug Tucker is Interim Working Member, Scott McGinnis and Kyle need to be added.

Have 5 voting members and need two (2) more voting members. Plan by Summer conference to have membership cleaned up and officers updated.

**Programs** – Badri Patel updated: Summer 2021 proposals are being accepted thru Feb 18 for topics to be presented during Summer 2021. Anyone who is interested in developing a topic, please contact Badri and he will work with. Brian Bogdan stated he was interested in getting a Ch 41 workshop presentation together for submission. Consensus was to focus on preparing for submission for the Winter 2022.

Other possible topics should be considered: Example Topics: Plan for New Refrigerants, Rules for Calculating Interior volumes and connected spaces IAW ASHRAE 15, Covid related IAQ issues with VRF

**Research** – Chris Laughman updated he is still interested in load based testing. ASHRAE 205P would like to partner with TC8.7 to participate in any research to help produce a viable dynamic model. Chris proposed a date of Feb 3, 2021 for a discussion by anyone interested. Please email Chris Laughman. Chris also asked if there are any other research topics that would be important to TC 8.7. Chris Williams suggested Connected Space as an important research topic. Chris Seeton, Research liaison, reminded everyone that research funding is down 50% due to lack of Winter Meeting and low donations. ASHRAE did not sponsor any new research projects this past year. Please submit any suggestions to Chris Seeton for review.

**Kevin Mercer**, Section 8 Chair, presented to the group about the ASHRAE organization review to make this volunteer organization more efficient. In the TC Manual of Procedures (MOP), the Chair of each TC must annually review the structure of the TC with the section 8 Chair to see how the TC can be more effective and efficient. It is meant to identify areas where Kevin Mercer can assist this TC. It is not an effort to identify TC's that should be eliminated.

**ALI** : Chris Williams presented Feb 20, 2020; we had 83 attend in Orlando. Only 2 presentations online since, Qty 16 then Qty 12. Believed this decline is due to ongoing familiarity with the product line. If we have lower numbers, then it may not be worth continuing.

**Webmaster** – Badri reported the website was updated. Created a Basecamp account for TC8.7 leadership. More to follow from Badri in the months to come.

#### **Liaison Reports:**

**90.1** – John Cummings reported there is an upcoming addenda for pipe insulation. There is also a new presentation coming up that PNLL to address system efficiencies. VRF should be interested in this TSPR (Total System Performance Ratio) Heating and Cooling / total input. Offered to help those who want to attend 90.1 meetings.

**62.1** – Kenneth Shifflett was unable to report due to meeting conflicts, but did email the following:

“62.1 -nothing really vrf related. Long meetings with much debate but little resolution. Ongoing discussions about using California epa recommended limitations for iaq contaminants instead of national standards. Discussions amount number of humidity sensors required to verify being below 60%. One vs multiple. Answer was “it depends”.

**SPC 205P** – Chairman Mohan: Reinhard on Energy Model. In recent meeting, there is a data model that may work. Asked VRF MFGR if they can provide those data points. MFGR are pushing back with SOC 205P: questions of what exactly do you want to know. Issue is some of the variables that are asked for are not necessarily values that mfgrs measure for publication or tracking. And how do they change based on usage. So, working with vendors to figure out what data they are willing to provide and does that data work with the existing models. There is a thought that most of the specific technical details reside with the manufacturers in their home.

**SGCP-41:** Chris Williams: A PPR is coming out to add computer modeling for the standard. Pretty heavy schedule of items in the work statement. If you review the standard, please comment.

**SSPC 189.1** – Doug Tucker presented the 2020 edition was published. Free to view on ASHRAE website. VRF min efficiency tables have not changed from 2017 Edition. Nothing out for current public review pertain to VRF.

**SSPC15** –Chris Williams: 13 working groups in various stages. Use of ventilation to move flammable refrigerant arounds. Piping PPR that apply to VRF, such as redefine what is an exit corridor. Not all hallways are exit corridors. Big One is still very dynamic: Working group this week to define the connected space equation. Modification to make that pertinent to an A1 refrigerant. Shaving the door is going away. UL equation is what we are going to be used.

MTG Low GWP Refrigeration – Doug Tucker presented their 2020 annual meeting was delayed. Nothing specific to VRV.

**Added by Doug Tucker via email recap: ASHRAE TC 8.7 – ASHRAE 2021 Winter Conference / Liaison Reports**

### **ASHRAE SSPC 189.1**

ASHRAE Standing Standards Project Committee 189.1, *Standard for the Design of High-Performance, Green Buildings Except Low-Rise Residential Buildings*

Co-sponsored with USGBC, IES, ICC, and AIA

ASHRAE Standard 189.1-2020 can be viewed free on the ASHRAE website, but is available for purchase only outside of United States and Canada; those in US and Canada are directed by ASHRAE to purchase the 2018 IgCC:

### **2018 International Green Construction Code® *Powered by Standard 189.1-2017***

VRF minimum efficiency tables are included, based on CEE Tier 1 or 90.1 values with a multiplier. VRF efficiency tables are unchanged from the 2017 edition. Economizers are required on dx systems with fan-coil capacity >33,000 Btu/h, as opposed to Standard 90.1 and IECC threshold of 54,000 Btu/h. I will note that California is considering this 33,000 Btu/h threshold also for the 2022 Title 24 building standard with exceptions to systems coupled with DOAS.

Addenda to 189.1-2020 are available for download on ASHRAE website (three, none related to HVAC systems).

The full committee will meet on January 26, 2021.

## **ASHRAE SSPC 15**

ASHRAE Standard 15-2019, *Safety Standard for Refrigeration Systems*, was published in June 2019. This edition of Standard 15 includes the introduction of requirements specific to A2L refrigerants for comfort conditioning and in machinery rooms. Seven published addenda to the 2019 edition include a change to the definition of “listed” and addition of the term “labeled” to Section 3.1, changes to allow the use of equipment using small amounts of non-A1 refrigerants in corridors and lobbies, changes replacing the terms “flammable” and “nonflammable” with refrigerant class, and changes to defer regulation of ammonia refrigeration to ANSI/IIAR 2.

SSPC 15 has been spending considerable time on the harmonization of Standard 15 with proposed Standard 15.2P and UL 60335-2-40.

The first of three winter conference meetings was held yesterday. There are six active working groups:

- i) WG01 - Section 7.2 / 7.3 Rewrite (Friedman)
- ii) WG02 – 2-40/A15/A15.2 Harmonization Working Group (Tharp)
- iii) WG04 - Class 2L for commercial refrigeration (Clark)
- iv) WG05 - Machine room ventilation (same as 8a) (Johnson)
- v) WG10 – 1807 & 1808 review impact (Johnson)
- vi) WG12 – Corridor / lobby (Kohler)

Completed public review:

- Addendum g: 1<sup>st</sup> Advisory Public Review (April 24, 2020 to May 24, 2020): This addendum proposes significant changes to Section 7.2 of ASHRAE 15, which address refrigerant concentration limits of occupied spaces, or in other words it specifies the maximum refrigerant charge in a refrigeration system (that could potentially be released into the occupied space in the event of a leak). The APR received 112 comments from 32 commenters. *Potentially beneficial to multi-splits, corrections are needed though.*
- Addendum e: 1<sup>st</sup> Publication Public Review (July 10, 2020 to August 24, 2020): This addendum revises requirements related to the design, installation, location, and testing of refrigerant piping. The PPR received 45 comments from 7 commenters.

**Standard 15.2P**, *Safety Standard for Refrigeration Systems for Residential Applications*, completed a full 2nd public review. It is intended to be a standalone document so that a user will not require a copy of Standard 15 or Standard 34 for reference.

- 149 comments from 17 commenters
- Subcommittee 15.2 has prepared a 3<sup>rd</sup> (and final) full public review draft; currently under consideration by SSPC 15 for public review, to be voted at next meeting.

## **ASHRAE MTG Low.GWP [multidisciplinary task group for lower GWP refrigerants]**

2020 Annual Conference (virtual) meeting: Deferred until November 5, 2020. No scheduled date for 2021 Winter Conference meeting.

This MTG has Research, Program, and Codes/Standards subcommittees.

The Research subcommittee is responsible for three active research projects:

- RP-1806, Flammable Refrigerants Post-Ignition Simulation and Risk Assessment Update
- RP-1884, The incorporation of odorants in flammable refrigerants to improve leak detection
- RP-1855, Determination of the Impact of Combustion Byproducts on the Safe Use of Flammable Fluorinated Refrigerants

The Codes & Standards Subcommittee submitted a report to the MTG.

**Other Presentations/Reports:**

Special Presentation on Guideline-41 – Chris Williams: Due to lack of time, this presentation was not given.

**Old/New Business:** No old or new business was discussed at this time.

**Adjournment:** Chairman Mohan adjourned the meeting at