



1791 Tullie Circle, N.E./Atlanta, GA 30329

404-636-8400

**DRAFT**

## TC/TG/MTG/TRG MINUTES COVER SHEET

(Minutes of all Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

TC/TG/MTG/TRG No. TC8.5 DATE 6/15/2021

TC/TG/MTG/TRG TITLE Liquid to Refrigerant Heat Exchangers

DATE OF MEETING 6/15/2021 LOCATION On-Line

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE	
Joseph B Huber ('22)	7/1/2020			Nicholas Zupp	Pratik Deokar
Adnan H Ayub ('22)	7/1/2018			Andreas Knoepfler	Jun Li
Minoo Mehdizadeh ('24)	7/1/2020			Jim Bogart	Liping Liu
Kashif Nawaz ('21)	7/1/2017			Chris Keinath	Harshad Inamdar
Vikrant C Aute ('23)	7/1/2019			Ali Behfar	Ben Dingel
Pedro Perez ('24)	7/1/2020			Satheesh Kulankara	Ahmed Elatar
		Evraam Gorgy ('22)	7/1/2018	Yirong Jiang	Khaled Saleh
Achim Gotterbarm ('21)	7/1/2017			Rahul Kolekar	Amir Jokar
Icksoo Kyung ('24)	7/1/2020			Melanie Derby	Arindom Joardar
Stanislav Perencevic ('23)	7/1/2019			Kunal Bansal	Christopher Seeton
Michael Wilson (21)	7/1/2017			Yang Zou	
<b>DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:</b>					
TAC Section Head: Kevin Mercer			SH8@ashrae.net		
Research Liaison: Christopher J Seeton Standard Liaison: Srinivas Katipamula Staff Liaison: Steven J Hammerling			<a href="mailto:cseeton@shrieve.com">cseeton@shrieve.com</a> <a href="mailto:srinivas.katipamula@pnnl.gov">srinivas.katipamula@pnnl.gov</a> <a href="mailto:shammerling@ashrae.org">shammerling@ashrae.org</a>		
Mike Vaughn, Manager Of Research & Technical Services			MORTS@ashrae.net		

Note: These draft minutes have not been approved and are not the official, approved record until approved by the TC.

TC 8.5: Liquid to Refrigerant Heat Exchangers  
ASHRAE 2021 Summer Meeting  
Tuesday, Jun 15 2021, 10:00 AM – 12:00 AM US EDT

1. Call to order at 10:04 by Joe Huber and TC 8.5 scope reviewed:

- *TC 8.5 is concerned with the thermal and mechanical design, performance, and application of devices for accomplishing heat transfer between refrigerants (including secondary refrigerants) and liquids.*

2. Introduction of members and guests

- All participants introduced themselves
- Chair requested that all participants e-mail the Vice Chair to confirm their attendance
  - Vice chair's ASHRAE e-mail alias is TC0805.VCH@ashrae.net

3. ASHRAE Code of Ethics Commitment summary read by J. Huber

*"Commitment to the ASHRAE Code of Ethics – 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 Code of Ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>)*

4. Agenda reviewed with no comments

5. Establish quorum requirements (J. Huber)

- 9 present at start of meeting, 1 joined late, 1 absent, see cover sheet
- Note that changes in voting membership will take place on June 30<sup>th</sup>
- Other TC8.05 positions
  - Satheesh Kulankara: Vice Chair, Membership & MTG LGWP Liaison
  - Nicholas Zupp, Secretary

6. Chair presented TC8.05 e-mail aliases to the membership

- Chair: [TC0805@ashrae.net](mailto:TC0805@ashrae.net)
- Vice Chair: [TC0805.VCH@ashrae.net](mailto:TC0805.VCH@ashrae.net)
- Secretary: [TC0805.SEC@ashrae.net](mailto:TC0805.SEC@ashrae.net)
- Handbook: [TC0805.HBK@ashrae.net](mailto:TC0805.HBK@ashrae.net)
- Program: [TC0805.PRO@ashrae.net](mailto:TC0805.PRO@ashrae.net)
- Research: [TC0805.RES@ashrae.net](mailto:TC0805.RES@ashrae.net)
- Standards: [TC0805.STD@ashrae.net](mailto:TC0805.STD@ashrae.net)
- Webmaster: [TC0805.WEB@ashrae.net](mailto:TC0805.WEB@ashrae.net)
- A full list of aliases is available on the Technical Committee website
- Please check alias occasionally to make sure it is working

7. Review/approve minutes from previous meeting, Winter 2021 (J. Huber)

- No corrections or revisions requested

TC 8.5: Liquid to Refrigerant Heat Exchangers  
ASHRAE 2021 Summer Meeting  
Tuesday, Jun 15 2021, 10:00 AM – 12:00 AM US EDT

- Votes: For 9 / Against 0 / Abstain 0 (previous to late member joining)
- Vikrant Aute motioned to approve
- Kashif Nawaz seconded
- Vote: no objections to minutes, no abstentions, minutes approved

8. Membership (Sateesh Kulankara)

- Achim Gotterbaum, Kashif Nawaz & Mike Wilson rolling off as member on June 30<sup>th</sup>
- Andreas Knoepfler, Nicholas Zupp & Khaled Saleh rolling on as voting members after June 30<sup>th</sup>
- Adnan Ayub will take on the role of vice chair after June 30<sup>th</sup>
- Guru Ravi, Dhruv Hoysall, Antoine Bou Abboud, Alireza Behfar & Saad Saleem promoted to Corresponding Members
- Note that the online roster does not yet show new committee positions and voting status
  - ASHRAE is still in the process of getting the roster updated

9. Handbook (Adnan Ayub)

- No new information from Handbook liaison
- Still looking for any dates for update of our chapters
- Due to timing things should be quiet this year

10. Program subcommittee report (M. Mehdizadeh)

- Virtual Conference Summer 2021
  - Technical and project committees are scheduled between June 7-25
  - ASHRAE has separated the committee meetings times from the conference meeting times
  - The conference presentations will take place after the committee meetings
  - Conference registrants get a free live 3-hour course on IAQ and standard 62.1
  - Sessions covering the latest on the COVID-19 and IAQ, professional developments and HVAC for indoor plants and animals
  - Seminars, paper session, forum, workshop, round tables
  - Research summit on Wednesday, June 30<sup>th</sup> in the afternoon (60-minute sessions, paper summary in 2 minutes, 1 slide)
- TC8.05 has 3 Seminar Sessions for the 2021 Summer Technical program
  - Experimental Study on the Effect of Enhanced Tube Characteristics on Fouling Behavior
  - Performance of Low GWP Refrigerants in Plate Heat Exchangers
  - Performance of Alternative Low GWP A2L Refrigerants in Evaporators
    - Co-sponsored with TC1.3
  - Seminars are on-demand, access begins on June 28<sup>th</sup> and lasts up to 18 months
- Winter Conference Next Year is planned for in-person in Las Vegas, NV

TC 8.5: Liquid to Refrigerant Heat Exchangers  
ASHRAE 2021 Summer Meeting  
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- See presentation, annex A for the Tracks and deadlines for Winter 2022 programs
- No programs currently identified for the Winter 2022 conference
- Program Committee Chair requested input for possible programs for the Winter 2022 Conference
  - Vikrant Aute suggested a seminar on “Recent Development in New Geometries for Liquid to Liquid Heat Exchangers” (including the impact of additive manufacturing)
    - Vikrant will follow up with Minoo on suggested speakers and further development
- Please pass any additional ideas for Winter 2022 or Summer 2022 on to Minoo

11. Standards Committee Update (Joe Huber)

- TC 8.5 is responsible for the following Standards:
  - ANSI/ASHRAE Standard 22-2018  
Methods of Testing for Rating Liquid-Cooled Refrigerant Condensers
  - ANSI/ASHRAE Standard 24-2019  
Methods of Testing for Rating Evaporators Used for Cooling Liquids
  - ANSI/ASHRAE Standard 181-2018  
Methods of Testing for Rating Liquid to Liquid Heat Exchangers
- Standards 22 & 181 were submitted for revision
- SPCs are in the process of being established for each standard
  - The following have volunteered for the SPCs: Steve Eckels, Joe Huber, Satheesh Kulankara, Ken Schultz, Mike Wilson
  - Proposed members should have received an e-mail from ASHRAE with the links and information on how to apply
  - Members will need to fill out an application & bias form on line and make sure their bios are up to date
  - Approval of members by the Standards Committee will take place in September
  - Committee work will begin around October 1<sup>st</sup>

12. MTG.Low GWP Refrigerants Update (Satheesh Kulankara)

- MTG.Low GWP Refrigerants met April 1st
- MTG.Low GWP Programs
  - co-sponsoring two programs at summer virtual conference
    - Seminar 27 “Application of Low GWP Refrigerants in Centrifugal Chillers”, sponsored by TC 8.2
    - Seminar 58 “Performance of Alternative Low GWP A2L Refrigerants in Evaporators”, sponsored by TC 1.3; co-sponsored by TC 8.5
- MTG.Low GWP Codes & standards
  - Subcommittee has not met since Winter meeting

TC 8.5: Liquid to Refrigerant Heat Exchangers  
ASHRAE 2021 Summer Meeting  
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- Slide deck titled “Transition to Low GWP Refrigerants” updated; available for ASHRAE speakers
- White paper on low GWP refrigerants approved by ASHRAE Govt. Affairs Committee
- MTG.Low GWP Research
  - RP-1806 Flammable Refrigerants Post-Ignition Simulation and Risk Assessment Update
    - Testing underway. 4 tests waiting to be completed as on April 2021
    - Simulation modeling of dispersion and ignition events underway
    - Model validation using available test data presented to PMS. Reviewing issue of “flame anchoring” observed during tests
    - Pilot study of risk analysis for reach-in coolers underway
    - Next Go/No-Go decision point expected later in 2021 ; Remaining schedule for the project will be decided based on No/No-Go decision.
    -
  - RP-1855 Determination of the Impact of Combustion Byproducts on the Safe Use of Flammable Fluorinated Refrigerants
    - Literature review project
    - PMS comments on draft report compiled; waiting for AHRTI project 8028 to complete to include results
  - RP-1884 The incorporation of odorants in refrigerants to improve leak detection – Phase II experimental study
    - Continuation of earlier project
    - Current phase sponsored by US CPSC
    - Project initiated late 2020, MTG.LowGWP is co-sponsor (TC 3.1 sponsor)
    - Testing by PI in progress
    - ASHRAE to co-sponsor future phases (if any)

13. Webmaster Update (Pedro Perez)

- Website up to date

14. Research Subcommittee (Kashif Nawaz)

- Research Sub-committee Breakfast Meeting is scheduled for next month
- “Spray Evaporation on Enhanced Tube Bundles with Low GWP Pure Refrigerants and Refrigerant/Miscible Oil Mixtures” (Zahid Ayub)
  - Well into testing phase
  - Number of tests were taken with a line nozzle (linear spray pattern)
    - Project monitoring subcommittee asked investigator to also try a conical nozzle
  - Currently testing with R-1234zE(e)
  - There are still some issues with pumping flow at low temperatures
  - Most earlier issues have been fixed and test rig is running well
  - Another refrigerant and tube type still to be tested (about 25% completed)

TC 8.5: Liquid to Refrigerant Heat Exchangers  
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- TRP-1731 “Heat Transfer Performance of Medium Pressure Lower GWP Refrigerants in a Flooded Evaporator Comprising an Enhanced Tube Bundle” (Kashif Nawaz)
  - Have addressed all comments over a year ago, updated references
  - Were told we are ready to submit to RAC
  - Will send work statement to committee for final review and then submit to RAC
- New RTAR “Characterization of Condensation Heat Transfer in Fluted Tubes”
  - Fluted tube for heat exchangers commonly used in Water Source Heat Pumps
  - There is little characterization of these surfaces with 2 phase flows
  - Proposal to look into single phase to characterize and compare to old data, then to look at condensation
  - RTAR reviewed with research liaison, received positive feedback
  - Joe will send RTAR out to voting members with a letter ballot for approval
- New topics for research
  - Ben Dingel & Achim Gotterbaum have started an RTAR to be titled “Condensation of Low GWP Refrigerants in a Tube Bundle”
    - New area is to quantify the impact of non-condensable gasses on performance
  - There also has been work by Zahid Ayub & Kashif Nawaz on an RTAR for CO<sub>2</sub>
  - Chris Seeton suggests that we follow activity in automotive heat pumps which have liquid to refrigerant heat exchangers and look for research benefits & needs that might come up there

15. Liaison Reports

- Research Liaison – Chris Seeton
  - Since there will be an ASHRAE/AHRI Show in Las Vegas we are expecting to have more funds after the meeting
  - Will begin to work on Research Activity stalled due to pandemic
  - The TC8.05 Work Statement is in the queue waiting for funds

16. TC Chair and Vice Chair Training (Joe Huber)

- There is a new ASHRAE form for Functional Groups (TC’s etc.) to request a response from TAC
- TC Re-organization is ongoing
- Annual TC re-affirmation process is being enforced as required by TC Manual of Procedures
- Discussed George Hightower award
- TC Manual of Procedures (MOP) has been updated
- ASHRAE is encouraging TCs and other committees to hold interim meetings
  - Interim meetings must be announced on the ASHRAE web page
    - ASHRAE must be notified at least two weeks in advance for on-line meetings
    - ASHRAE must be notified at least four weeks in advance for face to face meetings
- There is now going to be a portion of the TAC meetings set aside for an “Open Mic”
  - Provide members with the ability to ask questions and provide feedback to TAC
- There is also a new e-mail address which may be used to ask TAC questions
  - ASKTAC@ASHRAE.net

TC 8.5: Liquid to Refrigerant Heat Exchangers  
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- ASHRAE Decarbonization task force
  - Published a Public Policy Impact Brief (PPIB)
  - Working on a Policy Development document (PD)
- ASHRAE Strategic Plan
  - Extended for 1 more year
- Functional Group Evaluations
  - TCs graded themselves well except on Objectives
  - TCs will be expected to develop a mission statement and objectives for themselves
- Winter Meeting 2022 in Las Vegas is planned to be a face-to-face meeting along with the traditional ASHRAE/AHRI Show
- For Further details please see Attachment 2 The TC Chairs & Vice Chairs breakfast meeting presentation

17. New Business

- TCS are being asked to develop a Vision statement that aligns with the current strategic plan
- TCs being asked to develop Objectives that also align with the strategic plan
  - These are intended to allow the TC to Manage by Objectives
- Chair looking for volunteers to take on creating the above statements and objectives
  - Please e-mail Joe Huber at [TC0805@ashrae.net](mailto:TC0805@ashrae.net) if you are interested in helping with this
  - If there are insufficient volunteers Joe will contact some folks to help create a Vision statement for the committee to vote on in next meeting

18. Next meeting to be scheduled for January 31<sup>st</sup> from 4:15 to 6:30 PM in Las Vegas, NV

19. Adjournment

- Motion to adjourn made by Adnan Ayub
- Seconded by Stanislav Perencevic
- No abstentions or opposition to motion were made, vote taken as unanimous

Attachments:

1. Presentation from TC8.05 Meeting
2. TC chairs breakfast presentation from Summer 2021

# Welcome! TC 8.5 Liquid to Refrigerant Heat Exchangers

Welcome!

No need to say “Hello!”

We will begin at **10:00 AM EDT**



## Housekeeping

### Audio

- Attendees are muted upon entry
- Do not un-mute your line
- If you are joining via computer and phone line, ensure both are muted

### Video

- You are welcome and encouraged to share your webcam
- Be mindful that you are on display! Turn off your video when needed.

### Q&A

- Use the chat function to ask questions
- Our speaker will pause throughout the presentation to answer questions from the chat box.



**Joe Huber**

Chair, Facilitator for this virtual meeting



# TC 8.5 Call to Order and Reading of Scope

## **ASHRAE Technical Committee 8.5 Liquid to Refrigerant Heat Exchangers**

TC 8.5 is concerned with the thermal and mechanical design, performance, and application of devices for accomplishing heat transfer between refrigerants (including secondary refrigerants) and liquids.



**Joe Huber**  
Committee Chair



# TC 8.5 Agenda 06/15/2021

1. Call to order and reading of TC 8.5 scope (J. Huber):
2. Introduction of members and guests
3. ASHRAE Code of Ethics Commitment (J. Huber)
4. Establish quorum requirements (J. Huber)
5. Review/approve minutes from previous meeting (J. Huber)
6. Section Head comments (K. Mercer)
7. Liaison comments
8. Membership subcommittee report (S. Kulankara)
  1. 2022 roster review
9. Handbook subcommittee report (A. Ayub)
  1. Systems and Equipment: Condensers, Liquid Coolers
10. Program subcommittee report (M. Mehdizadeh)
11. Standards subcommittee report (J. Huber)
12. Webmaster report (P. Perez)
13. MTG Liaison (S. Kulankara)
14. Research subcommittee report (K. Nawaz)
  1. Update from the Research Sub-Committee Breakfast Meeting
  2. TRP-1731: "Heat Transfer Performance of Medium Pressure Lower GWP Refrigerants in a Flooded Evaporator Comprising an Enhanced Tube Bundle" (K. Nawaz)
  3. 1800-RP: "Spray Evaporation on Enhanced Tube Bundles with Low GWP Pure Refrigerants and Refrigerant/Miscible Oil Mixtures" (Z. Ayub; co-sponsor with TC 1.3)
  4. Other RTARs, WS, and new topics for research
15. Chairman's report (J. Huber)
16. New Business
17. Schedule Next meeting: Monday, Jan 31, 2022, 4:15 PM to 6:30 PM – Las Vegas, Nevada
18. Adjourn



## TC 8.5 Introduction of Members and Guests

Introduction of our members and guests...

- Please give your name and affiliation, and any TC 8.5 committee duties you have.
- Wait for a brief pause, and then speak.
- Remember to unmute before speaking, and then mute again after you have finished speaking.
- Please send an email to [TC0805.VCH@ashrae.net](mailto:TC0805.VCH@ashrae.net) so we can log your attendance. Please indicate if you are a YEA member.



**Joe Huber**  
Committee Chair



# ASHRAE Code of Ethics Commitment

- Our TC meeting will abide by the ASHRAE Code of Ethics:
- *Commitment to the ASHRAE Code of Ethics – 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.*
- Full Code of Ethics:  
<https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>



Joe Huber  
Committee Chair



## TC 8.5 Establish Quorum – Current Voting Members

- Joe Huber (Chair, Standards) '22
- Vikrant Aute '23  
(MTG LGWP Alt 1)
- Adnan Ayub (Handbook) '22
- Evraam Gorgy '22
- **Achim Gotterbarm '21**
- Icksoo Kyung '24
- Minoo Mehdizadeh (Program) '24
- **Kashif Nawaz '21**  
(Research, MTG LGWP Alt2 )
- Stanislav Perencevic '23
- Pedro Perez (Webmaster) '24
- **Michael Wilson '21**

Voting Members roll off after June 30 of the year indicated



**Joe Huber**  
Committee Chair



## Other TC 8.5 Positions

- Satheesh Kulankara: Vice Chair, Membership, MTG LGWP
- Nicholas Zupp: Secretary



**Joe Huber**  
Committee Chair



## TC 8.5 Email Addresses

- Chair: TC0805@ashrae.net
  - Vice Chair: TC0805.VCH@ashrae.net
  - Secretary: TC0805.SEC@ashrae.net
  - Handbook: TC0805.HBK@ashrae.net
  - Program: TC0805.PRO@ashrae.net
  - Research: TC0805.RES@ashrae.net
  - Standards: TC0805.STD@ashrae.net
  - Webmaster: TC0805.WEB@ashrae.net
- The full list of aliases can be found on the Technical Committees page on the ASHRAE website
  - Please check alias occasionally to make sure that it is working



**Joe Huber**  
Committee Chair



# TC 8.5 Liquid-to Refrigerant Heat Exchangers



## Membership Updates

**Satheesh Kulankara**



# TC 8.5 Membership

## Membership Housekeeping

- Gotterbarm, Nawaz, Wilson rolling off as Voting Members after June 30
- Andreas Knoepfler, Nicholas Zupp, Khaled Saleh rolling on as **Voting Members** after June 30
- Adnan Ayub will take the **Vice Chair** position
- Guru Ravi, Dhruv Hoysall, Antoine BOU ABBOUD, Alireza Behfar, Saad Saleem promoted to **Corresponding Member**.



Sattheesh Kulankara  
Membership Subcommittee Chair



TC 8.5  
Liquid-to Refrigerant Heat Exchangers



**Handbook Subcommittee Updates**

**Adnan Ayub**

TC 8.5  
Liquid-to Refrigerant Heat Exchangers



**Program Subcommittee Updates**

**Minoo Mehdizadeh**

## Program Subcommittee Updates



- Technical and project committees are scheduled between June 7-25
- 7 Tracks with a mixture of live and on-demand sessions, available for 18 months
- Conference registrants get a free live 3-hour course on IAQ and standard 62.1
- Sessions covering the latest on the COVID-19 and IAQ, professional developments and HVAC for indoor plants and animals
- Seminars, paper session, forum, workshop, round tables
- Research summit on Wednesday, June 30th in the afternoon.
- 60-minute sessions, paper summary in 2 minutes, 1 slide

## Program Subcommittee Updates



TC 8.5 submitted programs for summer 2021

- 3 Seminar sessions
- Main Sponsorship
  - Experimental Study on the Effect of Enhanced Tube Characteristics on Fouling Behavior
  - Performance of Low GWP Refrigerants in Plate Heat Exchangers
- Co-sponsorship, TC 1.3
  - Performance of Alternative Low GWP A2L Refrigerants in Evaporators

Seminars are on-demand, access June 28th up to 18 month

## Program Subcommittee Updates

Winter Conference, Las Vegas, Nevada, Jan 29-Feb 2, 2022

Tracks:

- Fundamentals and Applications
- HVAC&R Systems and Equipment
- Refrigerants and Refrigeration
- Buildings at 360°
- Energy System Integration
- Environmental Health and IEQ in the International Arena
- HVAC for Industrial and Commercial Purposes – Challenges and Opportunities
- Refrigerants, Safety, Performances

Deadlines:

- April 12, 2021  
Conference Papers Abstracts, Technical Papers Due
- April 30, 2021  
Conference Papers Abstract Accept/Reject
- June 18, 2021  
Program Proposals
- July 12, 2021  
Conference Papers Due
- August 2, 2021  
Program Proposals Due
- August 6, 2021  
Revised Conference Papers, Final Technical Papers Due
- August 23, 2021  
Conference Papers Accept/Reject Notifications

## Program Subcommittee Updates

### Future Programs

- Vote on resubmitting following seminar sessions for the Summer conference
  - Seminar Session 1#  
Experimental study on the effect of enhanced tube characteristics on fouling behavior and fouling prediction model, ASHRAE RP-1677
  - Seminar Session 2#  
Advances in modeling of plate heat exchanger performance
- Discussion on ideas for additional programs for Summer 2021 or Winter 2022

## Program Subcommittee Updates

### Future Programs

- AHR Expo, January 31- February 2, 2022, Las Vegas, NV
- ASHRAE Summer Conference, June 25-29, 2022, Toronto, ON

### Discussion

- Ideas for additional programs for Winter/Summer 2022



TC 8.5  
Liquid-to Refrigerant Heat Exchangers



**Standards Subcommittee Updates**

**Joe Huber**

# TC 8.5 Standards

TC 8.5 is responsible for the following Standards:

- ANSI/ASHRAE Standard 22-2018  
Methods of Testing for Rating Liquid-Cooled Refrigerant Condensers
- ANSI/ASHRAE Standard 24-2019  
Methods of Testing for Rating Evaporators Used for Cooling Liquids
- ANSI/ASHRAE Standard 181-2018  
Methods of Testing for Rating Liquid to Liquid Heat Exchangers



**Joe Huber**  
Standards Subcommittee Chair



# TC 8.5 Standards

- Standards 22 and 181 were submitted for revision, and Standards Project Committees (SPCs) have been established for each standard
- Names submitted for the SPCs:
  - Steve Eckels
  - Joe Huber
  - Satheesh Kulankara
  - Ken Schultz
  - Mike Wilson



**Joe Huber**  
Standards Subcommittee Chair



## TC 8.5 Standards

- Potential members should have received an email with instructions for applying for membership on the SPCs
- Potential members must complete the SPC application and update bio by July 23, 2021
- Membership will be approved at the September Standard Committee meeting
- Committee work will begin around October 1, 2021



**Joe Huber**  
Standards Subcommittee Chair



TC 8.5  
Liquid-to Refrigerant Heat Exchangers



**MTG.Low GWP Refrigerants Updates**

**Satheesh Kulankara**

# MTG.Low GWP Refrigerants - Programs

- Co-sponsoring Two Programs at virtual conference
  - Seminar 27 “Application of Low GWP Refrigerants in Centrifugal Chillers”, sponsored by TC 8.2
  - Seminar 58 “Performance of Alternative Low GWP A2L Refrigerants in Evaporators”, sponsored by TC 1.3; also co-sponsored by TC 8.5
- Programs for future conferences
  - Seminar proposal based on MTG research projects RP-1806 and RP-1855 for Las Vegas



**Satheesh Kulankara**  
MTG Representative



# MTG.Low GWP Refrigerants – Codes and Standards

- MTG C&S subcommittee did not meet since last meeting
- Slide deck titled “Transition to Low GWP Refrigerants” updated; available for ASHRAE speakers
- White paper on low GWP refrigerants approved by ASHRAE Govt. Affairs Committee



**Satheesh Kulankara**  
MTG Representative



# MTG.Low GWP Refrigerants - Research

- RP-1806 Flammable Refrigerants Post-Ignition Simulation and Risk Assessment Update
  - Testing underway. 4 tests waiting to be completed as on April 2021
  - Simulation modeling of dispersion and ignition events underway
  - Model validation using available test data presented to PMS. Reviewing issue of “flame anchoring” observed during tests
  - Pilot study of risk analysis for reach-in coolers underway
  - Next Go/No-Go decision point expected later in 2021 ; Remaining schedule for the project will be decided based on No/No-Go decision.



**Satheesh Kulankara**  
MTG Representative





# MTG.Low GWP Refrigerants - Research

- RP-1855 Determination of the Impact of Combustion Byproducts on the Safe Use of Flammable Fluorinated Refrigerants
  - Literature review project
  - PMS comments on draft report compiled; waiting for AHRTI project 8028 to complete to include results
- RP-1884 The incorporation of odorants in refrigerants to improve leak detection – Phase II experimental study
  - Current phase sponsored by US CPSC
  - Project initiated late 2020, MTG.LowGWP is co-sponsor (TC 3.1 sponsor)
  - Testing by PI in progress
  - ASHRAE to co-sponsor future phases (if any)



**Satheesh Kulankara**  
MTG Representative



# TC 8.5 Liquid-to Refrigerant Heat Exchangers



## Webmaster Updates

**Pedro Perez**

TC 8.5  
Liquid-to Refrigerant Heat Exchangers



**Research Subcommittee Updates**

**Kashif Nawaz**

# TC 8.5 Liquid-to Refrigerant Heat Exchangers



## Chair's Report

**Joe Huber**

# TC 8.5 Chair Report

**ASHRAE is planning for face-to-face meeting in Las Vegas, NV  
January 29 – February 2, 2022**

Deadlines:

- **Monday, April 12, 2021:** Conference Paper Abstracts, Technical Papers Due
- **Friday, April 30, 2021:** Conference Paper Abstract Accept/Reject Notifications
- **Friday, June 18, 2021:** Website Opens for Program Proposals
- **Monday, July 12, 2021:** Conference Papers Due
- **Monday, July 12, 2021:** Seminar and Forum proposals due
- **Friday, August 6, 2021:** Revised Conference Papers/Final Technical Papers Due
- **Monday, August 23, 2021:** Conf Paper Accept/Revise/Reject Notifications



Joe Huber  
Committee Chair



# TC 8.5 Chair Report

## **Las Vegas 2022 Winter Conference Program Focus**

- Track 1: HVAC&R Systems and Equipment
- Track 2: Fundamentals and Applications
- Track 3: Refrigerants and Refrigeration
- Track 4: Buildings at 360°
- Track 5: Energy System Integration
- Track 6: Environmental Health and IEQ in the International Arena
- Track 7: HVAC for Industrial and Commercial Purposes - Challenges and Opportunities
- Track 8: Refrigerants, Safety, Performances
- Track 9 (mini-track) to be announced



**Joe Huber**  
Committee Chair



# TC 8.5

## Liquid-to Refrigerant Heat Exchangers



**New Business**

**Joe Huber**

# New Business

- TC needs to develop a Vision Statement that aligns with the current ASHRAE Strategic Plan
- Management by Objectives (MBOs) should also align with the ASHRAE Strategic Plan
  - Timely dissemination of relevant technical data
  - Initiating research in relevant areas
  - Facilitate accurate and repeatable testing of equipment under the scope of the TC



**Joe Huber**  
Committee Chair





# Concluding Remarks

- **Schedule Next meeting:**  
Monday, Jan 31, 2021, 4:15 PM to 6:30 PM – Las Vegas, NV
- Adjourn



**Joe Huber**  
Committee Chair





# TAC

## TC Chair - Vice Chair Breakfast

### Virtual Annual 2021 Meeting

# ASHRAE 2020 Virtual Conference Event Planning

Following are events of importance to TC Leadership

TC Chairs / V-Chairs “Breakfast” + Training    Wed, June 2 @ 2:00 – 4:00 PM (recorded)

For Subcommittee Chairs:

- Handbook Training Workshop                      June 4, 2-3 PM EDT
- TC Program SubC Training                         June 17, 12-1 PM EDT
- Research SubC Training                            t.b.d.    (late summer or early Fall, 2021)

All times are US Eastern Time Zone



# Optional: New TAC Motion Form

New form to submit motion to TAC for consideration.  
Intent to give FGs a method to require TAC response, report ideas, etc

## **MOTION (Template)**

### TAC FG Orientation

DATE: 06/02/2021

**Chapter: Your Committee Number and Name Here**

**MOTION TYPE:** TAC / Society

### **MOTION:**

Write your motion here.

### **BACKGROUND:**

Write background here.

### **FISCAL IMPACT**

Fiscal impact should not exceed \$ \_\_\_\_ annually.

-or-

Fiscal impact is expected to be negligible.



# TC Reorg

- The TC ReOrg committee issued a final report.
- An implementation subcommittee of TAC, led by Larry Smith, is working to incorporate recommendations
  - So far, TAC has approved numerous TC mergers – 3.2 & 3.3, 8.10 & 8.12, 9.4 & 9.8, 7.3 & 7.8, 10.1 & 10.3, 10.2, 10.5 & 10.8.
  - More being considered
  - Annual reaffirmation process now being enforced



# George B Hightower Technical Achievement Award

- **ASHRAE GEORGE B. HIGHTOWER TECHNICAL ACHIEVEMENT AWARD NOMINATION FORM**
- **Six** nominations received for the 2020-2021 Award!!!! Thank you!
- In recognition of exceptional service in the area of technical leadership and technical contribution **in the past four years.**
- Eligibility Points: While this award is given on the basis of service **in the past four years** as described in the nominator's statement, nominees must have earned a minimum of 10 points for career service on the nominating TC/TG. Eligibility points are defined in the form.
- Next Due date – September 1



## George B Hightower Technical Achievement Award History

- |             |                                    |             |                                |
|-------------|------------------------------------|-------------|--------------------------------|
| • 2003-2004 | Richard L. Hall – TC 8.1           | • 2012-2013 | Lucas Hyman – TC 1.10          |
| • 2004-2005 | <i>No nomination</i>               | • 2013-2014 | Gursaran Mathur – TC 5.7       |
| • 2005-2006 | George Briley – TC 10.1            | • 2014-2015 | John Carter – TC 4.3           |
| • 2006-2007 | <i>No nomination</i>               | • 2015-2016 | Steve Duda – TC 4.3 & TC 9.1   |
| • 2007-2008 | Howard J McKew – TC 9.1            | • 2016-2017 | Paul Lindahl – TC 3.6 & TC 8.6 |
| • 2008-2009 | Paul Miclea – TC 5.9               | • 2017-2018 | Art Halstrom – TC 1.6          |
| • 2009-2010 | Dharam Punwani - TC 1.10           | • 2018-2019 | David Moss – TC 9.9            |
| • 2010-2011 | Gary Phetteplace – TC 6.2 & TC 6.8 | • 2019-2020 | Devin Abellon – TC 6.5         |
| • 2011-2012 | Don Beaty – TC 9.9                 | • 2020-2021 | Gemma Kerr – TC 2.3            |



# TC Manual of Procedures (MOP)

- Latest update available on the ASHRAE website
- Outlines membership Categories & Requirements
- Summarizes the responsibilities of the executive committee
- Defines TC/TRG/MTG purpose & scope
- Lists the ASHRAE acronyms
- Contains a guide to parliamentary motions in an appendix





# Interim Meetings – New Announcement Procedure

- TC's must meet twice per year and are encouraged to meet more frequently (quarterly or more) to keep work moving forward
- We will initiate a listing of any interim meetings on the Technical Committees webpage (<https://www.ashrae.org/technical-resources/technical-committees>), similar to the listing currently done for Standards
- TC interim meetings should be **posted** (by emailing the alias TCmeetings@ashrae.net) **two weeks before an online meeting** and **four weeks before a face-to-face meeting**. The person emailing should also include the meeting call-in info/ link for posting.



## Interim Meetings – New Announcement Procedure (Cont)

- To keep our members apprised of the meetings, we will add a notice in the ASHRAE Journal Newsletter (bimonthly) to remind our members to check the listing and to provide a link to the list



# “Open Mic” for upcoming TAC meetings

## Technical Activities Committee (TAC) Open Mic Policy

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**Purpose:** Allow the ASHRAE membership to have a voice to express their concerns and offer improvements.

**When:** TAC traditionally meets during in-person conferences the Saturday before the summer and winter conferences and the Wednesday at the conclusion of the conference. Likewise, during a virtual conference, the TAC meetings are conducted prior to the start and after the conclusion of the conference.

You need to check the conference schedule for the correct date/time of the meetings.

TAC also conducts virtual meetings between the formal conferences. If you want “open mic” time just send your request using [ASKTAC@ASHRAE.net](mailto:ASKTAC@ASHRAE.net).

**How:** It would be appreciated if you would send a written request to [ASKTAC@ASHRAE.net](mailto:ASKTAC@ASHRAE.net) with the topic, however, this is not required.

It is the prerogative of the chair to advise how much time is available and when you can be heard. A 3-minute time limit is preferred. It would be preferable to be present at the beginning of the meeting so that you may be heard and not have to wait a prolong period of time.

Please make sure you make your presence is recognized by the chair upon your arrival.

When in doubt email: [ASKTAC@ASHRAE.net](mailto:ASKTAC@ASHRAE.net)



# Decarbonization Task Force

The ASHRAE Task Force for Building Decarbonization (TFBD) has been established to develop technical resources and provide leadership and guidance in mitigating the negative carbon impact of buildings on the environment and the inhabitants of our planet.

"In a similar vein to how ASHRAE took the lead in responding to the energy crisis of the 1970s era and defined the energy efficiency journey, ASHRAE has much to offer with respect to paths for responsible decarbonization strategies," said 2020-21 ASHRAE President Charles E. Gullledge III, PE., HBDR. "The challenges of decarbonization are complex, but this task force is positioned to offer actionable technical guidance to improve how buildings are built and operated."

The specific responsibilities of the task force include:

- Providing recommendations and practices for industry stakeholders in decarbonization of the built environment.
- Defining the objectives of this holistic initiative; including, but not limited to:
  - Developing a framework for characterizing the issues related to decarbonization.
  - Identifying existing portfolio of ASHRAE technical resources on issues relating to decarbonization, and package them in a way useful to policy makers and stakeholders.
  - Identifying and quantifying knowledge gaps for policy makers and stakeholders who are tackling building decarbonization and develop resources to address these gaps.
- Formulating a value proposition statement as to why ASHRAE is embarking on this journey.
- Identifying the global audience related to this initiative.
- Establishing guiding principles that frame this journey.
- Objectively framing the issues associated with this initiative.

## Public Policy Impact Brief

- Decarbonization PPIB approved – see [here](#)
- Decarbonization PD in development

Attachment 2 to Minutes from ASHRAE TC8.05 Annual Meeting



# 2019–~~2024~~ 2025 ASHRAE Strategic Plan

- Strategic Plan extended for 1 more year, through 2025
- Mission – To serve humanity by advancing the arts and sciences of heating, ventilation, air conditioning, refrigeration and their allied fields.
- Vision – A healthy and sustainable built environment for all.
- Values – Excellence, Commitment, Integrity, Collaboration, Volunteerism, Diversity



# 2019–~~2024~~ 2025 ASHRAE Strategic Plan

## Goals:

1. Position ASHRAE as an Essential Knowledge Resource for a Sustainable, High-Performance Built Environment
2. Maximize Member Value and Engagement
3. Optimize ASHRAE's Organizational Structure to Maximize Performance



# 2019–~~2024~~ 2025 ASHRAE Strategic Plan

## Strategic Plan Areas and Initiatives:

### Initiative Area: Built Environment of the Future

1. Resilient Buildings and Communities
  - TC 2.10 working to develop a work plan. Will seek help from various TCs.
2. Indoor Environmental Quality
  - EHC working to develop a work plan. Will seek help from various TCs.
3. Organizational Streamlining
  - TAC working to develop a work plan. Will work closely with TCs.
4. Improve Chapter Engagement, Capacity and Support







# Functional Group (FG) Evaluation Forms and More

Presented by: Larry Smith, P.E. – TAC Vice Chair

Your HOTLINE to TAC  
[ASKTAC@ASHRAE.net](mailto:ASKTAC@ASHRAE.net)

Attachment 2 to Minutes from ASHRAE TC8.05 Annual Meeting





# FG Evaluation Form

2021 Winter Meeting FG Evaluation Summary			
54	17	1	A. Functional Requirements
66	4	0	B. Leadership
55	15	0	C. Membership
11	30	29	D. Objectives
50	15	5	E. Work Product (Research + Programs)
57	11	2	F. Activity Form
57	12	1	H. Overall Rating
68	1	1	I. Recommendations

Attachment 2 to Minutes from ASHRAE TC8.05 Annual Meeting



## How do you connect with the FGs and TAC?

**To connect directly to a Functional Group (FG), TAC,  
or to address your concerns at our next virtual or in  
person TAC meeting, send an email to:**

**[ASKTAC@ASHRAE.net](mailto:ASKTAC@ASHRAE.net)**

