



Shaping Tomorrow's  
Built Environment Today

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ASHRAE Chair TC 8.6

**TC 8.6 Minutes for 2024 Winter Orlando Meeting**  
**SUBJECT TO APPROVAL IN PHOENIX**

**Date/Time:** Main Committee Meeting: Monday, February 10, 2025, 2:15-4:00 PM EDT

**Location:** Orlando, Hilton Orlando, Lake Hart A (Lobby Level)

**Meeting Link for Virtual Participants:** Teams Meeting, [Join the meeting now](#);  
Meeting ID = 222 365 666 27 and Passcode = 7AwKpf

*Scope: Technical Committee 8.6, Cooling Towers and Evaporative Condensers*

*Technical Committee TC 8.6 is concerned with open and closed circuit cooling towers, evaporative liquid coolers and condensers, adiabatic condensers and fluid coolers, spray ponds, and other types of contact type liquid-to-air heat exchangers and applications to rejection equipment along with their application and impact on complete HVAC, Industrial, and Refrigeration systems, including the associated energy and water usage as well as water treatment requirements.*

**1. Call to Order [Haven]**

1.1. Meeting called to order at 2:17 EST

**2. Roll call and introductions [Haven]:** Voting members are: 1. Haven Cassidy, 2. Mihir Kalyani, 3. Gary Stauffer, 4. Joe Ham, 5. Rick Heiden, 6. Stephanie Mages, 7. Philip Yu  
2.1. Roll call indicated 7 of 7 voting members present, attaining a quorum.

**3. APPROVAL OF MINUTES [Haven]**

3.1. Stephaie motion, Gary second, all approve of Indianapolis meeting minutes. Passed  
7-0-0

#### **4. REVIEW OF TC Chair Breakfast [Haven]**

- 4.1. Updated reference manuals, MOP for all functional groups and MTGs. Available on TAC website.
- 4.2. TC's - every year at Winter meeting TC's are asked if they want to continue, merge or dissolve.
- 4.3. TC's subcommittees, etc are encouraged to meet between meetings
- 4.4. Next meeting in Phoenix June 21-25, 2025
  - 4.4.1. Seminar proposals due Feb 26
  - 4.4.2. There are a lot of submissions, getting very competitive to get approvals on program submission
  - 4.4.3. Future 2026 meetings are Las Vegas 1/31-2/4 and Austin 6/27-7/1
  - 4.4.4. Can access TC master calendar through Google
    - 4.4.4.1. Need Google account. Haven has the instructions.
  - 4.4.5. Tracks for Phoenix
    - 4.4.5.1. Fundamentals and Applications
    - 4.4.5.2. HVAC&R Systems & Equipment
    - 4.4.5.3. Research Summit
    - 4.4.5.4. Workforce Development
    - 4.4.5.5. Industrial Ventilation, Refrigeration, Air-Conditioning & Energy Utilization
    - 4.4.5.6. Heat Pumps, Refrigerants & Decarbonization
    - 4.4.5.7. Onsite Energy Storage

#### **5. Membership [Haven]**

- 5.1. Effective July 1, 2024:
  - 5.1.1. Chair: Haven Cassidy
  - 5.1.2. Vice Chair: Mihir Kalyani
  - 5.1.3. Secretary: Mark Pfeifer
  - 5.1.4. Handbook Subcommittee Chair: Gary Stauffer
  - 5.1.5. Program Subcommittee Chair: Joe Ham
  - 5.1.6. Research Subcommittee Chair: Tyler Anderson (absent)
  - 5.1.7. Web: Haven Cassidy
  - 5.1.8. Standards Subcommittee Chair: Frank Morrison
- 5.2. Larger roster update next year. Most voting members good through next June

#### **6. Handbook [G. Stauffer]**

- 6.1. TC8.6 is responsible for the HVAC Systems & Equipment Handbook Chapters 39 Condensers & Chapter 40 Cooling Towers.
- 6.2. Last published 2024 and are on a 4-year cycle, published in 2024 therefore early in cycle
- 6.3. Gary Attended handbook training
- 6.4. Can move forward with changes if needed to be updated sooner on the online handbook but note the printed handbook is the official handbook (as legal portions and court cases references printed handbook).
- 6.5. June handbook subcommittee meeting
  - 6.5.1. Look for changes and edits or authoring of new sections
    - 6.5.1.1. Adiabatic equipment expansion
  - 6.5.2. Meet every meeting over next 2-3 years
  - 6.5.3. January 2028 final approval needed
    - 6.5.3.1. Volunteers include Frank and Steve Kline
  - 6.5.4. Any other volunteers let Gary & haven know
  - 6.5.5. If interim meeting is needed let Haven know

## **7. Research [T. Anderson]**

- 7.1. Research project Tyler saw that may interest us is WS 1889 "Grey Water Use in Health Care Facilities, Determining Risk and Appropriate Design Responses"
  - 7.1.1. Currently sponsored by TC 9.6 Healthcare Facilities and cosponsored by TC3.6 Water Treatment
  - 7.1.2. Project is to determine any unique risks associated with using grey water in healthcare facilities.
  - 7.1.3. Of interest due to so many facilities reusing grey water for makeup for evaporative heat rejection systems
  - 7.1.4. Funding approved and a qualified bidder selected but have not heard anything on it since last winter conference

## **8. Programs [J. Ham]**

- 8.1. TC8.6 co-sponsored a program titled "Decarbonization and Water Do Mix" but it did not get selected (even though it was one of our better submissions).
  - 8.1.1. Topic discussed the role water can play in sustainability in decarbonization within a building.
  - 8.1.2. Frank Morrison was cooling tower speaker coordinator.
  - 8.1.3. Brandon Gross' topic was on real world applications (probably health care setting).
  - 8.1.4. Amr Suliman to discuss closed loop heat pumps & energy, research.
  - 8.1.5. Helen was chair
  - 8.1.6. Very quick Feb 26 turnaround for proposals for Phoenix (2 weeks)
  - 8.1.7. Phoenix program tracks discussed (see list in section 4.4.5 above)
  - 8.1.8. Discussed resubmitting and if ASHRAE gives preferential treatment to resubmittals (current thinking is ASHRAE does not).
  - 8.1.9. ASHRAE is focused on decarbonization and as a result the decarbonization is the most competitive track to get programs approved in
    - 8.1.9.1. Decarbonization is typically more focused than what we are talking about
- 8.2. Jon C suggested to submit a program on the differences between Commercial and industrial water treatment systems (for placement in the industrial track). Significant differences in equipment and applications between commercial package systems, industrial package systems and field erected systems.
  - 8.2.1.1. Would be submitted via TC3.6 Water Treatment committee but could provide a niche for TC8.6 to participate as well
- 8.3. Joe Ham asked about brainstorming on ideas beyond Phoenix.
  - 8.3.1.1. Last program we provided was on adiabatic coolers (we believe) which as a strong topic to talk about
  - 8.3.1.2. Anything else to capture (e.g. new technology)
  - 8.3.1.3. Joe will discuss with Jon at 3.6 committee meeting
  - 8.3.1.4. Discussed possibility of adiabatic version 2 but not yet.

## **9. Standard 64 [F. Morrison/J. Vadder]**

- 9.1. Was last published 2020
- 9.2. Required to have review done every cycle
- 9.3. Committee voted to revise the standard
- 9.4. Joe volunteered to chair
- 9.5. 8.6 chair needs to submit chair with Joe Vadder's name as chair
  - 9.5.1. 1 page form needs to be sent to standards
  - 9.5.2. Joe to forward form to Haven for submission
- 9.6. We have volunteers already for committee

**10. TC 9.6 Healthcare Facilities [T. Anderson]**

- 10.1. Lots of talk on air changes and ventilation, points that are included, nothing stood out for interest to 8.6, structure of meeting was hard to follow (due to lack of screens and limited sound)

**11. MTG RAC Plant Sustainability Guide [Haven]**

- 11.1. No movement on this but still exists on website

**12. TC 3.6 Water Treatment [J. Cohen]**

- 12.1. Program submitted for this conference was not accepted
- 12.2. TC3.6 program for submission discussed earlier in section 8.2 programs
- 12.3. Nothing new from 3.6 on research projects

**13. TC 2.8 Building Environmental Impacts and Sustainability [TBD]**

- 13.1. No updates (no one present attended TC2.8 meeting)

**14. STD 189.1 [S. Buckley]**

- 14.1. No report out

**15. STD 90.1 [P. Lindahl/F. Morrison]**

- 15.1. See Paul Lindahl liaison report included

**16. Title 24 [F. Morrison]**

- 16.1. Cycle closed for 2025 and we were successful working with them to come up with reasonable energy efficiency standards
- 16.2. Can avoid specific equipment requirements by using an energy model so could potentially use other high efficient equipment (e.g. use higher efficient windows, improved insulation, etc to enable use of a less efficient tower model).
- 16.3. 2028 cycle is getting started so we will send in some suggestions
- 16.4. If interested in following, get on listserve to receive email notifications on various topics (emails will need to be reviewed for cooling tower relevance)
- 16.5. Stay tuned for 2028 cycle

**17. STD 191 Building Water Efficiency [J. Cohen]**

- 17.1. No new update (unable to join)
- 17.2. Comments presented but have not heard back
- 17.3. Allyn Troisi update (voting member of 191)
  - 17.3.1. Went out for 4<sup>th</sup> public review & comments came back regarding definitions. 191 updated definitions and will be voting on those changes in the next couple of days and will be submitted for a 5<sup>th</sup> ISC public review this summer (not sure if 30 or 45 day review). Allyn will advise when that comes out.
  - 17.3.2. 191 working with IAPMO on WE STAND
    - 17.3.2.1.1. Trying to align some of the standard with the 191 standard
    - 17.3.2.1.2. Tabled until after standard is released
  - 17.3.3. Alan volunteered to be liaison (and Jon agreed)

**18. Website [Haven]**

- 18.1. Currently up to date, will post info from this meeting

## **19. Old Business**

- 19.1. New TC8.6 name suggestion
  - 19.1.1. - "Evaporative, Adiabatic and Dry and Hybrid Heat Rejection Equipment" or Evaporative, Adiabatic, Dry, and Hybrid Heat Rejection Equipment? Or Dry" Coolers.
  - 19.1.2. Any reason it wouldn't be Evaporative, Adiabatic, Dry, and Hybrid Heat Rejection Equipment?
  - 19.1.3. It looks like ASHRAE (90.1 and 189.1) uses the term Air-Cooled Fluid Coolers rather than "Dry" Coolers, so should it be Evaporative, Adiabatic, Air-Cooled, and Hybrid Heat Rejection Equipment?
  - 19.1.4. Side discussion regarding how name change could affect the handbook. In the Handbook, TC8.6 currently owns HVAC Systems & Equipment Ch 39 and 40, Condensers and Cooling Towers, respectively. I don't see any chapters that have anything with dry coolers or air-cooled fluid coolers contained in them. Should there be one added? Or should chapter 40 be renamed to something other than Cooling Towers, and air-cooled fluid coolers be added?
    - 19.1.4.1. Discussed adding a chapter vs incorporating dry or air cooled into the existing two chapters (suggestion was keep 2 chapters and rename chapters as appropriate).
  - 19.1.5. What is the process for changing a TC name? Maybe something Haven could investigate at the Chair breakfast meeting Sunday morning of AHR. Haven to investigate how to submit name change to ASHRAE
  - 19.1.6. Gary motion, Philip second, passed 7-0-0 for TC8.6 name change to Evaporative, Adiabatic, Air-Cooled, and Hybrid Heat Rejection Equipment

## **20. New Business**

- 20.1. TC8.6 – do we want to continue, merge, or dissolve as TC. Frank motion to continue as TC 8.6, Rick second, passed 7-0-0.
- 20.2. Std 205
  - 20.2.1. Frank proposed to create working group to work with Std 205 to develop 205 cooling tower models
  - 20.2.2. Std 205 is developing performance models for various HVAC/R equipment. Have done chillers and several other pieces of equipment. They now are interested in cooling towers
  - 20.2.3. Paul and Frank have sat in on meetings
  - 20.2.4. Need broader representation with this group and/or CTI
  - 20.2.5. 205 model design has moved towards extensive tabulated data
  - 20.2.6. Current concerns are with IP protection. How to protect data from competitors?
  - 20.2.7. Challenging in a competitive marketplace
  - 20.2.8. Specific model representation also involves considerable work
  - 20.2.9. What is the benefit to the manufacturers?
  - 20.2.10. Chiller manufacturers did work with 205 to come up with chiller model
  - 20.2.11. Rick discussed how they applied it to chiller data
  - 20.2.12. One repository for data.
  - 20.2.13. 8760 hr model. Need to know how it varies over the course of the year
  - 20.2.14. Was not an easy task for chiller manufacturers.
  - 20.2.15. Customers can ask for that specific data set
  - 20.2.16. Has to be per AHRI or per something
  - 20.2.17. AHRI hesitant currently until industry gets behind it
  - 20.2.18. Opportunities to improve our building designs and built environment.

- 20.2.19. Models can help designers optimize buildings for energy use
- 20.2.20. Being asked for the format in the event the manufacturer agrees to
- 20.2.21. Discussed customer request vs study to get data set.
- 20.2.22. Key variables that affect performance (power consumption or capacity of device)
- 20.2.23. Includes all energy consumption (including oil heater, etc).
- 20.2.24. Working group includes Miyar, Paul and Frank & Stephanie.
- 20.3. Center for excellence for building decarbonization
  - 20.3.1.1. Guides and training material available
  - 20.3.1.2. Presentation available on 360 App
  - 20.3.1.3. Survey indicated 15 to 20 minute training materials popular
- 20.4. Discussed subcommittee meetings before Phoenix meeting for Program committee and/or handbook committee
  - 20.4.1. Suggested to have 3.6 and 8.6 interim virtual program committee meeting

## **21. Research liaison for Section 8 reported out**

- 21.1. ASHRAE research funds have gone up
- 21.2. ASHRAE is encouraging more research projects
- 21.3. Did not have any RTARs submitted for this meeting
- 21.4. Encouraging RTAR development as backlog is light
- 21.5. ASHRAE has a research promotion committee
- 21.6. Go on-line and take training course for proper steps for RTARs and work statements.

## **22. Adjourn**

- 22.1. Meeting adjourned at 3:42 EST