



MINUTES

FINAL APPROVED MINUTES

TECHNICAL COMMITTEE

2022 Summer Meeting

June 26, 2022

Note: These minutes have been approved by the Technical Committee.



1791 Tullie Circle, N.E./Atlanta, GA 30329
404-636-8400

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. TC 2.8 DATE 6/26/2022

TC/TG/MTG/TRG TITLE Building Environmental Impacts and Sustainability

DATE OF MEETING 6/26/22 LOCATION Toronto, ON/Virtual

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Joy Altwies	2021	James Bradburn	2004	Bill Hutzal (RAC liaison)
Kevin Brown	2021			Brittany Carol Moser (YEA)
Lisa Ng	2021			Eric Haley
Alara Apcin	2018			Mahdi Afkhamiaghda (YEA)
Rafi Karim (YEA)	2017			Tracy McKeon
Kevin Cross	2002			Steven Emmerich
Michael Deru	2004			Tom Lawrence
Janice Means	2005			Yukiko Yoshida
Mike Pascual (YEA)	2018			Eric Peterson
EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE (continued)				
James Sweeney		Sumayyah Theron		Mae Underwood
Jon Cohen (SH2)		Valerie Lisi		Paul Torcellini
Mitchell Swann		Frank Mills		
Carrie Brown		Alejandra Nieto		
Daniel Villa		David Evers		
Tania Ullah		Stephanie Mages		
Renee Clair		Gene Naroditsky (online)		
DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:				
TAC Section Head: Jon Cohen		SH2@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 minutes have been approved by the TC.



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TC 2.8 Building Environmental Impacts and Sustainability

June 26, 2022, 6 PM – 8 PM EDT

Online (Webex) and In-person, Toronto, ON, Sheraton Elgin (2)

[Online Meeting Link](#)

Chair: Meeting Called to Order at 6:09 PM EDT

1. Roll call and Introductions

Altwies / Bradburn

In-person and virtual attendees introduced

Quorum present (9 out of 10 voting members present duration of meeting including Chair)

2. Review and Accept Agenda

Altwies / Brown

3. Review / Approval of January 2022 Meeting Minutes

Ng

Moved by Alara Apcin, second by Kevin Cross Approved 8-0-0-CNV.

4. Standing Committee Liaisons TAC / RAC / Standards / Programs

- SH2: Make sure using most recent version of activity form on basecamp
- RAC: 8 RFPs went out in Spring, 8 more to be awarded

5. Subcommittee Reports (For more details, see subcommittee meeting minutes)

5.1 Green Guide

Lawrence

- Publication delayed (not yet ready for publication this meeting)
- Tom Lawrence and Janice Means are planning to submit programs regarding the new version of Green Guide and planning around its release date

5.2 International

Mills / Rakheja

- No update

5.3 Water-Energy Nexus

Pascual / Karim

- Met June 23
- Planning to re-starting draft of WEN guide – got 8-9 volunteers to participate. Will ensure not duplicating efforts with Green Guide in content (Tom Lawrence to provide relevant chapters)
- In-person vs. hybrid discussion – CEC envisioning all subcommittee meetings to be online but will discuss with subcommittee members on their preference

5.4 Research

Altwies / Cross

- Met June 16
- Kevin Cross introduced as incoming Research Subcommittee Chair as of July 1
- 1814-RP *Actual Energy Performance of Secondary Schools and Medium Offices Designed to Comply with ASHRAE Standard 90.1-2010* to be completed by end of September 2022 with a program in Atlanta
 - Completed research reports are available for free to ASHRAE members
<https://technologyportal.ashrae.org/Report>
- Work Statement (WS-1929 *Evaluation of building life cycle analysis tools incorporating embodied carbon*) in development (posted in [basecamp](#)). Asking for suggested edits and cover sheet information (e.g., volunteers for Proposal Evaluation Subcommittee (PES) (3-5 needed, do not need to be Corresponding Member (CM) or Voting Member (VM); and list of recommended bidders)
 - Six volunteers identified: Kevin Cross, Jim Sweeney, Mahdi Afkhamiaghda, Sumayyah Theron, Joy Atlwies, and Mitchell Swann.

- RAC deadline for WS submittal is August 15. Committee plans to vote on WS in July.
- RAC reminded committee that when Project Monitoring Subcommittee (PMS) meets at the winter or summer meeting, the meeting should be publicly posted
- Janice Means provided update on WS-1885 *Solar PV Design Guide for the Building Professional: Including HVAC and Building Interactions* (sponsored by TC6.7) – would anyone on TC2.8 provide feedback? – Janice [posted the WS on basecamp](#).
- Clarifications provided to RAC liaison:
 - WS-1859 – this was dropped due to existing research being performed
 - WS-1863 – precursor to 1829
 - WS-1933 – no update

5.5 Programs

Apcin

- Met June 23
- Invited everyone to program at this meeting (listed below)
- Upcoming program proposals for Atlanta (see subcommittee minutes for full report):
 - Sewer heat rejection and recovery (Track TBD)
 - Renewable energy storage (Track 4: Grid Resilience and Thermal Storage)
 - Refrigerants with decarbonization emphasis (Track 3 Refrigerants or 5 Pathways to Zero Energy Emissions and Decarbonization)
 - Green Guide (Track 5)
 - Zero-energy, decarbonizing hospitals (Track 5)
 - Possibility collaborate with TC 7.9 Building Commissioning, facility managers survey (Track 7: Operations and Maintenance)
 - Reach out to IBPSA (Track 8: Building Simulation and Virtual Design in Construction). To be connected with Joe Zhou to give presentation on work completed for 1814-RP
 - Janice Means –suggested future seminar on hydrogen (Track TBD)
 - Paul Torcellini – Program on [newly released Advanced Energy Design Guide for Multifamily Buildings](#)
 - Daniel Villa – Program on water microgrids could be resubmitted but would need 1 more speaker (Alara Apcin will circulate original submission to get more speakers)

5.6 Handbook – Chapter 34

Morner

- No update

5.7 Handbook – Chapter 35

Morner

- Stephanie Mages: Handbook liaison for fundamentals. S_mages@yahoo.com
- Sumayyah Theron and Svein Morner said a few more volunteers are needed to review updates

6. Related Activities Reports

6.1. Standards

- SPC 189.1 High-Performance Green Buildings Lawrence
 - 2023 is the next version
 - Changes being made include how to evaluate CO2 impact
 - Addenda are regularly posted
 - Encouraged TC2.8 members to review addenda
 - Would like to see more designers and practioners to make comments on Standards
- SPC 189.3 High-Performance Green Healthcare Facilities Fick/Moser
 - Meeting tomorrow morning
 - Meeting with [American Society for Health Care Engineering \(ASHE\)](#) to coordinate activities
 - Ventilation coordination with Standards 62.1, 170, 189.1 and others
- SPC 191P Efficient Use of Water in Buildings Betz
 - Emailed an update
 - Approved Title, Purpose and Scope (TPS) change and up for review by Standards in the Fall
 - 3rd public review comments approved and waiting for commenters to approve/reject responses
 - Hoping to publish by Atlanta

- SPC 228P Standard Method of Evaluating Zero Energy Building Performance Torcellini
 - Went out for 2nd public review, comments addressed and sent back to commenters to approve/reject responses
 - 3rd public review going out in Fall
 - Potentially publishing next Spring or Summer
- SPC 227P High Performance Envelope Torcellini
 - Meeting tomorrow night
 - Draft in-progress

6.2. ASHRAE Advanced Energy Design Guides Update

Torcellini

- [Newly released Advanced Energy Design Guide for Multifamily Buildings](#) (3rd zero energy one published)
 - Buildings are all electric to promote decarbonization efforts
 - Expanded sections on hot water loads
- Free download available for all AEDGs
- Hard copies also available for purchase
- 700,000+ downloads from all AEDGs (among most popular ASHRAE publications)
- [Online courses](#) available on AEDGs

6.3 No Related Activities to be added

7. Old Business

7.1. [TC 2.8 Basecamp](#) site

- Encouraged to make more use of this site
- Good place for discussion, which reduces email clutter
- Request access by contacting Chair (Joy Altwies) TC0208@ashrae.net or Secretary (Lisa Ng) TC0208.SEC@ashrae.net

7.2. Membership roster

- Incoming Research Subcommittee Chair: Kevin Cross
- Incoming VM: Tania Ullah, Svein Morner
- Incoming Corresponding Member (CM) - will confirm if Sumayyah Theron is rolling on
- Lisa Ng listed as Secretary and webmaster, which resolved website access issues

7.3 [ASHRAE Task Force on Building Decarbonization](#) – updates?

- To be moved to Related Activities? Probably won't need a liaison since task force is a 1-year term
- Tom Lawrence – Kent Peterson Chair this year, good traction and activities going on, they are hoping decarbonization embeds into Technical Committee (TC) work after task force is disbanded
- Kevin Cross – Official position to be published, publications scheduled in next 12-18 months
- Frank Mills – Was on Task Force last year, optimistic that good progress will be made by task force this year

7.4 Main meeting schedule

- Probably not going to be moved off of Sunday night
- Will continue discussion on [basecamp](#)

8. New business

8.1 Future volunteers for WS-1929 PES (Proposal Evaluation Subcommittee)

- See above

8.2 No other new business

9. Adjourn

Moved by Janice Means, second by Alara Apcin

NEXT MEETING: February 5, 2023, Atlanta, GA (unless day of week changes)

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.

TC 2.8 Web Site

<http://tc0208.ashraetcs.org>

Upcoming Conferences:

Feb. 4-8, 2023 – Atlanta, GA
June 24-28, 2023 – Tampa, FL
Jan. 20-24, 2024 – Chicago, IL
June 22-26, 2024 – Indianapolis, IN
Feb. 8-12, 2025 – Orlando, FL
June 21-25, 2025 – Phoenix, AZ

TC 2.8 Programs Coming Up After this Meeting in Toronto (and click link for virtual)...

[Debate 1: College of Fellows Debate "Be Like Water:" Engineers Have a Duty to Address Climate Change Adaptation and Resilience](#)

Monday, June 27, 2022, 8:00 AM – 9:30 AM EDT
Sheraton Centre Toronto , Sheraton C (LC)

[Seminar 32: Climate Change Issues for Decarbonization, IAQ and Sustainable Buildings](#)

Tuesday, June 28, 2022, 9:45 AM – 10:45 AM EDT
Sheraton Centre Toronto , Grand East (LC)

[Seminar 38: Fundamentals of Climate Science, Part 1: History and Physics](#)

Tuesday, June 28, 2022, 11:00 AM – 12:30 PM EDT
Sheraton Centre Toronto , Dominion South (2)

[Seminar 43: Water Quality in Low Occupancy and Shutdown Buildings: Lessons Learned from COVID-19 Building Shutdowns](#)

Wednesday, June 29, 2022, 8:00 AM – 9:30 AM EDT
Sheraton Centre Toronto , Sheraton C (LC)



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Water-Energy Nexus Subcommittee 2022 Annual Conference Meeting Minutes

TC 2.8 Buildings' Environmental Impacts and Sustainability

Thursday, June 23, 2022, 10:00-11:00 am EDT ([WebEx Virtual Meeting](#))

Scope: The Water-Energy Nexus subcommittee is concerned with the coupled relationship between water and energy. The focus is on developing and standardizing methods for quantifying this relationship; raising awareness about the coupled nature of these two resources; and how this relationship affects the environmental impacts of water and energy usage. The areas of focus include building-scale end-uses (e.g. landscape, HVAC processes, flushing, etc.); quantifying and evaluating strategies for optimization to reduce building or campus level water/energy usage.

1. Roll call and Introductions – About 18 attendees with 6 new guests.
2. Virtual meeting minutes from Winter 2022.
3. Announcements/Current Events
 - a. Discuss meeting formats for future meetings? (In Person vs Virtual vs Hybrid)
 - a. In person/Virtual/Hybrid format for WEN Meeting Feedback –
 - i. Sumaya - hybrid is preferred; Fred agrees. Janice agrees.
 - ii. Eric Peterson - virtual before the conference; in person meeting during conference
 - iii. Ron George - cost of Wi-Fi is high at hotels conference rooms per some associations
 - iv. Marianna - ASHRAE CEC - intent to have subcommittee meetings online before main conference per ASHRAE
 - v. Joy - virtual subcommittee; in person for main meeting
 - vi. Calina - we could do hybrid at a local office at conference; Integral has office in Atlanta that can be used
 - vii. Ted Schnipper - Both in person and virtual mtgs should be the standard. Travel expenses and carbon footprint. Pandemic limits travel.
 - viii. Joy Altwies - hoping that ASHRAE will allow hybrid subcommittee meetings going forward; however, they did not this time. Only Main meetings were allowed to be both. Joy suggested virtual for subcommittee meetings if the choices were between virtual-only or in-person-only, as it allows more people to participate every time.
 - b. Debate 1: College of Fellows Debate "Be Like Water:" Engineers Have a Duty to Address Climate Change Adaptation and Resilience (Moderated by Larry Spielvogel)
 - c. Seminar 32: LIVESTREAM: Climate Change Issues for Decarbonization, IAQ and Sustainable Buildings (Chaired by Elizabeth Tomlinson)
 - d. Seminar 38: Fundamentals of Climate Science, Part 1: History and Physics (Chaired by Daniel Villa)
 - e. Seminar 43: Water Quality in Low Occupancy and Shutdown Buildings: Lessons Learned from COVID-19 Building Shutdowns (Chaired by Tania Ullah)

4. **ASHRAE Water Energy Nexus Guide, 1st Edition** (*a design guide for practicing professionals*) –
 - a. Discuss intent and scope – **Share guide development status with the attendees.**
 - b. Request for volunteers - **Called for volunteers to restart the guide development efforts; several attendees and new guests volunteered to help with the new guide. Rafi and Mike to setup a restart/kickoff meeting.**
 - c. **Suggestions –**
 - Eric noted that GreenGuide has sections on Water Energy nexus. Mike and Rafi to review the GreenGuide content to avoid duplicating efforts. 6th edition of the GreenGuide publishing is delayed; was supposed to be published by 2022 Annual conference.
 - Best practices/Case studies – Ted asked if there will be a section for best practices? Fred suggested that the best practices/case studies are located in each section of the Guide rather than a separate section; this approach will provide more context to the reader.
 - Tania suggested water heating topic is added to Chapter 3
 - Harvey shared that he has useful information for the appendix.
 - Janice suggested that a Glossary section is added.
5. **Call for Seminars/Training –**
 - a. New ideas - <https://www.ashrae.org/conferences/2023-winter-conference-atlanta> **Discussed at the programs meeting.**
 - b. **Timeline:** Program (Seminar, Workshop, Debate and Panel) Proposals Due - Tuesday, August 9, 2022.
6. **Future Research (RTAR) -**
 - *Guide to receiving approval on RTAR submissions – \$150,000/ Joint Research between multiple TCs/ Coordinate early with Section 2 RAC liaison)*
 - *ASHRAE Funding status?*
 - <https://www.ashrae.org/technical-resources/research>
 - [RTAR Form](#)
 - *Does ASHRAE still have moratorium on new research projects?*
 - a. **RTAR 1933** – Utility Source Water and Source Energy Dataset - Data collection of source water (gallon/kWh) and source electricity (kWh/gallon) similar to eGrid (Data for US) – **Approved with comments; (Fred Betz and Jim Sweeny) Still in process.**
 - b. **Proposal I** – Friction Loss and Fluid Flow Research; **RTAR draft developed and ready for TC2.8 committee's review** (H. Schowe to share details) – Rafi and Mike to assist Harvey with draft RTAR proposal and identify which committee will be best suited to sponsor this – TC2.8 vs **TC1.3** vs TC6.1; TC1.3 is the most suited. **Ron had comments for Harvey on this. Harvey and Ron to discuss. Mike attempted to coordinate with TC1.3 to see if TC1.3 would be**

interested in sponsoring this research proposal, but the TC did not have a main committee meeting at the annual conference.

- c. Benchmarking Facilities, Processes and Equipment Water and Energy Usage (H. Schowe)
- d. How water efficiency effects plumbing system quality/performance (design focus) - Tania Ullah is looking for someone with plumbing design experience to assist here.
 - *Modeling Effort (Andrew Welton, Purdue University)*
 - *Aging water in water mains (Michigan/Purdue/EPA study)*
- e. **New ideas?**

7. Open Forum

- Adjourn -

NEXT MEETING: TBD (Reach out to Mike or Rafi for details)

For comments, suggestions, volunteering to help, etc. with anything dealing with TC 2.8: Water Energy Nexus subcommittee, please contact:

Rafi Karim

AEI | Affiliated Engineers, Inc.

P: 626.768.7611

E: rkarim@aeieng.com

Mike Pascual

ISAT Total Support

P: 415.728-3219

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TC 2.8 Web Site

<http://tc28.ashraetcs.org>



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TC2.8 Research Subcommittee Minutes

Thursday, June 16, 2022, Online Webex Meeting
11:00 AM to 12:00 PM Eastern Time

Attendees: Joy Altwies, Lisa Ng, Nuria Casquero, Costas Balaras, Yukiko Yoshida, Juliana Pelligrini, Kevin Cross, Insung Kang, Mahdi Afkhamiaghda, Mike Vogel, Zheng O'Neill, Joe Zhou, Carrie Brown, Jo Norris, Janice Means, Jim Sweeney, Michael Deru, Brittany Carl Moser, Sumayyah Theron, Kevin Rice, Fred Betz, Bill Hutzler, Svein Morner, Eric Peterson

1. Introductions: Introduced Kevin Cross as incoming TC 2.8 Research Subcommittee Chair

2. Update on status of active TC 2.8 research:

1814-RP *Actual Energy Performance of Buildings Designed to Comply with ASHRAE Standard 90.1-2010*

- Joe Zhou from Slipstream provided an update at this meeting:
 - Joe presented slides showing the buildings evaluated and visited as part of project.
 - He included a summary of the “Common Factors” among higher-performing and lower-performing buildings in the study, including factors such as design/layout, lighting, HVAC, operations, maintenance, IEQ.
 - Plan is to submit final reports and complete project by 9/30/22, and to have programs presenting the results at the Atlanta (Feb 2023) meeting.

3. Follow up on previous business and research topic ideas.

- Review of topics in table below

4. Info from RAC

- Next deadline for submitting items to RAC: August 15 - they use 4 dates every year (March May August December).
- Updates from RAC section 2: Info from summer “breakfast” meeting in Toronto will be added after the meeting:
 - To be added after 6/27 meeting
- General Reminders:
 - Please inform any research project contractors of various awards available, including student award (grant-in-aid funding) for students working on ASHRAE research projects. (NOTE: These funds are currently on hold due to pandemic.)
 - RAC would like us to create a “Plain English Abstract” to accompany Work Statements. This will help disseminate ASHRAE research to a wider audience of non-technical readers.

- There is a searchable database of past research reports. This link allows you to access final information, such as, title, source, contractor, principal investigator, start and end dates, resulting papers, and if final report is available. Find it here:
research.ashrae.org

List of research topic ideas (with update/status from PREVIOUS meeting):

Research Topic Idea	Generated by	Update/Status	Next Step
ACTIVE: 1929-RTAR: Evaluation of building life cycle analysis tools incorporating embodied carbon	Jim Sweeney, Kevin Cross	Accepted with comments by RAC. Jim and Kevin are working to submit for August deadline.	<i>June update: Draft work statement has been distributed to TC voting members for comment. Looking for volunteers for PES, and ideas for potential bidders to list. Plan to vote and submit before 8/15 RAC deadline.</i>
ACTIVE: 1933-RTAR: Water-Energy Nexus: Utility Source Water and Source Energy Dataset	Fred Betz, Jim Sweeney, Rafi Kareem, Mike Pascual	Submitted August 2021. Approved with comments. Comments forwarded to authors in Oct 2021. RAC suggested submitting WS for May 2022 deadline.	<i>June 2022 update: Both Fred and Jim were on the meeting, Fred indicated they still want to move forward with it once other research topics are finalized.</i>
ACTIVE (Co-Sponsor): 1885-RTAR Guideline/Book for Design Installation and Operation of PV (Solar and Other Renewable)	TC 6.7	Update from June 2021 meeting: TC 6.7 is 90% done with this WS, but could use assistance with compiling list of potential bidders for WS cover sheet. Joy sent Svein similar cover sheets for past TC2.8 research WS in summer 2021.	<i>June 2022 update: Janice Means is on TC 6.7 so she will investigate current status.</i>
PENDING: Conservation vs. Water Quality from the Design Engineer's Perspective	Water-Energy Nexus Subcommittee (Rafi, Tania)	Idea was generated during the Feb 2020 Water-Energy Nexus meeting. Tania is working on developing the RTAR and will also submit it to TC 3.6 for potential co-sponsorship. Update from 1/22/21 meeting: Tania was not on call, but Rafi will check on status. No update at the June 2021 meeting.	<i>Jan 2022 Update: No authors on Webex so no update. June 2022 update: No authors on Webex so no update.</i>

ON HOLD: Effect of Water Quality on HVAC Systems	Fred Betz	New topic idea June 2021 – cost-benefit analysis? Fouling factors? Continuous Cx/O&M impacts? TC 7.3 cosponsor?	<i>June 2022 update: Fred indicated he would still like to pursue this in the future... will change to On Hold</i>
ON HOLD: Ground source heat pump technologies in hot climates – international	Ashish Rakheja	Ashish asked to keep this on hold. Next step is to find primary RTAR author. Ashish is willing to assist. Needs a volunteer author. Ashish is rolling onto the Board, so this may need to be set aside for awhile. Update from 1/22/21 meeting: Eric Peterson has done significant work in this area. Fred B will connect Eric and Ashish via email.	No update – continuing to hold.
ON HOLD: Net Zero Energy Hospitals	Frank Mills	Frank provided an update at the Feb 2020 TC 2.8 meeting, that this is now a guide book and is being published. So there isn't a need for a research project to create a book. However, he asked to keep the idea on the list and will follow up.	Continuing to hold – no update.
ON HOLD: Do buildings built to Standard 189.1 perform as expected?	Kevin Cross, Joy Altwies, Tom Lawrence	Kevin Cross and Brent Stephens developed an early stage RTAR. Keep on list, pending research from 1814.	Will keep this one as "special" long-term idea since it would be a follow-on in the same format as previous successful research projects.
New Research Topic Idea	Generated by	Update/Status	Next Step
Methods of Carbon Accounting – What gets counted? Upstream emissions? What methods/standards are used for ESG corporate reporting?	Fred Betz	New idea – does this research already exist? American Carbon Registry might be a first step for investigation. Standard 189.1 might also be a starting point. NREL Technical report exists, but older.	Potential further investigation of existing research – would need primary leader/volunteers to look into existing research and potentially draft RTAR.

For more information, visit ASHRAE's research web site here: [ashrae.org/research](https://www.ashrae.org/research)

Anyone interested in pursuing research topics (including those who generated ideas above) are asked to take a look at the RTAR form to start fleshing out their ideas. The most recent RTAR and Work Statement forms can be downloaded from this link:

<https://www.ashrae.org/technical-resources/research>

For reference: The ASHRAE Strategic Research Plan was updated in 2021. The formal roll out took place at the 2022 Las Vegas meeting.

The published information indicates that future research topics should address one of these topics/goals. Details and specifics on each topic area can be found at this link:

<https://www.ashrae.org/file%20library/technical%20resources/research/research%20strategic%20plan/research-strategic-plan.pdf>

1. Resilience
2. IEQ – Environmental Quality in Occupied Spaces and Impacts on Work and Learning Health and Well Being, and Transmission of Airborne Infectious Viruses
3. Sustainability, Decarbonization, Energy and Resources
4. HVAC&R Equipment, Components, and Materials
5. Tools and Applications
6. Education and Outreach



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TC 2.8 Programs Subcommittee Meeting Minutes

2022 ASHRAE Annual Conference Toronto

June 23, 2022 11:00 AM - 12:00 PM **EDT** (Virtual Meeting)

Attendees: Eric Peterson, Harvey Schowe, Carrie Brown, Chris Miller, Ron George, Lisa Ng, Nick, Tania Ullah, Joy Altwies, Janice Means, Svein Morner, Summayah Theron, Fred Betz, Costas Balaras, Rafi Karim, Mitchell Swan, Ashish Rakheja, Alara Apcin, Christopher Lopez

1) Roll call and introductions

2) Agenda / 2022 Las Vegas Winter Conference Programs meeting minutes

3) Announcements

Monday, June 27, 08:00 AM - 09:30 AM (EDT)

Debate 1

College of Fellows Debate "Be Like Water:" Engineers Have a Duty to Address Climate Change Adaptation and Resilience

Sponsor: TC 1.7 Business, Management & General Legal Education.

Co-Sponsor: TC 7.1 Integrated Building Design.

Other Sponsoring Committee: TC 2.8 Building Environmental Impacts and Sustainability

Tuesday, June 28, 9:45 AM – 10:45 AM (EDT)

Seminar 32

LIVESTREAM: Climate Change Issues for Decarbonization, IAQ and Sustainable Buildings

Technical Committee: TC 2.5 Global Climate Change

Co-Sponsoring Committee: TC 2.8 Building Environmental Impacts and Sustainability

Other Sponsoring Committee: TC 2.10 Resilience and Security; TC 7.4 Exergy Analysis for Sustainable Buildings; TC 4.2 Climatic Information

Tuesday, June 28 11:00 AM – 12:30 PM (EDT)

Seminar 38: Fundamentals of Climate Science, Part 1: History and Physics

Technical Committee: TC 2.5 Global Climate Change

Co-Sponsoring Committee: TC 4.2 Climatic Information

Other Sponsoring Committee: TC 2.8 Building Environmental Impacts and Sustainability

Wednesday, June 29 8:00 AM – 9:30 AM EDT

Seminar 43: Water Quality in Low Occupancy and Shutdown Buildings: Lessons Learned from COVID-19 Building Shutdowns

Chair: Tania Ullah

Technical Committee:

3.6 Water Treatment

4) Old Business

- Sewer Heat Rejection and Recovery: Rafi has a potential speaker for Atlanta. Fred will follow up with Rafi.
- Swiss-US Energy Innovation Days inspired program on renewable energy storage. Janice, Eric. Will be submitted under track 4 below.
- Refrigerants. Decarbonizing campuses. Rafi has one or two speakers. Alara to support. (Suggest submitting under Track 3 Refrigerants or 5 Pathways to Zero Energy Emissions and Decarbonization). Alara to follow up with Rafi
- Track 5: Janice and Tom will resubmit the Green Guide program proposal.

5) New Business

- Track 4: Grid Resilience and Thermal Storage. A seminar proposal with three speakers. Alara has a potential speaker with a condenser water thermal storage project. Eric: Efforts in the UK to create micro-district systems facing legal hurdles. Ron spoke about heat recovery from waste-water treatment plants using a heat exchanger/heat pump. Ron will check with another committee to find a person and coordinate with Alara.
- Track 5: Pathways to Zero Energy Emissions and Decarbonization. Decarbonization of hospitals. Chris Miller has a Kaiser Permanente project to present. Travis English and one more potential speaker pending confirmation. Fred is working on a decarbonization design guide/ ASHRAE code overlay.
- Track 7: Operations and Maintenance: Opportunity to collaborate with TC 7.9 Building Commissioning. Alara to be the liaison. Fred brought up a facility managers survey regarding issues with highly complex buildings conducted by ASHRAE from 5 years ago that might be useful. Alara will talk to Kent Peterson to learn more.
- Track 8: Building Simulation and Virtual Design in Construction: It would be helpful to have IBPSA people to have a bigger reach.

Program proposal on 1814-RP to be presented by Joe Zhou. Joy to connect Joe and Alara.

- Hydropower to provide energy: Janice, Rafi.

- Future item: Fred spoke about water efficiency helping to reduce carbon emissions and rainwater harvesting. Alara to add it to the agenda to keep on our radar for future conferences.

Review Timeline for Future Meetings

2023 ASHRAE Winter Conference Atlanta, GA

February 4-8, 2023: <https://www.ashrae.org/conferences/2023-winter-conference-atlanta>

Deadlines:

- **Tuesday April 5, 2022** – Conference Paper Abstracts, Technical Papers, and Paper Session Requests Due
- **Tuesday April 26, 2022** – Conference Paper Abstract Accept/Reject Notifications
- **Monday July 25, 2022** – Conference Papers Due – Submitted for Review
- **Tuesday August 9, 2022** – Debate, Panel, Seminar Form, Workshop Proposals Due
- **Monday August 15, 2022** – Conference Paper Abstract Accept / Revise / Reject Notifications
- **Monday August 29, 2022** – Revised Conference Papers, Technical Papers Due
- **Friday September 23, 2022** – Conference Paper Accept / Reject Notifications
- **Monday October 10, 2022** – Debate, Panel, Seminar, Forum Workshop Accept / Reject Notifications

2023 Winter Conference Tracks and Track Chairs:

1. Fundamentals and Applications: Fundamentals are the foundation for understanding applications in engineering. Key components of ASHRAE fundamentals include thermodynamics, psychometrics, fluid and mass flow. This track provides opportunities for papers and presentations of varying levels across a large topic base. Concepts, design elements and shared experiences for theoretical and applied concepts of HVAC&R design are included.

Anoop Peediyakkan

peediyakkan@gmail.com

2. HVAC&R Systems and Equipment: HVAC&R systems and equipment are constantly evolving to address the changing requirements of the built environment. Papers and programs in this track focus on the development of new systems and equipment, improvements to existing systems and equipment and the proper application and operation of systems and equipment.

Billy Austin

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3. Refrigerants and Refrigeration: Refrigeration systems generate and use cold for a range of processes, from food preparation and conservation to vaccine preservation, to long-term protection of fragile ancient inks of historic documents and others. Differences in technologies and equipment, performances, refrigerants, etc., may hide synergies from which both industrial

and commercial systems might benefit, also, but not only, from the points of view of reducing direct and indirect GHG emissions.

Brian Fronk

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4. Grid Resilience and Thermal Storage: Resilience is a highlighted aspect of the current ASHRAE strategic plan. Methods of designing buildings and HVAC&R systems with resilience in mind is paramount to our long-term success. Coupled with energy efficiency, this track is designed to highlight the advancements in grid resilience and thermal storage systems and how they are tied to resilience and energy conservation efforts.

Nohad Boudani

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5. Pathways to Zero Energy Emissions and Decarbonization: Climate change and the impact of carbon emissions on our environment has been recognized globally as a high priority. ASHRAE is taking a leading position in the advancement of carbon neutral, net zero energy, and decarbonization strategies in building and HVAC&R design. This track highlights methods being developed to reduce carbon impact on the global environment and the efforts ASHRAE and its members are taking to advance these efforts.

Som Shrestha

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6. Multifamily and Residential Buildings: Multifamily is one of the fast growth building sectors but has been underserved. Multifamily buildings present challenges and opportunities on energy codes requirements, energy efficiency opportunities, ventilation and air tightness balance, and equality to address low-income multifamily buildings. This track covers programs and papers on best practices, utility and above-code incentive programs, field studies, and codes and standards requirements. This track also welcomes programs and papers for single family housing and other residential buildings.

Lina Maged Hashem

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7. Operations and Maintenance: Making sure that the design intent of these more complicated HVAC systems is understood by all team members and building operators is key to the building's success. This track will address an array of topics including lessons learned, improvement of process and team communications and effort to improve the installation, startup, O&M and commissioning of HVAC systems.

Suzanne LeViseur

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8. Building Simulation and Virtual Design in Construction: The practices of energy modeling and building performance simulation using existing simulation tools, software development, and future simulation research and applications is ever evolving. The papers and programs in this

track inform designers, engineers, building energy simulation modelers, and energy consultants and practitioners in the use of various strategies methods for building simulation & virtual design in construction.

Alekhya Kaianathbhatta

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9. Mini Track – Innovative responses to supply chain challenges: 2021 brought many challenges. One that was highlighted was the fragile status of the global supply chain. This mini track is intended to help members plan for the future disruptions and develop resiliency plans around supply chain by highlighting effective and innovative strategies to mitigate supply chain challenges.

6) Adjourn.

Future Annual and Winter Conferences

Annual 2022 - Toronto, ON - June 25-29, 2022
Winter 2023 - Atlanta, GA - Feb. 4-8, 2023
Annual 2023 - Tampa, FL - June 24-28, 2023
Winter 2024 - Chicago, IL - Jan. 20-24, 2024
Annual 2024 - Indianapolis, IN - June 22-26, 2024
Winter 2025 - Orlando, FL - Feb. 8-12, 2025
Annual 2025 - Phoenix, AZ - June 21-25, 2025

***For any questions, comments, suggestions please contact:
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