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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 No. 6.1 DATE 23 June 2023

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

DATE OF MEETING 27 June 2023 LOCATION Tampa, FL

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

**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
Mike Vaughn, Manager Of Research & Technical Services	<a href="mailto:MORTS@ashrae.net">MORTS@ashrae.net</a>

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

**1. Call to Order:**

Chair Walker called meeting to order at 1:00 PM. Chair Walker 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 5 of 7 voting members. Sarah Hilden is acting as Secretary today on behalf of Rex Scare.

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 Walker 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 Walker 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 Walker read the Anti-trust guidelines:

“Recording (Audio, Video, Screenshots) of ASHRAE meetings, including online meetings, is strictly prohibited.”

**2. Setting of the Agenda**

Chair Walker established meeting agenda with no objections. Motion by Leach, second by Mangler. Motion passes 5-0-0-CNV.

**3. Approval of Atlanta Minutes:**

Motion by Myers, second by Mangler, Passes 5-0-0-CNV.

**4. Recognition of Liaisons:**

Doug Reindl, TAC Section Head

- i. New standing committee DTIC global tech interaction committee to pick up where international standards committee leaves off.
- ii. Call for help on TCs 205, 163, 186, 142
- iii. Looking for volunteers for TAG TC 205 and 163
- iv. Task force on Building Decarbonization will go 1-2 cycles prior to sunset
- v. Six best-practices guides: 1 published – rest summer to Jan timeframe

- a. Training resources to be created prior to disbanding Task Force, perhaps MTG or working committee to be established.
- vi. Recognizes outgoing chair Walker and incoming chair Mangler.

## 5. Chair's Report:

- i. Breakfast Meeting
- ii. 7.1: occupied building design
- iii. TG 2.1 AQMD
- iv. Indoor Agriculture Devices
- v. TG9 – extraterrestrial and deep space environments
- vi. ASHRAE meeting is in CHICAGO, IL, USA, 20-24 January 2024. Seminar submissions are due by 8/2.
- vii. Hightower Award nominations due by Friday 1 September 2023.  
The award recognizes outstanding technical leadership and contributions on a TC/TG/TRG during the past four years, excluding research and standards activities. Please go to the Technical Committee page of the ASHRAE website at the following link under the "Procedures, Forms..." heading: [www.ashrae.org/tcs](http://www.ashrae.org/tcs).
- viii. CEC's Standing Request for Future Society Meeting Program Track Suggestions The Conferences and Expositions Committee (CEC) oversees ASHRAE's annual and winter conferences and other specialty conferences and expositions globally. The CEC
- ix. CEC Always Seeks TC Volunteers willing to Support Content Development and Quality Control for Society Technical Program at Society Meetings

## 6. Subcommittee Reports:

- *Programs: Jennifer Leach (Chair)*
- 1 sponsored program here in Tampa: Well attended
- i. Meeting yesterday: Met on Monday 26 June 2023
- ii. Hydronics Track Added for Chicago – right up our alley
- iii. Vetted old and new ideas and gather speakers and chairs
- iv. Loose agreement around program chairs for co-sponsorship
- v. Subcommittee Meeting Minutes attached.
  
- *Research: Tedd Duffy (chair) not present but sent notes*
- i. No movement on the single RT being discussed.
- ii. Always looking for new topics
- iii. Subcommittee Meeting Minutes attached.
  
- *Handbook: Viral Dharaiya*
- Meeting on Monday 26 June 2023
- i. Total 10 chapters including new chapter (Ch-99) for Chilled Water Plant Design for 2024 HVAC Systems and Equipment
  - a. Two (Ch-11 & Ch-28) approved during Winter 2023 TC 6.1 Main Meeting.
  - b. Seven (Ch-13, 14, 32, 36, 44, 46, & 47) were approved during Summer TC 6.1 Main Meeting.
  - c. New chapter (Ch-99) on Chilled Water Plant Design is not ready for 2024 HVAC Systems and Equipment. Need to be discussed to be possibly moving it to Applications handbook.
  - d. One Chapter, Ch-22 Pipe Sizing due for updates for 2025 Fundamentals handbook.

- e. Move to approve 7 chapters - discussion around pulling any requiring discussion prompted prior to vote.
  - f. Dharaiya read all chapter names with no required discussion with move to approve, Myers seconds, motion passes 5-0-0.
  - g. Chapter 14: Condenser Water Systems: Mangler moves to approve, Myers seconds, motion passes 5-0-0.
- ii. Fischer suggests changing title of Chilled Water Pipe Design chapter to "Pipe and Tube" Design. Discussion around inclusion in Applications for hydronic service water heating.
  - a. Handbook unlikely to be complete for a few months, so wait and see, per outgoing chair, Fischer.

- *Membership: Jessica Mangler (Vice Chair)*
- Mangler, Walker will be updated 9/1 with Mangler assuming Chair
- Leach term extended
  - i. 12 New members based on roster duration upgraded to corresponding members
  - ii. Acting Secretary/webmaster Scare to be assumed by Hilden/Ruddell, resp.
  - iii. Duffy – Handbook Chair
  - iv. Farley – Research
  - v. Dharaiya – Vice Chair
  - vi. Other revisions to be reviewed after Chicago meeting
  - vii. Those interested in becoming Corresponding Members should update profiles.
  - viii. Voting Members will include: Mangler, Dharaiya, Scare, Leach, Duffy, Myers, Schwedler and non-quorum voting member is Bidstrup
- Standards: Frank Myers (Chair)
  - i. 90.1 – Boilers/Hydronic discussions
    - a. Continue to find other energy savings mechanisms.
    - b. SSPC155 nearly done, 3 final editorial corrections
    - c. Going to review/vote by letter ballot in upcoming weeks.
    - d. Satisfactory revisions agreed at meeting, but no quorum
    - e. Once voted through, goes to co-sponsor AHRI for internal processing, then returns for final publication
  - ii. Discussion around boiler performance prediction and program used to corroborate data

## **7. Liaison Reports from other TCs and Organizations:**

- i. None mentioned but will look to others:
  - Myers: Reports that Villaume volunteered to liase with 6.6 and for 6.1-6.6 all liasons will meet.
- ii. Villaume: Task force focuses on Heat Pump Applications Design Guide in 'strike force fashion' – budgeted by not yet fully defined.
- iii. Schwedler: There are 6-7 publications planned by next June and become normal ASHRAE work.

## **8. Old Business:**

- i. Test Method for Pressure Independent Control Valves and Balancing Valves
  - a. Interest in testing various types of valves – balancing, manual/auto, no specified test method.
  - b. Need unified test method for both PI values and PICVs
  - c. Looking to form committee, Dharaiya offers to chair an SPC and requests volunteers.
  - d. Haley offered to take part due to experience.

**9. New Business:**

- i. 125-2020 Method of testing meters for liquid streams in HVAC systems (BTU meters)
  - a. Revise, withdraw or reaffirm due to only 4 copies sold.
  - b. Discussion around whether this belongs within TC6.1 – tabled until determination of need is understood – does it require updates for critical language, is it specified, is it referenced elsewhere? Tabled for now.

**10. Meeting Adjournment:**

- a. Adjourned at 2:04 PM.

Submitted by:  
Sarah Hilden  
TC 6.1 Secretary

Attached: Sign-in, subcommittee Minutes

## TC 6.1 Programs Sub-committee

**Date:** 6/26/2023

**Location:** JW Marriott, Tampa, Fowler (3)

**Attendees:**

	Jen Leach (Programs Chair)	Jack Kibort
	Lynndy Ruddell	Michael Licastro
	David Lee	Ron George
	Sarah Hilden	Scott Fisher
	Cesar Romero	Robert Bean
	Mehdi Doura	Bob Walker
	Patrick Villaume	Viral Dharaia
	Gang Wany	Agisilao Tsouralas
	Zachary Siefker	Jessica Mangler
	Brian Salem	

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### FULL COMMITTEE MEETING

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

Tuesday, June 26, 2023 1:00 PM – 3:00 PM EST

Tampa Marriott Waterside, Florida Salon V (2)

### SPONSORED PROGRAMS IN ATLANTA

- **Seminar 7: Decarbonization of Hydronic Systems**

Sunday, June 25, 9:45 AM – 10:45 AM

JW Marriott, Tampa Bay 3

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### PLANNING FOR THE WINTER CONFERENCE, CHICAGO

#### **Deadlines**

June 14, Website Open for Programs

Aug 2, 2023, Submissions Due

Nov 8, Notifications

Jan 20-24

#### **Tracks**

- HVAC&R Systems and Equipment
- Fundamentals & Applications
- Refrigeration & Refrigerants
- Decarbonization & Climate Change
- **Hydronic Systems**
- Ventilation, Indoor Air Quality & Air Distribution Systems
- Comfort, Indoor Environmental Quality & Energy Efficiency
- HVAC&R Controls
- Project Delivery Methods

## ***Program Ideas***

1. **Reach out to Frank about release of STD 155.** (Leach)
2. **Reach out to TFBC about release of Heat Pump Application Design Guide.** (Leach)
3. “Demystifying Large Speed Motors for Hydronic Applications”
  - a. Chair: Sarah Hilden
  - b. Speakers
    - i. David Lee, Armstrong; Sizing Pumps for Higher Speeds
    - ii. **TBD (TC 1.11 Speaker);** Motor Noise, Energy Savings
4. “Steam: It’s Here to Stay”
  - a. Chair: Lynndy Ruddell
  - b. Speakers:
    - i. Mike Licastro, B&G; Fundamentals of Steam
    - ii. **TBD (Rex?);** Steam Distribution
    - iii. **TBD (Brian Salem, someone from Skidmore);** Condensate Management
5. “Beyond the Boiler: Making it Work”
  - a. Chair: **TBD**
  - b. Speakers:
    - i. Ron George; Sizing Drains for Safe and Efficient Blowdown
    - ii. **TBD (Brian Salem, someone from Skidmore);** Flash Tank Sizing
6. “When Your decarbonizing, Keep It Simple”
  - a. Chair: **TBD**
  - b. Speakers: **TBD**
7. “Piping Materials, Considering Plastics”
  - a. Chair: **TBD**
  - b. Speakers: **TBD**
8. “Advanced Pumping Designs in Practice”
  - a. Chair: Agisilaos Tsouvalas
  - b. Speakers:
    - i. Anders Overgaard, Grundfos; Latest Developments in Distributed Pumping
    - ii. Justin Garner, Engineered Air Balance; Real Life Experiences: Balancing with Valves, Balancing with Pumps
    - iii. **TBD (Beehive Factory);** Deliver Savings by Reducing Pressure Losses

## Tuesday, June 25, 2023 - Program Chair Training

1. Conference Papers – Current applications or procedures, as well as research in progress.
2. Extended Abstracts – 3 pages
3. Seminars and Workshops – PDH’s, require learning objectives, AIA
4. Panel, Forum, Debate – Forums are “off the record”, not in the virtual conference
5. Programs are slotted AFTER papers.
6. No online presenting
7. Sign up to be Paper Session Chair online

## TC 6.1 Handbook Subcommittee Meeting Notes 06/26/2023

1. The chapters in table below due for 2024 Systems and Equipment were reviewed during the subcommittee meeting, updated after TC 6.1 Main vote approval.
2. The two chapters, 11 (Steam Systems) and Chapter 28 (Unit Ventilators, Unit Heaters, and Makeup Air Units) were approved and voted during Winter 2023 meeting. The checklist approval list was completed and uploaded to Authoring portal.
3. Chapter 22 – Pipe Sizing for 2025 Handbook is due in Summer 2023. Scott Fisher to email comments to Handbook chair for next revision cycle. Scott also recommended to update the chapter title to “Pipe and Tube Sizing”
4. Rick Heiden stated that there were no changes/updates to Chapter 36. Also, requested to be removed as author from next cycle.

Handbook	Year Released	Chapters #	Chapter Title	Use Authoring Portal
HVAC Systems & Equipment	2024	11	Steam Systems	Approved in TC 6.1 Main, 7/0/1 on 2/7/2023
HVAC Systems & Equipment	2024	13	Hydronic Heating and Cooling	Approved in TC 6.1 Main, 5/0/0 on 6/27/2023
HVAC Systems & Equipment	2024	14	Condenser Water Systems	Approved in TC 6.1 Main, 5/0/0 on 6/27/2023
HVAC Systems & Equipment	2024	28	Unit Ventilators, Unit Heaters, and Makeup Air Units	Approved in TC 6.1 Main, 6/0/0 on 2/7/23
HVAC Systems & Equipment	2024	32	Boilers	Approved in TC 6.1 Main, 5/0/0 on 6/27/2023
HVAC Systems & Equipment	2024	36	Hydronic Heat-Distributing Units and Radiators	Approved in TC 6.1 Main, 5/0/0 on 6/27/2023
HVAC Systems & Equipment	2024	44	Centrifugal Pumps	Approved in TC 6.1 Main, 5/0/0 on 6/27/2023



HVAC Systems & Equipment	2024	46	Pipes, Tubes, and Fittings	Dropped, added to Ch-22 for Fundamentals handbook
HVAC Systems & Equipment	2024	46	Valves	Approved in TC 6.1 Main, 5/0/0 on 6/27/2023
HVAC Systems & Equipment	2024	47	Heat Exchangers	Approved in TC 6.1 Main, 5/0/0 on 6/27/2023
HVAC Systems & Equipment	2024	New (99)	Chilled Water Plant Design	This chapter will not be ready for 2024 Handbook. Steve is still working on it per email on 4/20/2023.
Fundamentals	2025	22	Pipe Sizing	

Submitted By,  
Viral Dharaiya ([viral.dharaiya@haysfluidcontrols.com](mailto:viral.dharaiya@haysfluidcontrols.com))  
ASHRAE TC 6.1 Subcommittee Handbook Chair

NO RESEARCH COMMITTEE MEETING NOTES ARE  
AVAILABLE.