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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 February 1, 2022

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

DATE OF MEETING February 1, 2022 LOCATION Virtual (Las Vegas, NV)

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Robert Walker	2022			
Jessica Mangler	2019			
Jennifer Leach	2019			
Viral Dharaiya	2019			
Frank Myers	2021			
Steve Tredinnick	2021			
Stan Kutin	2018			
		Mike Trentham	2020	
Niels Bidstrup (Non-Q)	2020			

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

TAC Section Head:	Douglas 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) Standards – Craig Wray Staff – Steven Hammerling

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 the meeting to order at 1:01 pm.

Mark Hegberg requested the meeting be recorded as he had a conflict with another TC. Chair Walker asked if anyone would not want the meeting recorded and Frank Myers indicated this was against ASHRAE policy and he did not want the session recorded. The session was not recorded and the Chair will inquire to ASHRAE's policy on this for future meetings.

Chair Walker welcomed all in attendance and self-introductions were made. Attendance was gathered through the list of participants and the chat window. A roll call of voting members was conducted, and a quorum of 7 of 8 voting member (+ 1 non-quorum voting member) were present.

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.

Chair Walker read the 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 interest"*.

## 2. Setting of the Agenda:

The updated Agenda had been distributed via email to the Voting Members, Corresponding Members and Provisional Corresponding Members prior to the meeting. Motion by Myers, seconded by Mangler to approve the Agenda. Motion passed 7-0-0 CNV.

## 3. Approval of Phoenix (virtual) Meeting Minutes:

Motion by Mangler, second by Myers to approve the past meeting minutes. Motion passed 6-0-1 CNV. Frank Myers abstained as he did not attend the meeting.

## 4. Recognition of Liaisons:

No liaisons were present at the meeting.

## 5. Chair's Report

Chair Walker summarized the key items from the Section 6 Breakfast.

- a. The Technical Activities Committee (TAC) Open Mike Policy. TAC wants to allow the ASHRAE membership to have a voice to express their concerns and offer improvements. TAC normally meets Saturday before the conference and the Wednesday after the conference as well as virtual meetings during the year. TAC wants to allow the ASHRAE membership to have a voice to express their concerns and offer improvements. Contact [ASKTAC@ashrae.net](mailto:ASKTAC@ashrae.net) to request an “open mike” time. TAC also requests you send the topic, but it is not required.
  - a. TAC has finished their work to re-organize the TCs, but TCs can continue to work towards the effort of streamlining and improving efficiency. 6 merged TCs have been approved (from 13 TCs). Another merger is in the works.
  - b. ASHRAE is planning for a face-to-face meeting in Toronto, ON, Canada, June 25 – 29, 2022.
  - c. 2021-2022 Hightower Award Nominations are due by Wednesday, September 1<sup>st</sup>. The George B Hightower Technical Achievement 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).
  - d. The Conferences and Expositions Committee (CEC) oversees ASHRAE’s annual and winter conferences and other specialty conferences and expositions globally. To help keep a “pulse” on the technical issues facing professionals in the HVAC&R marketplace, and to create meetings that reach all of ASHRAE’s constituencies, the CEC seeks ideas for tracks for the 2023 meeting conferences as well as topics for specialty conferences from TC members. Submit your suggestions to Tony Giometti, [Giometti@ashrae.org](mailto:Giometti@ashrae.org).
  - e. CEC always seeks TC volunteers willing to support Content Development and Quality Control for Society Technical Program at Society Meetings. If you wish to volunteer to be a potential Technical Session chair and reviewers of session papers please let the Chair aware.
  - f. The Professional Development Committee (PDC) is seeking ideas for new ASHRAE Learning Institute (ALI) Courses. Contact Karen Murray (ASHRAE staff) [kmurray@ashrae.org](mailto:kmurray@ashrae.org) or [PDCchair@ashrae.net](mailto:PDCchair@ashrae.net) with your course ideas.

Chair Walker also recognized the elevation of Robert Bean, Corresponding Member of TC 6.1, to the membership grade of Fellow. This recognizes members who have attained distinction and made substantial contributions in HVAC&R and the built environment such as education, research, engineering design and consultation, publications, presentations and mentoring. Well deserved, Robert!

## 6. Sub-Committee Reports

### A. Programs: Jennifer Leach (Chair).

- Programs Subcommittee had scheduling challenges & technical difficulties. A separate subcommittee meeting was not held.
- There were 3 sponsored seminars in Las Vegas.

- Seminar 31- High Efficiency Variable Speed Pumping Systems and Integration Challenges with Chilled Plant Design
- Seminar 33 – Level Up Your Flower Game: Hydronic Design for Cannabis Grow Facilities
- Seminar 34 – Advanced Pumping Designs for Hydronic Systems
- There are opportunities to co-sponsor seminars with TC 7.3.
- Committee discussed other ideas for seminars.
  - Low temperature distribution.
  - Using Gen 4 and 5 district energy principles in central plants to improve indoor air quality and energy efficiency.

B. Research: Ted Duffy (Chair).

- Mark Hegberg is working on a final pass of the RTAR for Pressure Loss Coefficients for Copper Pipe Fittings.
- 1890-TRP is awaiting funding.
- 1843-TRP is awaiting funding.
- Ted Duffy proposed an idea for a research project evaluating oxygen trim functionality and realized efficiency gains for hydronic boilers. It was suggested we reach out to 6.10.
- Since the Research Chair’s Breakfast follows this meeting, Ted Duffy expects to have a further update at the next TC meeting.
- Jessica Mangler suggested we reach out to other Section Research Chairs to indicate a willingness to co-sponsor research projects.

C. Handbook: Viral Dharaiya (Chair).

- TC 6.1 is responsible for 11 Handbook Chapters.
  - HVAC Fundamentals – 1 Chapter (22)
  - HVAC Systems and Equipment – 10 Chapters (9 existing plus 1 new, Chilled Water Plant Design).
  - A list of the Chapters and lead authors is attached to these meeting notes.
  - We don’t have any chapters to approve at this meeting. We will most likely be getting ready with revisions to approve them at the Winter 2023 Conference.
  - The Subcommittee Meeting Notes are attached.

D. Chilled Water Plant: Steve Tredinnick (Chair).

- There is a running list of two dozen items to add to the chapter. The chapter is not in the authoring portal so the edits cannot be done.

E. Membership: Jessica Mangler (Chair).

- Stan Kutin will roll off as a voting member after the 2022 Annual Conference (Toronto).
- The revised Manual of Procedures (MOP) requires a balance of the stakeholder interest categories for TC membership. The TC will be balanced between consultants and manufacturers.
- Mike Trantham has indicated due to shifting priorities his time as an active participant is coming to an end. The TC thanks Mike for his past active involvement as both Webmaster and Secretary.

- The TC is current looking for volunteers for the position of Secretary and Webmaster. Please contact either the Chair or Vice Chair if you are interested in one (or both) of the positions.

F. Standards: Frank Myers (Chair)

- SSPC 90.1
  - SSPC 90.1 and the 90.1 Mechanical Subcommittee each met from Friday through Monday to approve the final set of revisions to go out for public review that can be included in the next edition of the standard.
  - One of the changes revised and relocated the service water heating piping insulation requirements from their current location in Section 6 to Section 7 where other service water heating requirements are located.
- SPC 155
  - The SPC and its technical subcommittee met over a dozen times in 2021 and met here in Las Vegas (and virtually) on Sunday afternoon.
  - The responses to commenters to the latest independent substantive change (ISC) public review were approved during the Sunday meeting.
  - A final check of the text of the resulting limited ISC is being conducted and a vote for that public review is expected later this month.
  - The new method of boiler performance testing has been vetted by laboratory testing program sponsored by a consortium of California public utilities and by a separate AHRI sponsored laboratory testing program currently being conducted. Input from this testing has been incorporated into the upcoming public review.

**7. Liaison Reports from other TC's and Organizations.**

- 6.5 Radiant Heating & Cooling.
  - Currently reviewing 90.1 piping insulation issues.

**8. Old Business:**

- SPC 208.
  - Originally approved in June, 2011
  - There has been no significant progress on the Standard.
  - ASHRAE Standards wants to cancel.
  - Viral Dharaiya is a member and had no updates. Mark Hegberg is the Chair but wasn't present on the TC call during this discussion.
  - Motion by Myers, second by Leach to close SPC 208. Motion passed 7-0-0 CNV. Chair will notify ASHRAE Standards.

**9. New Business:**

- At each Annual Meeting the Committee Chair and Committee Membership shall evaluate their progress in accomplishing the purpose for which they were constituted. Motion by Myers, second by Leach for TC 6.1 to continue as a TC. Motion passed 7-0-0 CNV.
- Chair discussed the upcoming release and public comment period of the ASHRAE Position Paper on Decarbonization. Committee members interested should take this opportunity to

make their voices heard. Chair Walker will notify the members when the public comment period begins.

- Justin Westmoreland asked what we need to do to update the TC's documentation in this area. He believes an analysis needs to be performed for all electric designs.

**10. Meeting Adjournment:**

Motion by Meyer, second by Leach to adjourn the meeting. Motion passed 7-0-0 CNV. Meeting adjourned 3:35pm.

## TC 6.1 Handbook Subcommittee Meeting Action Items Virtual on 01/20/2022

1. Reviewed the List of authors for next cycle on HVAC Systems & Equipment for 2024. No changes to the list.
2. Query from Mr. Richakorn on Ch-13 Systems & Equipment on Expansion Tank formula was addressed in Sep-2021.
3. Discussed and decided to have drafts for 2024 publication be ready for approval and voting during Winter 2023 Handbook subcommittee meeting.
4. Flow charts, Figure 9 and 10 in Chapter 22 in Fundamentals needs to be updated, modified or deleted. Scott Fisher send out the email and TC 6.1 should consult with TC 6.6 regarding this update as these are also referenced in Fig 27 & 28 in Chapter 51.
5. No updates on CHW Plant Subcommittee at this meeting.
6. Briefly discussed the Authoring Portal key points for access, revisions under track changes, and save any edits to word file.

Handbook	Year	Ch#	Chapter Title	Lead Authors
HVAC Systems & Equipment	2024	11	Steam Systems	Rex Scare
	2024	13	Hydronic Heating and Cooling	Mark Hegberg
				Rick Heiden
	2024	14	Condenser Water Systems	Steve Tredinnick
	<del>2024</del>	<del>15</del>	<del>Medium and High Temperature Water Heating</del>	-
	2024	28	Unit Ventilators, Unit Heaters, and Makeup Air Units	Scott Fisher
	2024	32	Boilers	Ted Duffy
				Patrick Villaume
	2024	36	Hydronic Heat-Distributing Units and Radiators	Mark Hegberg
				Rick Heiden
	2024	44	Centrifugal Pumps	David Lee
				Stan Kutin
	<del>2024</del>	<del>46</del>	<del>Pipes, Tubes, and Fittings</del>	
	2024	46	Valves	Robert (Bob) Walker
Viral Dharaiya				
Mark Hegberg				
2024	47	Heat Exchangers	Stan Kutin	
2024	New	Chilled Water Plant Design	Steve Tredinnick	
			Rick Heiden	

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