



## **MINUTES**

**DRAFT**

### **TECHNICAL COMMITTEE 5.1**

**2023 Summer Meeting**

**June 26<sup>th</sup>, 2023**

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 August 4, 2023

TC/TG/MTG/TRG TITLE Fans

DATE OF MEETING June 26<sup>th</sup>, 2023 LOCATION Tampa, FL

Attendees				
Name	Affiliation	Status	YEA	Int'l
Bauch, Paul	Johnson Controls	CM	No	No
Brooks, Joe	AMCA International	CM	No	No
Chinoda, Z. Patrick	Revcor	CM	No	No
Dommu, Jeremy	US DOE	Guest	No	No
Dubensky, Harold	JCI	Voting, Vice Chair	No	No
Fiegen, Joe	Trane	PCM	No	No
Fullerton, Brent	Loren Cook	CM	No	No
Gebke, Kevin	DuctSox Zoo Fans	CM	No	No
Goray, Pranav	LBNL	Guest	No	No
Grahovac, Milica	LBNL	Guest	No	No
Gunzner, Aaron	AMCA	Guest	Yes	No
Hauer, Armin	Ebm-papst	Guest	No	No
Jenkins, Andrew	Trane	CM	No	No
Johnson, Zac	AMCA International	Guest	No	No
Marple, Kevin	Benz Air	Section Head 5	No	No
Mathson, Tim	Retired	Voting; Chair	No	No
Meeuwsen, Greg	Trane	CM	No	No
Meredith, Dustin	Trane	CM	No	No
Miller, Jane	Clarage	CM	No	No
Moshina, Nazme	2050 Partners	Guest	No	No
Nowak, David	AMCA International	PCM	Yes	No
Osborn, Kim	Nortek Air Solutions	Voting	No	No
Peth, David	Howden	CM	No	No
Ramos, Juke	DuctSox Corp Zoo Fans	PCM	Yes	No
Riggottz, Hannah	Guidehouse	Guest	No	No
Shifflett, Ken	DistribAire	Guest	No	No

Attendees - Continued				
Name	Affiliation	Status	YEA	Int'l
Stauter, Rich	Carrier	Voting	No	No
Stoker, Katlyn	BAF	Guest	Yes	No
Taber, Christian	BAF	Guest	No	No
Trimble, Steve	Regal Rexnord	Guest	No	No
VanderKooy, Mark	Greenheck	CM; Secretary	Yes	No
Wagner, Greg	Morrison Products	Voting	No	No
Wang, Gang	University of Miami	Guest	No	No
Yeh, Jamie	AHRI	Voting	Yes	No

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

<b>DISTRIBUTION: All Members of TC plus the following:</b>	
TAC Section Head:	<a href="mailto:SH5@ashrae.net">SH5@ashrae.net</a>
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	<a href="mailto:MORTS@ashrae.net">MORTS@ashrae.net</a>

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

**ASHRAE TC 5.1 Fans**  
**Minutes of the In Person Meeting in Tampa, FL**  
**Monday June 26<sup>th</sup>, 2023**

**1. Call to Order at 4:45 pm ET**

Meeting was called to order at 4:45 pm ET.

**2. Roll Call**

TC 5.1 voting members:

Tim Mathson – Chair  
Harold Dubensky – Vice Chair  
Dr. Rich Stauter – Program S/C Chair  
Kim Osborn  
Greg Wagner  
Jamie Yeh

Non-Voting S/C Chairs and Officers:

Mark VanderKooy – Secretary  
Joseph Brooks – Standards S/C Chair  
Z. Patrick Chinoda – Handbook S/C Chair

Six out of 13 total voting members were present. Six members are required for a quorum as two voting members are MNQ. A quorum was established. All attendees were asked to report their attendance using the in-person sign-in sheet.

**3. Adoption of Agenda**

The draft agenda was posted to the TC 5.1 Basecamp prior to the meeting.

The agenda was adopted by consensus.

**4. Approval of the Previous Meeting Minutes**

The last meeting of this committee was held on February 6<sup>th</sup>, 2023 in Atlanta as an in-person meeting. Draft meeting minutes were posted on TC 5.1 basecamp.

**Motion 1:** To approve the minutes from the February 6<sup>th</sup>, 2023 meeting.

**Moved:** Kim Osborn

**Second:** Harold Dubensky

**Motion passed 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 shall

avoid all real or perceived conflicts of interest whenever possible”. (See full Code of Ethics: <https://www.ashrae.org/about/governance/code-of-ethics>.)

## **5.2. Chair's Report – Tim Mathson**

### **5.2.1. TC Leadership Changes**

The current chair, Tim Mathson, has recently retired and wishes to remain on the committee as a corresponding member but step down from his current position. The current vice chair, Harold Dubensky, is willing to assume the position of chair following this meeting. The current secretary, Mark VanderKooy, is willing to assume the position of vice chair. A volunteer is sought for the position of secretary.

The following officer and voting member changes will occur for the next society year:

- Kevin Gebke volunteered for the secretary position.
- Tim Mathson, John Bade and Aresh Raychaudhuri will change to corresponding members.
- Rich Stauter, John Bade, and Kim Osborn have one year of their voting term remaining.
- Kevin Gebke, Christian Taber, Gang Wang, Nazme Moshina and Mark VanderKooy will become voting members.
- Jamie Yeh will assume the role of research S/C chair.

## **5.3. Liaison/Section Head Reports**

Kevin Marple – Section 5 head:

- Members are asked to review and update their ASHRAE bio.
- ASHRAE ISI (International Standards Interaction) task group is changing to GTIC (Global Technical Interaction Committee). Members interested in getting involved in GTIC can get more information on ASHRAE's website.

Doug Scott (Research Liaison) was not available to provide an update.

## **5.4. Old Business**

No old business was reported.

## **5.5. Fan Regulatory Activities**

Aaron Gunzner (AMCA International) provided an update on regulatory activity related to fans. The slides he presented are in attachment 1.

Notes from Q&A and discussion after Aaron's presentation:

- Any representations of an efficiency related metric (energy or efficiency) must be made

in accordance with the test procedure after October 30<sup>th</sup>.

- Manufacturers can request an extension with the DOE. They must demonstrate an “undo burden” to receive an additional 180-day extension.
- A TC 5.1 member asked Jeremy Domm (DOE) whether manufacturers can use historical data for efficiency representations. Jeremy Domm indicated that manufacturers need to be confident that test results obtained from testing conducted prior to the test procedure rulemaking would produce the same results as if testing was done in accordance with the test procedure. It is the manufacturer’s responsibility to ensure the efficiency representations are made in accordance with the test procedure.

## **6. Subcommittee Reports**

### **6.1. Website Report – Brandon Diaz**

Brandon was not available to provide an update.

### **6.2. Standards Subcommittee – Joe Brooks**

- The standards S/C maintains a list of standards that may be of interest to TC members. This list is stored on Basecamp. The S/C chair noted the following items of interest from the list:
  - AMCA has a joint standard with ASHRAE (AMCA 210/ASHRAE 51), which is currently under review.
  - Other AMCA standards under review or development:
    - AMCA 300
    - AMCA 320
    - AMCA 301
    - AMCA 340 (new standard to determine sound power levels of LDCF)
    - AMCA 99

### **6.3. Handbook Subcommittee – Patrick Chinoda**

The revised chapter draft was posted to Basecamp on March 22. Approval is sought for this draft as submittal to ASHRAE is due by the end of July.

**Motion 2:** To approve the chapter of the handbook as revised during the TC 5.1 subcommittee meeting on 6/25/2023 and posted to basecamp. It was recommended that this TC work with TC 1.6 to ensure the terms included in our chapter are included in and harmonized with ASHRAE’s definitions.

**Motioned: Greg Wagner**

**Seconded by: Kim Osborn**

**Motion passed unanimously.**

### **6.4. Program Development Subcommittee – Rich Stauter**

TC 5.1 is sponsoring a belt drive efficiency research project seminar on Wednesday.

Fan basics seminar is being planned for winter 2024 conference.

Potential topics for future programs:

- Use of CFD for predicting fan performance.
- How fan regulation impacts manufacturers and users.
- Panel discussion with DOE, CEC, and AMCA discussing shape and direction of regulations that impact fans.

#### **6.5. Research Subcommittee – Brian Reynolds**

##### **Notes from Research Subcommittee Chair's Breakfast**

- Research budget is back to typical (\$5.5M for this year).
- Maximum budget for each project has been increased from \$250k to \$350K.
- ASHRAE encourages cosponsors for RTARS.
- No RTARS were received during this review period.

##### **Potential Research Projects**

- Impact of wind speed on lateral and uplift force of various fan geometries.
- Use of CFD to predict fan performance.

Research project 1835 is in process. Ohio State is the chief investigator. A site at the Ohio State airport has been selected for the testing. Four fans have been selected for the research project and Ohio State is working with fan manufacturers to order them. The testing will measure the following parameters.

- Inlet airflow.
- Velocity profile at the fan exit
- Wind speed and direction.
- Exhaust effluent concentration at various locations downwind of the fan.

#### **6.6. Long Range Planning Subcommittee – Tim Mathson**

No update from previous meeting. Last long-range planning update was complete in 2021.

#### **7. Time and Place of Next Meeting**

Hybrid meeting at the Winter 2024 conference in Chicago. Time will likely be 4:45 PM to 6:45 PM.

#### **8. Adjournment – The committee adjourned at 6:28 pm ET**

## **Attachment 1: Regulatory Activities Slides**

TC 5.1 Meeting– June 26, 2023

ASHRAE Summer Conference – Tampa, FL

### **5.5 Fan Regulatory Activities**

Aaron Gunzner, AMCA International

# US DOE Regulations - What's that acronym?

Request for Information (RFI) - DOE looking for data

Notice of Data Availability (NODA) - Initial analysis / additional data collection

Technical Support Document (TSD) - Technical basis / justification for everything

Test Procedure (TP) - Product classes, efficiency metric, how to test

Energy Conservation Standard (EC) - Minimum Efficiency

Notice of Proposed Rulemaking (NOPR) - Draft version of a document

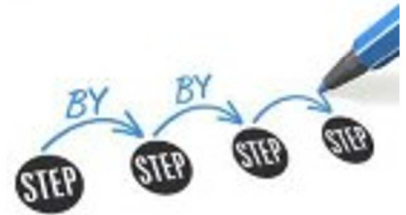
Supplemental Notice of Proposed Rulemaking (SNOPR) - Updated draft of NOPR

Final Rule - Finalized TP or EC



# DOE - Regulatory Process


- Request for Information (RFI)
  - Newly covered products
- Framework Document
  - Sets the scope of the rulemaking
- Preliminary Technical Support Document (TSD)
  - Product analysis
  - Cost data
  - Efficiency levels (ELs)
- Notice of Proposed Rulemaking (NOPR)
  - Test procedure
  - Energy conservation standard
- Supplemental Notice of Proposed Rulemaking (SNOPR)
- Final Rule





# Summary Table of Current US DOE Fan Regulations

[www.amca.org](http://www.amca.org)



	Ceiling Fans	Air Circulating Fans (not ceiling fans)	Commercial & Industrial Fans & Blowers
DOE Test Procedure (Deadline to Comply)	Final Rule (1/23/3017) & <a href="#">2/13/2023</a>	Final Rule <a href="#">10/30/2023</a> (opt rep of eff)	Final Rule <a href="#">10/30/2023</a> (opt rep of eff)
Scope Summary	>7' Diameter (AMCA) <sub>See <a href="#">IE</a></sub>	Input power ≥125W <sub>See <a href="#">IE</a></sub>	Input >0.89kW, Air Power ≤150hp <sub>See <a href="#">IE</a></sub>
Test Procedure Basis*	AMCA 230-15 AMCA 208-18	AMCA 230-23	AMCA 210-16 AMCA 214-21
Efficiency Metric	CFE <sub>100</sub> & CFE <sub>40</sub>	CFM/W at high speed	Fan Energy Index (FEI)
<a href="#">Minimum Samples</a>	2	2	1
Reported Value	Mean or 95% Conf Limit Per <a href="#">10 CFR 429.32</a>	Mean or 95% Conf Limit Per <a href="#">10 CFR 429.69</a>	Test Result (optional tolerance) Per <a href="#">10 CFR 429.69</a>
DOE Energy Conservation Standard (Deadline to Comply)	Final Rule ( <a href="#">Jan 2020</a> ) NOPR – <a href="#">Federal Register</a> 6/22/2023	NOPR - publish late 2023** (3-5 years after final rule; ~2027-2029 estimated)	NOPR - publish late 2023** (3-5 years after final rule; ~2027-2029 estimated)
Minimum Efficiencies	<a href="#">CFE<sub>100</sub>=1.00 &amp; CFE<sub>40</sub>=1.31</a> (current) <a href="#">CFE<sub>100</sub>=1.22 &amp; CFE<sub>40</sub>=1.31</a> (proposed)	Future language: <a href="#">10 CFR 430.32</a>	Future language: <a href="#">10 CFR 430.32</a>
<a href="#">CCMS Registration</a>	<a href="#">Yes</a> , annually (March 1)	No, not until EC Std is final	No, not until EC Std is final

\*With modifications from DOE \*\*Estimated

# Important Updates

- California Energy Commission has recently communicated intent to adopt DOE final rule test procedure (May 1, 2023) for the Title 20 rule (takes effect Nov. 16, 2023) due to preemption
  - AMCA uncertain the full scope of what that means
  - Further updates would need to come from the regulators
  - Keep an eye on [CEC's Title 20 webpage](#)
- CEC Title 20 Labels
  - CEC has communicated issues with 1/4" font size; intent to fix it
  - AMCA believes CEC will replace font size with a requirement for legibility (not confirmed)

# Timeline Summary

- California Title 20 - effective **November 16, 2023**
  - Compliance filing leading up to effective date; MAEDbS listings
  - Labels
- Department of Energy fan rulemakings
  - C&I Fans test procedure final rule – May 1, 2023
    - Compliance date for voluntary representations – **Oct. 30, 2023**
  - C&I Fans energy standard NOPR likely released – **est. Oct. 2023**
    - Compliance -- 3-5 years after final rule; ~2027-2029 estimated
  - Ceiling fan energy standard NOPR released – June 22, 2023
    - (LDCF test procedure is finalized)
    - DOE public webinar – **July 27, 2023**
    - DOE comment deadline – **August 21, 2023**

# Resources

- **Energy Code Ace**— Title 20 education & compliance training
  - [energycodeace.com](http://energycodeace.com)
  - Appliances >> Ace Tools >> Q&Ace
- **AMCA online Publications & Standards store**
  - [amca.org/store](http://amca.org/store)

AMCA214-21	<a href="#"><u>Test Procedure for Calculating Fan Energy Index (FEI) for Commercial and Industrial Fans and Blowers</u></a>
AMCA208-18	<a href="#"><u>Calculation of the Fan Energy Index</u></a>
AMCA210/ ASHRAE 51-16	<a href="#"><u>Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating</u></a>
AMCA230-23	<a href="#"><u>Laboratory Methods of Testing Air Circulating Fans for Rating and Certification</u></a>

[www.amca.org](http://www.amca.org)