



MINUTES

DRAFT

TECHNICAL COMMITTEE

2026 Winter Conference

February 1st, 2026



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

DRAFT

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 02/01/2026

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

DATE OF MEETING 02/01/2026 LOCATION Las Vegas, NV/Virtual

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Lisa Ng (Chair)	2025	Svein Morner	2022	Kevin Cross (Secretary)
Rafi Karim (Vice Chair)	2025	Ashish Rakheja (non-quorum)	2022	See full attendance records below
Sumayyah Theron	2022			
Constantinos Balaras	2025			
Stephen Duda	2025			
Natalie MacDonald	2024			
Jo Norris	2025			
Parichehr Salimifard	2025			
James Sweeney	2023			
Juliana Trigo	2024			
DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:				
TAC Section Head: Diana Fisler		SH2@ashrae.net		
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters (Research, Standards, ALL, etc.)		See ASHRAE email alias list for needed addresses.		
Mike Vaughn, Manager Of Research & Technical Services		MORTS@ashrae.net		



Shaping Tomorrow's
Built Environment Today

TC 2.8 Building Environmental Impacts and Sustainability Minutes

Sunday February 1, 2025, 3:30 PM – 5:30 PM PST

Caesars Palace, Genoa (P)

Meeting link: [TC 2.8 Main Meeting | Microsoft Teams | Meetup-Join](#)

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.*

[Diversity Commitment](#) - - The chair read aloud at the outset of the meeting.

[ASHRAE Code of Ethics](#)

0. Roll call and Introductions

Ng / Cross

The meeting was called to order at 3:30 by the chair, Lisa Ng. Lisa thanked the past chair, Kevin Brown, for his good work. All present introduced themselves. Forty people were in attendance: thirty-six in person, and four online via Teams.

Lisa outlined the path to becoming a voting member of the TC: an interested person should first sign up via [this link](#) to become a provisional corresponding member. With the chair's approval, that person will become a corresponding member, and then if interested, a voting member. There is no limit to the number of voting members that may serve on the committee.

The secretary, Kevin Cross, called roll. Ten voting members were present: Lisa Ng, Rafi Karim, Sumayyah Theron, Costas Balaras, Stephen Duda, Natalie MacDonald, Jo Norris, Parichehr Salimifard, Jim Sweeney, and Juliana Trigo. The full list of voting members and officers is appended below.

Of 11 quorum members, 6 are needed for quorum (Ashish Rakheja is non-quorum)

1. Review and Accept Agenda

Ng / Karim

The agenda was approved by a vote of 10-0-0.

2. Review / Approval of June 2025 Phoenix Meeting Minutes

Cross

The minutes for our past meeting were approved by a vote of 10-0-0.

3. Chair/Vice Chair Remarks

Ng / Karim

Based on their attendance at the recent committee chairs' meeting, Lisa and the vice-chair, Rafi Karim, reported that:

- The Diversity, Equity, and Inclusion (DEI) Committee is transitioning to becoming a Standing Committee of ASHRAE. ASHRAE is thereby signaling its ongoing commitment to DEI.
- The Board approved a Center of Excellence (CE) for Indoor Environmental Quality, which will hold its first meeting at this conference.
- The Research Administration Committee (RAC) is promoting the "New Investigator Award."
- The Center of Excellence for Building Decarbonization (CEBD) recently sent out a survey for Whole Life Carbon (WLC) practitioners; all WLC practitioners are encouraged to take it. Lisa sent the link to this survey out to all of us last week.

- The Research Advisory Panel (RAP), of which Lisa is a member, is in the process of developing the next Research Strategic Plan. Lisa will send this survey link out to all of us as well; everyone is encouraged to take that one.
- The Government Affairs Committee is looking for new members.

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

Technical Advisory Committee (TAC): Doug Fick reported that:

- TAC is currently working on a new version of the Climate Change Position Document.

Standards Committee: Doug also reported that:

- The residential energy standard 90.2 report to stakeholders is going out soon.
- The Standards Committee is trying to harmonize standards by reaching out to Standing Standard Project Committees (SSPCs) with similar scopes to encourage them to familiarize themselves with each others' work to attempt to make sure that there aren't any conflicts.

5. Subcommittee Reports

5.1 International

Mills / Rakheja

Frank reported that the International Subcommittee hasn't met since the meeting in Phoenix. He invited Jaap Hogeling to present briefly on an effort to develop a standard for the Energy Performance of Buildings that includes both operational and embedded carbon. The document is available [here](#). The Brazil ASHRAE Chapter and the Chartered Institution of Building Services Engineers (CIBSE) are working together on this effort.

5.2 Water-Energy Nexus (WEN)

Karim

Rafi report that the WEN Subcommittee met earlier today. It is working on an ASHRAE Water-Energy Nexus guide, which is facility and campus-focused. They expect to have a draft document ready by the winter conference next year. See Rafi if you are interested in participating on this Subcommittee.

Additionally, the WEN Subcommittee is working on an update to RTAR 1933 to summarize the carbon footprint of water for water utilities across the United States. This would be somewhat similar to eGRID, which summarizes the carbon footprint of electricity. They are looking at how this RTAR might be "recast" to show the importance of this effort in the context of data center development.

5.3 Research

Cross

Kevin reported that the Research Subcommittee met on Friday, 1/23. We have four active projects:

- 1929-TRP: Evaluation of building life cycle analysis tools incorporating embodied carbon. Currently 22 months into this 24 month duration research project; progressing well, although the PI recently requested a no-cost extension and it is slated to end this August.
- 1977-SP: Expand and update the ASHRAE Service Life Table in the HVAC Applications Handbook. Michigan State University was the successful bidder. This project began in November. The PMS has met with the research team once, and will meet with them for the second time this coming Friday.
- 1947-RP Climate change driven extreme temperature effects map for efficiency and resilience map of heat pump technology. TC 2.5 is the lead on this. Parichehr is on the PMS. First meeting was held last fall.
- 1988-SP: Whole-Life Carbon Gap Analysis. Lisa Ng developed the work statement and is representing us on the PMS. Meeting monthly. Lisa encouraged us all to take the Whole Life Carbon practitioner survey. This effort will wrap up this coming November.
- Our funnel needs filling! We are working on four active projects, but have no active work statements or RTARs.
- And finally, we are looking for a new Subcommittee chair. Jim Sweeney stepped up to do this after the conclusion of the meeting.

Notes for the meeting held on 1/23 are appended below.

- 5.4 Programs Theron
 Sumayyah reported that we are sponsoring three programs in Las Vegas: Panel 1, Debate 4, and Seminar 56. The last two are co-sponsored with other TCs. See summary below, and see submission deadlines for the Annual meeting below as well. Reach out to Sumayyah if you are interested in giving a presentation. Kevin Brown, former Programs Subcommittee Chair, is technical chair for New Orleans conference in Summer of 2027. The next meeting of the Programs Subcommittee will take place before June of this year.
- 5.5 Handbook – Chapters 34 & 35 Morner
 Svein reported after the conclusion of the TC 2.8 main meeting that the Handbook Subcommittee has been meeting monthly to discuss both the Energy Resources and Sustainability chapters. Details are included in the notes appended below.

6. Related Activities Reports

- 6.1 Standards –
- SSPC 189.1 High-Performance Green Buildings Lawrence
 Tom reminded us that we started writing this standard in 2006, and it is now on continuous maintenance. A new edition will be coming out later this year. This standard is referenced in the International Green Construction Code (IgCC).
 - SSPC 189.3 High-Performance Green Healthcare Facilities Fick
 Doug reported that this was published in late 2025, with ASHE co-sponsorship. This standard is also referenced in the IgCC.
 - SPC 191P Efficient Use of Water in Buildings Betz
 Fred stated that this is the standard for developing water balances and water efficiency in mechanical and process systems. The special committee will meet tomorrow. They are reviewing and addressing public review comments. They hope to get the standard published after that. Development of this standard started about 18 years ago. It is being cosponsored by the International Association of Plumbing and Mechanical Officials (IAPMO).
 - SSPC 228 Standard Method of Evaluating Zero Energy Building Performance Torcellini
 Paul was not present. Lisa reported that this committee was supposed to meet today, but was unable to do so. Their next meeting will likely take place later this month or in March.
 - SPC 227P Passive Building Design Standard Torcellini
 Brittany Carl Moser reported that the committee will meet on 2/3 and is also in the process of reviewing comments. They don't have a publication date yet.
 - SPC 240P Whole Life Greenhouse Gas Emissions Deru / Beth
 Michael was not present. Dru Crawley stated that the committee is working through comments and expects to publish that standard later this year.
 - SPC 242P Methods of calculating operational greenhouse gas emissions factors Deru
 Dru stated that this committee is also working through comments. They don't have a publication date yet.
- 6.2 ASHRAE Advanced Energy Design Guides Update Torcellini
- No update available.

7. Old Business

- 7.1 [TC 2.8 Basecamp](#) site
- Lisa is looking for someone to assume this responsibility. Chrissy Walsh volunteered. She and Lisa will discuss the handoff after the conclusion of this meeting.
- 7.2 Review Voting Membership roster (12 voting members, 1 MNQ)

Name	Voting Status	Appointed	End	Position
Lisa Ng	Voting (2 Yrs.) 07/01/16	07/01/25	06/30/27	Chair (2 Yrs.)
Rafi Karim	Voting (4 Yrs.) 07/01/19	07/01/25	06/30/29	Vice Chair (4 Yrs.)
Kevin Cross	Non-voting	07/01/25	N/A	Secretary (2 Yrs.)
Svein Morner	Voting (4 Yrs.) 07/01/22	07/01/22	06/30/26	Handbook Subcommittee Chair (4 Yrs.)
Sumayyah Theron	Voting (2 Yrs.) 07/01/23	07/01/25	06/30/27	Program Subcommittee Chair (2 Yrs.)
Ashish Rakheja	Voting (4 Yrs.) 07/01/09	07/01/22	06/30/26	Member Non Quorum (4 Yrs.)
Constantinos Balaras	Voting (4 Yrs.) 07/01/25	07/01/25	06/30/29	Member (4 Yrs.)
Stephen Duda	Voting (4 Yrs.) 07/01/25	07/01/25	06/30/29	Member (4 Yrs.)
Natalie MacDonald	Voting (4 Yrs.) 07/01/24	07/01/24	06/30/28	Member (4 Yrs.)
Jo Norris	Voting (4 Yrs.) 07/01/25	07/01/25	06/30/29	Member (4 Yrs.)
Parichehr Salimifard	Voting (4 Yrs.) 07/01/25	07/01/25	06/30/29	Member (4 Yrs.)
James Sweeney	Voting (4 Yrs.) 07/01/23	07/01/23	06/30/27	Member (4 Yrs.)
Juliana Trigo	Voting (4 Yrs.) 07/01/24	07/01/24	06/30/28	Member (4 Yrs.)

There are 11 quorum voting members; one voting member (Ashish) is non-quorum. Six voting members are needed to meet quorum.

Check your membership status: <https://3.basecamp.com/3106353/buckets/10832944/uploads/9477016854>

Join our membership! www.ashrae.org/joinatc. Sign up online if you are interested in joining.

7.3 Electronic votes held since the Phoenix meeting in June 2025

- On 7/28/2025, TC 2.8 approved sponsorship of two seminars at the Winter Conference by a vote of 12-0-0. Seminar titles are “Exploratory Data Analysis of a North American Whole Building Life Cycle Assessment” and “A whole life carbon assessment for 30 buildings in CA.”
- On 210/9/2025, TC 2.8 approved cosponsoring Work Statement 2026-SP Whole Life Carbon Calculation Guide for Building Systems by a vote of 11-0-0, with one person not voting.

8. New business

- None

9. Adjourn

- Adjourned at 4:59 local time.

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Full Attendance Records

Name	Affiliation	Email	Membership	Are you a YEA member/guest?	Are you an International member/guest?
Rafi Karim	Arup	Rafi.karim@arup.com	Voting Member	No	No
Dru Crawley	Bentley Systems	dbcrawley@gmail.com	Guest	No	No
Ng Yong King	Malaysia Chapter	nyk@nyk.com.my	Provisional Corresponding Member	No	No
Eric Peterson	University of Leeds	E.Peterson@leeds.ac.uk	Corresponding Member	No	Yes
Kevin Brown	Emory University	kevin@kbsquared.net	Corresponding Member	No	No
Kevin Cross	Tc 2.8 non-voting	Jkevin87@comcast.net	Corresponding Member	No	No
Eric Haley		emhaley@gmail.com	Corresponding Member	No	No
Ingrid Chaires		ingrid.chaires@arup.com	Guest	No	No
Kyle Kosmack	AHRI	kkosmack@ahrinet.org	Guest	No	No
Costas Balaras	NOA	costas@noa.gr	Voting Member	No	Yes
Joy Altwies	University of Wisconsin-Madison	altwies@wisc.edu	Corresponding Member	No	No
Yunyang Ye	Colorado School of Mines	yunyangye922@gmail.com	Guest	No	No
Douglas Fick	CMTA	ddfick@gmail.com	Corresponding Member	No	No
Sumayyah Theron	Avant-garde Sustainable Solutions	sumayyah.theron@gmail.com	Voting Member	No	No
Michael Sherber	Nouvel Technologies	msherber@nouveltechnologies.com	Provisional Corresponding Member	No	No
Titus Ellison	Taylor Engineers	Tellison@taylorengeers.com	Guest	Yes	No
John-Paul Farsight	McIntyre Corp.	jpgfarsight@mcintyrecorp.com	Guest	No	No
Nathan Kegel	IES	nkegel@gmail.com	Guest	No	No
James Sweeney	Texas A&M University	jsweeney@tamu.edu	Voting Member	No	No

David W Griffin II	Griffin EnerG Consulting	dgriffin@griffinec.com	Guest	No	No
Jacy DeVault		jacy.devault@arup.com	Guest	No	No
Tom Lawrence	University of Georgia retired	proftom@uga.edu	Voting Member	No	No
aida rezaei		aida.rezaei@honeywell.com	Guest	No	No
Haily Irrinki	Ring & DuChateau	Haily.fernald@gmail.com	Guest	No	No
Flora Guo	Baltimore Aircoil Company	fguo@baltimoreaircoil.com	Guest	No	No
Jo Norris	Carbon Reform	Jo@carbonreform.com	Voting Member	No	No
Steven Emmerich	NIST	steven.emmerich@nist.gov	Corresponding Member	No	No
Ross Bonner	Transaera	ross@transaera.com	Provisional Corresponding Member	No	No
Chrissie Walsh	GF/Uponor	Chrissie.walsh@georgfischer.com	Provisional Corresponding Member	No	No
Brittany carl moser	HKS, Inc.	Brittanycarlmoser@protonmail.com	Corresponding Member	No	No
Juliana Pellegrini Lemos Trigo	Voting member	julianapellegrini.arq@gmail.com	Voting Member	No	Yes
Yas Ahmadi	Harris County	yas.ahmadi@harriscountytexas.gov	Guest	Yes	No
Stephen Duda	Southern Illinois University Edwardsville	sduda@siue.edu	Voting Member	No	No
Milad Shoaie	Energy system lab	milad.shoaie@tamu.edu	Guest	No	No
Natalie MacDonald	Buro Happold	Natalie.macdonald@burohappold.com	Voting Member	Yes	No
Kinga Hydras	NORESO	kinga.hydras@gmail.com	Corresponding Member	No	No
Stanley Yee	Infinite Recycled Technologies	Stanleyy@infinitercycledtech.com	Guest	No	No
E. Mitchell Swann	Resolution Management Consultants	Em.swann@resmgt.com	Corresponding Member	Yes	No

NEXT MEETING: June 28, 2026, Austin, TX <https://www.ashrae.org/conferences/2026-annual-conference-austin>

TC 2.8 Web Site

<http://tc0208.ashraetcs.org>

Upcoming Conferences:

Winter, January 23-27, 2027 – Chicago
Annual, June 12-16, 2027 – New Orleans
Winter, February 6-10, 2028 – Orlando
June 24-28, 2028 – St. Louis, MO

TC 2.8 Sponsored Programs in Las Vegas

[Panel 1: Renewable Energy Myth Busting: Common Concerns and Their Solutions and Why it Matters](#) - Sunday, February 19:45 AM – 10:45 AM PST Caesars Palace Las Vegas, PS, Octavius V/VI

[Debate 4: A Presidential Debate by College of Fellows: IEQ vs Decarbonization](#) - Wednesday, February 4 9:45 AM – 10:45 AM PST Caesars Palace Las Vegas, PS, Octavius V/VI

[Seminar 56: Building-integrated solar and thermal systems: a path towards decarbonization](#) - Wednesday, February 4 11:00 AM – 12:30 PM PST Caesars Palace Las Vegas, P, Milano I/II

FREE WIFI at this meeting!

Caesars Palace Resort & Casino

Network: ASHRAE Conference

Password: winter2026

Visit the ASHRAE Expo!

The ASHRAE Headquarter shuttle between Caesars Palace and the Las Vegas Convention Center is free to ASHRAE attendees and will run on 20-minute intervals. Shuttles depart from the Caesars Palace Tour Lobby entrance located outside the Forum Casino adjacent from the Caesars Palace Food Court. Follow the yellow brick road to hop on the busses! If you'd rather not take the bus, consider taking the Monorail instead. Information about the Flamingo & Caesars Palace Monorail service to the LVCC is here. Although the LVCC is only 1.7 miles away, walking is not recommended.

Important Dates for Submissions for Austin Annual Meeting 2026

Wednesday, November 19, 2025	Conference Paper Abstracts, Technical Papers, and Paper Session Requests Due
Friday, December 12, 2025	Conference Paper Abstract Accept/Reject Notifications
Wednesday, January 7, 2026	Website Opens for Extended Abstracts and Seminar, Workshop, Forum, Debate and Panel Proposals
Wednesday, February 25, 2026	Debate, Panel, Seminar, Forum, Workshop, and Debate Proposals Due
Wednesday, February 25, 2026	Extended Abstracts and Full Conference Papers Due

TC2.8 Research Subcommittee Notes

Friday, January 23rd, 2026
11:00 a.m. to 12:00 p.m. EDT

Meeting was called to order by Kevin Cross at 11:05.

Note taker: Janice K. Means

Present: Kevin Cross, Joy Altwies, Jaya Mukhopadhyay, Eric Peterson, Lisa Ng, Svein Morner, Fred Betz, Kyle Kosmark, Chrysostomos Bourers (Germany) Carrie Brown, Chrissie Walsh, Jo Norris, Parichehr Salimifard, Janice K. Means, Balkar Singh, and Samir Hernandez

1. Agenda review (Kevin; see below)
2. Review current research topic ideas (see following table)

Research Topic Idea	Generated by	Update/Status	STATUS/Next Steps
ACTIVE: 1929-TRP: Evaluation of building life cycle analysis tools incorporating embodied carbon	Jim Sweeney, Kevin Cross	Update was presented by Jaya Mukhopadhyay of Montana State University.	<i>Project has been going well and is scheduled to be finished by August.</i>
Active: 1977-SP: Expand and update the ASHRAE Service Life Table in the HVAC Applications Handbook	Natalie MacDonald, Kevin Cross	Project started on 11/4/25; first PMS meeting was held with research team on 12/9/25	<i>Next PMS meeting is February 6. Kevin is chairing the PMS after recusing himself from the PES.</i>
ACTIVE (Co-Sponsor): RP-1947 Climate change driven extreme temperature effects map for efficiency and resilience map of heat pump technology	TC 2.5: Global Climate Change	Project was awarded to professor from the University of Alabama, who subsequently relocated. Contract suspended; will resume once PI is re-established (Parichehr).	<i>PI relocated and was able to start project. First meeting was held in the fall.</i>
ACTIVE (Co-Sponsor): 1885- Guideline/Book for Design Installation and Operation of PV (Solar and Other Renewable)	TC 6.7: Solar Energy and Other Renewables	Costa Kapsis was/is re-writing the PTAR to solicit entities for guideline authorship (Janice).	<i>This will be removed from our list going forward since other publications have been filling the gap per Costa Kapsis (TC 6.7)</i>
ACTIVE: (Co-sponsor) Roadmap for Transitioning Existing Hospitals to Net Zero Energy Hospitals	Frank Mills	TC 9.6 is assembling a group of volunteers to put the roadmap together. No RTAR or PTAR necessary (Frank).	<i>Frank not in attendance. Kevin will follow up with Frank for an update.</i>
ACTIVE: 1988-SP, Whole-Life Carbon Gap Analysis	Lisa Ng with CEBD and Working Group	Lisa.	<i>Meeting monthly. Met w/ contractor. Next step will be to conduct a survey. Need</i>

			<i>help from practitioners, to take the survey. To be completed within 1 year. Need UK contact. Maybe Frank?</i>
PENDING: Carbon capture and sequestration in buildings	Michael Akinseloyin	Michael Akinseloyin, PhD candidate at KSU, volunteered to lead this effort last June (Janice, Jo, and Jim)	<i>Jo Norris will follow up with Michael. If no response, we'll take this off the list before our next meeting.</i>
ON HOLD: 1933-RTAR: Water-Energy Nexus: Utility Source Water and Source Energy Dataset	Jim Sweeney	Jim Sweeney, Harvey Schowe, Fred Betz and Parichelhr Salimifard are in the process of updating/writing a new work statement.	<i>Fred advised this is still on hold. Suggested adding Data Center water use. Parichehr thinks this is a great idea. Kyle added that the International District Energy Association (IDEA) is working on this. He will be added.</i>

3. Discuss new research topic ideas (see following table) (15 minutes)

New Research Topic Ideas	Generated by	Update/Key Questions	STATUS/Next Step
What is the environmental impact of using AI to optimize building performance? Trade-offs: cost vs benefits.	Fred Betz	Building controls save energy, does using AI reduce environmental impact overall?	<i>Fred will float the idea with MTG Generative AI meeting in Vegas on Tues. at 10:30 am.th</i> E
Update plug loads table for life cycle costs.	Svein Morner	This would be similar to updating the equipment service life table. Would it be appropriate for us to take this one on?	<i>Svein to check on which TC "owns" the plug loads table and think a little more about whether we should take this one on.</i>

4. Other business:

- a. Jaya is interested in looking at a project related to one of her student's research. She will provide more details to Kevin, and will consider which path is best: RTAR or URP.
- b. Transition to new Research Subcommittee Chair – Kevin would like to step down as Research Subcommittee Chair now that he is the TC 2.8 Secretary. He asked if anyone was interested in becoming the new Chair. No takers yet!

5. Adjournment at about 12: 04 pm

Reference Items

For more information, visit ASHRAE's research web site here: 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 the link provide above.

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

Meeting adjourned a few minutes after 12:00 pm.

###

Update from TC 2.8 Handbook Subcommittee Chair Svein Morner

We agreed to have our meetings monthly to make more progress and keep it more on top of mind.

We are using the ASHRAE authoring portal and working on the chapters. Depending on how it goes, we might issue an early update to be incorporated into the online version.

The following topics were noted to be of interest to improve:

Energy Resources:

- Energy Storage (Natalie added one paragraph, Natalie and Svein thoughts by December)
- Microgrids – What is covered in other ASHRAE handbook chapters (Natalie and Svein by November)
- Carbon trading (restructure to decarbonization) (Stephen and Jim thoughts by January)
- Include Decarbonization in chapter and index (Stephen thoughts by November)
- Should District heating/cooling systems be mentioned? (Natalie December)
- Add references as beneficial (Natalie by December)

Sustainability:

- Embodied carbon (Costas thoughts by September)
- Indoor Air Quality (Jim thoughts by September)
- Water Resource Management related to buildings
- Outdoor Air Quality related to buildings
- Climate change (coordinate with the climate change chapter) Janice Means?
- In general: Update as beneficial with the Center of Excellence for Building Decarbonization (CEBD), IAQ and other ASHRAE developments (Stephen thoughts by November)
- Include Decarbonization in chapter and index
- Adding Bibliography (Stephen by November)
- Investigate if Electrification should be discussed more (Svein December)
- Add references as beneficial (Jim by December)