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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. 117 DATE 7/20/18

TC/TG/MTG/TRG TITLE Fans

DATE OF MEETING 6/25/18 LOCATION Houston, TX

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Armin Hauer	7/1/16	Franco Cincotti	7/1/16	Walter Mecozzi
Joseph Brooks	7/1/16	John Cermak	7/1/14	Akshay Bhargava
Harold Dubensky	8/6/15	Chuck Coward	7/1/14	Lee E Buddrus
Brian Reynolds	7/1/16//	Tim Kuski	7/1/14	Chandra K Gollapudi
Zhiping Wang	7/1/16			Jennifer Kane
Jay Eldridge	7/1/16			Mark VanderKooy
Michael Feuser	7/1/16			Michael L Wolf
Jay Fizer	7/1/16			David M Carroll
Eric Tingloff	7/1/14			Z. Patrick Chinoda
				Ashish K Desai
				Mark W Fly, PE

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

TAC Section Head:	SH5@ashrae.net
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters (Research, Standards, ALI, 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.

Additional attendance:

Mr Brent A Fullerton
Mr Kevin Gildea
Mr Timothy R Mathson
Mr Dustin Eric Jason Meredith, PE
Mr Kim G Osborn
Mr Aresh K Raychaudhuri
Mr Jeremy T Smith, PE, LEED AP
Mr Gregory Stewart Wagner
Mr Craig P Wray, P.Eng
Mr Larry A Smith, PE
Misty Jackson
Kristin Sullivan
Ken Kuntz
Sanaee Iyama
Paul Lin
Gus Faris
Preston Gaulson
Aaron Saldanha
John Bade

Agenda

1. Call to Order – 4:22 pm

The meeting was called to order at 4:22 pm CDT.

2. Roll Call

The following TC 5.1 voting members were present:

Armin Hauer – Vice Chair
Joseph Brooks - Secretary
Harold Dubensky - Webmaster
Brian Reynolds – Research S/C Chair
Zhiping Wang – Handbook S/C Chair
Jay Eldridge
Michael Feuser
Jay Fizer
Eric Tinglof

Harold Dubensky participated from remote via go-to-meeting. A quorum was present (9 of 13).

After June 30, the following voting members roll off as voting members:

Franco Cincotti,
Harold Dubensky,
John Cermak,
Chuck Coward,
Time Kuski, and
Eric Tinglof.

The following become voting members as of July 1, 2018:

Brent Fullerton,
Walter Mecozzi,
Tim Mathson,
Patrick Chinoda,
Adam Sterne, and
Craig Wray.

3. Adoption of Agenda

Motion TC5.1 - 3 - 2018

Moved by: Michael Feuser
Seconded: Zhiping Wang

“Move to adopt the agenda as presented.”

Passed unanimously via roll-call.

4. Approval of the Minutes

The last none-executive meeting of this committee was held on 22 Jan 2018 in Chicago, IL.

Motion TC5.1 - 4 - 2018

Moved by: Jay Eldridge
Seconded: Michael Feuser

“Move to adopt the agenda as presented.”

Passed unanimously via roll-call.

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-ashrae/ashrae-code-of-ethics>.)

The chair reviewed the ASHRAE Code of Ethics.

5.2 TC 5.0 Section Head/Liaison Reports

Larry Smith, Section 5 Section Head, reported that ASHRAE is looking at reduction of paperwork. Larry thanked the attendees for being here. Would like to focus on future activities.

Dennis Loveday, Research liaison, results of bid on RP 1769 will be discussed in RAC when they meet on 6/27/2018.

5.3 Chairman's report

Franco Cincotti, chair, could not attend the meeting, Armin Hauer, Committee vice chair, was acting Chair pro tempore. His announcements were:

- ASHRAE 365 smart phone app required to evaluate presentations.
- A request was made to use Base Camp platform for TC 5.1.
2018-07-23 update: The link is <https://3.basecamp.com/3106353/join/5qTjYWSNWSib>
- ASHRAE President offered to mail thank you letters to attendees' companies.
- Reviewers for conference papers needed. Volunteers contact ASHRAE staff or Armin.
- The new committee roster will become effective July 1.
- The committee will have one independent user or consultant and twelve in the supplier category.
- Armin will be chair, Zhiping will be vice chair and Akshay will be Std S/C chair.
- Email dialog between the face-to-face biannually meetings is encouraged and interim web-meetings are possible if the need arises.

5.4 Old business

The TC discussed revising the scope of TC 5.1: TC 5.1 is concerned with the selection application and testing-for-rating of fans including recommended installation practices and field test procedures. No changes were deemed necessary.

6. Subcommittee reports

6.1 Standards subcommittee

Akshay, the new standards subcommittee chair, introduced himself.

The TC website was corrected to show only ASHRAE 51 as a standard for which TC 5.1 is responsible.

It was announced that ASHRAE 216, “Methods of Test for Determining Application Data of Overhead Circulator Fans,” is going out for another public review.

6.2 Handbook subcommittee – Zhiping Wang

Zhiping reported on the activities of the handbook subcommittee. ASHRAE will no longer send CD with print copies but members could download a single pdf file for each handbook. Actions from yesterday’s subcommittee meeting were reported. New sections that will be drafted include one on FEI, a revised system curve write-up, and dimensionless fan performance parameters review. Also the fan description table (Table 1 of the chapter) will be updated.

Announced that HB S/C meeting will be meeting monthly prior to January 2019 and anyone wanting to assist to let Zhiping, Joe B. or Armin know. A column was added to the sign in sheet for those wanting to participate. These were:

Brian Reynolds
Zhiping Wang
Walter Mecozzi
Ashesh Raychaudhuri
Jay Fizer
Patrick Chinoda
Eric Tinglof
Tim Mathson

Michael Feuser
Craig Wray
Brent Fullerton
Kevin Gildea
Aaron Saldanha
Akshay Bhargava
Armin Hauer
Joe Brooks

6.3 Research subcommittee – Brian Reynolds

See attached research subcommittee report

6.4 Program subcommittee – Walter Mecozzi

Goal is to get a program approved for every meeting. Due date for submittals were provided.

2019 Summer mtg. suggestion – Seminar to discuss the progress of ongoing research projects. 1769-TRP on belt drive efficiency, if approved, should have the literature review done by the Kansas City meeting and may have sufficient material for a seminar..

2019 Winter mtg. suggestion – EC motor vs. induction motor with fan forum.
Fan efficiency metrics in codes and regulations around the world, seminar (FEI, FMEG, FEG, Chinese).

Suggested posting this morning’s program presentation on the TC 5.1 website.

6.5 Efficiency metric subcommittee – Tim Mathson

The fan efficiency subcommittee met in March. SSPC 90.1 voted for a change to 90.1 efficiency metric therefore this subcommittee has not met since.

7. Website Report – Harold Dubensky

Report attached. Link to website is <http://tc0501.ashraetcs.org/>
The Website is up to date.

8. New Business

8.1 TC-1.4 proposal to create an extension of Guideline 36

TC 1.4 *Control Fundamentals and Applications* has presented to TAC a proposal for a scope addition to the Guideline 36 *High Efficiency Sequences of Operations for HVAC Systems*, whose first edition is being published this month (proposal was attached to agenda).

It is requested that TC members review proposal and discuss at next meeting.

8.2 Fan Power Limit in California Energy Commission Title 24 Building Energy Standard for 2019 revised.

8.3 California Energy Commission Title 20

Staff report on proposed fan energy regulation was issued this month. The proposal largely looks like the DoE ASRAC consensus. A workshop is scheduled for 11 July.

9. Time and Place of Next Meeting

Winter meeting in Atlanta, unless the chair calls an interim meeting

10. Adjournment

The TC adjourned at 6:31 pm CDT.

- Attachments:**
- 1) Handbook subcommittee report
 - 2) Research subcommittee report
 - 3) Website report

Attachment 1
TC 5.1 Handbook Subcommittee Notes (06/24/2018)

By Zhiping Wang

- ASHRAE is promoting and encouraging the use of the Authoring Portal for developing handbook content. Because of the encountered access issues, we decided not to use this tool for the current revision. We may consider it down the road.
- ASHRAE Technology Portal hosts Handbook PDF downloads, ASHRAE Journal papers, and ASHRAE research reports – all free for eligible members.
- According to the ASHRAE publication schedule, our revised and TC approved “Fan” chapter for the 2020 ASHRAE Handbook volume will be due on May 31, 2019.
- Regarding to our chapter revision, Tim Mathson and a few AMCA members put together a new Table 1 (with new format and content) sometime ago and it was forwarded to all members before this meeting for reviewing and commenting. The new Table 1 was only partially reviewed and discussed in the subcommittee meeting. More time will definitely be needed.
- In order to meet our deadline, we plan to schedule web-based monthly subcommittee meeting to review and approve Table 1 and other content. Please let me know if you are willing to participate and contribute.
- Other content will include, but not limited to,
 - Armin Hauer will draft a new section about “Instrumented Inlet Cone” based on the already published AMCA-600.
 - Joe Brooks will draft a new section about FEI and include related reference(s).
 - Craig Wray will revise/rewrite the section about system curve and possibly draft a new section about dimensionless curves.
- As always, we are open for ideas, suggestions, and Handbook Online stuff.

List of Potential Topics for 2020 Version of the Fan Chapter

- **Fan Efficiency – New section to define and discuss total efficiency vs.**
 - **static efficiency** ○ **Examples of proper fan selection to save energy**
 - **Fan Selection (Total pressure based vs. Static pressure based) Actions: Wait after DOE publishes the new regulation on fans?**
- **Fan Drive System – Direct Drive vs. Belt Drive, VFD, VSD, etc.**
Actions: 05/23/14 – Greg S., Chuck, and Zhiping will draft up the content. Craig suggested Chpt.18 (9th ed.) of Fan Engineering covers information about motors and drives. AMCA 203 also has good information. AMCA 207 maybe, too.
- **Fan Part Load?**
 - **Actions:** 05/23/14 – Good topic but Committee decided to put it on the parking lots for now. Maybe for next revision cycle after we collect enough information.

- **Fan Stall (Greg Sanchez wrote some content during our last revision cycle and will investigate further)?**
 - **Actions:** 05/23/14 - Greg will send out information before the Seattle meeting for the committee members to review.
 - 06/29/14 - Greg Sanchez will have the information ready by mid. July. 01/25/15 – No content yet. Will push back for next revision cycle.
- **Fan Noise (Greg S., predicting fan noise – AMCA 301, or aerodynamic noise?)**
 - **Actions:** 05/23/14 - Good topic. Committed decided to put it on the parking lots for now. Maybe for next revision cycle. Reference Bill Cory's book and the Fan Engineering.
- **Fan Law Applications and System Curves** – Craig Wray already sent the revised content last year. **Need to review the content.**
- **Handbook Online** - Some ideas came out from our last HB meeting.
 - 3D models of different types of fans and interactive performance curves within Table 1;
 - Interactive curves to demonstrate the fan laws; o Interactive contents to show the stall/surge;

Attachment 2
TC 5.1 (Fans) Research Sub-Committee Report
June 25, 2018 (Houston)

Notes from the Research Chair Subcommittee Meeting

1. 3 RTARs considered (1 accepted, 1 conditionally accepted, 1 rejected)
 - 3 WS, all conditionally accepted
2. Next deadline dates for RTAR's and RAC's are August 15 and December 3.
3. PMS training webinars – next one will be in the fall. Date and time will be sent to TC's well in advance.

WS & RTAR's in progress

WS and RTAR updates will be distributed (or put in 'Base Camp') after Houston)

4. WS-1769 (Experimental Evaluation of the Efficiency of Belt Drives for Fans) – Craig, Tim
 - Bid proposals were reviewed by the PES
 - TC 5.1 voted last week to approve the bidder that PES recommended.
 - RAC and Tech Council will vote on the TC 5.1 recommendation in Houston.
 - Staff will inform TC 5.1 when the successful bidder can be announced.
 - Would like to have 3 to 5 members of the PMS. It will be a 2 year commitment. Craig Wray, Tim Mathson (Chair), Armin Hauer, Eric Tinglof have volunteered. Possibly Brian Reynolds. TC 1.11 may provide PMS member.
5. WS-1829 (Parallel fans)
 - Several conference calls since Chicago
 - Kim to incorporate committee review comments from the 6-24 Research subcommittee meeting and the latest RL comments.
 - Then send back to RL for another review.
 - Could be ready for fall RAC review (submission deadline in August)
6. New RTAR (EC motor and fan)
 - a. Several meetings since Chicago
 - b. Output will be a guideline for comparing EC fan & motor technology vs traditional centrifugal plenum fan with induction motor & controller.
 - c. May be more suitable for the new PTAR format (Publication Topic Acceptance Request)
 - d. Staff will send a draft PTAR form later this summer.
 - e. PTAR budget set at 10% of Research budget.
 - f. Hold off on RAC review until we decide about RTAR vs PTAR
 - g. PTAR will require approval of RAC and Publications.
 - h. Collaborate with TC 1.11
7. WS 1835 - Characterizing the Performance of Entrained Flow Stacks from TC 9.1, PMS volunteers from TC 5.1
8. Are there any ideas, suggestions for Fan Research topics?

Any ideas? - Send to Armin (chair) or Brian (Research s/c chair).

John Bade – Empirical operational data (real world operation data). John will write up his suggestion and send to Armin and Brian.

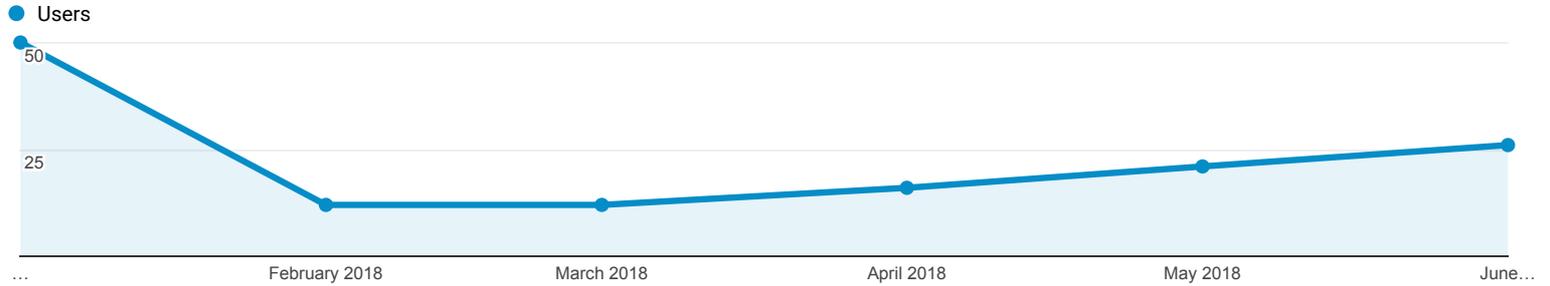
Attachment 3
Website Report

Audience Overview

All Users
100.00% Users

Jan 1, 2018 - Jun 24, 2018

Overview



Users

127

New Users

114

Sessions

184

Number of Sessions per User

1.45

Pageviews

463

Pages / Session

2.52

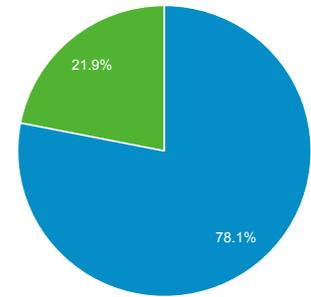
Avg. Session Duration

00:03:06

Bounce Rate

53.26%

New Visitor Returning Visitor



Country	Users	% Users
1. United States	90	70.87%
2. China	4	3.15%
3. United Kingdom	4	3.15%
4. Canada	3	2.36%
5. India	3	2.36%
6. Australia	2	1.57%
7. Hong Kong	2	1.57%
8. Italy	2	1.57%
9. Qatar	2	1.57%
10. Argentina	1	0.79%