ASHRAE 6.7 – SOLAR AND OTHER RENEWABLE ENERGIES

APROVED MEETING MINUTES

ASHRAE TC 6.7 General meeting – 6 February 2023

Atlanta, GA, USA - Virtual meeting

Minute Taker: Stratos Rounis (TC 6.7 secretary)

List of Attendees

First Name	Surname	Initials
Costas	Balaras	CB
Atma	Bhawuk	AB
Veronique	Delisle	VD
Ahmed	Elatar	AE
Steve	Ethman	SE
Jin Jin	Huang	JJH
Christopher	Kampf	CHK
Costa	Kapsis	CK
John	Kondylis	JK
Sunil	Kumar	SK
James	Leidel	JL
Janice	Means	JM
Tim	Merrigan	TM
Qu	Ming	QM
Svein	Morner	SM
Khalid	Nagidi	KN
Mohammad	Nasir	MN
Herve	Nouanegue	HN
Douglas	Reindl	DR
Stratos	Rounis	SR
Anna-Maria	Sigouris	AMS

1. Call to Order/Quorum/Introductions/Code of Ethics Statement

1.1 Call to order & Introductions. The meeting was called to order by Chair CK at 4.05 PM, February 6th, 2023 and introductions were made.

1.2 Code of Ethics. Chair referred members to the ASHRAE code of ethics and Manual of Procedures.

1.3 Quorum. A quorum was met (6 VM present: CB, VD, AE, CK, JL, TM).

2. Agenda

CK reviewed the meeting agenda shared in advance with all TC 6.7 members through email. AE moved motion to approve the meeting agenda; CB seconded the motion. The meeting agenda was approved (6 approve, 0 reject, 0 abstain).

3. Scope

CK reiterated the scope of TC 6.7 and referred to overlap with other TC's.

4. Announcements

ASHRAE Task Force on Building Decarbonization (TFBD) from CB

Decarbonization is currently one of the most important issues within ASHRAE. There is an ongoing task to develop tools and design guidelines for the technical groups. 6 guidebooks are to be developed within the next 1.5 years and they are looking for input from all TCs for topics of research and identification of the main priorities within the society.

It was discussed that it is important to provide input for the next strategic planning committee from the point of view of our TC. Ideas and suggestions to be fed to DR, who will forward them to the strategic planning committee.

CB mentioned that people interested in providing input, they can look for the relevant announcements. CB also mentioned there is a dedicated website with resources, upcoming events etc.

CK mentioned that several ASHRAE standards that appear in code can be accessed online in a read-only format. https://www.ashrae.org/technical-resources/standards-and-guidelines/read-only-versions-of-ashrae-standards.

Also, ASHRAE funded research projects can be accessed on the ASHRAE website. https://www.ashrae.org/technical-resources/research

TAC announcements

DR is the TAC representative for TC 6.x. He provided a brief description on how TC 6.7 can coordinate technical activities and development with TAC and provide a summary of the key actions taken by TAC.

After the announcements CK moved to several items for voting.

5. Discussion/Vote on Approval of 2022 Annual (Toronto) Meeting Minutes

CK discussed the past minutes from the 2022 Annual Meeting in Toronto (June 28, 2022). VD moved motion to approve the minutes; AE seconded the motion. Minutes were approved (6 approve, 0 reject, 0 abstain).

6. Discussion/Vote on Approval for forming new TC 6.7 Subcommittee on Membership and Outreach

The proposal for the new subcommittee was discussed. The name of the subcommittee has been chosen such that it is consistent with other TC's. This subcommittee will be led by AMS. VD moved a motion to approve the forming of the new subcommittee. CK moved motion to approve the formation of new TC 6.7 Subcommittee on Membership and Outreach; VD seconded the motion. T The forming of the new TC 6.7 Subcommittee was approved (6 approve, 0 reject, 0 abstain). The new subcom chair will be Anna-Maria Sigouris (AMS).

Discussion:

- JL suggested involving social media and making an effort to introduce activities more appealing to a younger audience.
- KN suggested creating a LinkedIn page for this purpose. There was some discussion on whether this would be approved by ASHRAE and that we should be careful with the content as it has to meet ASHRAE commercialization requirements.
- AMS has concerns about maintaining the content of the social media.
- JM suggested coordinating with student to organize events, as well as planning webinars to present the activity of our TC to students.
- AMS and JM suggested to record the seminars and post them under youtube TC 6.7 channel (TBD).
- CK offered to use the UW MS Teams platform to host the events.
- CB suggested to create a seminar template that follows the format of the ASHRAE conference presentation template. Also, CK and AMS should share it with DR (TAC representative) for review, to ensure that there will be no issues or concerns.
- A follow up meeting will be arranged by AMS to discuss further and set the list of upcoming guest speakers.
- Note: Following up the meeting, JM offered to be the first guest speaker in September 2023.

7. Handbook Subcommittee (Veronique Delisle)

VD continued the discussion which started during the TC 6.7 meeting on January 28, 2023, and elaborated further on the 3-phase approach regarding updating the handbooks from the scope of our TC.

- PHASE 1: Review of the 4 handbooks (in the context of TC 6.7) and evaluate the TC 6.7 existing content in the two handbook chapters.

- PHASE 2: Identification of the required handbook content based on the TC 6.7 current content. Development of revised table of contents for each chapter, using existing content.
- PHASE 3: In depth revision of the existing content and development of a plan to address updating content.

The need to develop new table of contents for each chapter was discussed, in order to allow for growth for new applications and technologies, while identifying existing content that needs to be reorganized, as well as missing content, was discussed.

Following, VD presented a proposed methodology involving three questions in order to identify which technologies/concepts are within the scope of the TC 6.7:

For a technology, process, system or application to be included in the TC 6.7 chapters, will need to pass all three questions below (i.e., the response to all questions should be "yes").

1. Is the concept/technology related to the collection, conversion, storage or utilization of Renewable Energy?
2. Is the concept/technology affecting the building load/generation/thermal comfort?
3. Is the concept/technology used beyond the research/pilot level today, or is foreseen in upcoming real applications?

VD presented several examples of how the above approach were tested. It was clarified that if a topic is deemed beyond the scope, it does not mean it cannot be included in the future. The proposed approach is primarily a quick way to filter the relevant concepts/technologies. Most agreed with this approach. CB and KN raised a concern that currently, TC 6.7 does not have a chapter under Fundamentals despite the fact that solar calculations and energy is briefly covered.

VD reiterated the 3 questions address the following requirements, respectively.

- Is the concept/technology within the scope of our TC?
- Is it within the scope of ASHRAE?
- Is it the technology/concept at too early of a stage to be included (note: when mature enough, it can be included in future revisions)?

Discussion:

KN suggested allowing greater flexibility and looking further into the future, provided the example of wave energy systems. There was a debate between KN, CK and VD on the prioritization of mature technologies, and ones that are directly linked to buildings. There was a discussion on what should be excluded. The example of solar farms was given as a technology within the scope of TC 6.7 , but not related to buildings. HN mentioned that TC 6.7 should focus on solutions on the building-side of the meter. There are other ASHRAE TCs (i.e., TC.7.5) and organizations (i.e., IEEE) that deal with the utility-side of the meter.

JM suggested adding a question on whether a technology/concept will be viable in the immediate future (i.e., 10 years).

CB suggested using the handbooks as a reference. He referred to potential issues with duplicating of other TC's, more from a consistency than a repetition point of view. Additionally, he suggested that people could start working on various technologies on a voluntary basis but committing to a subject, and coordinating with the handbook chair.

Everyone praised VD for the proposed approach and regarded it as an excellent tool for housekeeping. It was decided that it can be an active advising tool, without going through a vote.

Action items:

- VD would like to show a new table of content in the upcoming meeting for Applications and Systems
- SM asked if anyone has material to contribute to TC 2.8. CK asked SM to provide a draft of the chapter to circulate for comments.

Chair called for a break at 17:40

Return from break at 17:50

8. Research Subcommittee

JM and JL mentioned that a revised version of the Work Statement for Solar PV Design Guide was circulated prior to the meeting. JM mentioned that TC 2.8 offered to co-sponsor the Work Statement and are willing to continue to assist. She requested for feedback ASAP so, we can move forward with the final submission. CK mentioned that after our comments, he can be passed to TC 7.5 for co-sponsorship.

JM mentioned that due to his new job, he might not be able to support the research chair in full capacity and requested from CK to potentially look for a new research chair. TBD.

9. Program Subcommittee

AE informed that we need at least 2 speakers to secure a seminar. He mentioned a new deadline for 27th of February to submit proposals.

CK informed that we have one seminar accepted for the Atlanta meeting. We will be revisiting ideas for the meetings in Tampa and Chicago.

PROPOSAL A	
Proposed by:	Costa Kapsis
Tentative title:	**Building-integrated solar systems: one step closer to carbon neutrality**
Theme:	Pathways to Zero Energy Emissions and Decarbonization
Chair:	Khalid Nagidi
Presentation 1:	Andreas Athienitis (ConcordiaU) on BIPV/T
Presentation 2:	Andy Walter (NREL) on transpired solar thermal collectors
Presentation 3:	Costas Balaras on solar-combi+ systems
Potential co-sponsors:	

PROPOSAL B1	
Proposed by:	Costa Kapsis
Tentative title:	**Building-integrated photovoltaic part 1: enabling net zero energy performance and beyond**
Theme:	Pathways to Zero Energy Emissions and Decarbonization
Chair:	Veronique Delisle
Presentation 1:	Chris Klinga (ASA) on BIPV in the north American market
Presentation 2:	Francesco Frontini (SUPSI) on coloured BIPV
Presentation 3:	Costa Kapsis (Uwaterloo) on BIPV case studies
Potential co-sponsors:	

PROPOSAL B2	
Proposed by:	Costa Kapsis
Tentative title:	**Building-integrated photovoltaic part 2: enabling net zero energy performance and beyond**
Theme:	Pathways to Zero Energy Emissions and Decarbonization
Chair:	Veronique Delisle
Presentation 1:	Sydney Brown (Diamond Schmitt) on BIPV Red River college
Presentation 2:	Stratos Rounis (Unicel Architectural) on BIPV solar decathlon
Presentation 3:	Anthony Pereira (altPower) on BIPV case studies
Potential co-sponsors:	

PROPOSAL C	
Proposed by:	Costa Kapsis
Tentative title:	**The building genome: zero energy carbon buildings under temperate climate**
Theme:	Pathways to Zero Energy Emissions and Decarbonization
Chair:	Costa Kapsis
Presentation 1:	Thor Neumann (Cora Group) on evolv1 (commercial)
Presentation 2:	Mohawk College on Joyce Centre (institutional) tony.cupido@mohawkcollege.ca.
Presentation 3:	Seigneurie-des-Mille-Îles School Board on New Curé-Paquin Elementary School (k-12)
Potential co-sponsors:	

PROPOSAL D	
Proposed by:	Veronique Delisle
Tentative title:	**Distributed energy resources: enabling electrification and decarbonation of the built environment**
Theme:	Grid Resilience and Thermal Storage
Chair:	Costas Balaras
Presentation 1:	NREL on NARIS study on informing utilities, policymakers, and other building stakeholders about opportunities for a coordinated, north American low-carbon grid.
Presentation 2:	NRCan on end-use load and flexibility
Presentation 3:	Brainbox AI on DER case studies
Potential co-sponsors:	

PROPOSAL E1	
Proposed by:	Svein Morner
Tentative title:	**Microgrid case studies Part 1: enabling electrification and decarbonation of the built environment**
Theme:	Grid Resilience and Thermal Storage
Chair:	Ahmed Elatar
Presentation 1:	Costas Balaras RE-communities / prosumers
Presentation 2:	Svein Morner on case studies (airport, hospital and business park)
Presentation 3:	Veronique Delisle remote communities
Potential co-sponsors:	

PROPOSAL E2	
Proposed by:	Svein Morner
Tentative title:	**Microgrid case studies Part 2: enabling electrification and decarbonation of the built environment**
Theme:	Grid Resilience and Thermal Storage
Chair:	Svein Morner
Presentation 1	HQ Lac Megantic project from HQ
Presentation 2:	Ahmed Elatar presenter from ORNL
Potential co-sponsors:	

Discussion:

VD suggested possible coordination with TC 7.5 (smart grid and envelope interaction, dynamic façade).

KN stressed the importance of the envelope in the path to decarbonization.

SM discussed about incentives, tax credits etc.

JM suggested expanding the scope beyond North America.

KN suggested closing the seminar with the presentation of a successful case study, from the early design to the maintenance stage.

VD suggested merging B1 and B2.

CK mentioned that the intention is to submit 2 seminar proposals for Tampa, 4 for Chicago. TBD.

AE moved motion to approve seminar proposals A, C, D and E1. CK seconded the motion. The seminar proposals were approved (6 approve, 0 reject, 0 abstain). AE will follow up with the proposed chairs and participation to coordinate submission.

10. Standards Subcommittee

CK mentioned that MT (TC 6.7 standards chairs) will be coordinating with ASHRAE, EN and ISO for the development of a BIPV standard. MT will provide more context during the interim meeting.

11. Web Page

SM – nothing to add.

12. Old business

- None

13. New business

Discussion:

There was a discussion on the prescriptive requirements for PV in 90.1.

CB suggested assigning people to attend the next 90.1 committee meeting.

JJH can act as TC 6.7 liaison to 90.1 committee.

13. Adjourn

AE moved motion to adjourn meeting. VD and CB seconded.

Meeting adjourned at 18:43.