ASHRAE Technical Committee 1.4

ASHRAE TC1.4 Control Theory and Application

Draft Meeting Minutes

New York Meeting

January 21, 2014

These draft minutes have not been approved and are not the official, approved record until approved by this committee.

ASHRAE Technical Committee 1.4

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.
1791 Tullie Circle, N.E./Atlanta, GA 30329
404-636-8400

TC/TG/TRG MINUTES COVER SHEET

(Minutes of all TC/TG/TRG Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

TC/TG/TRG NO.: 1.4

TC/TG/TRG TITLE: Control Theory and Applications

DATE OF MEETING: January 21, 2014 LOCATION: New York, NY

DISTRIBUTION:

ALL MEMBERS OF TC

ALL COMMITTEE LIAISONS

ASHRAE Technical Committee 1.4

TC/TG/TRG Activity Feedback Form

Please provide feedback on your TC/TG/TRG activities and return this form by Tuesday night 9:00 pm to your Section Head by email or drop off a printed copy in the Section Head's mailbox folder outside the ASHRAE Headquarters Room.
Include activities performed since the last TC meeting (e.g. any letter ballots, submissions to RAC, award nominations, etc.)

PLEASE DO NOT LEAVE NUMERIC CELLS EMPTY. ENTER 0 IN CELLS IF THERE IS NO COUNT.

TC#	1.04	Committee Name:	ControlTheory & Applications
		Chair:	Kimberly Barker

Meeting was Held (City)	New York	(Day)	Tuesday	(Date)	January 21,2014

Membership	Quorum Established (Yes/No)		YES
	Number Present	Remote Participants	Total on Committee Roster
Voting Members (excluding Non-Quorum Members)	10	0	12
Non-Quorum Members	0	0	0
Corresponding Members	12	0	60
Provisional Members	1	0	5
Visitors/Guests	6	0	n/a
All members/guests who are **ALSO** YEA members	5	0	5

Handbook Responsibilities		Standards Responsibilities	
Total Number of Chapters	2	Total Number of Standards	3
# Chapters voted out this meeting	1	# Standards recommended	0
Special Publications (last six months)	0	Title:	

Program Activities (For This Meeting)

Total # of Forums			Total # of Seminars			Total # of Paper Sessions			Other Presentations		
Submitted*	Sponsor	Co-sponsor	Submitted*	Sponsor	Co-Sponsor	Submitted*	Sponsor	Co-Sponsor	TC Research Results	Other Papers**	
0	0	0	0	2	0	0	0	0	0	0	0

Current Research Activities (active)		TC Management	
# of new/revised RTARs submitted	3	Minutes completed on time?	YES
# of other active RTARs	0	Agenda distributed on time?	YES
# of Work Statements submitted	0	Did Chair attend training?	NO
# of other active Work Statements	0	Did Vice Chair attend?	YES
# of active TRPs	0	Did Program Chair attend training?	YES
# of active RPs	3	Did Handbook Chair attend training?	YES
Problems getting RTAR/WS approved?	NO	Did Research Chair attend breakfast?	NO

Other Technical Activities		Award Nominations (last six months)	
# FAQs updated this meeting	0	# of Distinguished Service Nominations	0
# New members added to roster	5	# of Exceptional Service Nominations	0
		# of Other Nominations: Hightower, Research, Fellow,etc	0
		Specify Award :	

Any Concerns or requests for the Technical Activities Committee? (Please type in Space Below)

SEMINAR 1: Integration for Successful Operations: Avoid a Recipe for Disaster - Get the Right Cooks in the Kitchen!

SEMINAR 54: HVAC&R Seminar: RP-1353 Stability and Accuracy of VAV Box Control at Low Flows

ASHRAE Technical Committee 1.4

Agenda

TC 1.4 Control Theory and Application
http://tc14.ashraetcs.org/
Tuesday, Jan 21, 2014 1:00 – 3:30 pm
Hilton Midtown
New York, NY

TC1.4 Control Theory & Application (40)	Tuesday 1:00-3:30p	East, 4th Floor (H)
TC 1.4 RP 1597 PMS (8)	Sunday 10:00-11:00	Hudson, 4th Floor (H)
TC 1.4 Control Components and Applications	Sunday 3:00-4:45p	Madison, 5th Floor (S)
TC 1.4 Program Sunday	Sunday 4:45-5:30p	Madison, 5th Floor (S)
TC 1.4 Education	Sunday 5:30-6:30p	Madison, 5th Floor (S)
TC 1.4 RP-1455 PMS (8)	Monday 9:00-10:30a	Conrad Hilton Suite, 4th Floor (H)
TC 1.4 Research	Monday 2:15-4:15p	Concourse D, Concourse Level (H)
TC 1.4 Handbook	Monday 4:15-6:30p	Concourse D, Concourse Level (H)
TC 1.4 Executive	Tuesday 7:00-8:00a	Conrad Hilton Suite, 4th Floor (H)
TC 1.4 RP-1633	Tuesday 9:00-10:00a	Conrad Hilton Suite, 4th Floor (H)
SGPC 13 Guideline for Specifying DDC Systems	Saturday 9:00a-1:30p	Conference Rm C, Lower Level (S)
SEMINAR 1: Integration for Successful Operations: Avoid a Recipe for Disaster - Get the Right Cooks in the Kitchen!	Sunday, 9:45a-10:45a	Mercury
SEMINAR 54: HVAC&R Seminar: RP-1353 Stability and Accuracy of VAV Box Control at Low Flows	Wednesday, 9:45a-10:45a	Rendezous Trianon

1) **Call to Order:**

   1:04 pm, Review of TC scope.

2) **Introduce Members, Guests, and Liaisons**

   Introduction of attendees, 8 voting members present, quorum established.

3) **Present scope of TC 1.4**

4) **Approve agenda:**

   Revised Agenda presented, Barry Bridges moved to accept revised agenda. Phil Haves seconded motion, Vote: 7-0-0.

5) **Approve minutes from previous meeting:**

   Barry Bridges moved to accept minutes from Denver meeting, Chariti Young seconded motion, Vote: 8-0-0

6) **Announcements**

   Reviewed TC 1.4 PowerPoint presentation.

a) Section Meeting announcements

ASHRAE code of ethics. Code of ethics can be downloaded from ASHRAE website.

Reviewed how to become a member of ASHRAE TC. Send email to TCStaff@ashrae.org (ASHRAE will immediately assign requested member as Provisional Corresponding Member). Provisional corresponding member serves for 2 years. TC chair decides if provisional member moves forward (based on attendance/activities).

b) TAC No discussion

c) YEA,

ASHRAE looking for YEA members to get involved with TC's, Joseph Kilkoyne to become TC 1.4 YEA liaison. (4) YEA members are attending this meeting. Requested that new YEA members pass business card to vice chair (Chad Moore).

7) OLD BUSINESS

A) PROJECT COMMITTEE AND ONGOING RESEARCH REPORTS

i) SSPC 135 (BACnet)

David Bornside attended working group meeting. David summarized topics discussed at meeting. Mostly concerning organization of data (objects/properties).

ii) SGPC 13 (Specifying DDC Systems) – Chariti Young

Held Forum in Dallas, Gap in how to specify controls and how to integrate into IT systems. Information from the Dallas forum was used to update the guideline with two Clauses that address integration. The two clauses address; How to specify integration and How do you handle legacy systems. SGPC 13 issuing advisory public review of the entire guideline, likely to be issued in March 2014. All protocol specific information has been removed and is not included anymore.

Kim Barker to send email link to ASHRAE Standards Activities to TC 1.4 members and TC 7.5 members.

iii) RP-1455 (Advanced Control Sequences for HVAC Systems) - Michael Pouchak

Motion for no cost extension to July 2, 2014. Vote: 8-0-0, First meeting in February, Anticipated completion date April 30, 2014.

iv) RP-1597 (Stochastic Control Optimization of Mixed-Mode Buildings) – Kim Barker

Contractor has completed work. PMS is now reviewing report. Motion for no cost extension to July 2, 2014. Vote: 9-0-0

v) RP-1633 (Data & Interfaces for Adv. Building Maintenance & Operation) – Reinhard Seidl

Met 1/21/14, currently completing last task and getting feedback from simulated dashboards, slow to get feedback, posted to google site, project is

slightly delayed due to lack of feedback. Simulated dashboards potentially will be moved to alternate site in hopes to get more feedback. Chariti Young motion for no cost extension to August 1, 2014, Barry Bridges seconded, Vote: 9-0-0

vi) 1587-TRP (Control Loop Performance Assessment) – Steve Taylor

(9) bids received. TC held executive committee meeting to discuss bid and Contractor selection after full TC meeting. TC1.4 voted 9-0-0, to send recommendation to RAC for project approval.

a) SUB-COMMITTEE REPORTS

i) Executive – Kim Barker

Reviewed roster changes. Rolling on three new members, Marcelo Acosta, Jim Coogan, Mike Pouchak, New corresponding members, Ryan Tanner, Joseph Kilcoyne, Ron Bernstein, Yan Chen, Carol Quing Li. Joe Kilcoyne to be YEA liaison. Discussed the need to get new members involved with the TC.

ii) Handbook – Dave Kahn

TC1.4 responsible for (2) Handbook chapters; Chapter 47 Application, Chapter 7 Fundamentals. Applications Chapter 47 up for publication. Edits are complete. Made several editorial changes to chapter sent to members a couple of weeks ago. Changed DDC to BAS where applicable, moved pneumatic where included in lists to the last item in the list. Subcommittee moved for TC1.4 to approve Chapter 47 for publication, Vote: 9-0-0. (See Handbook subcommittee meeting minutes attached).

iii) Control Components and Applications – Barry Bridges

Discussed two key topics: OPR and continuous commissioning (ongoing), Why building does not perform as designed? Training discussions. Discussed progressively performing buildings. (See CCA subcommittee meeting minutes attached).

iv) Research – Steve Taylor

Discussed active projects. Three active projects will be completed as of next meeting. Several members have committed to completing RTARs by next meeting. (See Research subcommittee meeting minutes attached).

v) Program – Frank Shadpour

Program committee met Sunday after CCA. Program subcommittee meeting will be moved after CCA and Education meetings on Sunday. Two programs in New York (Seminar 1 and Seminar 54). Reviewed both seminars.

Going to submit one workshops, three seminars, and one conference paper for Seattle

1. Workshop - Controlling a Minimum Impact Data Center

2. Seminar - Control Sequences within an Energy Simulation Program (Are Controls Being Applied Properly in simulation programs?)
3. Seminar - BAS Fundamentals For Success: Connecting the Dots.
4. Seminar - Performance Monitoring. Get the Energy Savings you were Promised.
5. Conference Paper -Jin Wen to provide title and speakers.

For Chicago two workshops and two seminars.

Reviewed submittal deadlines. Deadlines included below. (See Programs subcommittee meeting minutes attached).

vi) Education – Larry Fisher

Education subcommittee was established after the Denver Annual meeting. Reviewed education subcommittee meeting minutes. Discovered by Googling HVAC controls ASHRAE is not brought up on any of the first few google results pages. ASHRAE to address this issue. Discussed the need for professional development course that would address the control systems from project inception through construction and into operation. Marcelo Acosta volunteered to chair Education subcommittee. Reviewed Controls training literature search. Young engineers entering ASHRAE need to have a Basic Controls seminar at every meeting. It is the intent of this subcommittee to have a basics of controls type seminar at every society meeting. (See Education subcommittee meeting minutes attached.)

vii) Standards – Steve Taylor, 90.1 and 62.1 not much activity at this meeting

viii) Webmaster – Chad Moore, Need to update membership page.

b) Committee Liaison Reports

i) TC 1.5 (Computer Applications) – Mike Pouchak

ii) TG2 HVAC Security – Kim Barker

Reviewed TG activity. Potentially some collaboration with TC 1.4.

iii) TC 5.2 (Duct Design) -

iv) TC 5.6 (Control of Fire & Smoke) -

v) TC 6.1 (Hydronic Systems) – Dave Kahn

vi) TC 6.7 (Solar Energy Utilization) – Gaylen Atkinson

Main focus and direction is you cannot get to zero energy without integrated renewables into the building. Typically they have only used PV. So now, they must change to include renewables. Multiple energy sources in a single facility require increased focus on controls. Control sequences for these multiple systems will be a future task for 1.4.

vii) TC 7.1 (Integrated Building Design) -

viii) TC 7.3 (Operations & Maintenance Management) –

ix) TC 7.5 (Smart Building Systems) –John House

Potential overlap with research in TC 1.4. John House recommended more communication between 7.5 and 1.4. Steve Blanc, chair of 7.5

x) TC 7.6 (Systems Energy Utilization) -

xi) TC 7.9 (Building Commissioning) – David Bornside

Meeting was well attended, interest on DOE activities to provide CxA criteria for who can be a CxA (certification) and who can provide the certification. ASHRAE has written a position paper on CxA certification but not released. ASHRAE Standard 202 has been published. GPC 11 Field Testing of HVAC Devices has been initiated. Lots of discussion on this subject regarding field devices. Supposed to be field components. Test and Balance committee is involved.GPC 11 meets Saturdays 9-11 am.

xii) TC 9.10 (Laboratory Systems) – Jim Coogan

Design Guide close to completion. Short list of chapters (3 or 4 out of 20) need to be read before they can be completed. Variable Frequency Drive discussion. Design Guide potentially completed and approved by Seattle meeting.

xiii) TC 9.11 (Clean Rooms) – Jim Coogan

Design Guide close to completion. Started a subcommittee for Energy Efficiency in Clean Spaces.

xiv) SSPC 62.1 (Ventilation and Acceptable IAQ) − Len Damiano

xv) SSPC 90.1 (Energy Efficient Design of New Buildings) – Steve Taylor

xvi) TC1.6 ~~SSPC 166~~ (Terminology) – David Bornside, ASHRAE wiki still up and running. ASHRAE wiki to be changed to ASHRAE terminology. If one would like to submit new terms, they should be submitted to TC1.6 chair or through the ASHRAE wiki.

xvii) SGPC 0.2 & 1.2 (The Commissioning Process) – David Bornside, 0.2 is published, 1.2 is close to completion, anticipate publication by Seattle meeting.

xviii) SPC134 (Graphic symbols for HVAC systems) – David Bornside, No activity

xix) US TAG to ISO/TC 205 (Building Environmental Design)

xx) SPC 189 Design of High Performance Building – Bogi Setty

xxi) MTG.EAS – Energy-Efficient Air Handling Systems for Non-Residential Building: –Len Damiano, Len to send Kim list of proposed activities for distribution to the TC

Chuck Coward suggested someone from TC1.4 get involved with TC5.1.

c) Society Committees

i) Professional Development Committee – Larry Fisher, no activity

2) New business

a) Roster updates:

i) Voting Members Rolling off after New York: None

ii) Voting Members Rolling off after Seattle:

(1) Kim Barker(Chair), Larry Fisher, Chariti Young, Charles Coward, Phil Haves, Nemat Lotfi and Jin Wen,

iii) TC Leadership rolling on after Seattle: Chad Moore (Chair), Gary Cole (Vice Chair)

(1) Voting Members Rolling on after Seattle: Jim Coogan, Mike Pouchak, Marcelo Acosta

(2) New corresponding members rolling on after Seattle: Ryan Tanner, Joseph Kilcoyne, Ron Bernstein, Yan Chen, Carol Quing Li

3) Upcoming Deadlines

4) For Seattle:

a) January 9, 2014 – Conference Paper abstracts due.

b) February 13, 2014 – Seminar, Forum, and Workshop Program Proposals Due

c) February 25, 2014 – Technical Papers Final Review

d) June 2, 2014 – All Power Points Due Online

5) For Chicago:

a) March 24, 2014- Conference Paper abstracts due.

b) April 14, 2014-Technical Papers Final Review

c) July 7, 2014 - Accepted Conference Paper due

d) August 13, 2014 - Program Proposals for Chicago online due

6) Next Meeting – Seattle, Washington June 28 – July 2, 2014.

7) Adjourn, 2:39 pm.

ASHRAE Technical Committee 1.4

Attachment 1 – Attendance

PLEASE SIGN AND RETURN TO CHAIR			Sun			Mon		Tues	
Name	Position	Company	Components and Applications	Program	Reference Applications	Research	Handbook	Executive Breakfast	**Main Committee**
Voting Members									
Steven Linn	Pass chair, CM								
Kim Barker	Chair	Siemens Bldg Technologies Inc	X	X	X	X		X	X
Chad Moore	vice-Chair	Terry Trane	X	X	X	X		X	X
Gaylen Atkinson	Member	Atkinson Electronics Inc	X	X					X
Chuck Coward	MTG.EAS, Alternate	Waddell Engineering	X	X	X	X		X	X
Larry Fisher	Member	ECT Building Automation		X	X				X
Garry Cole	Member	Belimo Americas	X	X	X	X	X	X	X
Philip Haves	Member	LBNL				X			X
Kristopher Kinney	Member	Quantaum Energy Services & Technologies							
Nemat Lotfi	Member	Eaton Corporation							
Jin Wen	Member	Drexel University				X			X
Jeffrey Stein	Member	Taylor Engineering LLC				X			X
Chariti Young	Member	Automated Logic Corp	X	X	X	X	X	X	X
Non-Voting Officers									
Barry Bridges	Chair, Control Compo	Sebesta Blomberg & Associates	X	X	X	X	X	X	X
Dave Kahn	Chair, Handbook		X	X	X	X	X	X	
Len Damiano	MTG.EAS, Liaison	Ebtron Inc							X
Frank Shadpour	Chair, Programs	SC Engineers, Inc.	X	X	X	X		X	X
Steve Taylor	Chair, Research	Taylor Engineering				X			X
Corresponding Members									
Angela Lewis	CM	Facility Engineering Associates	X	X	X				
Al Garza	CM	TekSys Dynamics							
Anthony Lee	CM	Trane							
Boggarm Setty	CM	Setty & Associates Ltd							
Brett Eubanks	CM	Taylor Engineering							
Carol Lomonoco	CM	Johnson Controls Inc							
Christopher Frank Benson	CM	University of Utah							
Christopher Miller	CM	P2S Engineers Inc.							
Curtis Klaasen	CM	Energy Systems Engineering							
Darryl DeAngelis	CM	Belimo Americas							
David Bornside	CM	Siemens Building Technologies Inc							
David Branson	CM	Compliance Services Group, Inc.							
Damiam Ljungquist	CM	JDL Energy Services							
David Underwood	CM	CERL							
Dennis Stanke	CM	The Trane Company							
Don Bailey	CM	TLC							
Donald Hardin	CM	Enviromatic Systems							
George Naim	CM	Trane							
Gregor Henze	CM	Univ of Colorado							
Gregory Dobbs	CM	Penn State Univ							
James Gartner	CM	Four Seasons Environmental Inc							
Jeffrey Stein	CM	Taylor Engineering LLC							
Jeremy Tsai	CM	ARUP							
Jim Coogan	CM	Siemens Building Technology	X						X
Jim Tello	CM	San Diego Gas & Electric							
John House	CM	Johnson Controls Inc				X			X
John Kettler	CM	Kettler Control Consultants							
John Zhou	CM	The Trane Company							
Kevin Kerr	CM	Automated Logic NY/NJ							
Larry Felker	CM	Belimo Americas							

PLEASE SIGN AND RETURN TO CHAIR			Sun			Mon		Tues	
Name	Position	Company	Components and Applications	Program	Reference Applications	Research	Handbook	Executive Breakfast	**Main Committee**
Corresponding Members									
Lindell Davidson	CM	Professional Design Quality							
Mashuri Warren	CM	A S I Controls							
Marcelo Acosta	CM	Armstrong		X	X	X	X	X	X
Mark Hydeman	CM	Taylor Engineering			X	X			
Michael Monahan	CM	Burns & McDowell							
H Michael Newman	CM	Cornell University							
Michael Pouchak	CM	Honeywell International				X	X		X
Michael Schell	CM	AirTest Technologies							
Michael Wetter	CM	Lawrence Berkeley Lab				X			
Mike Gibson	CM	Echelon Corporation							
Nicholas Gayeski	CM	KGS Buildings							
Ofer Pittel	CM	Pittel Engineering							
Pankaj Kalore	CM	Siemens Building Technologies Inc							
P Reid Hart	CM	PNNL							
Paul Pinkston	CM	Prime Air Products							
Paul Wacker	CM	Honeywell							
Peter Armstrong	CM	Battelle/Pacific Northwest Nat'l Lab							
Richard Franseen	CM	Honeywell Inc							
Robert Coleman	CM	Trane Company							
Robert Old	CM	Siemens Building Technologies Inc							
Sean Graham	CM	DLB Associates							
Shui Yuan	CM	United Technologies Research							
Sharon Dinges	CM	The Trane Company							
Steven Bushby	CM	NIST							
Steven McCloskey	CM	Siemens Building Technologies Inc							
Verle Williams	CM	Utility Services Unlimited Inc							
Dr. Wangda Zuo	CM	University of Miami							X
William Pienta	CM	Siemens Building Tech							
Xiaohui (Joe) Zhou	CM	Iowa Energy Center ERS DMACC				X			X
Xinlei Wang	CM	University of Illinois							
Zachary Obert	CM	Wisconsin Energy							
Provisional Members									
Christine Carol Maurer	Prov. CM								
James Nietfeld	Prov. CM	Alabama Controls							
Jarod McMains	Prov. CM	Burns & MCDonnell							
Shane Mason	Prov. CM								
Guests									
Art Giesler	RLI	Permavent							X
Ryan Tanner		C.U. Boulder			X	X	X	X	
Breesa Collyer		PG&E							X
Carol Li		Stantec	X	X	X	X			X
Jamie Lee		Chillco, Inc.	X	X	X				
Joseph Kilcoyne	CM	SC Engineers	X	X	X	X		X	X
Mayumi Miura		Azbil Co	X	X	X				
Lin Lan		Helmer	X	X	X				
Ron Bernstein		RBCG	X	X	X				
Yan Chin		Penn State	X	X	X	X			X
Ran Liu		Iowa Energy Center		X					
Heejin Chu		Mississippi State University				X			
Samual Leggette		Luvata HTS				X	X		
Rodney Martin		Nasa Ames Research				X			
David Bornside	CM	Siemens				X			X
Bing Dong		UT-San Antonio				X			
Thierry Nouidui		LBNL				X	X		
Zheng O'Neil		Univ. of Alabama				X			

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Shilpa Anand		Honeywell				X			
Sameer Kwatra		ACEEE				X			
Li Song		Univ. of Oklahoma				X			
Ziwang Li		Drexel Univ.				X			
Adams Rackes		Drexel Univ.				X			
Michael Phillips	CM	Southland Industries				X			
Jamie Holladay		PNNL				X			
Erik Sanchez		Johnson Controls				X			
Charles Miltiades		Mitsubishi							X
John Song		McGuire Engineers							X
Jia Chang Huang		PG&E							X

ASHRAE Technical Committee 1.4

Attachment 2 – Agenda

ASHRAE American Society of Heating, Refrigerating and Air-Conditioning Engineers Inc.
1791 Tullie Circle, NE • Atlanta, Georgia 30329-2305 ☎404-636-8400 • Fax 404-321-5478

Agenda

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1) **Call to Order**
2) **Introduce Members, Guests, and Liaisons**
3) **Present scope of TC 1.4**
4) **Approve agenda**
5) **Approve minutes from previous meeting**
6) **Announcements**
   a) Section Meeting announcements
   b) TAC
   c) YEA
7) **OLD BUSINESS**

ASHRAE American Society of Heating, Refrigerating and Air-Conditioning Engineers Inc.
1791 Tullie Circle, NE • Atlanta, Georgia 30329-2305 ☎404-636-8400 • Fax 404-321-5478

A) PROJECT COMMITTEE AND ONGOING RESEARCH REPORTS

i) SSPC 135 (BACnet) –

ii) SGPC 13 (Specifying DDC Systems) – Chariti Young
Meets Saturday 9:00a-1:30pm, Conference Room, Lower Level (S)

iii) RP-1455 (Advanced Control Sequences for HVAC Systems) - Michael Pouchak

iv) RP-1597 (Stochastic Control Optimization of Mixed-Mode Buildings) – Kim Barker

v) RP-1633 (Data & Interfaces for Adv. Building Maintenance & Operation) – Reinhard Seidl

vi) 1587-TRP (Control Loop Performance Assessment) – Steve Taylor

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ii) Handbook – Dave Kahn

iii) Control Components and Applications – Barry Bridges

iv) Research – Steve Taylor

v) Program – Frank Shadpour

vi) Education – Larry Fisher

vii) Standards – Steve Taylor

viii) Webmaster – Chad Moore

b) Committee Liaison Reports

i) TC 1.5 (Computer Applications) – Mike Pouchak

ii) TG2 HVAC Security – Kim Barker

iii) TC 5.2 (Duct Design) -

iv) TC 5.6 (Control of Fire & Smoke) -

v) TC 6.1 (Hydronic Systems) – Dave Kahn

vi) TC 6.7 (Solar Energy Utilization) – Gaylen Atkinson

vii) TC 7.1 (Integrated Building Design) -

viii) TC 7.3 (Operations & Maintenance Management) –

ix) TC 7.5 (Smart Building Systems) –John House

x) TC 7.6 (Systems Energy Utilization) -

xi) TC 7.9 (Building Commissioning) – David Bornside

xii) TC 9.10 (Laboratory Systems) – Jim Coogan

xiii) TC 9.11 (Clean Rooms) – Jim Coogan

xiv) SSPC 62.1 (Ventilation and Acceptable IAQ) − Len Damiano

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xvii) SGPC 0.2 & 1.2 (The Commissioning Process) – David Bornside

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xx) SPC 189 Design of High Performance Building – Bogi Setty

xxi) MTG.EAS – Energy-Efficient Air Handling Systems for Non-Residential Building: –Len Damiano..

c) Society Committees

i) Professional Development Committee – Larry Fisher

2) New business

a) Roster updates:

i) Voting Members Rolling off after New York: None

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3) Upcoming Deadlines

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c) July 7, 2014 - Accepted Conference Paper due

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6) Next Meeting – Seattle, Washington June 28 – July 2, 2014.

7) Adjourn

ASHRAE Technical Committee 1.4

Attachment 3 – SSPC135 Report

ASHRAE Technical Committee 1.4

Attachment 4 – SGPC13 Meeting Minutes

ASHRAE Technical Committee 1.4

Attachment 5 – TC 1.4 Executive Subcommittee Minutes

ASHRAE Technical Committee 1.4

Attachment 6 – Handbook Subcommittee Minutes

MINUTES

TC 1.4 Handbook Subcommittee

01/20/2014 / 4:15 – 6:15
New York Hilton Concourse D concourse Level

1. **CALL TO ORDER**

2. **REPORT FROM APPLICATIONS HANDBOOK LIAISON**

   2.1. Chris Ahne (Applications Liaison) was not able to attend due to scheduling conflict. Dave K spoke with him at the Handbook Chairs Training. The deadline for submission is March 1, 2014. TC 1.4 will Vote at the New York Meeting to approve the chapter for publication.

   2.2. Bass Abushakara (Fundamentals Liaison) stopped by. The deadline for the 2017 Fundamentals volume is April 15, 2016.

3. **OLD BUSINESS**

   3.1. On Captain's have reviewed their material, comments are incorporated into the master. The master was distributed to the TC for their review prior to the vote.

   3.2. The chapter was divided into roughly three page sections and a "Section Captain" volunteered for each section. The Captain will review and edit their section calling upon other TC members. for input as needed. The sections are:

   Page numbers refer to the printed document

47.1 through 47.3 including electric coils	Chad Moore
4.3 through 47.6	Marcelo Acosta
47.7 through 47.11 and Dynamic OA Reset	Gary Cole
47.11 through 47.15	Barry & Jim Coogan
47.5 through 47.21	Ryan Tanner and Dave Kahn

   Charity will look at the overall structure and editing
   Dave Kahn will combine edits and fill in as needed.

4. **NEW BUSINESS**

   4.1. Chariti moved that the Handbook Subcommittee recommend to TC 1.4 that they approve Chapter 47 for publication. Vote 6/0/0.

   4.2. Robert Walker from TC 6.1 will send their current draft of the valve chapter to Dave Kahn. Dave K will distribute to anyone interested.

   4.3. The term DDC was changed to BAS where the text referred to the system. DDC was retained where the text referred to the controllers.

   4.4. Pneumatic controls were moved to the last position where they appeared in lists.

   4.5. The last sentence in the first Paragraph Variable Air Volume (VAV) was deleted.

   4.6. The two paragraphs below Figure 20 were clarified.

   4.7. FEMA Reference was updated to 2007

5. **NEXT MEETING AND SCHEDULE**

   5.1. **June 28,2014 Annual meeting** Seattle

6. **Adjourn**

   Adjourn at 5:40

TC 1.4 Handbook Subcommittee Attendance List

Present	Name	
X	Chariti Young	
X	Dave Kahn	
X	Kim Barker	
X	Chad Moore	
X	Ryan Tanner	
X	Gary Cole	
X	Marcelo Acosta	
X	Barry Bridges	
	Mike Pouchak	
X	Samuel Leggett	
Liasons		
	Chris Ahne	Applications Handbook Liaison
	Bob Walker	Liaison from TC 6.1 Valves
X	Bass Abushakara	Fundamentals handbook Liason

ASHRAE Technical Committee 1.4

Attachment 7 Control Components and Applications Subcommittee Minutes

ASHRAE TC 1.4 Control Theory and Application

Sub-committee: Control Components and Applications

Meeting MINUTES: Sunday 19 January 2014

Meeting: 1500-1630, Sub Committee Chair Barry Bridges

SCOPE Includes: Components (Sensors, Actuators, Controllers, OWS), Networks, Control Applications Loops, Building management reporting

Components and Control Application "brainstorming session" lets TC 1.4 members and guests talk openly about issues and hot topics without being subjected to budgets or due dates.

Attendance: An attendance list was circulated and used in the various TC 1.4 subcommittees.

Introductions Around the Room: Those in attendance verbally and written on the attendance form provided Name, Business affiliation.

DESIGN OPR and ON GOING CFR Smart Buildings and Smart Owners
The design OPR (owners project requirement) after acceptance becomes the CFR (Current Facility Requirement) based on actual building use.
Providing a system that controls as the owner wants and proving that it runs as designed is a system based on assumptions that are likely false. Another assumption is that the control designer/installer know more about HVAC and control than the owner. After occupancy, however, the assumptions are likely to change and for an active owner who knows what he wants and pays attention to changing assumptions and changes the controls as building evolves can and does make changes even in my own home to correct those initial assumptions that were wrong,

In one experience over two years about 1/3 of original design is in place…it may be rare but there are great owners. Especially in a high perf bldg it really requires a HPB owner/manager who is also high performance oriented. The owner / facility manager is the one most involved not the guy with the wrench …We should also try to provide systems for the wrench guy because that is where physical and programing changes may well be made even if not made well.
With high perf bldg we don't really know the interactions so we count on trend logging.
Recognition and response to maintain performance suggests keeping on the job after initial occupancy the control contractor who needs to be available to provide warranty about 200 hours after the end of construction. During design, we cannot know all that is needed so the design team also needs to plan time to provide direction of what and how to make changes. Over time, without intervention the building won't likely get better and more efficient.

In Seminar 1, design of a LEED platinum bldg showed within first month actual energy was double, known only because they had enough meters to see where the waste was. Multiple energy sources make it harder to decide, the owner needs to decide what to look at…if the owner does not know then who can they contract with to get that expertise… what is the level of subtlety to move from mechanical hardware to well controlled energy efficient systems. And then who checks it, to confirm it. Where does one go to get training

Presentation of PB2: Progressively Better Performing Buildings
Consider a program about buildings that get better with time. How can we encourage buildings and facility personnel to do so. In experimental bldgs will the old prior project be used as the base sequence…We need to define in TC 1.4 a method of how do we get buildings to perform better, One approach is "monitored based Cx"; MBCx ™ meter bldg incentive is to reduce energy. It is energy only, for 3 months . Clean up control first then get OAD to close, boiler

cycled because no control valves had been installed. There had been no Cx so not noticed on acceptance, lack of someone who watched the boiler cycle

Guideline 13 has a performance monitoring section, using the control system so it does not require any new hardware or just a little, graphics and calculated value. Calculated virtual points are often much less expensive than hardware to install but there is an expense to create software and to provide the graphical home for the value.
Some examples of simple involvement with building performance included: U students who got 30% savings running their own building. A behavioral change can account for 5% easily. What is permitted for energy challenge may be a compromise from typical design criteria like turning off radiators when OAT is above 40°F. They may also make sense when actual user needs are the driver, like no AC in cafeteria when OA is below 80°F In another example the change of schedule for equipment operation was used across campus for posted hours of occupancy, and then further refined to put selected areas to unoccupied for specific times each day. It is important to keep in mind that the value of the work force or the guest for an entertainment venue may be 100 to 200 times more valuable than the possible energy saved so other aspects of the space as measured by IEQ need be included in the evaluation of energy savings.

POWER GRID
Our Country now has more availability of gas and less electric. What about micro grid//micro co gen as the new power source? At the building use fuel cell at point of use…for controls the concern is at an extended enterprise EEMS level where real-time pricing from various energy sources. The key strategy is to make choice of electric PV or cogen or fuel cell at point of use how to network between various building and infrastructure energy sources and control systems. Real time control needs to look at the multiple energy sources and best match for the other equipment.
Predictive analysis when is it best to cover the PV cause its getting on toward night or in Hawaii realizing that there may be a sudden load demand not seen before when lots of PV means not needing to build when its sunny so what happens if it's a cloudy day, the stand by charger/generator cost more than savings. The Utility company loses revenue when the sun shines, but is still expected to provided on cloudy day.

GPC 13
TC 1.4 could consider a "best practice for controls" similar to the refrigeration guideline now available for the Commissioning and startup of refrigeration systems.

GPC 13 "Design of BAS systems" is filling a gap to add Cx spec language in sub section 12 describing real world best practice how to integrate control systems. This includes considerations for integration of legacy control (upgrade, integration, or replacement). GPC 13 is presented as an open protocol specification including three perspectives: IT, integrator and vendor of HVAC. The Guideline presents the best practice for IT-IP, control networks and in annex D a summary of the communication protocols to consider.

The Guideline also describes the various levels of control from the most local DDC and BAS to building management BMS to the EMS EEMS enterprise campus and non HVAC control systems. To get the BAS HVAC vendor to work with campus BMS IT requires a person with the skill set and authority to get it to work.

PAST TOPICS
Certified Building Control Professional led to Training Topics for Control Professionals
There are 5 areas of knowledge expected of a certified control engineer.

HVAC Mechanical systems, Graphic communications to users, Programming and Electronics, Network IT. Possible topics could be defined through a TC1.4 ASHRAE exchange.

Training Students

Getting students involved through showing them the use of actual controllers on actual buildings.

Write a sequence of operations in prose form, and then build a board that electrically provided the expected action and then write software for a digital program a final exam proves their product worked correctly

Engineering students and interns assigned to use real data from campus buildings and use the www.pnl.gov/buildingretuning software. They use this protocol to confirm building systems performance with trend logs.

A reality experience finds modeled energy use does not match "real" base line energy.

Keep Training Simple And Basic

Control training should target a basic, simple standard of control and application to HVAC. A ground swell of knowledgeable users could creat demand for more.

TC 1.4 already has Distinguished Lecturers Jim Coogan and Frank Shadpour who also has a course and three books. A concern is that academics do not teach practical engineering and especially not a practical approach to controls.

Commissioning And Controls

With a standard control sequence a standard Commissioning, Cx Functional test can be developed. of many similar devices like VAV TU. Can BAS automation create a discontinuity for analysis in "normally" healthy controls?

Sensor quality and reliability: Humidity, CO2, Air Flow Monitoring stations

Can a damper position be an accurate air flow measuring station, or can pump speed provide an accurate liquid Flow Meter.

Green Building Controls Integration

Gaylen Atkinson Frank Shadpour: BIM, COBIE, Cx; Does modeling replace M&V?

ASHRAE Technical Committee 1.4

Attachment 8 – TC 1.4 Research Subcommittee Minutes

TC 1.4 Control Theory and Applications
Research Subcommittee (RSC) Activities NYC – January 20, 2013

RSC Meeting Summary:

1. Announcements

a) 62 active RPs totaling $10.8 million.
b) Funding and WSs in balance at the moment.
c) Procedures for PESs:
- PES composed of 3 to 5 people assigned by TC chair
- Each member individually completes scoring sheet. Scoring sheet calculates "value to ASHRAE" = bid divided by score.
- PES meets (along with liaison as NVM) to compare scoring.
- Members update scoring sheets and select contractor. Bidders with scores less than 70% may be ignored. Need not be low bidder – may select bidder with best "value to ASHRAE" if
  (1) Written justification provided
  (2) Greater than 5% score above lower bids
  (3) 2/3 or PES scored bidder above lower bids
- TC votes to confirm PES selection in executive session
- PES chair send all scoring sheets and selection decision to liaison
- Award is confidential until formal approval by RAC and BOD.

d) An RTAR is not required – may go direct to Work Statements. If we want to do that, first review with RAC liaison to verify that subject will be approved.
e) There is a new RTAR form that can be downloaded from ASHRAE website. New RTARs must use this form. It includes wording limits to keep the RTAR short. Many RTARs have included too much info – more like a WS. Also, prior knowledge of subject (background) must include references not just author opinions.
f) Reasons why RTARs are returned:
- Not appropriate for ASHRAE funding
- Inadequate references of past work
- Not clear how it will advance state-of-art
- Budget not in line with scope

g) Reminder:
- RTARs should be reviewed by liaison prior to submission to RAC. TC 1.4 Research Liaison is Art Giesler RL1@ashrae.net.
- Proposal Evaluation Criteria & Weighting Factors must be thoroughly edited specific for the project. The example in the template is just that. Note that "student involvement" in the template is not a stipulated priority, just an example.

2. Active Project Status:

Name	Project	PMS	Status
RP 1455	Advanced Control Sequences for HVAC Systems - Phase I Air Dist and Terminal Systems	Pouchak-chair, Underwood, Bridges, Ljungquist	Final report issued to PMS for review. Met 9am January 20th. More time needed to review final report. Request no-cost extension to June 30, 2014.
URP 1597	Stochastic Control Optimization of Mixed-Mode Buildings	Kim Barker-chair; Michael Wetter, Chariti Young	Final report issued to PMS for review. Met 10am January 19th. Request no cost extension until July 2, 2014
URP 1633	Data and Interfaces for Advanced Building Maintenance and Operation	Reinhard Seidl-chair Jim Kelsey, Kristin Heinemeier, Chariti Young	PMS met 10am January 21st. Final report to be issued to PMS in late spring for review. Request no cost extension until August 1, 2014
RP 1587	Closed Loop Control – Performance Measurement and Evaluation	Steve Taylor-chair Bill Pienta David Shipley Phil Haves	Nine bids received of which 5 were considered excellent. PES met Monday 12:30pm to select the contractor. Approval by TC in executive session.

3. Pending Research Project Status:

Status	Project	Champion	Remarks
RTAR 1661 TC 4.7 w/1.4 Co-Sponsor	Development of Modelica Models for Evaluation of Supervisory Control Strategies in ASHRAE Handbook	Michael Wetter Phil Haves	RTAR conditionally accepted by RAC. WS under development.
RTAR-1697 cosponsor with TC7.5	Reduce Simultaneous Heating and Cooling in Commercial Buildings	Zheng O'Neill	TC asked to work on WS with TC 7.5. Taylor to review.
RTAR 1711	Optimized Sequences for Chilled and Hot Water Plants	Steve Taylor Marcelo Acosta Heejin Cho	Conditional approval received from RAC. Taylor to develop WS with help from Hydeman, Acosta, and Cho.
Possible	Optimized Supply Air Temperature and Pressure Reset Strategies	Joe Zhou Jim Coogan Steve Taylor	Zhou to develop RTAR by June meeting. Must include impact on hydronic system as well as airside.
Possible	Demand Controlled Ventilation for Parking Garages	Needs champion	No progress. DCV now allowed for exhaust in Standard 62. California Title 24 has just added CO requirement for garages >10000 cfm.
Possible	Effectiveness of Night Setback and Optimum Start	Li Song Heejin Cho Peter Armstrong Barry Bridges	Analyze energy impact of different levels of setback vs. shut-off. RTAR needed.
Possible cosponsor with TC1.5	HVAC System Thermal Control and Energy Performance using Work & Data Exchange Processes	Michael Pouchak	Improved control via data exchange from work related systems to EMCS. TC voted at 1/29/13 meeting to cosponsor. Submitted by TC 1.5 to liaison – returned with comments. Pouchak resubmitting using new RTAR form
Possible	Field Validation of RP1455 Sequences	Mark Hydeman Joe Zhou Michael Witter	Field testing to show that RP1455 sequences "work". Hydeman to develop URP or WS with Zhou and Witter. Start with simulators then test in Iowa State ERS.
Possible	Open Generic Language for Control Systems – Phase I Proof of Concept	Michael Wetter Phil Haves Joe Zhou	Open language that can be used not only for DDC applications but also for modeling
Possible	Selecting Control Valves	Steve Taylor	On hold. RP must wait until 1587 is done – need loop "goodness" factor first.
Possible	Reset of space setpoints seasonally or using online daily forecast	Kim Barker Gwelen Paliaga	Determine if comfort and efficiency are improved by using seasonal space temperature setpoint reset or using next-day forecast obtained via internet. Also using forecast for pre-cooling strategies. Could start with simulation followed by real-building studies.
Possible	Object Oriented HVAC Control	Brent Eubanks Kim Barker	Rules connecting system components to use for hierarchal alarms and more.
Deleted	~~Improved reset logic~~	~~Steve Taylor~~	~~More stable reset logic than trim & respond which always results in oscillations.~~
Possible	Integrating occupant comfort preferences with organizational needs and building spatial − temporal thermal performance	Ryan Tanner Gregor Henze Gail Brager	Comfortable and productive people in effective organizations save money.
Possible cosponsor with TC-5.3	Empirical Performance Comparison of Active Chilled Beam with DOAS vs. VAV with Reheat System	Joe Zhou	Taylor and Jeff Stein to review. Possible cosponsor vote next meeting.
Possible	Waterside economizer control optimization	Jeff Stein Steve Taylor Mark Hydeman	Issues like when it is not worth keeping CT fans at full power, when to re-enable economizer.
Possible	Controlling HVAC using effective temperature (ET)	Jin Wen Gwelen Paliaga	Does using ET instead of drybulb temperature reduce energy efficiency? Simulation followed by field test.
Possible	Coordinating control of hybrid radiant and air systems for maximum efficiency	Jin Wen	Applies primarily to hybrid systems but also could apply to DOAS with respect to supply air temperature control.
Possible	Optimizing TES control with weather forecasts or model predictive control	Needs champion	
Possible	Advanced alarm strategies	Marcelo Acosta Brent Eubanks	Extend what RP-1455 did with hierarchal alarms to reduce nuisance alarms, ensure critical alarms are not ignored.

Status	Project	Champion	Remarks
Possible	Develop conventional sequences from MPC optimized sequences	Phil Haves	Near-optimum sequences developed from model predictive controls that are too cumbersome to work in realtime control systems.

4. Research RTARs and WS Deadlines:

a) March 15 for spring meeting

b) May 15 for June meeting

c) August 15 for fall meeting

d) December 15 for January meeting

5. In Attendance: See main TC attendance table.

ASHRAE Technical Committee 1.4

Attachment 9 – TC 1.4 Education Subcommittee Minutes

1-20-14 TC 1.4 Education sub-committee minutes

1. Denver meeting we had an action item to see what resources are available for controls training. The report is attached with summary paragraph

2. This led to a discussion of providing basic information on BAS (for Chariti!) controls and application at every summer and winter meeting. This information would fit one of the tracks and would be basic, not intermediate or advanced.
    a. Larry Fisher agreed to chair, Chariti Young agreed to help with title and abstract.
    b. Will be 3 speakers, 90 minute slot for Seattle
    c. Gaylen Atkinson, Garry Cole, Carol Quig Li, and Ron Bernstein said they would help where needed. After 2 topics are created, we will choose the 3 speakers

3. Frank Shadpour presented at a seminar Sunday that had some very good points related to the "overall building" and this generate thoughts for TC1.4 have a workshop presentation and even some discussion for a 1 or 2 day course thru PDC related to teaching the entire cycle of controls from beginning concept for building controls to the successful commissioning and follow up for 2 years after implementation, what ingredients (parts) are necessary to have the whole pie. This lead is to be championed by Angela Lewis - more details can be found in the programs report.
    a. We could use Dave Kahn's Certification verbiage for the initial development

4. Anglia Lewis also discussed future workshops for YEA

5. It was decided in Seattle that education and programs will trade time slots, Education going first.

6. That's all I remember……. Larry J. Fisher, Chair

Controls Courses/Resources Available

1-19-14 ASHRAE Winter Meeting, New York

There are many courses and resources available for educational training in the field of temperature controls, DDC, and Integration. Rather than reinvent the wheel, I think it is better to identify specific topics that do not have resources available. If one was really interested, I think that adequate information is available. Specific vs. general information may be more difficult to find.

Another consideration is who is the intended audience? If you were a professional working for a corporation, then most likely the manufacturer will provide inside or outside training. If you are an end user, perhaps your integrator will provide the training. If not, google search for your selected topic.

Biggest issue is no matter what I searched, the ASHRAE offerings never came up. I tried DDC Training, Controls Training, DDC Controls Training, and Building Integration.

Based on Frank's presentation this morning, the problem is not training on say DDC Design or spec writing specifically, but the "total" approach that trains on conceptual to finished product, followed by continued involvement for 2 years. Franks seminar would be a great start.

Second, I think we should have seminars (every meeting) on controls training, using different DDC topics, but always rolling the subject back to a "system" meaning, each is just a part of the whole. Guideline 13 is dedicated to specifying DDC, improve the "training requirements" with strongly suggested agenda to be included in the specs to further define expectations of the engineer and owner.

As I started the list of available information/training on DDC, it became information overload. Again, the major disappointment was ASHRAE never showed up in any google search. So if knew nothing about ASHRAE, I'd still know nothing about ASHRAE. The following are a few that I did review. END

Fundamentals of HVAC Control Systems | ashrae.org	www.ashrae.org/.../self-directed-or-group-learning/fundamentals-of-hvac-control-systems - 101k
Fundamentals of Control | ashrae.org	www.ashrae.org/advertising/handbook-cd-commercial-resources/fundamentals/fundamentals-of-control - 101k
Building Control Discusses how building control increases efficiencies and help in achieving LEED credit points	e-learning
Control Diagrams and Sequences Explains the use of written specifications, schedules, and drawings to clearly identify what is to be installed, how it is to be installed, and how it is expected to operate	e-learning
Control Valves and Dampers Describes the various types of valves and dampers, and their selection, installation and operation.	e-learning
http://www.hvacddc.com/hvac-ddc-systems-design/	HVAC Direct Digital Control System Design
Honeywell, Trane, Johnson Controls, Siemens	The entire major manufactures offer training for end users.

http://www.ddc-online.org/ FREE	Free primers 1. A basic introduction to DDC and the terms used in the industry 2. A detailed publication on input and output processes of DDC systems 3. A detailed listing of DDC system architectures, hardware components and software associated with DDC systems from the prominent national manufacturers 4. a generic framework of the various components and configurations used in current DDC systems, providing information on DDC manufacturers in a consistent architecture diagram so readers can easily compare their relative features and benefits
Tempcon Inc training seminars $680 week	Direct Digital Controls Pneumatic Controls HVAC Systems Commissioning http://tempconinc.com/
University of Wisconsin, Office of Department of Professional Development	Course DDC Controls 4 day, $1,875

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'DDC' 7 Results.

Title	List Price	Member Price	Types	Purchase
Controls	$50.00	$42.00	Individual Course	Buy IP Buy SI
DDC Controls	$75.00	$63.00	Course Package	Buy IP Buy SI
DDC Introduction to Hardware and Software	$50.00	$42.00	Individual Course	Buy IP Buy SI
DDC Networks and Protocols	$50.00	$42.00	Individual Course	Buy SI Buy IP
DDC Specification, Installation and Commissioning	$50.00	$42.00	Individual Course	Buy SI Buy IP
Fundamentals of Equipment and Systems	$399.00	$340.00	Library	Buy IP Buy SI
HVAC Control Systems	$199.00	$169.00	Course Package	Buy IP Buy SI

ASHRAE Technical Committee 1.4

Attachment 10 – TC 1.4 Program Subcommittee Minutes

TC 1.4 – PROGRAM SUBCOMMITTEE
ASHRAE WINTER MEETING NEW YORK
JANUARY, 2014

The subject meeting was held on Sunday, January 19, 2014 starting at 4:30 PM following the Components and Control Applications Subcommittee meeting. The attendees remained. The sign-in sheet is attached.

Programs Presented in New York: **January 18-22, 2014**

1. *Seminar 1 : Chaired by Joseph Kilcoyne*
   Integration for successful operation: Avoiding the recipe for disaster.
   Track: Building Information Systems
   Sunday, 9:45 AM to 10:45 AM

2. *Seminar 54: Chaired by Jin Wen*
   RP-1353, Stability and Accuracy of VAV Box Controls at Low Flows
   Track: Systems and Equipment
   Wednesday, 9:45 AM to 10:45 AM

Anticipated Programs for New York That Did Not Take Place:

1. *Seminar: Chaired by Chariti Young, Track 6*
   Integration for successful operation: Show me what I need to know.

2. *Forum: Chaired by Barry B Bridges*
   Controls Training: What's needed for the industry?

3. *Seminar: Chaired by Steve Taylor, Track 4*
   "Demand controlled ventilation for multiple zone systems: problem solved." RP 1547
   Cosponsor; TC-4.3

4. *Seminar: Chaired by Jim Coogan , Track 6*
   Performance Rating Standards for Buildings and BAS

5. *Seminar: Chaired by Kimberly Barker , Track 4*
   Automated Demand Response in Commercial Buildings

Programs Proposed for Seattle Summer Meeting **Jun 28-Jul 2, 2014**

1. *Workshop: Chaired by Joseph Kilcoyne*
   Controlling a Minimum Impact Data Center

2. *Seminar:* Chaired by Jamie Lee
   Control Sequences within an Energy Simulation Program - Are controls being applied properly in simulation programs?

3. *Seminar: Chaired by Larry Fisher*
   BAS Fundamentals for Success: Connecting the Dots

4. *Seminar: Chaired by Marcelo Acosta*
   Performance monitoring: Get the energy savings you were promised

5. *Conference Paper: Chaired by Jin Wen*
   Simulations test-beds for building control operation

Programs Proposed for Chicago Meeting

1. *Workshop: Chaired by Chariti Young*
   Integration for successful operation: Show me what I need to know.

2. *Workshop:* Chaired by Angela
   Controls: Understanding the Basics

3. *Seminar:* Chaired by Ron Bernstein
   What's new with guideline 13? Specifying integration for a building automation system.

4. *Seminar: Chaired by Barry Bridges*
   ASHRAE's RP 1455: Best of Class Control Sequences for Air Systems

Program "Pipeline" for Future Meetings:

1. *Seminar / Symposium:* "Control Strategies for Museums and Libraries"
   Chaired by: Dave Kahn
2. *Seminar*: "Valves and Actuators: Are they Smart Mechanical Devices or Control Components?" Steve Linn
3. *Seminar:* "Building Automation System for Data Centers". Dave Kahn
4. *Seminar / Symposium:* "Optimization and Controls of VAV Systems to Meet ASHRAE 62.1" Chaired by Steve Taylor
5. *Seminar*: "Wireless DDC Technology – Real Applications". Frank Shadpour
6. *Seminar:* "Be Alarmed at what your BAS is not Telling You: Is no news really good news?" Chaired by Kimberly Barker
7. Seminar. "Control Specification Fundamentals, How to Get What You Really Want" Larry Fisher.
8. Web-Services. XML, SOAP: How Do I Get Non-Traditional BAS Information and Use It for My Building Automation.
9. Controls, Fuel cells, Cogeneration and Micro-cogeneration
10. Control of Geothermal HVAC Systems

2014 Seattle Summer Meeting

Jun 28-Jul 2, 2014

Programs Tracks:

- **Track 1:** Indoor Environment – Health, Comfort and Productivity
- **Track 2:** Research Summit
- **Track 3:** Ground Source Heat Pumps: State of the Art Design,
- **Track 4:** HVAC&R Systems & Equipment
- **Track 5:** HVAC&R Fundamentals and Applications
- **Track 6:** Standards, Guidelines and Codes
- **Track 7:** Refrigeration
- **Track 8:** Installation, Commissioning, Operation, Maintenance of Existing Buildings
- **Track 9:** Professional Skills

Deadlines:

- 1/6/2014 Web Site Opens for Seminar and Forum Proposals
- 1/9/2014 Final Conference Papers Submitted for Review
- 2/13/2014 Seminar and Forum Proposals Due
- 2/25/2014 Technical Papers Final Review Due
- 5/6/2014 Upload of PPTs Begin
- 6/2/2014 All PPTs Due Online
- 6/28/2014 Speaker's Lounge Opens

2015 Chicago Winter Meeting

January 24 - 28, 2015

Preliminary Programs Tracks:

- **Track 1:** Systems and Equipment
- **Track 2:** Fundamentals and Applications
- **Track 3:** Industrial Facilities
- **Track 4:** Large Buildings: Mission Critical Facilities and Applications
- **Track 5:** Energy Efficiency
- **Track 6:** Life Safety
- **Track 7:** Design of Energy and Water efficient Systems
- **Track 8:** Hospital Design and Codes

Preliminary Approximate Deadlines:

- 3/24/2014 Conference Paper Abstract
- 4/17/2014 Technical Papers
- 8/13/2014 Program Proposals for Chicago online
- 8/23/1014 Conference Paper Abstracts for Atlanta
- 7/2/2014 Conference Papers for Chicago (If abstracts were accepted)
- 1/9/2015 Conference Papers for Atlanta

Presentations and Guidelines:

1. *Conference Paper vs. Technical Paper:* Conference paper is limited to eight (8) pages, the timeline is shorter and the review process less rigorous than the technical papers currently presented in the Technical Paper Sessions.

2. *Seminar and Forum Submissions:* For Seminar submissions, they should include six (6) Learning Objectives and ten (10) Questions and Answers for the session.

3. *Seminar Program Submission:* 60 minutes (1-2 speakers) or 90 minutes (3-4 speakers).

Upcoming Meetings:

Seattle	Jun 28-Jul 2, 2014
Chicago	Jan 24-28, 2015
Atlanta	Jun 27-Jul 1, 2015
Orlando	Jan 23-27, 2016
St. Louis	Jun 25-Jun 29, 2016

Note:

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- *Seminar and Forum Submissions:* For Seminar submissions, they should include six (6) Learning Objectives and ten (10) Questions and Answers for the session.
- *Seminar Program Submission:* 60 minutes (1-2 speakers) or 90 minutes (3-4 speakers).

These minutes stated herein were approved by TC1.4 program subcommittee on Sunday, January 19, 2014

Submitted by: Frank Shadpour, PE
TC1.4 Program Subcommittee Chair.
frank@scengineers.net