

TC 6.1 Hydronic & Steam Heating Equipment and Systems

ASHRAE Winter Conference (Feb 09-12, 2025) in Orlando

HYBRID MEETING

Main Committee Meeting

Tuesday, February 11, 2025
 1:00 pm – 3:00 pm EST
 Room: Hilton Orlando, Lake Eola AB
[Teams Link](#)

Handbook Subcommittee Meeting

Monday, February 10, 2025
 3:00 pm – 5:00 pm EST
 Room: Hilton Orlando, Lake Eola AB
[Teams Link](#)

Research & Programs Subcommittees Meeting

Monday, February 10, 2025
 1:00 pm – 3:00 pm EST
 Room: Hilton Orlando, Lake Eola AB
[Teams Link](#)

TC 6.1 Social Happy Hour

Monday, February 10, 2025
 5:00 pm EST (or whenever
 Handbook Meeting ends)
 FastBreak at Hilton Orlando

Name	Position	Voting Status	Voting Term
Jessica Mangler	Chair	Voting	07/01/2023 – 06/30/2025
Viral Dharaiya	Vice Chair	Voting	07/01/2023 – 06/30/2025
Sarah Hilden	Secretary	Voting	07/01/2024 – 06/30/2026
Jennifer (Jen) Leach	Program Subcommittee Chair	Non-Voting	N/A
Agis Tsouvalas	Research Subcommittee Chair	Non-Voting	N/A
Theodore (Ted) Duffy	Handbook Subcommittee Chair	Voting	07/01/2023 – 06/30/2025
Frank Myers (late)	Standards Subcommittee Chair	Voting	07/01/2021 – 06/30/2025
Mr. Neils Bidstrup	Member Non-Quorum	Non-Quorum Voting	07/01/2020 – 06/30/2025
Lynndy Hedgcoth	Webmaster	Non-Voting	N/A
Rex Scare	Member	Voting	07/01/2023 – 06/30/2026

TC 6.1 SPONSORED OR CO-SPONSORED PROGRAMS FOR ORLANDO

NO SESSIONS APPROVED FOR ORLANDO 2025

Meeting called to order at 1PM EST.

1. Chair Welcome (*Jessica Mangler*)

- **Committee Scope:** TC 6.1 is concerned with all aspects of hydronic and steam systems. This includes the application of boilers, chillers, terminal units, and all accessories and controls making up the total system as well as the design of the integrated system. In

addition to comfort applications of both heating and cooling, snow melting systems are included. Cooperation with other TCs is recognized in areas such as control, noise and vibration, refrigeration, pumps, and hydronic and service water piping.

- ASHRAE Code of Ethics Commitment: 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>)
- Secretary for the meeting: Sarah Hilden

2. Introductions

- Roll Call of Voting Members (*Viral Dharaiya*) – *Frank not present*
- Member and Guest Introductions

3. Membership (*Viral Dharaiya*)

- Review Roster Updates
 - Lynndy to serve as webmaster and programs chair, replacing Jen [now?]
 - After Pheonix
 1. Sarah incoming Vice Chair
 2. Viral incoming Chair
 3. Steve Tiernan is willing if no others
 - a. Any interested parties reach out to Viral
- Quorum Check – Quorum established with 6 voting members [Myers came later]

4. Review of Meeting Documents (*Jessica Mangler*)

- Approval of Meeting Minutes for 2024 ASHRAE Winter Conference in Chicago
 - Motion passes 4-1-0 CNV
- Review of Agenda

5. TC Chair Report (*Jessica Mangler*)

Tom Capellin <https://www.sj-r.com/obituaries/pils1034965>

6. Mangler unable attend but shared notables from minutes

- AI policy: may not use AI to generate content and must protect IP.
- Contact ASHRAE Staff with questions on use of AI.
- Overview of proposed

Deadlines for conference submissions and other topical conferences

7. TC Communications (*Lynndy Hedgcoth*)

- Website: <https://tc0601.ashraetcs.org/>
- Basecamp: <https://3.basecamp.com/3106353/projects/23183827>

8. Programs (*Jennifer Leach*)

- Report on TC 6.1 sponsored or co-sponsored programs for Indianapolis in June 2024'
- Indianapolis
 - SEMINAR 39: Simplifying the Electrification of Hydronic Systems

- Bean, Hilden and Villaume presented
- Secretary note: 3rd highest attended (out of over 80 beat only by 2 livestream sessions) seminar with 120 attendees
- Discussion in yesterday meeting led to discussion around what research is needed for impact of reducing hot fluid temp and impact on system components like valves.
- Submittals are not accepted as often as in the past.

2025 Winter Program Statistics			ASHRAE
Program	Proposals Submitted	Proposals Scheduled	
Panel Sessions	9	3	33%
Forum Sessions	18	3	17%
Seminar Sessions:	158	63	40%
Workshop Sessions	10	4	40%
Debate Sessions	3	2	67%
Total	198	75	38%
Total with Paper Sessions		113	

- Paper sessions must be shared, unless bumped to a poster session
- Bean may present with another speaker for Phoenix or Vegas
- AUSTIN idea: 18 months out – Proposal is a track including 61,2,5,6,9
 - Replace your carbs with water
 - Gang Wang: Impact of impeller trimming on water to wire efficiency
 - Wang to collaborate with 1.11 to gauge interest in program for Vegas
- Paul Rafferty: CEC research on retrofitting HWS in commercial buildings and would like to present some research – potentially paired with other material FOR VEGAS
- Others to submit
 - Leach/Bean: Forum- interest from TCs 6.2 and 6.6 – to be copied
 - Scare: Is steam dead?
 - District energy wants to do fundamental of DE for VEGAS Include hydronics fundamentals
 - 6.5 programs chair Zach Londo: radiant may be willing to speak
 - Myers: Consider method of test for boilers suggested
 - Also AHRI is working on rating method using the standard so there are likely a lot of questions. May make more sense to wait until that standard comes out.
 - Vegas: Advanced Pumping Design
- **Reach out to Leach with ideas, speakers to team up with from other TCs**

9. Research (*Agis Tsouvalas*)

- Test method for control valves – no standardized way to do this – will look further prior to action.
- Sizing guidelines for nonmetallic piping: evaluate the need, Bean to research further
- Performance of existing equipment in retrofit applications: valves, HX behavior when application changes (lower temp hot fluid) – forum mentioned above to discuss with ASHRAE community the need for
- Impeller trimming versus VFDs for motors , with tc1.11
- 3.5M for research programs

10. Handbook (*Ted Duffy*)

- HVAC Systems & Equipment
 - Chapter 11 – Steam Systems
 - Chapter 13 – Hydronic Heating and Cooling
 - Chapter 14 – Condenser Water Systems
 - Chapter 15 – Medium and High Temperature Water Heating
 - Chapter 28 – Unit Ventilators, Unit Heaters, and Makeup Air Units
 - Chapter 32 – Boilers
 - Chapter 36 – Hydronic Heat-Distributing Units and Radiators
 - Chapter 44 – Centrifugal Pumps
 - Chapter 46 – Pipes, Tubes, and Fittings
 - Chapter 47 – Valves
 - Chapter 48 – Heat Exchangers
 - Chapter X – Chilled Water Plant Design
- Fundamentals
 - Chapter 22 – Pipe Sizing
- 2.5 years to get chapters done and approved for 2028
 - Several are in the works
 - Some edits did not make 2024 S/E
 - Reviewers did not respond to the proofs.
 1. Items already voted on will be pushed online
 2. We have a few people assigned to each chapter
 - Some chapters that could use another person
 1. CH14 – Low flow condenser water
 2. CH 47 – Dharaiya/Walker asked for balancing valve experience
 - **Want to avoid a big push at the end**
 - Some proposed changes for CH 44 identified
 1. Pete, Lynddy, David and Sarah to review the changes to vote in the next meeting and push those into the online version.

11. Standards (*Frank Myers*)

- SSPC 90.1 (addendum bk)
 - Much hydronic area activity as std moves towards decarb/electrification
 - Any path to increase efficiency
 - Proposal: (primary path – no simulation)
 1. Cooling load to be addressed with HP instead of chiller, sized for heating up to the max cooling output
 2. Has been out to public review 2X and contentious discussion
 - a. Sent back to mech subcommittee
 - b. Asked to send out with rejected comments for another review – 9 yes 11 abstains, no abstentions.
 - i. Uncharted territory – need 50% yes
 - SPC 155
 - Presentation around that – any other questions
 - Standard is out and published – again, suggested to take it off the list for review unless 90.1 or DOE application becomes a concern.
 - SSPC 100
 - Retrofit buildings – no info yet, newly added to the list
 - Villaume made it to part of the meeting
 1. They are doing feasibility study by someone in national sector and will send for the minutes
12. Task Force for Building Decarbonization (*Jason Atkisson*)
- Is being struck from agenda as replaced by CEBD
13. Recognize Liaisons (*Jessica Mangler*)
- Handbook
 - Derek Crowe [Chs. 11, 28, 32, 36, 44 & 46]
 - Satish Iyengar [Chs. 13, 14 & 15]
 - Ahmed Medhat [Chs. 47 & new ChW]
 - Research (Stefan Elbel)
 - Standard (Paolo Tronville)
 - Chapter Technology Transfer Committee (CTTC) (Elizabeth Zakelj)
 - TAC Chairman (Craig Messmer)
 - TAC Section Head (Douglas Reindl)
 - TC Chair Breakfast
 1. Sneak preview of 2025-2028 Strategic plan which will formally kick off in Phoenix – it is published on the website
Ensure any program activity or research promoted is in line
<https://www.ashrae.org/file%20library/about/strategic%20plan/2025-28strategicplan.pdf>
 2. CEBD liaison – 8 special projects 1.5M dollars
Deck shared with Mangler – titles and abstracts in the .ppt
Consider suggesting new projects for that group

3. Less than half of program submission were approved
 - a. Keep submitting
 - b. Ensure track alignment
 - c. CEC is moving to eliminate technical papers
 - i. There will still be conference papers (shorter)
 1. Conf papers
 2. Journal of sci/tech for the built env
 3. ASHRAE journal
 - d. GA – Alice Yates
 - i. Trying to figure out what's up in new admin
 - ii. Roster updates due March 3
 - iii. Please sent to Reindl in a timely fashion to take effect after Phoenix meeting

- Staff (Steve Hammerling)

14. Liaison Reports from other TCs and Organizations (*Jessica Mangler*)

- 6.2 – District Energy
- 6.5 – Radiant Heating & Cooling
 - PAUL RAFTERY just rolled off as chair
 - PTAR Submitted
- 6.6 – Service Water Heating
- 6.7 – Solar and Other Renewable Energies
- 6.8 – Geothermal Heat Pump & Energy Recovery Applications
- 6.10 – Fuels and Combustion
- Residential Building Committee
- Hydronics Industry Alliance
- Others?
- Villaume
 - 6.2, 6.6, 7.7, and GA
 - 6.2 met Sunday – programs mentioned above
 1. If technology goes into DE space they are seeking new members
 2. Looking into how to integrate with other TCs (i.e.) TES) and equipment in those spaces – other liaison opportunities including research
 - 6.6 – SWH – met yesterday – one handbook chapter and perhaps some heat pump technologies and some piping design and TES
 1. They are in charge of pipes, fittings and tubing chapter
 2. Questions around expanding piping types referenced in CH51
 - a. Carl Hiller hasdone some work and is incorporated
 3. Discussion around friction losses in polymer piping
 - 7.2 – Same discussion around polymer piping – new research chair
 1. Asked look into the topic to see if he wants to sponsor research
 - GA

1. 14 pub briefs including: decarbonization, electrification and PV
2. Working on generation/cogen so govt officials are clear on where ASHRAE stands

15. Old Business

- Open discussion as time allows.

16. New Business (*Jessica Mangler*)

- Open discussion as time allows
- Paul Raftery: Staff Scientist at Center for the Built Environment
- Presented results from CEC project focused on reducing NG in CA
- Interest in presenting for Vegas
 - Presentation – mostly office so space heating water gas heating
 - Not consistent data available across the board
 1. Collected trend data from BAS
 2. Data is generally boilers serving buildings
 3. Peak heating day they ensured the peak measurement was within 2 degF of the design heating day
 - a. Boilers are very underused
 - b. Desire to require higher turndown or capacity turndown per floor area

17. Adjourn (*Jessica Mangler*)

2:22 Meeting adjourned

ATTACHMENTS:

- Research and program meeting notes from Duffy and Tsouvalas