

**AMERICAN SOCIETY OF HEATING, REFRIGERATING AND  
AIR-CONDITIONING ENGINEERS, INC.**

**1791 Tullie Circle, NE Atlanta, GA 30329 (404-636-8400)**

**TC/TG/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/TRG NO. TC 7.5                      DATE: July 1, 2015**

**TC/TG/TRG TITLE: Smart Building Systems**

**DATE OF MEETING: June 30, 2015                      LOCATION: Atlanta, GA**

<b>Members Present</b>	<b>Appt</b>	<b>Members Absent</b>	<b>Appt</b>	<b>Ex-Officio Members and Additional Attendance</b>
Natascha Milesi Ferretti, Chair, (V)	2015	Nick Gayeski, Enabling Technologies Subc. (NV)		Salvador Acha
Rich Hackner, Vice Chair, (V)	2015	Haorong Li, FDD Subc. (NV)		Kristen Cetin
David Yuill, Secretary (NV)	2017	Hiroei Mikami, Member Non-Quorum (V)	2017	Bill Chadwick
Jin Wen, Research Subc. (V)	2018	Glenn Remington (V)	2017	Howard Cheung
Michael Brambley, Handbook Subc., (NV)	2008	Robert Sonderegger, (V)	2015	Art Hallstrom
Li Song, Building Operations Dynamics Subc (V)	2017			Jia Huang
Joshua Rhodes, Smart Grid Subc. (V)	2017			Xiwang Li
Mike Galler, Webmaster (NV)				Gaelen McFadden
Xiaohui Zhou, Program Subc. Chair (NV)	2013			Vanita Negandhi
Edward Tsui (V, NQ)	2017			Amanda Pertzborn
Yuebin Yu (V)	2017			Adam Regnier
Carlos Haiad, (V)	2015			Max Shirley
Adrienne Thomle, Section Head				Steven Snyder
				Ke Xu

<b>Members Present</b>	<b>Appt</b>	<b>Members Absent</b>	<b>Appt</b>	<b>Ex-Officio Members and Additional Attendance</b>
Peter Armstrong	2012	Jerine Ahmed, (CM)	2007	
Kimberly Barker		Hashem Akbari	2013	
James Braun, (CM)	2001	Osman Ahmed, (CM)	2006	
Barry Bridges		Narendra Amarnani, (CM)	2004	
Joon Ho Choi	2002	Don Bailey, (CM)	2008	
Sukru Erisgen, (CM)	2011	Fred Bauman, (CM)	2009	
Phil Haves (CM)	2010	Christopher Benson, (CM)	2011	
John House (CM)		David Blum	2012	
Xin (Sherry) Hu		David Bornside, (CM)	2004	
Brian James		Michael Bobker, (CM)	2008	
Srinivas Katipamula, (CM)	1996	Michael Brandemuehl,	2010	
Thomas Lawrence		Dave Branson, (CM)	2007	
Guanjing Lin		Barry Bridges	2007	
Ran Liu		Martha Brook, (CM)	2002	
Carol Lomonaco (CM)	2013	James Butler, (CM)	2006	
David Quirk		Brian Coffey, (CM)	2011	
Mayumi Miura	2013	Robert Coleman, (CM)	2009	
Dave Shipley (CM)	2012	Maria Corsi, (CM)	2008	
Vernon Smith, (CM)	2008	Charles Culp, (CM)	2003	
Andrew Windham	2008	Arthur Dexter, (CM)	2000	
Chariti Young, (CM)	2002	Sharon Dinges, (CM)	2005	
		Piotr Domanski, (CM)	2006	
		Kirk Drees, (CM)	2005	
		Jay Eldridge, (CM)	2008	
		Mohsen Farzad, (CM)	2011	
		Clifford Federspiel, (CM)	2005	
		James Gartner, (CM)	2006	
		Nick Gaveski, (CM)	2011	
		Krishnan Gowri	2007	
		Eunice Hamevie, (CM)	2013	
		Kristin Heinemeier, (CM)	2011	
		David Heinzerling (PCM)	2014	
		David Holmberg, (CM)	2005	
		Ahmad Husaunndee, (CM)	2011	
		Mark Johnson, (CM)	2006	
		Samuel Anthony Jasinski	2004	
		Ashok Kadakia, (CM)	2013	
		David Kahn, (CM)	2006	
		George Kelly, (CM)	2005	
		Michael Kintner-Meyer,	2001	
		Curtis Klaassen, (CM)	2007	
		Jan Kreider, (CM)	2008	
		James Kummer, (CM)	2008	
		Jean Lebrun, (CM)	2008	
		Scott LeClair, (CM)	2008	
		Kuei-Peng Lee, (CM)	2008	
		Hui Li, (CM)	2008	
		Mingsheng Liu, (CM)	2010	

Members Present	Appt	Members Absent	Appt	Ex-Officio Members and Additional Attendance
		Darrell Massie, (CM)	2003	
		Itzhak Maor	2003	
		Hung Manh Pham, (CM)	2012	
		John Mitchell, (CM)	2001	
		Ram Narayanamurthy,	2000	
		Ian Nelson (PCM)	2010	
		Ron Nelson, (CM)	2014	
		Richard Ng, (CM)	1998	
		Leslie Norford, (CM)	2008	
		Robert Old (CM)	2006	
		Zheng O'Neill (CM)	2008	
		Xiufeng Pang, (CM)	2011	
		William Pienta, (CM)	2011	
		Kinga Porst, (CM)	2006	
		Michael Pouchak, (CM)	2002	
		Andrew Price, (CM)	2003	
		Barry Reardon, (CM)	2003	
		Agami Reddy (CM)	2006	
		Jeffrey Schein, (CM)	1999	
		Russell Secor, (CM)	2007	
		John Seem, (CM)	2008	
		Reinhard Seidl	2012	
		Peter Simmonds, (CM)	2003	
		Pornsak Songkakul, (CM)	2011	
		Gene Strehelow, (CM)	2002	
		Meli Stylianou, (V)	2014	
		James Sweeney(PCM)	2013	
		Stephen Treado (CM)	2006	
		Matthew Tyler, (CM)	2012	
		Dan Veronica, (CM)	2011	
		Arun Vohra, (CM)	2011	
		Paul Wacker, (CM)	2006	
		Stuart Waterbury, (CM)	2011	
		Thomas Webster, (CM)	2011	
		Allen Weidman, (CM)	2009	
		Jonathan West, (CM)	2011	
		James Winston, (CM)	2013	
		Jonathan Wright, (CM)	1996	
		Peng Xu, (CM)	2008	
		Daihong Yu	2011	
		Tea Zakula	2012	
		Li Zhang, (CM)	2012	
		Bill Zwack (PCM)	2014	

(V) = voting member

(CM) = corresponding member

(PCM) = provisional corresponding member

**DISTRIBUTION:**

ALL MEMBERS AND CORRESPONDING MEMBERS OF TC

TAC CHAIR: Walter Grondzik

TAC SECTION HEAD: Adrienne Thomle

ALL COMMITTEE LIAISONS AS SHOWN ON TC ROSTERS:

Research: Phil Haves

Standards: Rick Larson

CTT: Chad Moore

Special Publications: William Fleming

ALI/PDC.: Hugh McMillan

Staff Liaison (Stds): Stephanie Reiniche

Staff Liaison (Research/Tech Services): Michael Vaughn

DATE: June 30, 2015

TC NO. 7.5 TC TITLE: Smart Building Systems

CHAIR: Natascha Milesi Ferretti VICE CHAIR: Rich Hackner

TC Meeting Schedule

Location, past 12 mo.	Date	Location, planned next 12 mo.	Date
Seattle, WA	07/1/14	Orlando, FL	1/26/16
Chicago, IL	1/27/15	St. Louis, MO	6/28/16

TC Voting Member Status

1	Natascha Milesi Ferretti (until 06/30/2016)	Yes
2	Carlos Haiad (until 06/30/2015)	Yes
3	Robert Sonderegger (until 06/30/2015)	No
4	Glenn Remington (until 6/30/2017)	No
5	Josh Rhodes (until 6/30/2017)	Yes
6	Yuebin Yu (until 6/30/2017)	Yes
7	Li Song (until 6/30/2017)	Yes
8	Jin Wen (until 6/30/2019)	Yes
9	Rich Hackner (until 6/30/2019)	Yes
NQ	Hiroei Mikami (until 6/30/2017)	No
NQ	Edward Ka Cheung Tsui (until 6/30/2017)	Yes

ASHRAE 2015 Summer Meeting – Atlanta, GA – June 28-July 3, 2014

Chair/Standards	Natascha Milesi-Ferretti
Vice Chair	Richard Hackner
Secretary	David Yuill
Handbook Subcom. Chair	Mike Brambley
Research Subcommittee Chair	Jin Wen

Program Chair	Xiaohui Zhou (Joe)
Buildings Operations Dynamics Subcom. Chair	Li Song
Smart Grid Subcom. Chair	Josh Rhodes
Enabling Technologies Subcom. Chair	Nick Gayeski
Fault Detection Diagnostics Subcom. Chair	Haorong Li
WebMaster	Mike Galler

**ASHRAE TC 7.5 Smart Building Systems  
2015 Annual Meeting  
Atlanta, GA  
Pavilion 2 (2) Atlanta Hilton  
Minutes**

**Date: Tuesday, June 30, 2015**

Meeting called to order by Chair Natascha Milesi-Ferretti

1. Roll Call and Introductions. Review VMs, CMs, and PCMs.

8 of 12 (including non-quorum) voting members were present: Natascha Milesi Ferretti, Rich Hackner, Edward Ka Cheung Tsui, Jin Wen, Yuebin Yu, Li Song, Carlos Haiad, and Joshua Rhodes

4 Members were Absent: Robert Sonderegger, Zheng O'Neil, Glenn Remington, and Hiroei Mikami (NQ)

Quorum achieved. (8/11)

2. TC 7.5 Scope

Chair read scope of Technical Committee.

Scope

Technical Committee 7.5 is concerned with the following topics

- Performance and interactions of smart building systems (SBS).
- The impact of smart building systems on the total building performance.
- Methods for achieving more intelligent control and operation of building processes, including supervisory control strategies and the optimization of dynamic building components and systems.
- Interactions of smart buildings with utilities.

- Documentation of the benefits of smart buildings and smart building systems as they relate to energy consumption, cost of operation, maintenance, occupant comfort, building commissioning, operations, and impact of the SBS on utilities and natural resources.

3. Approval of New York Winter 2014 Meeting Minutes

**Corrections: None**

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**Motion to approve**

Chicago 2015 Meeting minutes

**- Josh moved and Edward second. 8-0-0 (12) Chair voting.**

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4. Announcements

- The meeting will follow the ASHRAE Code of Ethics.
- We are still in the running for Outstanding TC Award!
- We received a request to review papers submitted for programs.
- Track ideas are always welcome to CEC.
- Training will be released on how to write an RTAR/Workstatement
- A list of upcoming conferences was circulated
- Invitations will go out to all corresponding members to use Basecamp, an online collaboration tool
- RAC asked for a list of all residential related research

5. Web Page - Mike Galler

There is a new website design for TCs will be rolled out over the next six months or year.

ASHRAE is discouraging use of google sites for ASHRAE business.

Basecamp is being implemented for all collaboration of TC activities.

6. Liaison Reports

**RAC Liaison – Phil Haves**---ASHRAE is now requesting that work statements specify the deliverables so that bidders are able to assign a portion of the funding to each deliverable. The contractor will then require the PMS to sign off on each deliverable before funds are released to the contractor.

Research projects generate various levels of quality in the code and databases that contractors provide. ASHRAE is interested in feedback or ideas regarding managing data from research.

**Chariti Young**---**TC 1.4**---RP 1633 has had its final technical report submitted. It will be voted on by email ballot in the next couple of weeks.

RP-1455 wrapped up and the resulting control sequences are being added to Guideline 36. Many comments on the results came in from various sources.

1746 –TRP is a project to conduct field validation of the sequences from RP-1455. It has a PES, who just received bids. It should be selected and approved by Orlando.

WS-1661 is in process. This project is for development of modelica models for supervisory control strategies.

Guideline 13 – specifying BAS. There were 2014 and 2015 publications of the Guideline because of advances made shortly after the 2014 version. The committee is moving toward specifying FDD. They request input from TC 7.5 specifying or reviewing FDD content. Contact Chariti to contribute.

**TC 1.5 – Art Hallstrom**---A new subcommittee on cybersecurity has met.

CIBSE is looking to update some of their documents on physical and cybersecurity with consideration of ASHRAE's documents. ASHRAE will develop a memorandum or contract. A research project will be held. Interested TCs can get involved.

**TC 1.6 – Art Hallstrom**---Another major update to the terminology website has been added. They're working on a PDF version of all terms. It's a consolidation of definitions from multiple standards and documents.

**TC 7.3 – Mike Brambley**---the controls section of Standard 180 is out of date. The SPC was asked to contact 1.4, but TC 7.5 is also welcome to contribute.

TC 7.3 has started reviewing their current Applications Handbook chapter. 7.5 should review the AFDD sections of the O&M chapter.

Determining what maintenance to do and connecting that to CMMS systems appears to have potential for big savings. Richard Danks is leading the effort and welcomes input from TC 7.5.

**SPC 207P – Mike Brambley**---Pushing very aggressively to get an advisory review of a standard draft. However, there are still significant struggles with some very basic issues. August 3 is a target date for getting a version out for advisory review, but this may be overly optimistic.

Srinivas Katipamula suggested that the Standard be converted to a guideline. The SPLS chair said that it is not a very difficult conversion, procedurally.

7. FDD Subcommittee – David Yuill for Haorong Li

Minutes from this meeting are appended.

8. Enabling Technologies – Rich Hackner for Nick Gayeski

Minutes from this meeting are appended

9. Smart Grid Subcommittee (Joshua Rhodes)

Carlos reported that there's an effort to create a guideline for demand response that eventually will become a standard to be referenced by 189 and 90.1. (These standards want to reference an ANSI document). They want to ask TC 7.5 to be the cognizant TC with TC 1.9 – Electrical Building Systems as potentially co-cognizant. They have selected a chair and a vice chair.

Carlos asked if anybody is interested for being considered for membership on the GPC. Sherry Hu, Brian James, Chariti Young, Rich Hackner, Josh Rhodes, John House, Peter Armstrong, Kristen Cetin, and Bing Liu volunteered.

10. Buildings Operations Dynamics (BOD) Subcommittee (Li Song)

BOD has eight program plans for submission for Orlando.

Bing Dong submitted an RTAR that has been accepted with revisions.

Li is interested in more RTARs.

They have a WS with TC 4.7 as co-sponsor. It is going through minor revisions and will be resubmitted by August 15. It concerns dynamic modeling. Li requested TC input regarding whether ASHRAE needs a reference manual on dynamic modeling, whether the existing manual needs to be updated. The original guidebook was a product of RP 734. Jim Braun supports the idea of updating the reference guide.

RP-1043 was a review of dynamic modeling for chillers.

See minutes/notes from subcommittee meeting.

11. Research (Jin Wen)

There is an emphasis currently on residential buildings. Research and programs with this theme will be favored.

A new funding channel has been opened up: it is a “co-RFP”, which partners ASHRAE with other organizations to sponsor research.

We have one active project, 1615-RP. John House reported on the PMS meeting and summarized the project for the TC.

There was a steering committee of about 15 members from this TC to discuss whether there are new research directions that we should focus on. They are going to propose a new forum for Orlando and potentially have a Workshop if the forum isn't accepted.

12. Program (Xiaohui Zhou (Joe))

We had a very successful program for this meeting: all four proposed seminars were accepted.

Dr. Ran Liu will replace Joe as our new Programs Subcommittee chair.

13. Handbook (Mike Brambley)

The two TC 7.5 chapters are in the 2015 Applications.

Smart Building Systems chapter was led by Mike with Srinivas Katipamula, Bill Healey, and Rich Hackner writing sections.

Vern Smith will be the new Handbook Subcommittee chair.

14. Standards

15. Old Business.

Mike Brambley reported that special publications can be written if the TC has material that should be disseminated.

16. New Business

CIBSE issue: Carol believes that TC 7.5 will have some topics related to

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**Motion: TC 7.5 endorses the co-research project for physical and cyber HVAC security between CIBSE and ASHRAE**

**Edward moved and Carlos seconded. 7-0-1-8 (Motion passes)**

**Tsui abstains because he believes that ASHRAE should do the research by itself.**

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The Purdue Compressor/Refrigeration and Air Conditioning and High Performance Buildings Conferences and Short Courses are being held July 11 to 14, 2016 at Purdue. For presenters, abstracts are due in December 2015 with full papers due in April 2016.

DOE is crowdsourcing ideas to identify problems to promote better engagement with building occupants.

16. Adjournment

Motion by Carlos to adjourn, seconded by Jin. Meeting adjourned at 6:09 pm.