



# Shaping Tomorrow's Built Environment Today

## TC 7.6 Building Energy Performance

<https://tc0706.ashraetcs.org/>

Hybrid ([WebEx Meeting](#)) / Atlanta, GA

Tuesday, February 7<sup>th</sup>, 2023, 1:00-3:00 pm EDT

**TC 7.6**      **Date:** 2023-02-07      **Location:** Atlanta, GA

**TC Title:** Building Energy Performance      **Date of Meeting:** 2023-02-07 1:00 – 3:00 PM EDT

### Attendees:

Name	Email	Affiliation	Voting Status	YEA	Internati	Virtual / In	Notes / Comments
Amanda Webb	<a href="mailto:amanda.webb@uc.edu">amanda.webb@uc.edu</a>	University of Cincinnati	CM	N	N	In Person	Vice Chair
Adam Hinge	<a href="mailto:hinge@aoi.com">hinge@aoi.com</a>	Sustainable Energy Partnerships	CM	N	N	In Person	
Joe Hofstetter	<a href="mailto:jhofstetter@karpinskieng.com">jhofstetter@karpinskieng.com</a>	Karpinski Engineering	VM	N	N	In Person	Energy Audit Subcommittee
Aykut Yilmaz	<a href="mailto:aykut.yilmaz@dc.gov">aykut.yilmaz@dc.gov</a>	DC DOE	PCM	N	N	Virtual	
Hyojin Kim	<a href="mailto:hyojin.kim@njit.edu">hyojin.kim@njit.edu</a>	New Jersey Institute of Technology	VM	N	N	In Person	
Lauren Adams	<a href="mailto:lauren.adams@nrel.gov">lauren.adams@nrel.gov</a>	NREL	PCM	N	N	Virtual	
Rhys Davis	<a href="mailto:rhys@resourcerefocus.com">rhys@resourcerefocus.com</a>	Resource Refocus	PCM	Y	N	Virtual	
Niraj Kunwar	<a href="mailto:kunwar1@ornl.gov">kunwar1@ornl.gov</a>	Oak Ridge National Laboratory	PCM	Y		Virtual	
Supriya Goel	<a href="mailto:supriya.goel@pnnl.gov">supriya.goel@pnnl.gov</a>	PNNL	VM	N		Virtual	
Nicholas Long	<a href="mailto:nicholas.long@nrel.gov">nicholas.long@nrel.gov</a>	NREL	VM	N	N	In Person	Building Data Exchange
Christine Reinders	<a href="mailto:christinereinders@gmail.com">christinereinders@gmail.com</a>	Iowa State University	VM	N	N	In Person	Secretary, Programs
Neil Freidberg	<a href="mailto:Freidberg.neil@gmail.com">Freidberg.neil@gmail.com</a>	Louisiana Pacific	Guest	N	N	In Person	
Ruben Abreu	<a href="mailto:rabreu@walkerreid.com">rabreu@walkerreid.com</a>	Walker Reid Strategies	PCM	N	N	In Person	
Andrew Held	<a href="mailto:andrew.held@dc.gov">andrew.held@dc.gov</a>	DC DOE	Guest	N	N	In Person	
Russell Taylor	<a href="mailto:Russell.Taylor@carrier.com">Russell.Taylor@carrier.com</a>	Carrier Corporation	PCM	N	N	In Person	Chair TC 7.1
Terry Sharp	<a href="mailto:sharptr@tds.net">sharptr@tds.net</a>	Consultant (formerly with ORNL)	CM	n	n	Virtual	
J Patrick Carpenter	<a href="mailto:patrick.carpenter@jacobs.com">patrick.carpenter@jacobs.com</a>	Jacobs Engineering	VM	N	N	Virtual	
Curtis Fong	<a href="mailto:cfong@taylorengineers.com">cfong@taylorengineers.com</a>	Taylor Engineers	CM	Y	N	Virtual	
Kevin McFadden	<a href="mailto:Kevin.McFadden@daikincomfort.com">Kevin.McFadden@daikincomfort.com</a>	Daikin Comfort Technologies	Guest	N	N	In Person	
Yeonjin Bae	<a href="mailto:baey@ornl.gov">baey@ornl.gov</a>	ORNL	PCM	N	N	In Person	Webmaster
Fredric Goldner	<a href="mailto:fgoldner@emra.com">fgoldner@emra.com</a>	Energy Mgmt & Research Associates	CM	N	N	Virtual	
Jim Kelsey	<a href="mailto:kelsey@kw-engineering.com">kelsey@kw-engineering.com</a>	kW Engineering	CM	N	N	Virtual	
Kelly Majewski	<a href="mailto:kellymajewski@jll.com">kellymajewski@jll.com</a>	JLL	PCM	Y	N	Virtual	
Kajen Singham	<a href="mailto:kajen777@gmail.com">kajen777@gmail.com</a>	Enerlife Consulting	PCM	Y	Canada	Virtual	
John Hill	<a href="mailto:jhill2@unb.ca">jhill2@unb.ca</a>	Concordia University	Guest			Virtual	
Michael Deru	<a href="mailto:michael.deru@nrel.gov">michael.deru@nrel.gov</a>	NREL	Guest	N	N	Virtual	
SA Sherif	<a href="mailto:sasherif@ufl.edu">sasherif@ufl.edu</a>	University of Florida	PCM	N	N	Virtual	Provisional CM
Jonathan Humble	<a href="mailto:jhumble@steel.org">jhumble@steel.org</a>	DRSC Liaison	Guest	N	N	In Person	
Minkyong Park	<a href="mailto:mp346@njit.edu">mp346@njit.edu</a>	NJIT	Guest	N	N	In Person	
Jeongseo Lee	<a href="mailto:j298@njit.edu">j298@njit.edu</a>	NJIT	Guest	N	N	In Person	
John Constantini	<a href="mailto:jmc@knights.ucf.edu">jmc@knights.ucf.edu</a>	U.S. Space Force	CM	N	N	In Person	
Scott West	<a href="mailto:scott.west@hfa-ae.com">scott.west@hfa-ae.com</a>	HFA	VM	N	N	In Person	
Brittany Wilkins	<a href="mailto:brittany.wilkins@carrier.com">brittany.wilkins@carrier.com</a>	Carrier	Guest	N	N	In Person	
Eric Yang	<a href="mailto:ericyangcm@gmail.com">ericyangcm@gmail.com</a>	Vantage Data Centers	VM	N	N	In Person	
Jeremy White	<a href="mailto:jwhite@eabcoinc.com">jwhite@eabcoinc.com</a>	EAB	Guest	N	N	In Person	
Dennis Landsberg	<a href="mailto:dlandsberg@ls-energy.com">dlandsberg@ls-energy.com</a>	L&S Energy	CM	N	N	In Person	
Xiaoqi Liu	<a href="mailto:xiaoqi.liu@unl.edu">xiaoqi.liu@unl.edu</a>	University of Nebraska - Lincoln	CM	N	N	In Person	
Siva Sankaranarayanan	<a href="mailto:ssankaranarayanan@epri.com">ssankaranarayanan@epri.com</a>	EPRI	Guest	N	N	In Person	
Peng Zhao	<a href="mailto:pzhao@epri.com">pzhao@epri.com</a>	EPRI	Guest	N	N	In Person	
Enrica Galasso	<a href="mailto:enrica.galasso@nationalgrid.com">enrica.galasso@nationalgrid.com</a>	National Grid	PCM	Y	N	In Person	
Cobi Waxman	<a href="mailto:iwaxman@ahrinet.org">iwaxman@ahrinet.org</a>	AHRI	Guest	N	N	In Person	
Satheesh Kulankara	<a href="mailto:satheesh.kulankara@jci.com">satheesh.kulankara@jci.com</a>	Johnson Controls	Guest	N	N	In Person	Section 7 Head
Yeobeam Yoon	<a href="mailto:yoony@ornl.gov">yoony@ornl.gov</a>	ORNL	CM	N	N	In Person	
Marlei Meegan	<a href="mailto:mmeegan@qalaengineering.com">mmeegan@qalaengineering.com</a>	Region7 LeaDRS	Guest	Y	N	In Person	
Suyash Vidwans	<a href="mailto:suyash.vidwans@iesve.com">suyash.vidwans@iesve.com</a>	IES Ltd.	Guest	Y	Y	In Person	
Annie Smith	<a href="mailto:annie.smith@introba.com">annie.smith@introba.com</a>	Introba	VM	Y	N	In Person	TC 7.6 Chair

**TC 7.6 is concerned with the estimation, measurement, analysis, benchmarking, and management of whole building and building systems energy and water performance. This includes performance and resource management of new and existing buildings.**

## 1. Roll call and Introductions

Smith

- Welcome new members and visitors
  - 1:00PM Meeting called to order by Smith
  - Quorum was established – 8 Voting Members present.
- [Sign in](#) (note: check list for prior meeting info you can cut and paste)
- Agenda is on basecamp and on TC 7.6 website:
  - <https://tpc.ashrae.org/?cmtKey=a3c4df83-1642-4424-a669-789bd78fb174> .

## 2. ASHRAE Code of Ethics Commitment

Smith

In this and all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, integrity, and respect for others, and we shall avoid all real or perceived conflicts of interests.

(See full Code of Ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>.)

## 3. Approve minutes of June Hybrid meeting in Toronto

Smith

- TC 76L listserve (170-ish names; Includes most TC 7.6 members + dozens more; is self-managed and not official). Mail to tc76-l@lists.onebuilding.org – or go to [www.onebuilding.org](http://www.onebuilding.org) to sign up.
- Roster access by TC members (log into My Membership on ASHRAE website)
  - **Motion #1:** It was moved (Reinders-Caron) and Seconded (Long) that the minutes of TC7.6 Meeting from June 2022 be approved as drafted.
  - **Motion #1 Passed:** 8-0-0-5 CNV (*In Favor – Against – Abstaining – Not Present*)

## 4. Announcements and Chair Remarks

- Chair Remarks
  - Update on Chair's emphasis – plans for future
    - Decarbonization: alignment of TC 7.6 work with Decarbonization Task Force efforts
      - *Add Liaison to TFBD*
    - Completion of the updates to Green Book through Audits subcommittee
- Announcements
  - MOP for Functional Groups (FG's, including TC's):  
<https://www.ashrae.org/communities/committees/standing-committees/technical-activities-committee>
  - Basecamp and emails to roster used for communication/announcements
  - Basecamp for TC 7.6 and Subcommittee Basecamps
  - Honors & Awards Nominations

Smith

Smith

## 5. Membership

Webb

- Currently 13 VMs
- Newest Voting Members: Christine Reinders-Caron (also Secretary), Barry Abramson, Scott West
- Amanda Webb taking a year off as Voting Member in order to be Voting during upcoming Chair term

## 6. Standing Committee Liaison Reports (TAC/RAC/StdCom/Program/SpecPub/ALI/BuildingEQ)

- Section Head (Satheesh)
  - *Provide roster update, activity form with International Members (Outside North America), and evaluation survey to TAC.*
- AEDG

Kulankara

Eldridge

- *AEDG Steering committee is updating MOU with partner organizations and proposing a retrofit guide.*
  - *The state of this steering committee is in transition and reaching out to DoE for future direction of the committee.*
  - *Eldridge to remain on committee until future direction is established.*
  - *Guides may be updated for mobile capability.*
- **BuildingEQ** **Deru**
  - *Update provided by John Constantinide*
  - *BEQ is no longer a standing committee and will become an MTG*
  - *If you would like to get involved with BEQ let John C know*
  - *ASHE and DoE collaboration with BEQ and Green Globes, BEQ is working on collaborating with industry rating systems.*
- **SSPC 90.1 Liaison** **Lui**
  - *Update provided by Scott West*
  - *2022 edition published with new addenda incorporated*
  - *2023 winter meeting brainstorming session for future updates*
  - *NZE path for 90.1 is an option for 2031*
- **SSPC 90.2 Liaison** (need Liaison)
- **SSPC 100 Liaison** **Landsberg**
  - *TPS updates to be carbon based in addition to energy based*
  - *Evaluating gross vs net energy*
- **SSPC 189.1 Liaison (Katherine Hammack, Chair)** **West**
  - *Moving to next publication cycle at the end of this year*
  - *Sending out addenda for public review*
  - *Expanding electrification and improvements in ventilation in response to the pandemic.*
- 7. Multi-Disciplinary Task Group Reports**
  - **None** ---
- 8. Subcommittee Reports**
  - A. Standing (Functional) Subcommittees**
    - 8.1 Research** **Kim**
      - **Motion #2:** It was moved (Kim) and Seconded (Eldridge) that 1836-RP final report be approved as drafted.
      - **Motion #2 Passed:** 8-0-0-5 CNV (*In Favor – Against – Abstaining – Not Present*)
      - *Recently completed projects were reviewed*
      - *Subcommittee minutes are posted in basecamp*
      - *1771-RP – Final report is on the ASHRAE website – no planned follow up work.*
      - *1814-RP – Current project was completed; final report was approved in December. The report should be published soon.*
      - *1815-RP – TC 7.6 is a co-sponsor. Project is starting soon.*
      - *Reviewed new work statements and RTARs.*
    - 8.2 Handbook** **Shirazi**
      - *Constantinide provided transition and mentorship.*
      - *Plan to publish updates to the two chapters in 2026*
      - *Volunteers are needed to update chapters 37 and 42 Applications*
    - 8.3 Standards** **Liu**
      - **Std 90.1 - 2022** **Lui**

- Continuous maintenance
- *See Earlier Comments under standing committee reports*
- Std 90.2 - 2018 **Lui**
  - Continuous maintenance
  - Need Liaison
- Std 100 – 2018 **Landsberg**
  - Continuous maintenance
  - *See Earlier comments under standing committee reports*
- Std 105 – 2021 **Carpenter**
  - Continuous maintenance?
- Std 211 - 2018 **Kelsey**
  - Will move into continuous maintenance upon reaffirmation
  - Draft new Informative Annex “H” *Building Decarbonization Assessment has been submitted to the task force. TFBD has voted to approve Annex H to be added to STD 211 as part of reaffirmation*
  - *Building Decarbonization is a high priority for the society*
  - **Motion #3:** It was moved (Reinders-Caron) and Seconded (Long) that TC 7.6 recommends reaffirmation of standard 211-2018 including a new informative annex on building Decarbonization (the new annex is being an editorial change with no substantive change to the normative parts of the standard) and following reaffirmation, for anew Standing Standards project Committee to revise the standard through continuous maintenance.
  - **Motion #3 Passed:** 7-1-0-5 CNV (*In Favor – Against – Abstaining – Not Present*)
- Std. 214 – 2017 (reaffirmed at June 2022 meeting) **Liu**

*Comments received during public review process. Need 4 volunteers + 1 Chair to form a revision Project Committee to review and respond to commenter. Form by summer conference.*

  - *E-mail chair (Smith) if you are interested in participating*
- Proposed Std 228P – net-zero energy buildings w/TC 2.8 (SPC 228) **Landsberg**
- Guideline 14 – 2014 (GPC 14) **Landsberg**
  - In Publication and an article will be in the February ASHRAE journal
- Guideline 34 – 2019
  - *No Update as reported by Webb*
- Proposed Guideline 45P – authorized July 2021 (GPC 45) **Kim**
  - Approved in 2021, revised in 2023
  - Committee meets every 3 weeks, including subgroups
- 8.4 Programs** **Reinders-Caron**
  - Minutes are posted on basecamp
  - Program submissions are due for Tamps 2/27
  - Conference paper review timeline is shortened
- 8.5 Web Site** **Bae**
  - Send your agendas and minutes if not already on Basecamp.

## B. Topical Subcommittees

### 8.6 Monitoring & Energy Performance

**Webb**

- *ASHRAE building performance guide is now published*
  - *Link to download is in the agenda*
- *Federal Guideline is published*
- *CBECS is updated*

## 8.7 Energy Management

Yang

- Discussed a new research RTAR
- Looking into presenters for energy management
- Call for resources for trending charts for operators – if you are able to help let Eric know
- TC 2.8 Water-Energy Nexus Subcommittee Liaison
  - Need new liaison

## 8.8 Commercial Building Energy Audits

Hofstetter

- 85% - 90% through updates
- Meet bi-weekly and schedule deep dive sessions once a month between now and the annual meeting in June
- Participants have been identified for 3<sup>rd</sup> party review
- Next steps are editing images and breakout documents

## 8.9 Federal Buildings

Zhivov

- No Report

## 8.10 Building Data Exchange

Long

- Working to put together a guide for the ASHRAE website for Building Data Exchange
- Draft will be sent to committee for review
- Presentation at this conference was not co-sponsored by TC7.6 – Well attended
- Minutes are on basecamp

## 9. Other Topics

- (None)
- Send subcommittee minutes to webmaster and post on basecamp

## 10. Old Business

### 11. Position Document on Energy Efficiency in Buildings

Kelsey

Unanimously approved by Revision Committee. Letter ballot email discussion circulated. Vote held via letter ballot. Committee meeting scheduled for Feb 7, 2023.

<https://www.ashrae.org/about/position-documents>

- **Motion #4:** It was moved (Reinders-Caron) and Seconded (Hofstetter) to reaffirm the existing Position Document from November 15, 2022 to extend the deadline to July 1, 2024.
- **Motion #4 Passed:** 8-0-0-5 CNV (In Favor – Against – Abstaining – Not Present)
- PD draft updated for ASHRAE'S new template
- **Action Item:** Chair (Smith) contact Steve Hammerling to communicate with ASHRAE Marketing that we have asked that this be extended while the committee works on the update.
- TC 7.6 recommends a PD committee is formed and approved by the board to review and approve the revised document.

## 12. New Business

- Vote to Reaffirm the TC.

Smith
- **Motion #5:** It was moved (Smith) and Seconded (Reinders-Caron) to reaffirm TC 7.6 Building Energy Performance
- **Motion #5 Passed:** 8-0-0-5 CNV (In Favor – Against – Abstaining – Not Present)

## 13. Adjourn