

ASHRAE 6.7 - SOLAR AND OTHER RENEWABLE ENERGIES

APPROVED MEETING MINUTES

ASHRAE TC 6.7 General meeting - 28 June 2022

Toronto, On, Canada - Virtual meeting

Acting TC 6.7 Secretary: Stratos Rounis (incoming secretary)

List of Attendees

First Name	Surname	Initials
Andreas	Athienitis	AA
Costas	Balaras	CB
Atma	Bhawuk	AB
Alex	Corvino	AC
Veronique	Delisle	VD
Ahmed	Elatar	AE
Terry	Fletcher	TF
John	Hollick	JH
Costa	Kapsis	CK
Sunil	Kumar	SK
G.D.	Mathur	GDM
Janice	Means	JM
Tim	Merrigan	TM
Svein	Morner	SM
Stratos	Rounis	SR
Michele	Shi	MS
Ali	Shirazi	AS
Oumou	Sidibe	OS
Anna-Maria	Sigouris	AMS
Marija	Todorovic	MT
Alex	Walker	AW

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

1.1 Call to order & Introductions. The meeting was called to order by Chair SM at 13:04 PM, June 28th, 2022 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 (VM: Veronique Delisle, Ahmed Elatar, Costa Kapsis, Tim Merrigan, Svein Morner).

2. Agenda

Chair SM reviewed the meeting agenda shared in advance with all TC 6.7 members through email. SR kept meeting minutes. The agenda was approved.

3. Minutes - Review and approve the minutes of the 2022 Virtual Winter Meeting

The Secretary AE reviewed the past meeting minutes from ASHRAE Virtual Winter Meeting (February 1, 2022). CK moved motion to approve the minutes; AE seconded the motion. Minutes were approved (4 VM in favor).

Discussion:

- AE reported that he uploaded approved minutes to basecamp, using the required ASHRAE format.

4. Chair's Report

There were no major updates. SM and CK did not attend the Chairs' breakfast due to schedule conflicts. SM and CB suggested that CK attends the next Chair's breakfast and report on any procedure changes/guidelines.

Discussion:

- SM announced the new TC 6.7 roster. The SY 2022-23 Roster and the changes in members and their roles were discussed. The updated list can be found at <https://tpc.ashrae.org/Membership?cmtKey=ffc0e7ac-6d35-4139-a68f-a4c3afd6c426>
- **TC 6.7 would like to extend their gratitude to outgoing Chair Svein Morner for his leadership and impact.**
- TC 6.7 would like to welcome the incoming Chairs, Voting Members, and new corresponding members.

5. Subcommittee reports

5.1 Handbook

The TC 6.7 has approved the revised Chapter 36 (VM: 5 approved; 2 abstained).

The need for the inclusion of a Solar Energy chapter in the Handbook of Fundamentals and its impact from the scope of buildings was highlighted. This requires revisiting the scope of TC 6.7. Additionally, it is important to ensure that the knowledge/guidelines provided by TC 6.7 do not overlap with other TCs.

Discussion:

- TC 6.7 would like to thank the outgoing Handbook Chair, Marija Todorovic, for her impact and contributions and welcome the incoming Chair, Veronique Delisle.
- GDM reported that the July deadline for the delivery of the remaining ASHRAE handbook chapters will be met. (Deadline: July 20th).
- MJ suggested reanalyzing the scope of TC 6.7 and further suggested incorporating links to global warming, renewables and decarbonization.
- VD proposed holding interim meetings where TC 6.7 members can discuss in depth and agree on the content of the chapters assigned to TC6.7.
- JM suggested that as a first step, a review of relevant chapters/material on solar and fenestration should take place to identify overlaps.
- CB pointed out that this effort will require strong coordination and marketing. He suggested that the new Handbook Chair, VD, prepares a solid outline and checks on potential content overlaps with existing material. The TC 6.7 proposal for a solar chapter in Fundamentals should support the ASHRAE decarbonization efforts and avoid major overlaps with other TC's.
- CK added that coordination of content and terminology across handbooks is necessary, adding that TC6.7 can collaborate with other relevant TC's since many TC6.7 are members (voting/corresponding) in multiple TC's.

Action items:

- VD to finalize revisions on Chapter 36 and submit to ASHRAE Handbook before July 20, 2022.
- VD will reach out to members for interim meeting to brainstorm on the new content
- JM and VD will attend next Handbook training and get in touch with compatible TC's to coordinate action.

5.2 Research

James Leidel has prepared a Work Statement (WS) Form for a publication on Photovoltaic systems on buildings. The WS should be finalized and submitted for

approval. The latest version of the WS can be found here:
<https://public.3.basecamp.com/p/47SYwc43iXFkhVt69YZCygKM>

All members are invited to provide feedback.

Discussion:

- JM requested and received a copy of the WS to share with TC 2.8 for cosponsoring. She suggested familiarising with NREL publications on PV design.
- JM and CK have already reached out to TC 7.5 for cosponsoring, and they presented the WS under the TC 7.5 research meeting, during the ASHRAE winter conference 2022.
- MT proposed updating references/state of the art technology/advancements in efficiency and prices etc., in the work statement. CK pointed out that the WS is not affected from these updates, but the actual publication needs to reflect the latest information.
- CK is in discussion with Prof. Annamaria Buonomano for potentially being the upcoming research chair.

Action items:

- MT to add comments on the work statement
- CK will email TC 6.7 members to review and provide feedback on the WS.
- JM will pass James Sweeney and Paul Torcellini's contact information to reach out to them.
- JM will act as a liaison between TC 6.7 and TC 2.8

5.3 Standards

There are no updates.

- TC 6.7 would like to thank the outgoing Standards Chair, Ahmed Elatar, for his service and welcome the incoming Chair, Marija Todorovic.

5.4 Program

CK provided a comprehensive list of tentative seminar proposals for the ASHRAE winter meeting 2023, in Atlanta. **The program submission deadline is August 9th.** The information for the tentative proposals and potential speakers/chairs follows.

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:	

Discussion:

- MT asked if these seminars (A & B) focus on new buildings or renovations. CK replied that it can be for both, since they are technology-focused.
- CB offered to present on Combi+ systems under A.
- AA agreed to present on BIPV, BIPV/T and demand response under A.

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 evol1 (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:

- SM suggested that it will be important to talk about case studies.
- VD suggested reaching out to Hydro Quebec.
- CB discussed about RE-communities and that there is a major effort in the EU to get prosumers engaged.
- VD commented that it will be interesting to present what kind of information exchange would be needed between a building and the smart grid.
- CB inquired about what types of distributed RE are inferred and that he perceives "distributed" as not part of the main grid. VD replied that "distributed" encompasses all resources that can provide energy flexibility.
- JM inquired about continental climate. It was decided to change the wording from "continental climate" to "temperate climate" under C.
- JM commented that we should come up with catchier titles.

PROPOSAL F	
Proposed by:	Costas Balaras
Tentative title:	Distributed and district storage: from design to application to case studies
Theme:	
Chair:	
Presentation 1:	
Presentation 2:	
Presentation 3:	
Potential co-sponsors:	

- CB highlighted the importance of providing experience from the side of energy storage. There is a need for case studies, with design priorities on means of storage other than batteries (i.e., hydro reservoir), which can be implemented within an urban environment.
- CK suggested reaching out to institutions from Australia and Hawaii to take part on said presentations on storage.
- Costas Balaras thanked Costa Kapsis for his contributions as a program chair and welcomed the incoming Chair, Ahmed Elatar.

Action items:

- AE and CK will create a repository under basecamp for seminar ideas that are not immediately materialized, but can be stored for future seminars
- CK and JM will be looking for seminar co-sponsors. JM could be the liaison for TCs 2.5 and 2.8.
- CK suggested that members from other TCs could co-chair some of the seminars.
- AE will be reaching out to ORNL for a presenter under E2.
- CK will prepare the proposals A, B and C (note that B1 and B2 can be combined into one session, if necessary/practical), in coordination with AE.
- VD and SM will prepare the proposals D and E (note that D1 and D2 can be combined into one session, if necessary/practical), in coordination with AE. As soon as the proposal drafts are near final, AE will share them with CB that volunteered to review them.

5.5 Website

SM informed members that if members need to post on the TC 6.7 website, they should get in touch with him. Updating personal information has to be done through the main ASHRAE website.

6. Liaison reports

- AE attended the subcommittee Chair training. He reported that there is a new system to submit proposals.

7. Old business

- SM discussed about the possibility of combining with another committee. CK argued that this can be difficult for the time being, especially due to the remote nature of the meetings.

8. New business

- CK suggested the formation of an Outreach subcommittee to attract young ASHRAE professionals and new talent to join TC 6.7. AMS could assist. AE showed interest in chairing said subcommittee.
- CK suggested having a meeting in September to revise the scope of TC 6.7. The importance of incorporating storage was highlighted (storage may be more relevant than other RE, which may not be applicable within an urban context). CB noted that overlaps with other TCs should be avoided.

Action items:

- VD, AE and CK to organize a meeting in September with all TC members to revise the scope of TC 6.7.
- CK to organize a training meeting with new TC6.7 subcommittee chairs for coordination and access to critical files and documents, under TC 6.7 website and basecamp.

9. Adjourn

VD moved a motion to adjourn meeting, AE seconded the motion. The meeting was adjourned at 15.40.