



MINUTES

DRAFT

TECHNICAL COMMITTEE 5.1

2021 Winter Meeting

January 25th, 2021

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



Fans
ASHRAE Technical Committee 5.1

DRAFT
TC/TG/MTG/TRG MINUTES COVER SHEET

TC/TG/MTG/TRG No. TC 5.1 March 12, 2021

TC/TG/MTG/TRG TITLE Fans

DATE OF MEETING January 25, 2021 LOCATION Virtual Zoom Meeting

Attendees				
Name	Affiliation	Status	YEA	Notes, subcommittee interest
Wang, Zhiping	Morrison Products, Inc.	Voting		Chair
Mathson, Tim	AMCA International Inc.	Voting		Vice-Chair
Stauter, Rich	Carrier	Voting		Program S/C Chair
Chinoda, Z. Patrick	Revcor, Inc.	Voting		Handbook S/C Chair
Dubensky, Harold	JCI	Voting		Webmaster
Fullerton, Brent	Loren Cook Company	Voting		
Osborn, Kim	Nortek Air Solutions	Voting		
Bade, John	2050 Partners	Voting		
Sterne, Adam	Acme Engineering & Mfg Corp	Voting		
Raychaudhuri, Aresh	Veterans Affairs	Voting		
Ganesh, Rad	Twin City Fan	Voting		MNQ
Hauer, Armin	ebm-papst Inc.	CM		Secretary
Reynolds, Brian	Trane	CM		Research S/C chair
Bauch, Paul	JCI	CM	yes	
Bise, Tom	JCI	CM		Interested in all S/Cs
Brooks, Joe	AMCA International Inc.	CM		Standards S/C Chair
Bushnell, Peter	Carrier	CM		
Carroll, David	Morrison Products, Inc.	CM		
Fly, Mark	AAON	CM		
Gebke, Kevin	DuctSox	CM		
Hamamcioglu, Sarp	AHRI	CM	yes	
Kauffmann, Matt	Daikin Applied	CM		
Kuntz, Ken	Greenheck	CM		
Lyda, Michael	Advanced Energy	CM		
Rafferty, Paul	University California Berkeley	CM		
Sanchez, Greg	NJ Transit	CM		

Smith, Jeremy	EEA Consulting Engineers	CM		Training & Education Committee Chair
VanderKooy, Mark	Greenheck	CM	yes	Interested in Standards S/C
Wray, Craig	Consulting Engineer	CM		
Yeh, Jaime	AHRI	CM	yes	
Afshin, Mo	Q-PAC Systems	PCM		TC 5.5 Vice Chair
Iyama, Sanaee	UN Environment LBNL	PCM		
Shaikh, Shams	Infinitum Electric	PCM	yes	
Volker, Olivia	Twin City Fan Clarage	PCM	yes	
Dommu, Jeremy	US Department of Energy	Guest		
Qi, Dahai	University of Sherbrooke, Canada	Guest		
Rosner, Nick	Eaton	Guest	yes	TC 1.11 Program S/C Chair
Taber, Christian	Big Ass Fans	Guest		
Marple, Kevin	Benz Air Engineering	Ex Officio		Section 5 Head
Absent voting members				
Wolf, Mike	Greenheck	Voting		
Johar, Chaitanya	Aaon	Voting	yes	MNQ

CM: Corresponding Member; PCM: Provisional Corresponding Member; MNQ: Member Non-Quorum.

DISTRIBUTION: All Members of TC plus the following:	
TAC Section Head:	SH5@ashrae.net
All Committee Liaisons, such as Research, Standards, Handbook, Staff, etc.	See ASHRAE email alias list for needed addresses.
Mike Vaughn, Manager Of Research & Technical Services	MORTS@ashrae.net

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

ASHRAE TC 5.1 Fans
Minutes for the Virtual Zoom Meeting
Monday January 25th, 2021

1. Call to Order at 4:15 EST

This meeting was called to order at 4:17 pm EST.

2. Roll Call

TC 5.1 voting members:

Zhiping Wang – Chair
Tim Mathson – Vice chair
Z. Patrick Chinoda – Handbook S/C
Dr. Rad Ganesh - MNQ
Dr. Rich Stauter – Program S/C Chair
Harold Dubensky – Webmaster
John Bade
Brent Fullerton
Kim Osborn
Asesh Raychaudhuri
Adam Sterne

Non-Voting S/C Chairs:

Armin Hauer – Secretary
Brian Reynolds – Research S/C Chair
Joseph Brooks – Standards S/C chair

Attendees filled out an online sign-in sheet.

3. Adoption of Agenda

The draft agenda previously posted on the TC 5.1 basecamp (<https://3.basecamp.com/3106353/projects/8415694>) and website (<http://tc0501.ashraetcs.org/>) was approved unanimously.

4. Approval of the Previous Meeting Minutes

The previous meeting of this committee was held on June 1st 2020 virtually. The draft minutes that were posted on June 24th 2020 on the TC 5.1 basecamp and website were approved unanimously.

5. Items of Business

5.1. ASHRAE Code of Ethics

In this and all other ASHRAE meetings, the ASHRAE Code of Conduct requires us to act with honesty, fairness, courtesy, competence, integrity and respect for others, and that we avoid all real or perceived conflicts of interests. (See full Code of Ethics: <https://www.ashrae.org/about/governance/code-of-ethics>.)

5.2. Chair's Report

Zhiping Wang led us through the new TAC FG Evaluation Sheet (posted on basecamp after the meeting) and provided a verbal report. His written report is attached as Attachment #1.

It was suggested that mentors should be assigned to each YEA member.

5.3. Liaison Reports

Section head Kevin Marple introduced himself. He acknowledged our use of basecamp and our website content. The Phoenix conference was still planned as a face-to-face event.

Jeremy Smith of TEC (formerly PDC) is seeking volunteers and content for ALI courses. Stipends can be available for lecturers. Related info will be posted on basecamp when available.

6. Subcommittee Reports

In an effort to establish and develop subcommittee rosters, some attendees expressed in the sign-in sheet for which subcommittee they are willing to contribute.

Three subcommittee (Handbook, Research, and Program) meetings were held on January 22nd 2021.

6.1. Website Report – Harold Dubensky

Harold reported what updates were made to our website since last meeting to ensure an easier access to the past programs/presentations. He also reported the website analytics (see Attachment #2).

6.2. Standards Development Subcommittee – Joe Brooks

Joe presented a strawman to establish a purpose and scope of the standards S/C. The strawman and Joe's written report are attached as Attachment #3.

6.3. Handbook Content Development Subcommittee – Patrick Chinoda

Patrick and Nathan Shoemaker are beginning to collect material now. Joe Brooks offered that AMCA establishes a box folder for collaboration within this subcommittee because it provides professional revision control and is universally accessible.

6.4. Program Development Subcommittee – Rich Stauter

Rich reported on the program activities and plans for upcoming meetings. His written report is attached as Attachment #4.

Nick Rosner of TC 1.11 attended our meeting to further discuss the offer to submit a joint seminar for Phoenix.

6.5. Research Subcommittee – Brian Reynolds

Brian reported on the research activities and his written report is attached as Attachment #5.

Motion – “Approve a 6 month, no cost extension for RP 1769, as proposed by the PMS”
Moved by Zhiping Wang, Second by Aresh Raychaudhuri.
Passed 9-0-1-1 (For-Against-Abstain-Absent)

6.6. Long Range Planning Subcommittee – Zhiping Wang

The long range plan requires periodic review and update. Actionable items should reflect a combination of ASHRAE's Mission and Vision statements as well as the Strategic Plan.

We didn't review the long range plan in this meeting, but a draft was posted on basecamp and is also attached as Attachment #6.

7. Time and Place of Next Meeting

Interim meetings of subcommittees or this TC by calls of the chairs.

Regular meetings are slated for the virtual summer conference 2021.

8. Adjournment – The committee adjourned at 6:38 pm EST

Attachments: #1 Chair's Report
#2 Website Analytics
#3 Standards S/C Report
#4 Program S/C Report
#5 Research S/C Report
#6 Long Range Planning S/C Report

Attachment #1

Chair's Report

- **TC Membership.** We currently have a total of 85 members. Among them, (13) are Voting Members including (2) non-quorum members, (59) Corresponding Members, (13) Provisional Corresponding Members. Additionally, (22) of them are YEA members. Since our last meeting, we had (6) new members with (3) YEAs.
- **TC Interim Meeting(s).** TC's must meet twice per year and TAC continues to encourage TC's to meet in between ASHRAE Meeting to keep work moving forward. TAC will implement the following announcement procedure:
 - Maintain a listing of the interim meetings on the Technical Committees webpage (www.ashrae.org/technical-resources/technical-committees), similar to the listing done for Standards.
 - TC interim meetings should be posted (by emailing the alias TCmeetings@ashrae.net) two weeks before an online meeting and four weeks before a face-to-face meeting. The person emailing should also include the meeting call-in info/ link for posting.
 - To keep our members apprised of the meetings, we will add a notice in the ASHRAE Journal Newsletter (bimonthly) to remind our members to check the listing and to provide a link to the list.
- **TC Re-Org Update.** TAC now has a subcommittee, led by Larry Smith, to implement the recommendations from the TC Re-Org Ad Hoc final report. So far, TAC has approved 5 TC mergers and more are in the works.
- **ASHRAE Learning Institute (ALI) Courses.** The Professional Development Committee (PDC) is actively seeking ideas for new ASHRAE Learning Institute (ALI) courses. Contact Karen Murray (ASHRAE staff) kmurray@ashre.org or PDCchair@ashrae.net with your course ideas.
- **ASHRAE Epidemic Task Force (ETF).** ETF was established to help deploy ASHRAE's technical resources to address the challenges of the current pandemic and future epidemics as it relates to the effects of heating, ventilation, and air-conditioning systems on disease transmission in healthcare facilities, the workplace, home, public and recreational environments. Primary role is for the ETF to communicate with those involved in the built environment. See their website (ashrae.org/covid19) for details.
- **2021-2022 Hightower Award Nominations.** There were 6 nominations for the 2020-2021 award. Nominations are due to Section Heads by September 1, 2021 or sooner. The award recognizes outstanding technical leadership and contributions on a TC/TG/TRG during the past four years, excluding research and standards activities.

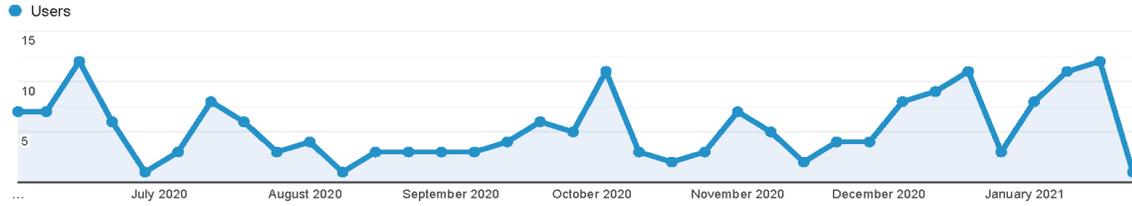
Attachment #2

Audience Overview

All Users
100.00% Users

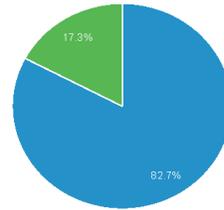
Jun 1, 2020 - Jan 24, 2021

Overview



Users 172	New Users 158	Sessions 222
Number of Sessions per User 1.29	Pageviews 480	Pages / Session 2.16
Avg. Session Duration 00:02:11	Bounce Rate 64.86%	

■ New Visitor ■ Returning Visitor



Country	Users	% Users
1. United States	96	55.81%
2. Canada	9	5.23%
3. China	7	4.07%
4. United Kingdom	4	2.33%
5. Hong Kong	4	2.33%
6. India	3	1.74%
7. Peru	3	1.74%
8. Pakistan	3	1.74%
9. Saudi Arabia	3	1.74%
10. United Arab Emirates	2	1.16%

Attachment #3

Strawman Purpose and Scope of the ASHRAE TC 5.1 Standards Subcommittee

Purpose: The purpose of the TC 5.1 Standards Subcommittee is to act as the TC's advisor on all aspects of the ASHRAE standards community that may fall under the scope of the TC.

Scope: As an advisor to the TC, the Standards Subcommittee will be aware of current industry standards and current efforts toward the development of new standards that affect or influence the activities in which TC 5.1 is concerned.

For applicable industry standards, the subcommittee should:

- maintain a list of current standards with a short summary of their content,
- be aware of revisions in progress, and
- maintain a status of new applicable standards that are being developed.

The subcommittee should ensure open and two-way communications with the TC, keeping the TC members informed and accepting input and recommendations from them.

The subcommittee will also act as the source of information on standards actions within ASHRAE (in general) and to advise and assist the TC in any recommendations or actions that the TC would like to do within the confines of the TC MOP and ASHRAE PASA.

As a minimum, the subcommittee will report to the full TC at its annual, winter and any interim meetings.

ASHRAE TC 5.1, Fans,

Standard S/C notes, January 25, 2021 (ASHRAE W21 meeting)

1. Per the plan of action developed for the last meeting, the chair would develop a straw man purpose and scope of the S/C. This was done and presented. Crai Wray indicated that we may want to include tasking from the TC MOP found in section 5.7 (concerning making recommendations for reaffirmation, revision, withdrawal or proposing development of new standards.
2. The S/C chair solicited members for the Standards S/C. Mark Vander Kooy and Armin Hauer volunteered. [Note that Adam Sterne volunteered later via e-mail.]
3. The chair presented the list that was started showing standard of interest. It was also thought that the list could include those standard that may be of indirect interest (e.g., motor or inverter standards) and, perhaps, known new standards that are being developed.
4. Some questions:
 - a. Are there any known VFD test standards. It was noted that ASHRAE 222 is a standard for a VFD + motor. The question was clarified, the interest was in a VFD only test standard.
 - b. Should code reference be included in the list of standards of interest. This was discussed but not concluded.
5. Due to time constraints, the report ended.

[Although not reported on, the chair of the S/C will be planning a S/C meeting in a few months to further develop the purpose and scope of the Standards Subcommittee and determine actions needed by the annual ASHRAE meeting.]

Attachment #4

TC 5.1 Program S/C Report January 2021

No proposals were submitted for the 2021 Winter Meeting.

General Plans going forward

Summer 2021 (Phoenix)

Possible Co-sponsorship of Seminar with TC 1.11 (Nick Rosner)

- (1) Fan array technology - efficiency, basics, inductions motors with VFDs and ECMs. -
- (2) Custom Air Handler systems with an emphasis of variable speed technology - Compressors, VFDs, ECMs, VRF.
- (3) Data Center Mechanical Equipment Design, redundancy, and variable speed applications.

(Summer 2021 Proposals for Seminars, Forums, Workshops, Panels and Debates are being accepted through February 18, 2021).

Potential Seminar Submissions – Winter 2022 (Las Vegas)

- Fan Basics, Sound Basics – Tom Bise has expressed interest in sound basics
- Balance & Vibrations – Rad Ganesh has a presentation he used for an AMCA seminar
- Fan Metrics Panel Discussion – Lee Buddrus has interest in organizing

Potential Synergies of a Fan Basics Seminar during an ASHRAE conference

- Drives conference attendees towards more reference and use of the Fans section of the Handbook – particularly if built upon an outline of that chapter of the Handbook
- Drives interest in a Fans short course, potentially partnering with AMCA
 - Aligns with discussion from the TC 5.1 long-range planning meeting just recently conducted

Potential Program for Summer 2022

Presentation/Report on TC5.1 Research Project (Belt Efficiency)

Attachment #5

TC 5.1 Fans Research Subcommittee Report

January 25, 2021

1. RP 1769 update (Tim Mathson PI, AMCA Lab)
 - PMS members – Craig Wray, Zhiping Wang, Eric Tinglof, Brian Reynolds (PMS Chair)
 - PMS has held several meetings including virtual Lab witness
 - PMS voted to approve the updated test plan (1-18-21)
 - Tim gave a test results update.
 - PMS voted unanimously to approve no cost 6 month extension to 9-1-21. TC vote at main meeting to approve.
2. WS 1835 update (*Characterizing the Performance of Entrained Flow Stacks*) - Brad Cochran
 - TC 9.10, TC 5.1 is co-sponsor.
 - Two non-responsive bids, will go out for re-bid.
3. WS 1829 (*Inlet and Outlet System Effects on Multiple Plenum Fans (Fan Arrays) in a Parallel Arrangement for Air and Sound Performance*) - Kim Osborn
 - TC 2.6 co-sponsor, no sources of co-funding.. ESTCP (DOD) could be a source. Kim to check.
 - WS has been withdrawn
 - More suitable for fan manufacturer research than ASHRAE
 - May revisit after AMCA 270 is published, Kim to advise.
4. Section #5 Research Subc. Chair Meeting with RL - Tues. 2/9 10 am ET Start.
 - New RL – Jin Wen
5. RTAR's
 - There are currently no new fan RTAR's. Subcommittee discussion.
 - Contact Brian Reynolds regarding potential fan research topics.

Attachment #6

TC5.1 Long Range Planning

The Long Range Planning Subcommittee is charged with setting long range goals for our TC. It regularly solicits opinions from all concerning the future needs of fan designers and users. Presently pending ideas are:

1. Monitoring the development of CFD and/or other computational methods for aero-acoustic and evaluating their suitability for fan sound prediction in ASHRAE.
2. Creating a list of FAQs related to fans and maintaining and expanding the list regularly.
3. Development of short course(s) or seminars/webinars on fan fundamentals that can be taught at the ASHRAE conferences/meetings or at local chapter meeting(s). This will be done collaboratively with AMCA.
4. Periodic publications in concert with ASHRAE Journal and other strategic partnerships, such as other section 5 TCs and TC 1.11 (Motors and motor controls), etc.
5. Supporting or endorsing external conferences and training courses on fans, and co-development or sponsorship of new or revised standards or guidelines that directly relate to fans, based on strategic partnerships.
6. Other ideas?