



ASHRAE Technical Committee 5.6

MINUTES (draft)

TC 5.6 Control of Fire and Smoke
Friday, Jan 21, 2022

Virtual Meeting

ATTENDANCE

Voting Members Present	Additional Attendance		
Paul Turnbull	Aaron Guzner	Amir Jokar	Anil Kapahi
Yoon Koon	Dane Carey	David Branson	Kevin Marple
Valentina Nedelcu	Dimitry Kogan		Michelle Shi
Larry Felker	Gerald Kettler	Morgan Hurley	
Bill Webb (NQM)	Patrick Brooks	Dimitry Kogan	
	Mike Knipple	James Carlin	Rajendra Kapoor
	Samir Traboulsi	Soph Davenburry	Jonathan Hodges
	Scott Hammond	William Farrell	
Voting Members Absent	Yan Lee		
Jim Buckley			
Peter McDonnell			

1. IDENTIFICATION OF VOTING MEMBERS

Voting members in attendance are as follows: Paul Turnbull, Yoon Koo, Larry Felker, Valentina Nedelcu. Bill Webb, a non-quorum member was in attendance (A quorum was present, 5 of 7 voting members were in attendance).

2. CHAIRMAN'S REMARKS

- ASHRAE Statement of ethics read by the chair, Paul
- Recent CHANGES to the TC MOP requires BALANCE for the voting membership. This removes the appearance of bias and conflict of interest. No single stakeholder interest category shall constitute a majority of the Voting Members of a Committee

TC5.6 is currently balanced, with 3 consulting engineers, 2 manufacturers, and 1 research organization

- ASHRAE’s Commitment to Care for 2022 Winter Conference: www.ashrae.org/2022winter in the “Health and Safety” section

- New 2021 ASHRAE Research Strategic Plan
 - Resilience,
 - IEQ in occupied environments
 - Sustainability, decarbonization, energy and resources
 - HVAC&R Equipment, components, materials
 - Tools & Applications
 - Education and outreach

For the first time in a long time, TC5.6 fits into the Strategic Plan.

Resilience:

...”Research priorities to enhance resilience of buildings and communities include: improved design guidance that provides for extreme events, passive and active technological subsystems providing physical robustness.”

Tools and Applications:

...” Design Engineers use tools to analyze thermal comfort, airflow patterns, **flow path of airborne contaminants**, system and component performance and the energy consumption of candidate designs....Research is justified to improve the usability , capability and accuracy of existing tools and develop new tools where needed.”

3. APPROVAL OF MINUTES FROM JUNE 2020

The minutes of the TC 5.6 Meeting in June, 2021 were approved as submitted.

Approved For-4, Against-0, Abstain-0, Absent-3

4. Research Project Report.

RP-1644 Smoke Control in Long Atria. Jensen Hughes

Objectives:

Use CFD simulations that include heat transfer evaluations of long atria with different aspect ratios to determine the horizontal distance at which the smoke layer loses buoyancy and begins to descend from the ceiling. Develop guidelines for maximum size of smoke zones or maximum horizontal distances for smoke flow before a detailed evaluation including heat transfer is required.

- In September, Jensen Hughes provided an update to their draft report. The Project Monitoring Subcommittee had discussions about the report with Jensen Hughes in late December.

- Jensen Hughes revised their draft report prior to the January TC meeting. At the meeting, Jonathan Hodges updated TC 5.6 committee on the work that has been completed so far on RP-1644. A short presentation was given to report the progress on the numerical modelling and analyses.

Some of the meeting highlights.:

All simulations have been completed.

Overview of the simulations was presented

Unexpected findings showed that the distance from the fire where a difference in smoke layer height exists between CFD simulations that do and do not include heat transfer, is time dependent. As a result of this finding, the goal of the project was revised from determining a specific distance where the difference begins to occur, to estimating the difference in height between CFD simulations that do and do not include heat transfer, so the designer can quickly determine whether more involved analysis is necessary.

Presentation of the equation developed.

Following the meeting, Jensen Hughes submitted a further revised draft report which was distributed to the PMS and other volunteer reviewers.

The next project steps:

Milestone 6 Develop final report based on written documentation and updates based on PMS feedback. Also develop a technical paper for publication. Estimated completion: 5/31/2022

5. TAC Section 5 Update.

Kevin Marple, Section 5 Head

Reminders

Roster update information -due Feb 14th

Activity Form- due Feb 1st

Call to people in attendance to consider stepping forward and becoming voting members to ensure support and continuity for the work of the committee.

6. Subcommittee Reports:

- Research – Matt Davy – Absent. No projects are active other than RP-1644.
- Program – Larry Felker. No programs or papers presented sponsored by this committee at this meeting. During the meeting Larry asked for input on new programs or topics. See Appendix A for list of proposed Program Topics.
- Handbook – John Klote
TC voted to approve the Handbook chapter as distributed to TC membership on January 11, 2021.
Ballot results: For-5, Against-0, Abstain-0, Absent-2
- Standards – Jim Buckley
He sent an email that he was not feeling well and may not attend. He said there is nothing to report for standards.
- Membership – Larry Felker

- TC 5.6 Web Site – Duane Smith – unable to attend. Submitted report:
The TC 5.6 website has been updated to include:
 - Details and agenda for January 21, 2022 meeting
 - Draft minutes from the meeting held on June 10, 2021According to ASHRAE: "The purpose of the ASHRAE TC website is twofold: to support and update the TC membership and to inform outside audiences about the TC's contributions to ASHRAE."
My question for the committee: what would you want to see in a well-organized website? I look forward to making our website serve its intended purpose.
- Handbook of Smoke Control Engineering – John Klote. No updates at the meeting.
- ASHRAE Smoke Control Courses – John Klote. No updates at the meeting.

7. Inter-Society Liaison Reports:

- CIBSE (Chartered Institute of Building Services Engineers) – Liaison needed
- NFPA 80 & 105 (Standard for Fire Doors and Fire Windows) – Duane Smith
 - June 14, 2021-NFPA Technical Meeting.
 - Certified Amending Motion (CAM) 80-15 – related to 19.5.2.3.3 Remote Inspection Method failed to pass NFPA membership vote. Results: 47 for/197 against
 - The 2022 editions of both Standards became effective September 15, 2021
 - The 2025 editions of both Standards are in the Public Input stage of development. Closing date for Public Input is June 1, 2022
- NFPA 90A (Air Conditioning and Ventilating Systems) – Jim Buckley
Jim was unable to attend but he has sent an update for the report. He said there is nothing to report for 90A.
- NFPA 92 (Smoke Management) – Paul Turnbull
 - The current edition of NFPA92 is 2021.
 - Public Input for the 2024 edition closed Jan 5, 2022.
 - 21 Public Inputs were received for NFPA 92 and 3 Public Inputs for NFPA 204. They have not been distributed to committee members yet.
 - The First Draft meeting will be held virtually around early May, but the date for the meeting has not been set.
- UL and AMCA – Dane Carey – Aaron Gunzner
Items AMCA is working on with UL:
 - Dynamic Ceiling Radiation Dampers - There is a growing issue in the specifier world on how to apply dynamic dampers. AMCA to suggest changes to the UL Marking Guide to better explain these applications.
 - Starting a discussion regarding a universal (multiple company) Dynamic Ceiling Radiation Damper UL Ceiling Design. Note - no proposal has been put forward yet.

- To suggest requiring QR Code for Installation Instruction on Products.
Items AMCA is working on:
- Working on a White Paper in regard to FAQ's on life safety dampers and installations
- AMCA Task Force is working to develop a casing leakage white paper to give realistic duct leakages for different Life Safety dampers.
- Tracking NFPA proposed changes and suggesting modifications to some of their standards such as 80, 90A, 92A, and 105. One particular goal is to try to harmonize definitions of different types of life-safety dampers across all NFPA standards for more consistency in the industry.
- Tracking proposed changes and suggesting modifications to ICC Group B codes, as well as following up on ICC Group A changes made in the most recent cycle (2024 – nearly completed).
- AMCA 503-08, Fire, Ceiling (Radiation), Smoke and Fire/Smoke Dampers Application Manual will begin a cycle review this year.
- SFPE –Dave Branson nothing relevant to report.
- SMACNA – Patrick Brooks nothing relevant to report

8. Old Business

9. New Business

- Roster changes are due February 15.
- We will be working on this over the next couple weeks.
- None of the current voting members are rolling off this year.
- If anyone who is currently a corresponding member would like to be considered for a voting member position to communicate to the chair.
- Final determination will be made after balance is considered.
- Anyone attending today that is not a member can go to the ASHRAE website and instantly add yourself as a Provisional member to be included in correspondence related to TC5.6.

Dave Branson – question whether any programs related to smoke simulation.

10. Adjournment

Meeting adjourned at 3:00 Central Time.

Appendix A

**Future TC 5.6 ASHRAE Conferences
Programs, Seminars, Workshops, Panels, Debates, or Forums**

Topics:

- Getting Started at Atrium Smoke Control Design. John Klote
- Elevator Shafts, Methods of Testing for Leakage. Gary Nelson (Energy Conservatory)
- With increased focus on Building Energy Efficiency resulting in tighter building envelopes do the new features affect Smoke Management and how. With increased airtightness an increase in smoke pressure is expected. In this scenario is the minimum pressure difference requirement to protect stairwells or any evacuation route or shelter in place or not? A review paper to discuss articles/journals published over the past 2-3 years on the topic. Yoon Ko
- How glazing separations in atrium, around elevator shafts are affecting Smoke Management of the space.
- Impact on the vertical smoke rise ventilation looking at 2 scenarios when the glazing is not protected and when glazing is protected. Are any studies done to assess if glazing is different from other materials used for partitions, and how. The general assumption is that the walls remain standing, is glazing true to that assumption? Greg Sanchez
- “Smoke Dilution in Buildings” I would be interested in giving a presentation on Smoke Dilution and Purging Post Fire. Amir Jokar
- Machine learning technologies in fire smoke control, protection design, etc. For example, we may use the fire size and measured air and make air data to predict more detail smoke distribution in the space (where sensors are not installed), which can be applied for more accurate control the protection system, such as the fans/make up air dampers/sprinklers. Dahai Qi, Yoon Ko