

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING
ENGINEERS, INC.

180 Technology Parkway NW,
Peachtree Corners, GA 30092
404-636-8400

TC MINUTES

TC/TG/TRG NO _____ TC 5.2 _____ DATE Feb 11, 2025

TC/TG/TRG TITLE Duct Design

DATE OF MEETING February 11th, 2025 3:30 PM EST LOCATION Hilton Orlando, FL (Hybrid)
[Click Here for "Join by Video" Instructions TEAMS](#)

MEMBERS PRESENT	TERM TO	MEMBERS ABSENT	Y E A	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Cindy Bittel, Chair (Voting)	6/30/25			Dr. Jamie Fine, Duct Fitting Database Subcommittee Chair
Akshay Bhargava, Vice Chair (Voting)	6/30/25			John Constantinide, Handbook Subcommittee Chair
Steven Winstead, Secretary (CM, Non-Voting)	6/30/26			Jeremy Zeedek, Membership
Christopher Ruch, Webmaster (Voting)	6/30/27			Aakash Patel, Program Subcommittee Chair
Ralph Koerber, Code Interaction (Voting)	6/30/27			Kevin Gebke, Research
Jamie Fine (Voting)	6/30/27			Dr. Stephen Idem, Endowment Subcommittee Chair
Robert Reid (Voting)	6/30/28			

* Member Non-Quorum

CM = Corresponding Member

PCM = Provisional Corresponding Member

G = Guest

DISTRIBUTION

All Members of TC plus the following:	
TAC Section Head	
TAC Chair	
2021 Handbook Liaison (Fundamentals)	Satesh Iyengar
2020 Handbook Liaison (Systems & Equipment)	
Research Liaison	Douglas C Scott
Standards Liaison	William F Walter
Staff Liaison	Steven J Hammerling

**ASHRAE 2024 Annual Conference
ASHRAE TC 5.2 Duct Design
FULL COMMITTEE MEETING**

Minutes

**Tuesday, February 11, 2025
Time: 3:30 PM – 6 PM EST
Location: Hilton Orlando, Florida 3 (Lower Level)
Orlando, FL, USA
and
Virtual Meeting**

Virtual meeting access information is available at the TC 5.2 website, located at <https://tc0502.ashraetcs.org/>.

1) Call to Order 3:50

2) ASHRAE Code of Ethics Commitment – Cindy Bittel

“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.”

- a) ASHRAE Code of Ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>
- b) ASHRAE Core Values: <https://www.ashrae.org/about/ashrae-s-core-values>
 - i) *ASHRAE Value Statement – In 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 shall avoid all real or perceived conflicts of interest. Our culture is one of inclusiveness, acknowledging the inherent value and dignity of each individual. We celebrate diverse and inclusive communities, understanding that doing so fuels better, more creative and more thoughtful ideas, solutions and strategies for the Society and the communities our Society serves. We respect and welcome all.*

3) Introductions and Attendance

- a) Recognize attendees
- b) Quorum reached? **6** out of 6 voting members attending (Requires _ present)
- c) Corrections/additions and approve agenda
 - Bob Reid called motion**
 - Chris Ruch Seconded**
 - All voting members vote in Favor**

4) 2024 June Indianapolis Meeting Minutes

- a) The DRAFT minutes have been posted to on the [TC 5.2 Webpage](#) and [Basecamp](#) in the Files > Minutes folder for Voting Members to review.
- b) Approval of Minutes

5) Reminders – Cindy Bittel

- a) ASHRAE Mission: To serve humanity by advancing the arts and science of heating, ventilation, air conditioning, refrigeration and their allied fields. **Read**
- b) ASHRAE Vision: A healthy and sustainable built environment for all. **Read**
- c) **ASHRAE Artificial intelligence (AI) policy:** *ASHRAE prohibits the entry of content from any ASHRAE publication or related ASHRAE intellectual property (IP) into any AI tool, including but not limited to ChatGPT. Additionally, creating derivative works of ASHRAE IP using AI is also prohibited without express written permission from ASHRAE.* **Read**
- a) TC 5.2 Scope: TC 5.2 is concerned with the design, characteristics and construction of all types of ductwork for the handling of air and other gases, but does not include chimneys. **Read**
- b) Virtual Meeting Protocols **Read**
- c) An updated TAC Presentation Template is available for TC Members to use with Local Chapter meetings on www.ashrae.org/tcs under *General TC Information*. Presentation material is in both English and Spanish **Read**

6) Section 5 Report – Estaban Jauregui

- a) Update
 - i) **No update to Report**
- b) TC Activity Form is due February 12th, 2025

7) Herman and Dorothy Behls Endowment – Dr. Stephen Idem

- a) Travel Scholarship - was awarded to **Reem Al-Tassi** for 2024 Winter Conference
- b) HVAC Designer Certification Award – 3 applications for the pushed back due date of 1/31/2025 **Bob Reid made a motion to dissolve the certification award. Moving funds to the Travel award, Chris Ruch second the motion. 3 votes to approve the motion**
 - i) Previous Recommendation – possibly award 2 travel scholarships in future and discontinue the Designer Certification award, if no applications are received – **suggesting 2 awards to be awarded**
 - ii) Previous action items-
 - 1. ~~Randy Young~~ – SMART 104 may be interested in promoting the scholarships
 - 2. Dr Idem – Is there enough of an incentive for the Designer Certification Award?
 - 3. Shawn Ohara (SMACNA) – bring idea of promoting award to engineering interns working for SMACNA contractors to Eli Howard at SMACNA
 - 4. **Need help with supporting this. Looking for 5 to 10 hours of work, looking for volunteers (volunteer)**
 - 5. **Chris Ruch to spearhead the travel Scholarship**
- c) Request for additional subcommittee member to review applications for both awards and vote.

8) Subcommittee Reports

- a) **Membership – Jeremy Zeedyk**

- i) Recognize new Provisional Corresponding Members (PCMs) since July 2024.

- a) 13 new members here
 - i. Fabricio Correa
 - ii. Miss Odel Linetska
 - iii. Ryne Sullivan
 - iv. Shane Stille
 - v. Dnyaneshwar Dhaigude
 - vi. Mr Rob Craddock
 - vii. Mr Mohammad Basha\
 - viii. Mr Kaustubh Wani
 - ix. Prof Mahmood Farzaneh Gord
 - x. Dave Shaeffer
 - xi. Mr Timothy Choma
 - xii. William Rockis
 - xiii. Autumn Beer

101 Members overall
PCM-36
CM-55
Voting- 6
Non-voting 10

- ii) Interested New members can join via the ASHRAE TC 5.2 website, then request to be added to Basecamp.
- iii) Section head suggests adding 2 additional voting members
- iv) Cindy to touch base with Akshay on stepping into role of the Chair. May extend to one extra year of chair and Vice Chair.

b) Handbook – John Constantine

- i) Fundamentals Handbook, Chapter 21, Duct Design- Reorganization of handbook in progress. Current due dates to be changed. Not much to be done with the handbook till 2027. The handbook committee needs help with the handbook. Handbook training is available. Volunteer to join the handbook committee for TC 5.2 volunteers Jake Ramos, Mahmood, Ryan, Shane, Walter.
- ii) Deadlines –
 - a) Ch 19 Duct Construction – due 5/2/2027
 - b) Ch 21 Duct Design – due 6/7/2028
- iii) Previous Action Items:
 - a) Recommended Summary of Handbook Chapter – Craig Wray offered to help develop an “Executive Summary”
- iv) Optional Handbook Training was offered on Sunday Feb 9 9-10am

c) Programs – Aakash Patel- Need to reach out for status report

- i) Status Report
- ii) Aim for Strategic Plan goal of having at least one (1) ASHRAE Chapter seminar every six (6) months addressing a topic within the scope of TC 5.2.
 - a) Action Items Identified in Tampa 2023
 - i. **Action Item** – Jamie Fine can provide tutorial of DFDB and resulting energy consumption reductions. Separate programs

- meeting to discuss. Vikram Murthy offered to assist and look at it from an IAQ perspective
- ii. **Action Item** – Aakash Patel (Program Chair) to run interim Programs meeting and work on a presentation to submit. Focus on whether it should be DFDB alone or linked to decarb/IAQ/Energy Efficiency
- d) **Duct Design Guide** (DDG) – Larry Smith
- i) Project status report **This is complete, edits and changes need to be made and sent to Dr. Idem next week. Tentative to be completed by June**
 - ii) Ralph Koerber and Craig Wray assisting
- e) **Duct Fitting Database**** (DFDB) – Jamie Fine
- i) Subcommittee Report
 - ii) Ongoing Maintenance and Updates
 - a) Action Item Identified in Tampa 2023
 - i. **Action Item** – Bob and Kevin Gebke reviewed previous/historical CFD research study (RP1493, 1682) and provided summary on Basecamp. Dr. Fine will followup with TC 4.10 about CFD modelling. Dr. Idem, Steve Rogers, Kevin Gebke, Bob Reid and Dr. Fine will define scope for new project and develop and RTAR. Jamie Fine determined the task can be done from a technical perspective and plans to research and complete. Report also shared with Steve Rogers. **CFD may not be the best approach. Progress is stalled; Jamie fine to follow up**
 - iii) Create a user guide assisting practitioners with utilizing the Duct Fitting Database, with a timeline for publication of the user guide.** - **Jamie fine to add to list**
 - iv) App has had updates being made and will be released – App **is complete fittings have been removed, and app has been released**
- f) **Research – Kevin Gebke**
- i) Status of WS 1941 “Experimental Program to update the DFDB” – (Stephen Idem) **Missed the December meeting but will be reviewed in the March meeting**
 - a) Previously voted by TC
 - b) Was returned with comments, comments were addressed Oct 2024, back for submittal and review by RAC
 - ii) Status of RTAR -1974 The Effect of Tap Shape on Air Device Performance for Exposed Duct-Mounted Diffusers (Kevin Gebke, Randy Young and Bob Reid) **to be submitted as a work statement in March.**
 - a) Comments were received from RAC to be addressed by subcommittee
 - iii) Brandon Cudequest – RP-1919, The effects of duct size and aspect ratio on flow noise in elbows; Responsible Committee: TC 2.6 (Sound and Vibration); Co-Sponsors: TC 5.2 (Duct Design)
 - a) Larry Smith volunteered to help – **test plan in place. Requested a 1 year no cost extension. Vote in progress for the extension**
 - iv) Jeremy Zeedyk – RTAR for open plenums v return plenums. Kevin and Chris Ruch volunteered to help. **No update on progress**

- a) NEMI received pilot study funding requests from the UC Davis and Univ of Toronto. Once pilot is complete, RTAR will be pursued –
 - b) Florida Solar Energy Center study brought up by Craig Wray. Chris Ruch was to email Craig Wray to find the study.
 - g) **Codes & Standards Interaction** - Ralph Koerber
 - i) **See Addendum A**
 - ii) **SSPC 90.1 Liaison** – Do we have or need a liaison?
See notes on page 11
 - h) **Webmaster** – Christopher Ruch
 - i) TC 5.2 Website: <https://TC0502.ashraetcs.org/>
 - ii) Talk to Chris about joining TC 5.2 Basecamp.
 - iii) Action item – Chris Ruch go through and clean out Basecamp in comparison to Membership Roster – status update
 - iv) Action item – Update email for Steve Idem. **Chris to coordinate with Dr. Idem**
Nothing to report please reach out to Chris Ruch for changes
 - i) **Historian** - Bob Reid
 - i) Herman Behls Library.
 - a) Hard Copy library available to be checked out by contacting Bob Reid. Review document titles posted on Basecamp.
 - b) Documents used to create Duct Fitting Database needed from McGill Airflow LLC – Bob to provide John Constantinide a list of documents, which he will make a request for ASHRAE president to request copies of the documents. **–38 copies have been found. List of documents for Herman Behls library can be checked out and checked in for use. Reach out to Bob Reid**
 - j) **YEA** – Ian Cavanaugh
 - i) Number of YEA members present at meeting ____
–Chris Ruch presented on ASHRAE pilot partnership with SMART. Roger Kaine and Franklin Wolfe attended the meeting as guests.
–Chris Ruch and Ian Cavanaugh to coordinate on a joint effort.
 - k) **Membership Engagement Committee** (Kevin Gebke and Larry Smith)
 - i) Joined by Bob Reid, Craig Wray, Kevin Marple, Vikram Murthy
 - ii) Update and discussion – **Efforts are being made to bridge the gap between technical side of ASHRAE and membership side. Kevin and Larry to have another meeting and will report in Phoenix**
- 9) Deadlines**
- a) **Special Publications**
 - i) *Dampers and Airflow Controls* (See New Business a) – ASAP
 - ii) *Duct Systems Design Guide* (RP1180) – review for 2026, last done in 2023
 - b) **Handbook**
 - i) Ch 19 due 5/2/27
 - ii) Ch 21 due 6/7/28
 - c) **Roster Updates** – due on or before Monday March 3, 2025 for effect AFTER Annual meeting in Phoenix.

- d) **Meeting Requests for Annual Conference in Phoenix** – close March 7th, 2025.
- e) **Seminar and Forum Proposals for Annual Conference in Phoenix** – due Wed Feb 26, 2025
 - i) Please visit the following site to submit your proposal: For more information, go to: www.ashrae.org/conferences/2025-annual-conference-phoenix/2025annual-conference-technical-program.
 - 1. Deadlines:
 - a. Wednesday, February 26, 2025 | Debate, Panel, Seminar, Forum, Workshop, and Debate Proposals Due
 - b. Wednesday, March 5, 2025 | Conference Papers and Extended Abstracts Due
 - c. Wednesday, April 2, 2025 | Conference Paper Accept/Revise/Reject Notifications
 - d. Wednesday, April 2, 2025 | Extended Abstract Accept/Reject Notifications
 - e. Wednesday, April 9, 2024 | Revised Conference Papers Due
 - f. Friday, April 11, 2025 | Debate, Panel, Seminar, Forum, Workshop Scheduling Notifications
 - g. Wednesday, April 23, 2025 | Conference Paper Final Accept/Reject Notifications

10) Notification

- a) **Awards and Honors**
 - i) 2025-26 Hightower Award Nominations by Fri Sept 5, 2025 to Section Heads
 - 1. This Award recognizes outstanding technical leadership and contributions on a TC/TG/TRG during the past four years, excluding research and standards activities
- b) **Upcoming Retirements**
 - i) Chris Van Rite – M&M Manufacturing Company

11) Action Items

TC 5.2 Duct Design Action Items			
Number	Description	Assigned to	Status
1	Programs - John Constantinide to reach out to CTTC for having RVCs to chapter ctcc chairs to schedule chapter presentation/meeting about DFDB. Also, create a Tech hour for Duct Fitting Data base	John Constantinide	Assigned Tampa 2023 - ongoing
2	Programs - Aakash Patel (Program Chair) to work on DFDB program	Aakash Patel	Assigned Tampa 2023 – ongoing
3	Duct Fitting Database (DFDB) - Bob and Kevin Gebke to review previous/historical CFD research study (RP1493, 1682) and provide summary on Basecamp. Dr. Fine will followup with TC 4.10 about CFD modelling. Dr. Idem, Steve Rogers, Kevin Gebke, Bob Reid and Dr. Fine will define scope for new project and develop and RTAR.	Bob and Kevin Gebke	Assigned Tampa 2023 - ongoing
4.	Process for donated research material/data without the need for creating additional research projects – spiral elbow data posted on Basecamp. Committee to vote on sub committees recommendation on documents getting put in the database	Bob Reid	Data posted on Basecamp

12) New Business

- a) Cindy Bittel – Request to review current status of publication *Dampers and Airflow Control* – Cindy Michaels in Publications wants to know if it is A) Still relevant, B) Needs Revision
 - i) a few years ago TC 1.4 believed the publication to be obsolete due to publication of Guideline 36. Larry Smith worked on a review and comparison to Guideline 36 for TC 5.2 and had several comments, but we were unresolved as to an official committee recommendation. **Steven Winstead, Craig Wray & Larry Smith to review Guideline 36 & Damper and Airflow control.**
- b) Poll request from TC 2.6 related to what topics the community would like to see at future ASHRAE Conferences related to acoustics, sound and vibration. (from Jason Swan – Programs Subcommittee Chair TC2.6)
 - i) <https://www.surveymonkey.com/r/GGNHDVD>
 - ii) Only 1 question. Please select up to 6 topics of interest, or write in any additional ideas.
- c) **Bob Reid- RTAR 1974 Comment would we include “Holey duct” and do testing with this research project to add data. Would committee like to put an RTAR or investigation together for “Holey Duct” Bob reid and Kevin Gobeke to work on**
- d) **Bob Reid- Propose a program for orientation to TC 5.2 for new members and existing members. Cindy Bittle, Ralph Koerber, Ian Cavanaugh**

13) Adjournment

Upcoming ASHRAE Conference Meetings information:
<https://www.ashrae.org/conferences/ashrae-conferences>.

Next Meeting: ASHRAE Annual Conference – Phoenix, AZ June 21-25, 2025
<http://www.ashrae.org/conferences/2025-annual-conference-phoenix/2025-annual-conference-technical-program>

2026 Meetings:
ASHRAE Winter Meeting Jan 31-Feb 4, 2026 Las Vegas, NV
ASHRAE Annual Meeting June 27-July 1, 2026 Austin, TX

Addendum A

TC 5.2 C&S Agenda (2/11/25) – Ralph Koerber

1. Underwriters Laboratories

- UL181 Standards
 - UL181, UL181A, & UL181B
 - No current proposal or revision activity known at this time for UL181, UL181A, UL181B, and UL181C.
- UL Canada Standard
 - S102.2
 - No current proposal or revision activity known at this time for S102 & S102.2.

2. NFPA 90A & 90B Standards

- 2027 Edition
 - Current cycle timeline & activity
 - The Technical Committee met in September to review proposals and develop a First Draft Report.
 - Thirteen public inputs were discussed.
 - One committee input was proposed and discussed.
 - Three first revisions were proposed by the TC and discussed.
 - The TC will confirm official votes in November for their actions during the meeting.
 - The TC's First Draft is expected to be posted on March 25, 2025
 - Public comments to First Draft accepted up to June 3, 2025.
 - Technical Committee will meet in September 2025 to review comments with Second Draft Report posting date of March 3, 2026.
 - NITMAM closing date of March 31, 2026.
 - NITMAM posting date of May 12, 2026.
 - Public Inputs of interest to Ducts -
 - 90A Public Input 4 & 5: Materials composed exclusively of glass, steel, concrete or masonry, without any organic compounds shall not be

required to be tested to be acceptable as noncombustible materials. This public input was moved (**accepted**) for first draft revision.

- 90A Public Input 8: Except where part of listed equipment, non-metallic collars and sleeves used to join or attach flexible air ducts shall be listed and labeled in accordance with UL181C. This public input was resolved (**not accepted**).
- 90B Public Input 1: *Public input proposal to remove gypsum board as an option for construction of supply ducts.* This public input was resolved (**not accepted**).
- 90B Public Input 2: *Return ducts shall be permitted to be constructed of metal, of 25.4mm (1 in.) (nominal) wood boards, or of other suitable material, provided that no material more flammable than 25.4mm (1 in.) (nominal) wood boards shall be used.* This public input was resolved (**not accepted**).
- 90B Public Input 5: Except where part of listed equipment, non-metallic collars and sleeves used to join or attach flexible air ducts shall be listed and labeled in accordance with UL181C. This public input was resolved (**not accepted**).

3. International Code Council

- 2024 Edition
 - IECC & IRC
 - The 2024 IECC and IRC are now in print and available.
- 2027 Group A & B Timeline
 - Group A (IBC-E, IBC-FS, IFC, IFGC, **IMC**, IPC, IPSDC, **IRC-M**, IRC-P, ISPSC, IWUIC)
 - Proposals accepted up to 1/8
 - Proposals posted 2/26
 - Committee Action Hearings #1 held 4/7 to 4/16
 - CAH #1 results posted 5/16
 - CAH #1 action comment period 5/16 to 7/8
 - Comments posted 9/5
 - Committee Action Hearing #2 - 10/23 to 10/31
 - Posting of CAH #2 results - 12/2

- Open for comments to CAH #2 action - 1/20/25 to 3/14/25
- Posting of public comments to CAH #2 - 3/5/26
- Public comment hearings - 4/19 to 4/28/26
- Group B (Admin, IBC-G, IBC-S, IEBC, IgCC (Ch. 1 & App M), IPMC, IRC-B, IZC)
 - Open for proposals - 10/15/24 to 1/10/25
 - Posting of proposed changes - 3/13/25
 - Committee Action Hearing #1 - 4/27 to 5/6/25
 - Posting of CAH #1 - 6/3/25
 - Open for comments to CAH #1 - 6/3/25 to 7/8/25
 - Posting of comments to CAH #1 - 9/10/25
 - Committee Action Hearing #2 - 10/22 to 10/30/25
 - Posting of CAH #2 - 11/25/25
 - Open for comments to CAH #2 - 11/25/25 to 1/5/26
 - Post public comments - 3/5/26
 - Public comment hearings - 4/19 to 4/28/26
- IMC & IRC-M Committee Action Hearing Comments
 - There does not appear to be any relevant comments made to the proposals and committee actions previously reported to TC members at the last meeting.
 - Committee action hearings #2 are took place In October with details expected by late November (*needs reviewed*).
- 2024 IECC & IECC-R yet to be completely reviewed.
 - Commercial R-12 language is confusing and needs interpretation.
 - *Need to request an interpretation of the code language to try and pin down the intent.*
 - Residential language specific to ducts in conditioned space and ducts deeply buried in insulation needs thorough review and the potential impacts determined, if any.
- 2027 IECC & IECC-R (revised under the new “Standards” process previously discussed)
 - ICC Board of Directors set the scope and intent for the 2027 IECC and energy portion of the IRC.
 - Window opened for public comments to the IECC and IECC-R on 10/7 with proposals accepted through 12/9.

- Committees will meet to discuss proposals and develop recommendations for the draft standards for the IECC and Chapter 11 (energy) of the IRC.
 - IECC-CE (Commercial Consensus Committee)
 - IECC-RE (Residential Consensus Committee)

4. IAPMO - UMC Revision Cycle

- 2027 Cycle is ongoing
- UMC TC meeting was held on 5/9 & 5/10.

Proposals of concern that were previously reported *(final vote)* -

- Item #107 [602.1, 602.2] - attempts to remove concealed spaces as ducts under the guise of combustibles. **Accepted as Submitted**
- Item #119 [602.5.5, 602.5.6, 603.1.2, Table 1801.1] - this could eventually allow PVC ducts in attics, crawl spaces, etc. - also question the specifications. **Rejected**
- Item #121 [602.6, Table 1801.1] - allows 450 smoke index value - need to review the scope of NFPA 286. **Rejected**
- Item #127 [603.4] - requires rigid straps - Flex industry says “of sufficient width & rigidity”. **Rejected**
- Item #133 [203.0, 603.12] - negative pressure for air dispersion devices - needs modified for limitations. **Rejected**
- Item #135 [605.1.1, Table 1801.1] - excludes PU foam from 25/50 and allows 450 smoke index. **Rejected**
- Item #136 [605.1.2] - allows 450 smoke index for PU foam. **Rejected**
- Report on proposals (ROP) was published on 8/9.
- Call for comments went out on 5/25 with deadline for comments on 1/3/25.
- Comments will be presented to the TC for review in April 2025.
- TC will meet to discuss all comments received in May 2025.

5. ACCA Manual D - Residential Duct System Sizing

- Standards Task Team held regular meetings for revisions to Manual D.

- Draft was sent to a review committee for final review.
- Manual D went out for 45-day ANSI public review on February 23rd.
- Due date for comments was April 8th.
 - A few minor editorial comments were received which may, or may not, require a second review. TBD.