

Meeting Minutes



TC 7.6 Building Energy Performance Research Subcommittee – Hybrid

Sunday February 5, 2023, 1:00 PM–2:00 PM (ET)

Location/Room: Georgia World Congress Center, A409 (4)

Virtual Meeting Link: <https://njit.webex.com/njit/j.php?MTID=m809f074bb5f71c23bd496a4bad1dd174>

TC 7.6 is concerned with the estimation, measurement, analysis, benchmarking, and management of whole building and building systems energy and water performance.

1. Sign-in / Introduction

No.	Name	Affiliation	Email Address	Member	YEA Member	Int'l Member
1	Hyojin Kim	NJIT	hyojin.kim@njit.edu	VM	No	No
2	Jeff Haberl	Texas A&M University	jhaberl@tamu.edu	CM	No	No
3	Amanda Webb	University of Cincinnati	amanda.webb@uc.edu	VM	No	No
4	Annie Smith	Introba	annie.smith@introba.com	VM	Yes	No
5	Yingli Lou	Penn State University	yingli.lou@psu.edu	CM	No	No
6	Yizhi Yang	Penn State University	yizhi.y@psu.edu	-	No	No
7	Xiaoqi Liu	University of Nebraska - Lincoln	xiaoqi.liu@unl.edu	CM	No	No
8	Ali Salim Shirazi	ATI Group (WMS)	ali.shirazi.salim@gmail.com	CM	No	No
9	Gregory Cmar	Interval Data Systems	Gregory.Cmar@intdatsys.com	Guest	No	No
10	Yunyang Ye	PNNL	Yunyang.ye@pnnl.gov	Guest	No	No
11	Nicholas Long	NREL	nicholas.long@nrel.gov	VM	No	No
12	Brittany Wilkins	Carrier Corporation	brittany.wilkins@carrier.com	Guest	No	No
13	Joe Hofstetter	Karpinski Engineering	jhofstetter@karpinskieng.com	VM	No	No
14	Michael Deru	NREL	michael.deru@nrel.gov	Guest	No	No
15	Eric Yang	Vantage Data Center	ericyangcem@gmail.com	VM	No	No
16	Scott West	HFA	scott.west@hfa-ae.com	VM	No	No

2. Recently-Completed Projects

- 1836-RP Developing a Standardized Categorization System for Energy Efficiency Measures (Original Final report published on February 2022)
 - Amanda Webb (PI) corrected minor errors in dataset and is seeking re-approval of the revised final report from TC 7.6. PMS Vote: 3-0-0 (chair voting, 2/2/2023). This revision will not impact on overall results/conclusions.
 - Other updates:
 - There are two Github repos related to the project, which may be useful for others looking to work with the dataset or do related research: <https://github.com/retrofit-lab/ashrae-1836-rp-text-mining> and <https://github.com/retrofit-lab/ashrae-1836-rp-categorization>
 - The first STBE manuscript from the project was published in October: <https://doi.org/10.1080/23744731.2022.2133329>
 - A conference paper abstract accepted for the ASHRAE 2023 Annual Conference on measure naming best practices which is currently being drafted.
 - [Action Item] A seminar proposal for Atlanta was not successful, but Amanda agreed to re-submit it to Tampa.
- 1771-RP Energy Modeling of Typical Commercial Buildings in Support of ASHRAE bEQ Energy Rating Program (Final report published on May 2022)
 - There was a suggestion from the Building EQ committee to look at the report for potential additional research or for use in energy analysis activities (namely Bruce Hunn and Charles Eley).
 - Michael Deru said no follow-up work is currently planned.

3. Status of Current Research Projects

No	Project	Contributors	Status
1	1814-RP Actual Energy Performance of Secondary Schools and Medium Offices Designed to Comply with ASHRAE Standard 90.1-2010	(PI) Joe Zhou (RC) TC 2.8 (Co-Sponsor) TC 7.6	<p>(2020 Annual, from Basecamp) The team recruited more secondary schools building data. Preliminary results comparing 90.1-2004 vs. 2010 using average ECI indicated some data quality issues. Due to COVID-19, responses to our data request have been very slow. The team plans to collect more building data. Expect to request no-cost extension for this project.</p> <p>(2021 Winter) The recruitment was nearly completed. Challenges include ability to do site energy audit, which is planned late spring or summer. Scheduled to be completed by March 2022.</p> <p>(2021 Annual) Third year of the project. Task 1 (70 school buildings) was completed. Task 2 (site visits – 6 school buildings) is ongoing. Project is on track with an extended deadline (March 2022). Preliminary results: 24% measured ECI difference vs. 30% PNNL-predicted ECI difference between 90.1-2004 vs. 90.1-2010.</p> <p>(2022 Winter, by email) The contractor completed the required six secondary school site visits in the last six months. Currently writing an interim report on the site visit findings. Expect to complete the project by June 2022 (not yet approved).</p> <p>(2022 Annual) Hyojin followed up with the project PI, but no updates.</p> <p>(2023 Winter, by email) PI said PMS approved the final report. PI cannot attend 7.6 Research SC due to a conflict.</p>
2	1815-WS Integrating Occupant Behavior Data with Building Information Modeling for Performance Simulation	(RC) MTG.OBB (Co-Sponsor) TC 7.6 PES/PMS Jeff Haberl, TC 4.7, MTG.BIM, TC 1.5	<p>(2022 Annual, after meeting) No updates - approved by ASHRAE for bid at the next cycle.</p> <p>(2023 Winter) RP 1815 Contractor was Stephen Roth. Project just getting started. PMS meeting follows TC 7.6 meeting.</p>

4. WS and RTAR In-Progress

No	Project	Contributors	Status
1	1861-WS Thermal Comfort in U.S. and Canadian Residences: Indoor Conditions, Occupant Behavior and Energy Consumption	Hyojin Kim (RC) TC 2.1 (Co-Sponsor) TC 7.6	<p>(2020 Winter) WS submitted to the subcommittee basecamp. Ready for review. Due by Feb. 16.</p> <p>(2021 Winter) The team received feedback from RAC. There were concerns with data collection and a large scope proposed. Feedback from TC 2.1 includes to remove the field work and consider a meta-analysis instead. The team agreed to work on the revision in summer 2021.</p> <p>(2021 Annual) The team plans to work on the revision this summer.</p> <p>(2022 Winter) The team still works on the revision of this WS.</p> <p>(2022 Annual, after meeting) The team met and agreed to re-scope this WS and aim to complete it by the end of August.</p> <p>(2023 Winter) Still working on WS revision.</p>
2	1822-RTAR Supplemental Normalization Parameters for Alternate/Enhanced Expression of Energy Performance	Dennis Landsberg, Jeff Haberl (RC) TC 7.6 (Co-Sponsor) SSPC 100	<p>(2020 Annual) WS in progress; to be completed before the next conference.</p> <p>(2021 Winter, from Basecamp) WS draft is ready but needs polishing; to be completed after the winter conference.</p> <p>(2021 Annual, by email) Dennis is still working on the WS draft.</p> <p>(2022 Winter) Dennis plans to complete this WS after G14 is done.</p> <p>(2022 Annual) G14 is near completion, and Dennis plans to complete this WS soon. Scott West is interested in this topic and volunteers to help out to address RAC comments.</p>

			(2023 Winter) Jeff Haberl said that this idea by Dennis came from work by the NAS/TRB on airport terminal buildings where EUIs don't describe the buildings. Jeff will help this effort.
3	New Idea Do buildings designed to 90.1 / 189.1 comply with Standard 100?	Scott West, Joseph Firrantello, Dennis Landsberg	<p>(2020 Annual) Scott West to obtain the input from ASHRAE 189.1 and Joe F. to obtain the input from ASHRAE 100.</p> <p>(2021 Winter) No updates.</p> <p>(2021 Annual, from Basecamp) SSPC 189.1 is still interested in this. They are looking at an outcome-based energy performance option. However, it is not clear how 189.1 energy performance compares to Standard 100 performance levels.</p> <p>(2022 Winter) Still interested in this idea. Not many buildings complying with 189.1. Scott will check RP-1771.</p> <p>(2022 Annual) Scott said it is hard to find good empirical data collected from buildings complying with 189.1. Amanda suggested to redirect this study to compare modeled vs. measured energy use of buildings complying with different versions of 90.1. Dennis volunteered to help this effort.</p> <p>(2023 Winter) Amanda said benchmarking data might be one way to move forward for this RTAR. A lot of information needs to be collected at the time a building is built. Scott will check the final report of 1814-RP. Hyojin said how to find good data can be a part of this project.</p>
4	New Idea follow-up project of 1836-RP	Amanda Webb, Nick Long	<p>(2022 Annual) Amanda Webb agreed to work on a new RTAR as a follow up project of 1836-RP to create a large database/dataset using the developed EEM classification system.</p> <p>(2022 Winter) Nick Long said there is an effort that is happening in Washington DC about standard ECMs. He agreed to help with the follow-on RTAR.</p>
5	New Idea Evaluate barcode technology as the ID technology for capturing time-series data according to its parent device or system	Gregory Cmar, Eric Yang	<p>(2023 Winter) A rough draft was posted on Basecamp. Idea is to use bar codes to help define the global database, including site keys, equipment keys, point keys, etc. Eric said this RTAR is geared toward a process using bar code and then map the point automatically. TC 7.3 is in favor of cosponsoring this. There's a presentation on this topic – Seminar 44 at Atlanta.</p> <p>The committee agreed that this is an issue, but RTAR still needs some work to define this project (e.g., who owns the data, identify vendors). Jeff suggested one way to proceed would be to have an RTAR that defines the different methods available in the industry and puts them into a common framework for evaluating how to proceed: e.g., an Annotated Bibliography.</p>

5. New Ideas / Topics / Business

- Hyojin asked the committee to send her new ideas/topics by email before the next Tampa meeting.

6. Meeting Adjourned (1:58 PM EST)