



Shaping Tomorrow's
Built Environment Today

ASHRAE TC 9.2 – Industrial Air Conditioning and Ventilation Committee

APPROVED February 1, 2022 Meeting Minutes – Hybrid Meeting

- 1) The meeting was called to order at 1:02 pm PST. Chair Erich Binder gave the Opening remarks and read the ASHRAE code of ethics:

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.

- 2) The Agenda was reviewed – no changes were made to the agenda.
- 3) There were self-introductions of all Members and Guests. Duncan Phyfe gave instruction on the use of the virtual and in-person sign-in sheets in the Chat box.

LOCAL Vegas Conference Room Attendance:

Mohammed Qandil mquandil@thermastor.com New Member/YEA
 Brad Cochran SH9@ASHRAE.NET Guest/Section 9 Head
 Erik Ostberg erik.ostberg@bp.cmo Member
 Panos Fykas pfykarsahrinet.org Guest/YEA
 Douglass Abramson doug314103@aol.com Corresponding Member
 Shaun Nienhueser shaun.nienhueser@hdrinc.com Provisional CM

Virtual Attendance:

Full Name	Username	Company	TC 9.2 Membership?	ASHRAE Member?	ASHRAE YEA?
Anthony Arens	anthony.arensgm.com	GM	Corresponding Member	Yes	No
Evan Reese	emreese@burnsmcd.com	Burns & McDonnell	Corresponding Member	Yes	Yes
Francis Paretti	paretti.frank@gmail.com	O'Neal inc	Provisional Corresponding Member	Yes	Yes
Duncan Phyfe	dphyfe@aldenlab.com	Alden	TC Voting Member	Yes	No
BEN FULLER	BRFULLER@HGA.COM	HGA	Provisional Corresponding Member	Yes	No
Mak Kampen	matthewkampen@hotmail.com	ConocoPhillips Alaska Inc.	TC Voting Member	Yes	No
Jeremy Snyder	jsnyder@bhbinc.com	Baird, Hampton & Brown, Inc.	Provisional Corresponding Member	Yes	No
N Eileen Jensen	nesnejen@gmail.com	Retired	Corresponding Member	Yes	No
Eric Ballachey	eric.ballachey@cnl.ca	Canadian Nuclear Laboratories	Corresponding Member	Yes	No
Matt Gaedtke	matt.gaedtke@greenheck.com	Greenheck Fan	Corresponding Member	Yes	No
Scott MacMurray	scott.macmurray@srnl.doe.gov	Savannah River National Laboratory	Corresponding Member	Yes	No
Kevin Gildea	kevin.gildea@howden.com	Howden American Fan Company	Corresponding Member	Yes	No
Mike Baucom	mikeb@exphvac.com	Bebco Environmental Controls Corporation	TC Voting Member	Yes	No
Caterina Clark	ccclark@bpa.gov	BPA	Corresponding Member	Yes	Yes
John McKernan	mckernan.john@epa.gov	US EPA	Corresponding Member	Yes	No
Elham Ahmadpour	elham.ahmadpour@umontreal.ca	Montreal university	Provisional Corresponding Member	Yes	No
Deep (Dipankar) Ghosh	dghosh@southernco.com	Southern Nuclear	TC Voting Member	Yes	No
Harvey Schowe	hlschow6425@centurylink.net	Retired	Corresponding Member	Yes	No
Duane Hammond	ahz0@cdc.gov	NIOSH	Corresponding Member	Yes	No

Kevin Marple	kmarple@benzco.com	Benz Air Engineering	Corresponding Member	Yes	No
Mark Miller	mfmiller55@gmail.com	TCS Basys	Provisional Corresponding Member	Yes	No

- 4) Past meeting minutes were approved
- 5) Quorum Status Determination of Meeting Quorum: quorum was established with 6 of 7 voting members present.

Duncan and Erich will be rolling off at the end of June 2022 but Duncan is rolling back on as chair in July and then will roll off in 2025. Duane is filling in as secretary ahead of time. We are going to need volunteers to start in July as a voting member and roll off in 2026. Evan Reese volunteered to join the committee. Anyone else let us know even if anyone rolled off recently that wants to roll back on.

Voting members rolling off:

- June 2022 Erich Binder – Chair (P)
- June 2022 Duncan Phye- Vice Chair (but rolling back on as chair July 2022 to 2025)
- June 2023 Joel Foster (Programs)/ Ravi Ganta /Erich Binder
- June 2024 Deep Ghosh (Standards) / Mak Kampen
- June 2025 Erik Osteberg / Duane Hammond Secretary/ Duncan Phye
- June 2025

Positions

- Erich Binder – Chair (rolling off in June in Toronto)
- Duncan Phye- Vice Chair (will start as chair in July)
- Vice Chair (2022-24) ??? Erich asked for volunteers but didn't get any takers
- Duane Hammond – Secretary

We have 8 voting members going forward next year.

- 6) TC Chair Breakfast Meeting

Erich wasn't able to attend but they sent him the 125MB file of notes but he asked for a mini pack that will send out after this meeting and we can get an update otherwise. Duncan gave a summary of a summary from another TC meeting but it looked like they were trying to get the vision unified instead of siloed and are working on the strategic plan with sustainability as a large part of the plan as well as high performance build environment and then maximizing member value and engagement. Not just engagement at our regular meetings but see what we can do to get others more involved throughout the year. Continuing to optimize ASHRAE's organizational environment. There will be a new TAC website that will be released but there are still bugs in the website.

- 7) Status of TC 9.2 Events & Activities

- Industrial Vent 2022 Conference – Toronto, Canada – Doug Cochrane

We are hosting the Industrial Ventilation 2022 conference in Toronto this summer just before the summer meeting. It will be a 2-3 day industrial ventilation conference that goes from Wed – Fri noon. We encourage anyone who is attending live to go to both conference and there will be

a discount for people who are attending both. Erich raised the question: Because this meeting is typically on Tuesday, does it make sense to have this meeting a little earlier such as Saturday morning or late Friday? It is something we might start thinking about and Erich will send out some options. Kevin asked for a track that could be sent out for the industrial ventilation conference. Erich encourages folks to put together presentation. Erich and others are willing to help out if you have a good topic to present.

- Industrial HVAC 101 Course Development – Erich Binder

It will be a two-hour course with the basics for one hour then lessons learned for the second hour. The intent is to make it free and encourage people who have dabbled in the industrial side and then we encourage students and others to get involved and get some more industrial experience. John McKernan added that this is 4-months away and asked whether there are records of abstracts. Erich said the abstracts have been reviewed and we should be hearing something shortly. Erich will confirm the abstracts for the conference. Bill asked if we are going to move this meeting but if we move it outside of the days the concern is about finding a room. Erich suggested several options such as moving our TC 9.2 meeting closer to the beginning of the summer conference, leave it at the same Tuesday date as usual, or have a virtual TC9.2 meeting either before or after. Bill mentioned ASHRAE is encouraging folks to attend. Bill also suggested that the time should be within the boundary of meetings that ASHRAE sets for the conference itself. More discussion occurred about the timing of this meeting if the majority of TC9.2 attendees will be there ahead of time it might make sense to have it ahead of time. Bill suggested he doesn't have any problem as long as it is within the timeline ASHRAE prefers. Erich said he would get ASHRAE permission if the meeting is moved. The vent conf starts Wed morning and ends at noon Fri. Friday afternoon from something like 2-4pm is the HVAC time slot and it is a bridge between the two conferences with no charge to encourage folks to attend. The intent with 101, is to start a program where we can eventually have 8 or 10 courses and this would be the kickoff. There could be a HVAC 101+, 201, 301, etc.

- Industrial presentation to Students.

Some discussion occurred about future courses such as taking each ASHRAE chapter and have a presentation on it for future courses at future ASHRAE conferences.

- Cold Climate Conference 2023 – Anchorage, Alaska – Erich Binder

The 2023 ASHRAE and SCANVAC HVAC Cold Climate Conference takes place March 5-8, 2023 at the Marriott Anchorage Downtown in Anchorage. This will be a 2.5 day conference in Anchorage followed by a conference in Fairbanks. The last one was where the cold climate guide came from for ASHRAE. Consider putting a presentation together for the Cold Climate Conference, a request will be coming out soon. Following the conference, attendees will have the opportunity to register for a one of a kind excursion including technical tours and presentations March 9-10 in Fairbanks, Alaska. The proposed conference theme is Unique Challenges & Solutions for Climate Change in Cold & Arctic Communities. The program will include a call for papers and separate call for presentations. For more information, please visit the conference website www.ashrae.org/coldclimate2023 for the Call for Papers and other important deadlines. The goal of the conference is to provide the latest information that will

enable engineers, consultants, contractors and building owners to develop and implement design strategies and operating solutions that can be successfully applied in cold climates.

- IEEE_ASHRAE Guideline 21 – Deep Ghosh

This is for the battery room ventilation which is titled as a joint venture between IEEE and ASHRAE. The first edition was issued in 2012 and it was followed by 2018. In 2019, we presented and did a workshop at ASHRAE and did a guide and had discussions about lithium-ion batteries. We are in the process of revising the guide to handle installation of lithium-ion batteries. The revisions were made and validated in Nov/Dec timeframe, we received 184 comments and are in the process of making revisions based on those comments and we are expecting it to be released later this year in 2022. If anyone has questions, feel free to ask Deep. Question: Will it relate to battery questions for solar power? Answer from Deep: At this point, we are not addressing how the battery is charged but we will ask IEEE about it. It is for any type of stationary battery.

- Epidemic Task Force Update – John McKernan

The conference had the meeting of the membership on Saturday where they present the awards. The first one was the ASHRAE presidential certificate of honor. It was a nice ceremony but we received an award for ETF products. Each team lead received the award and John thanked everyone for their help in the presentations that we prepared and the documents. Also, on our ETF meeting that was on Sunday morning at 9AM, John put in the document that everyone has reviewed and John put the comments in. Please take a look at it in coming days and let John know if we have any comments and we can provide it to Bill and ASHRAE leadership. The ASHRAE ETF will eventually dissolve and move into cross-cutting ASHRAE TCs. The team reports will be compiled into one document. The industrial ETF team created two white papers, one through ACGIH and a joint document between ASHRAE and ACGIH. If you google “ventilation control for COVID-19” and put in “ASHRAE” or “ACGIH” it should take you there.

- Industrial Covid Presentation with ACGIH – Kevin/Duncan/John

With Don, Duncan and others help, we created three presentations in collaboration with ACGIH. These are presentations to companies and others who may be interested in controlling COVID-19 in industrial type settings. The presentations are in basecamp thanks to Duncan. The plan is to present one of those at Vent 2022 and we are still interested in comments. There is guidance coming out of the infection control group at CDC where they are talking about building an ASHRAE guideline 37P that talks about using upper room UV for air disinfection purposes.

- Decarbonization Task Force - Duncan Phyfe / Erich Binder

Duncan sat in on the public presentation and they have a lot of work cut out for them regarding the goals. No carbon-based energy production is a goal, it will be interesting. There is going to be a decarb conf in Greece in Oct. Erich is putting some stuff together on the industrial side and could use some help. John McKernan mentioned that linking it to energy efficiency will be important. Eileen mentioned there are some resources to throw at decarbonization similar to

how ASHRAE threw resources at 90.1 back in the early 1970s. Also from Eileen and her link to the board of directors...they are trying to develop a common set of definition and develop standardization.

8) ASHRAE Handbook – Applications Evan Reese & Steven Still
Evan provided the update... ASHRAE Applications 2023 publication chapter edits are in the works, most are due in March or April and any changes that are made will be uploaded to the portal. Things are running smoothly for the edits.

9) Research Projects – Open Position
Currently our TC is not involved with research projects but we are looking for someone to head this up. Erich asked for volunteers. No takers so Erich is going to take it offline and will find somebody.

10) Standards - Deep Ghosh

- IEEE_ASHRAE Guideline 21 convert to standard

Deep mentioned that it is a guideline and a negative factor with a guideline is that NFPA doesn't refer to guidelines, they use standards. Even though IEEE refers to it as a standard, ASHRAE refers to it as a guideline. Once we get Guideline 22 issued, we want to turn it into a standard. Deep said we are working on it but it will take a lot of effort to go from guidelines to standards.

11) Program Sub Committee – Joel Foster

Toronto 2022 - Tracks

Track 1: Fundamentals and Applications

Track 2: HVAC&R Systems and Equipment

Track 3: Research Summit

Track 4: Connected Buildings, Connected Communities

Track 5: Cold Climate Building System Design, Operation and Resilience

Track 6: IAQ, Energy Use, Comfort and Health of Sustainable Buildings

Track 7: Professional Development and Education

Track 8: Buildings in the Aftermath of COVID-19

Atlanta 2023 - Tracks

Track 1: Fundamentals and Applications

Track 2: HVAC&R Systems and Equipment

Track 3: Refrigeration & Refrigerants

Track 4: Grid Resilience & Thermal Storage

Track 5: Pathways to Zero Energy Emissions & Decarbonization

Track 6: Multifamily and Residential Buildings

Track 7: Operations & Maintenance

Track 8: Building Simulation & Virtual Design in Construction

Track 9: Mini Track – Innovative responses to supply chain challenges

Definitions

- *Seminar: 1-4 presentations, 60 or 90 min (5 presentations acceptable for 90 min slot)*
- *Forum: 1 moderator, 60 min, no presentations*
- *Workshop: 1 chair, 1-2 presentations, 60 min, 30 min reserved for discussion*
- *Conference paper: ≤8 pages total, all formatting by author*
- *Technical paper: ≤30 double-spaced pages of text, ≤12 figures, formatted by ASHRAE*
- *Panel Session: 1 moderator, 60-90 minutes, 3-6 participants, no individual presentations*

Extended abstract: ≤3 pages total (published), single-round review (2), presentation

- Toronto submission

Toronto submissions are due on Feb 17th and there is a cold climate track. Do we want to make any submissions to Toronto? Erich said he will put in a cold climate one. Duncan should have something but will chat offline but needs to see if he has something published. 2-3 is a good size seminar and there is a track for cold climate so we should try to get something in there if we can get the Alaska guys to jump in.

- Hazardous Spaces- Mike Baucom / Erik Ostberg or Vent 2022 – Toronto

No update. Mike and Erik have not talked much about it much yet. Erich offered to link him in and put something together for hazardous spaces. Erik will look at calendars and get something together for next week.

- Workshop – Hazard Spaces – Pressurization, Shelter in Place -Vent 2022 - Toronto

For Shelter in place, Erich will double check about it. Erich, Erik, Mike and Deep will set up a meeting for next week to see what the best approach is.

- Atlanta Submissions

Erich suggested decarb for an Atlanta Winter 2023 submission. Atlanta has track 5 Cold Climate Building System Design, Operation and Resilience. Another thought is something from the nuclear side. Deep said people are still in the design phase for the different options for the nuclear small new tech. Some more discussion of mini courses for Toronto and Atlanta.

- Summer meeting 2023- Tampa Bay submissions:

Erich brought up the summer ASHRAE meeting 2023 but there were no suggestions and everyone was pretty quiet.

- Vent 2022 Special Publication Industrial HVAC
- Cold Climate Design Conference 2023

Great opportunity. Erich is looking at putting together a presentation. Erik and Mak perhaps we could put something together for oil and gas as well. Mak said Erich could put his name on there.

12) Webmaster – Mike Baucom

Mike has lost his webmaster ghostwriter, so he is going to patch back in to get things up to date. Need to review committee roster to get all the members up to speed as well. There are probably 3 or 4 minutes missing but we will get there. New business from Mike: we are working to promote the book and are going to do webinars for purging of enclosures but also air conditioners and encouraging people to join ASHRAE. Looking at putting a seal on their website but currently there isn't any way to do that, so ASHRAE is looking at a way to make that happen. We are getting old and need new membership. Question: What do you mean by seal on the website? Mike said we are looking for something like "ASHRAE is great, join ASHRAE to make a difference" and it is really just a promotional thing to encourage folks to join ASHRAE. When we

mentioned we want to promote ASHRAE, they are considering things they can do. Someone suggested the chair for TAC might be able to help get it done. Send the request to: askTAC@ashrae.net

13) Nuclear Subcommittee – Scott MacMurray

Met on June 11 virtually, 6 voting members, 6 corresponding. Been behind in processing meeting minutes and caught up. Went to handbook chapter and made one change to sunset a section, so it was voted by the subcommittee and will go to main committee. Updated early 1990s design guide. They provided an update 2 years ago and passed on publications 18 months ago and they came back to us in late Sept with their review. There were two items, 1) previous version has not been metrified. 2) ASHRAE had significant editorial changes on other parts of the document and the subcommittee is going through the formatting changes to see if it affects the technical portion of the document.

14) Journal/Insights Liaison – Norm Maxwell

Remove Norm's name since he was listed as a deceased member. Don Larson said they wrote an article for the ASHRAE journal that is in the final stages of review and will get together next week and submit.

15) TC 9 Report Section Head – Brad Cochran

Spreadsheet is due tomorrow, but Brad will have access until the end of the week. The other thing that is due you have the link for the roster update. On that, it is self-explanatory but there are a couple of pitfalls to it. Take a first cut at it to do the best that you can. Hit save and don't hit submit and then let Brad know that you have done that, and they will get together and put another set of eyes on it because once you hit submit, it is difficult to modify. This has become with these hybrid e-mails very important since we have had a couple of TCs where the roster wasn't quite right, and the meetings were not going to the right people. Another thing that TAC is recommending for each TC is to schedule virtual meetings in between our two main meetings particularly for the subcommittees so they can get together and get momentum going. There are three new functional groups: 1) <missed>, 2) decarbonization (150 members), and 3) TGRAST reactive air and surface treatment (really coming out of the ETF since one of the questions asked by the public is how to investigate the effectiveness of electronic filtration). So the mandate of this TG is to develop a method of test for electronic filtration. Eventually they will form a standards subcommittee out of it but right now they don't have that but this is to get the process started. Brad suggested assigning a liaison there too. Larry, the chairman of TAC, his real focus is that TAC needs to be a leader servant to the various TCs, our job is to make your job easier and more effective which is part of why they set up this one stop shop to askTAC@ASHRAE.net, but if you have any questions you can also contact Brad and they are always looking for suggestions about how to make it so we can do our job better.

16) Liaisons

- CTTC –DL Speakers - Erich Binder

Trying to get more industrial speakers and topics. Some of the information that we are putting out at the industrial vent conf in Toronto we are getting good information together. If anyone has any good topics, we will get you on as distinguished lecturer.

- MTG.OBB – Doug Abramson

Meeting was earlier today. Trying to become TC but are waiting on the process. They have some research work statements they are working on for different elements of occupant behavior they are trying to research. They just completed the work on chapter 65 for the 2023 handbook. The three major changes, collecting real time occupancy data, integrating occupancy with feedback, modeling evacuation with HVAC equipment.

- MTG- ACR - Erich Binder / Mike Connor
- MTG-UNEP - RAC – Erich Binder

Working on a handbook on refrigeration systems with emerging economies and we are having a meeting soon and sending it out to UN non-ASHREA members.

- CCB DG – Erich Binder – we already talked about this one
- STD 62.1 Liaison No liaison

Erich asked: Does anyone want to be a liaison and keep updated on STD 62.1? No volunteers.

- STD 90.1 Liaison – Mike Baucom
- TG 2 HVAC Liaison – now TC 2.10. Their meeting isn't until tomorrow.
- Others

18) Membership / Honors & Awards – Eileen Jensen

Provisional Member Status upgraded to corresponding members

Awards

- ASHRAE Fellows – Eileen was working on one fellow nomination but didn't get it in time for December deadline so will work on it for the upcoming year. That is all Eileen has.

19) New Business

- Kiln Drying Guide -

We have a member that wants ASHRAE to support a guide that is almost written. Once we get the approval, we will send it out for comment from TC9.2, but we haven't heard the final status. There was some discussion about whether a Kiln would belong in a different TC such as machinery instead of industrial air conditioning and ventilation but further discussion indicated it could stay in our TC perhaps due to the focus on the drying aspects rather than machinery aspects.

- Other –

Bringing up old business as new business: Someone from the room said: Before Erich was chair, we had a meeting where people had some interest in sheltering in place and things like that. Checked files and came up with a copy from ASHRAE library but it is basically a 1991 HVAC applications handbook chapter 11, Environmental control for survival and gave the specs and biometrics that you need for a shelter in place type of environment. Factors affecting the physical environment... Erich mentioned that we are updating a bunch of application chapters. If it is a chapter that should be revitalized, we should mention it to

them. We can talk to the handbook committee and take a look at whether to add it into the next 2023 handbook. Message has been sent.

- 20) Basecamp Training – Training available. Duncan Phyfe
No automated adding of people so it has to be added manually. Everyone needs to update their information for the roster and Erich will get that info to Duncan.
- 21) Next Meeting – June – Summer Meeting – Toronto, Ontario Canada
- 22) Adjournment - motion was made to adjourn. Meeting adjourned at 3:32 pm PST.