



180 Technology Parkway NW, Peachtree Corners, GA 30092  
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**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. 6.1 DATE January 23, 2024

TC/TG/MTG/TRG TITLE Hydronic and Steam Equipment and Systems

DATE OF MEETING \_\_\_\_\_ LOCATION Chicago, IL (in -person)

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Bob Walker	2022	Niels Bidstrup	Non-Q	
Jessica Mangler	2019			
Frank Myers	2021			
Viral Dharaiya	2019			
Mick Schwedler	2023			
Ted Duffy	2022			

**DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:**

TAC Section Head:	Doug Reindl
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters (Research, Standards, ALI, etc.)	Chapter Tech. Transfer – Elizabeth M. Zakelj Research – Stefan Elbel 2024 HB Systems – Derek Crowe (Chs 11, 28, 32, 36, 44, 46); Satish Iyengar (Chs 13, 14, 15); Ahmed Medhat (Chs 47 and new ChW Plant) 2021

	HB Fundamentals – Stephanie Mages Standards – Craig Wray Staff – Steven Hammerling
Steve Hammerling, Assistant Manager of Research & Technical Services	AMORTS@ashrae.net

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

### 1. Call to Order:

Chair Mangler called meeting to order at 1:00 PM.

Chair Mangler welcomed all in attendance and self-introductions were made. Attendance was gathered through the sign-in sheet – meeting was in-person only – no remote attendance. Roll call of voting members was conducted and quorum established with 6 of 7 voting members. Sarah Hilden is Secretary.

**Technical Committee 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. Speaker Mangler read the code of **ASHRAE Code of Ethics**: “In this and all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, inclusiveness and respect for others, which exemplify our core values of excellence, commitment, integrity, collaboration, volunteerism and diversity, and we shall avoid all real or perceived conflicts of interests.” (See full Code of Ethics at <http://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>) Speaker Mangler read the ASHRAE Commitment to Care: “The health and safety of all ASHRAE conference attendees is a top priority. Out of respect for our fellow attendees, monitor our health, seek medical attention if symptoms develop and adhere to all ASHRAE Commitment to Care protocols. We are committed to the well-being of one another.” Speaker Mangler read the Anti-trust guidelines: “Recording (Audio, Video, Screenshots) of ASHRAE meetings, including online meetings, is strictly prohibited.”

### 2. Setting of the Agenda

Chair Mangler established meeting agenda with no objections.

### 3. Approval of Atlanta Minutes

Motion by Dharaiya, second by Myers. Motion passes 5-0-1-CNV.  
Chair abstained from vote.

### 4. Chair’s Report

- i. Breakfast Meeting Updates
- ii. ASHRAE extended strategic plan by one year – access online

- iii. Decarb goals added
- iv. QR code to provide feedback
- v. Last day to submit is May 31
- vi. Data will be pulled July 31
- vii. Contact Manger for information on how to add
- viii. Update on Global GTIC
- ix. Task Force on Decarbonization Overview
  - a. Successes: Improved coordination/communication with FGs
  - b. Worked with White House on ZE buildings
  - c. Decarb content is on the website, including chapter materials
  - d. Goal: 2030 to be at 50% of 2015 GHG emissions

## 5. Subcommittee Reports

### Programs:

Lynddy Hedgcoth on behalf of Jennifer Leach (chair)

- a. Old sessions for the past three conferences will be on TC6.1 Basecamp.
- b. For access contact Lynndy Hedgcoth.
- c. Winter Program Stats: 11/18 submissions
  - i. Forums 10/4
  - ii. Seminars 133/72
  - iii. Workshops 6/2
  - iv. Debates 3/2
  - v. Overall 170/91
- d. Four approved sessions for Chicago, two each today and Sunday
- e. Thanks to our speakers in the pumping session.
- f. Summer Conference will be in Indianapolis, June 22-26, 2024
- g. Submissions are due February 26, 2024 and we'll have acceptance status April 12.
- h. Vetted old ideas –
  - Seminar on NonMetallic Piping with 7.2 cosponsoring – no chair yet, Ron George or Patrick Villuame
  - Resubmit Steam Fundamentals that was rejected last time (Tsouvalas)(?)
  - Simplifying Electrification in Hydronic Systems (Hilden/Beam/Villaume(?))
  - Lessons Learned for Supply Chain
  - 1.8 requested 6.1 co-sponsor seminar/panel on hydronic insulation
  - Concurrent Energy Conference – discussion around collaboration

### Research:

Jessica Mangler on behalf of Jack Farley (chair)

Research ideas:

- 1. Sizing guides for nonmetallic piping (section 6 liason present)
- 2. Controllability for low temp heating HW systems
- 3. Magnetic filtration effectiveness/operability for hydronic systems.

### Handbook:

Ted Duffy

- a. Systems and Equipment going out this year is approved
- b. June 28 deadline for piping design in handbook (Leach/ Dharaiya)
  - i. To be completed/submitted prior to Summer meeting
  - ii. For inclusion, request long before Summer Meeting
- c. Steve Tredennick committed to complete Chapter 52 by next meeting

**Standards:**

Frank Myers

- a. Standard 155 – Method of Test for Part Load Efficiency of Boilers
  - a. Group completed work but tuning needed after summer meeting. Is now done and turned over.
  - b. Cycle of approval is complete with no issues, authorized for publication and turned over to publication department.
  - c. Calculation error due to component omitted in formula to be addressed through errata – voted on yesterday.
  - d. 155 to be disbanded post publication.
- b. Standard 90.1 – with decarbonization efforts, fossil fuel boilers will be replaced
  - a. Heat Pump are the hot topic
  - b. Social Carbon Cost working group investigating cost justification requirement in 90.1

**6. Liaison Reports from other TCs and Organization**

**a. Villaume**

- i. Looking for topics adjacent to heat pumps
- ii. Heat Pump Water Heaters – incorporate HP with gas as dual fuel option for testing – considered in 6.1
- iii. New HP guide from task force omitted SWH

**b. Myers**

- i. 6.6 approved formation of GPC for insulation of HPWH system

**c. Neely**

- i. Co-sponsorship/speaker for Summer: 1.8 plans panel or seminar
- ii. Above and below ambient hydronic insulation systems, design/installation, common failure modes, steam, hot and chilled water, brine and glycol
- iii. Interested parties contact Alan Neely or reach out to Mangler.

**7. Recognition of Liaisons:**

Doug Reindl, TAC Section Head

- a. Tips to improve program acceptance.
- b. Connecting chapter with Society level activity
- c. Improve involvement through volunteerism – i.e. Handbook Chapters
- d. Chapter meeting ideas to improve connections.
  - i. Presentation drives interest
- e. Website updates made things hard to find.
- f. TAC approved MTG to look at AI with inward focus.
- g. Be sure to appreciate new members and visitors.

**8. Old Business**

- a. Standard for test and balance needed.
- b. No RP has been suggested but SPC was proposed - one member short
- c. Suggested to sent to all TCs to gain numbers.

**9. New Business**

- a. Idea to present content within Committee Meetings (shorted, highlighted version)
- b. Requires projector – keeps TC in the know of what's being presented.

**10. Meeting Adjournment**

- a. Adjourned at 2:15 PM.

Attached: Sign-in, subcommittee Minutes

**Submitted by**  
**Sarah Hilden**  
**TC 6.1 Secretary**

## TC 6.1 Programs Sub-Committee

**Date:** 01.22.2024

**Location:** McCormick Place West, W181B

### Attendees:

Name	Member Type	Email
Ron George	Corresponding Member	<a href="mailto:ron@plum-techllc.com">ron@plum-techllc.com</a>
Lynndy Hedgcoth	Webmaster – CM	<a href="mailto:lhedgcoth@aeieng.com">lhedgcoth@aeieng.com</a>
Viral Dharaiya	Vice Chair – VM	<a href="mailto:Viral.dharaiya@haysfluidcontrols.com">Viral.dharaiya@haysfluidcontrols.com</a>
Ted Duffy	Voting Member	<a href="mailto:Ted.duffy@gmail.com">Ted.duffy@gmail.com</a>
Agis Tsouvalas	Corresponding Member	<a href="mailto:atsouvalas@grundfos.com">atsouvalas@grundfos.com</a>
Jessica Mangler	Chair – VM	<a href="mailto:jmangler@aeieng.com">jmangler@aeieng.com</a>
Bob Walker	Corresponding Member	<a href="mailto:Robert.walker@us.belimo.com">Robert.walker@us.belimo.com</a>
Rex Scare	Voting Member	<a href="mailto:rex@armstronginternational.com">rex@armstronginternational.com</a>
David Lee	Corresponding Member	<a href="mailto:dlee@armstrongfluidtechnology.com">dlee@armstrongfluidtechnology.com</a>
Sarah Hilden	Secretary	<a href="mailto:Sarah.hilden@trane.com">Sarah.hilden@trane.com</a>
Steve Wortmann	Corresponding Member	<a href="mailto:Steve.wortmann@victaulic.com">Steve.wortmann@victaulic.com</a>
Patrick Villaume	Corresponding Member	<a href="mailto:Patrick.villaume@spx.com">Patrick.villaume@spx.com</a>
Wyatt Hahn	Guest	<a href="mailto:Wyatt_hahn@yahoo.com">Wyatt_hahn@yahoo.com</a>
Brian Salem	Guest	<a href="mailto:Briansalem42@gmail.com">Briansalem42@gmail.com</a>
Matt Mullen	Research Liaison	<a href="mailto:RI6@ashrae.net">RI6@ashrae.net</a>
Robert Bean	Corresponding Member	<a href="mailto:K9cave@gmail.com">K9cave@gmail.com</a>

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### FULL COMMITTEE MEETING

- **TC 6.1 Hydronic and Steam Equipment and Systems**

Tuesday, January 23, 2024 1:00 PM – 3:00 PM CST

McCormick Place West, W178B

### SPONSORED PROGRAMS IN CHICAGO

- **Seminar 1: Driving Towards Decarbonization: Hydronics – The Perfect Transmission**  
Sunday, January 21, 2024 8:00 AM – 9:00 AM CST  
Marriott Marquis Chicago, 2<sup>nd</sup> Floor, Great Lakes C
  - **Seminar 8: The Logical Way to Tap into Decarbonization: Hydronic District Energy Systems**  
Sunday, January 21, 2024 9:45 AM – 10:45 AM CST  
Marriott Marquis Chicago, 2<sup>nd</sup> Floor, Great Lakes E
  - **AHR Expo Session #2: Beyond the Boiler – Making it Work**  
Tuesday, January 23, 2024 9:00 AM – 10:30 AM CST  
McCormick Place South, S402a
  - **Seminar 40: Modern Pumping Design**  
Tuesday, January 23, 2024 9:45 AM – 10:45 AM CST  
Marriott Marquis Chicago, 2<sup>nd</sup> Floor, Great Lakes E
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## PLANNING FOR THE ANNUAL CONFERENCE, INDIANAPOLIS

### Deadlines

*Jan 5, 2024* Website open for submissions

*Feb 26, 2024* Submissions are Due

*Apr 12, 2024* Notifications

June 22-26, 2024

### Tracks

- Fundamentals and Applications
- HVAC&R Systems and Equipment
- Research Summit
- Professional Development
- Electrification: Possibilities and Pitfalls
- Artificial Intelligence and the Built Environment
- Building Life Cycle Assessment
- Legislation, Standards, Codes, and Guidelines

### Program Ideas

- Non-Metallic Piping
  - o Co-sponsor with TC7.2, possibly also TC6.6
  - o Chair: TBD
  - o Speakers:
    - Ron George
    - Patrick Villaume
- Steam Fundamentals
  - o To be resubmitted from this conference submission after some rework
  - o Chair: Steve Wortmann
- "Simplifying the Electrification of Hydronics"
  - o Chair: TBD
  - o Speakers:
    - Sarah Hilden
    - Robert Bean
    - Patrick Villaume?
- AI Integrated Building Design
  - o TC 7.2 asked us to co-sponsor
  - o Patrick Villaume is connection to this topic
- Supply Chain Communication
  - o TC 7.2 asked us to co-sponsor
  - o Possibly a lessons learned forum
  - o Chair: Patrick Villaume
  - o Speakers:

- TBD
- Hydronic Insulation Systems
  - TC 1.08 asked us to co-sponsor
  - Either a panel or seminar
  - Contact Alan Neely for more information
  - Looking for a speaker
  - 6.6 might also be doing a topic similar
- Advanced Pumping Design – TO BE DONE IN ORLANDO
  - Chair: Lynndy Hedgcoth
  - Speakers:
    - Agis Tsouvalas, Anders Overgaard, TBD

### Other Notes

- Revive old fundamentals for Orlando
- Jen and Lynndy to compile a list of old presentations
- There is a concurrent energy conference in Indianapolis
- Get speaker's permissions to post slides on the website

## 2024 Winter Program Statistics

Program	Proposals Submitted	Proposals Scheduled
Panel Session	18	11
Forum Sessions	10	4
Seminar Sessions	133	72
Workshop Sessions	6	2
Debate Sessions	3	2
<b>Total</b>	<b>170</b>	<b>91</b>
<b>Total with Paper Sessions</b>		<b>124</b>

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- Session Chair positions are more about organization and making sure things get submitted on time
  - You get a significant discount on your ASHRAE rate so please consider offering to be a session chair
- At future TC Meetings we will ask the speakers to give an informal presentation of what is being scheduled for the conference
  - Maybe give at programs sub-committee meeting
    - Offer either time slot for speakers
  - Not all speakers are part of TC so it would be good to get them interested and bring them to the TC
    - If it doesn't get approved, they more than likely will not come
  - Schedule a room for extra seminars that don't get approved and broadcast to members
    - Might be able to get it into the conference booklet
  - To be tested in Indianapolis
- TAC to send a slide on tips for getting your programs approved



**Research Subcommittee Meeting  
Minutes Not Available for 2024 Winter  
Conference in Chicago**



Shaping Tomorrow's  
Built Environment Today

### TC Sign-in Sheet

Meeting Info: TC 6.1 Full Meeting Date: 11/23/24

Name	Affiliation	E-mail	Member (Voting, Corresponding, or Guest?)	YEA Member? (Yes/No)	Int'l Member? (Yes/No)
Viral Dharaia	TC 6.1 VC	viral.dharaia@hoyshuidcontrols.com	Voting - VC	No	No
JESSICA MANGLER	Chair - AEL	jmangler@aeieng.com	Voting - CHAIR	No	No
Lynndy Hedgcoth	<del>Webmaster</del> AEL	lhedgcoth@aeieng.com	Webmaster - CM	Yes	No
DAVID LEE	ARMSTRONG	dlee@armstrongfluidtechnology.com	CM	No	No
Bob Walker	BEIMO	robert.walker@us.beimo.com	CM	No	No
Rex Seare	Armstrong International	Rexs@armintl.com	VM	No	No
Frank Myers	The Myers Group, LLC	fmyers@ix.netcom.com	Voting Stds. Subcommittee Chair	No	No
Doug Bennett	CSA Group	doug.bennett@csagroup.org	guest	Yes	
Agis Tsouvalas	Grundfos	atsouvalas@grundfos.com	coll	No	Yes
Gunter Berthold	Beckett Thermal Solutions	gunther.berthold@beckettthermal.com	CM	No	Yes

Name	Affiliation	E-mail	Member (Voting, Corresponding, or Guest?)	YEA Member? (Yes/No)
MICK SCHWEDLER	TRANE	mschwedler@trane.com	VOTING	NO
Michelle Hull	Trane	michelle.hull@trane-technologies.com	guest	YES
MARK HEGBERG		mhegberg@comcast.net	CM	No
STEVE WORTMANN	VICTAULIC	steve.wortmann@victaulic.com	Corr	No
Scott Hellendrung	Uponor	scott.hellendrung@uponor.com		No
Zach Londo	Uponor	Zachary.Londo@uponor.com	Prov. Member	Yes
Wyatt Hahn	Tom Green & Company Engineers	Wyatt_hahn@yahoo.com	Visitor	Yes
Zachary Siefker	Cleaver-Brooks	zachary.siefker@gmail.com	PCM	Yes
Panos Fykas	AHRI	pfykas@ahrinet.org	Guest	No
Julia Hegarty	US DOE	julia.hegarty@ee.doe.gov	Guest	No

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