

ASHRAE

1791 Tullie Circle, N.E./Atlanta, GA 30329
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TC/TG/MTG/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/MTG/TRG No.	TC 2.6	DATE	August 30 th , 2014
TC/TG/MTG/TRG TITLE	Sound and Vibration		
DATE OF MEETING	June 30 th 2014	LOCATION	Seattle WA

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Voting Members: John Dunlap Lauren Ronsse Dan LaForgia Jerry Lilly Dustin Meredith Erik Miller-Klein Kim Osborn Patrick Marks Raj Prime Douglas Reynolds Kenneth Roy Michael Schwob Randy Zimmerman Corresponding Members: Daniel Abbate Victor Clemente Curt Eichelberger Robert Hassler Jim Kline Greg Meeuwsen Paul Meisel Alexander Michaud Andrew Mitchell Karl Peterman Michael Resetar Brian Reynolds Robert Simmons Jack Wang		Voting Members: Joseph Bridger Matthew Murello Chris Papadimos Jason Swan Terence Tyson Corresponding Members: Rami Alkhalil Jeff Babich Francis Babinaeu Mark Bastasch Umberto Bernardi Jeff Boldt Norman Broner Todd Busch Peter Bushnell David Carroll Nicole Cuff Martin Deveci Errol Eaton Ron Eligator Mark Fly Michael Froehlich Kevin Gaghan Radha Ganesh Jason George John Gierzak Lewis Goodfriend Brian Guenther Ali Kemal Guney		Visitors: Joe Brooks Naira Campell Franco Cincotti David Herrin Tim Kuski Tim Mathson Zach Minear Tim Orris Curtis Peters Mark Smith Don Warick Tamer Elaudy Jane Miller Robert Kellogg Nate Deibler James Sweeney Jeanette Hesedaul Alan Burt Ed Koop Scott Campbell Larry Hopkins Ali Herfat Harvey Schome Diane Jacobs

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MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Lily Wang Zhiping Wang Steve Wise		Ali Herfat Joe Horesco Michael Keating Reggie Keith Manoj Khati Marvin Kloostra Will Kowald Kevin Lai Eddie Lau Charles Mattocks Gregory Miller Patrick Oliver John Papas Richard Peppin Bill Rockwood Ben Sachwald Mark Schaffer Ken Shook Tim Simcoe John Sofra Mike Spencer William Stewart Nicholas Sylvestre Williams Roman Wowk Jack Zybura		

DISTRIBUTION

All Members of TC/TG/MTG/TRG plus the following:	
TAC Section Head:	Thomas Sobieski
TAC Chair:	Walter Grondzik
All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters:	Sheila Hayter Hugh McMillan Cyrus Nasser Harvey Sachs Michael Vaughn Chris Fudge
Manager Of Standards:	Stephanie Reiniche
Manager Of Research & Technical Services:	Mike Vaughn

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Main Meeting Attendance List – June 30th 2014 – Seattle WA

Voting Members				
Index	Name	Affiliation	E-Mail	Present?
1	Babineau, Francis	Johns Manville	francis.babineau@jm.com	
2	Dunlap, John	Dunlap & Partners	jdunlap@dunlappartners.com	Y
3	Eichelberger, Curt	Johnson Controls	curtis.eichelberger@jci.com	Y
4	LaForgia, Dan	Vibro-Acoustics	dlaforgia@vibro-acoustics.com	Y
5	Lau, Eddie	Armstrong Investment Co	sklau@engineer.com	
6	Lilly, Jerry	JGL Acoustics	jerry@jglacoustics.com	Y
7	Meredith, Dustin	Trane	dmeredith@trane.com	Y
8	Miller-Klein, Erik	SSA Acoustics	erik@ssaacoustics.com	Y
9	Osborn, Kim	CES Group / Governair	kosborn@governair.com	Y
10	Peppin, Richard	Engineers for Change	peppinr@asme.org	
11	Peterman, Karl	Vibro-Acoustics	kpeterman@vibro-acoustics.com	Y
12	Prime, Raj	Mason Industries	rprime@mason-ind.com	Y
13	Reynolds, Douglas	University of Nevada Las Vegas	douglas.reynolds43@gmail.com	Y
14	Roy, Kenneth	Armstrong World Industries	kproy@armstrong.com	Y
15	Schwob, Michael	JBA Consulting Engineers	michael.schwob@jbace.com	Y
16	Tyson, Terence	Acentech	tysont@asme.org	
17	Zimmerman, Randal	Titus	rzimmerman@titus-hvac.com	Y
18				

13

Corresponding Members				
Index	Name	Affiliation	E-Mail	Present?
1	Abbate, Daniel	AHRI	dabbate@ahrinet.org	Y
2	Clemente, Victor	Industrial Acoustics Company	victor.clemente@iac-acoustics.com	Y
3	Hassler, Robert	Kinetics Noise Control	rhassler@kineticsnoise.com	Y
4	Kline, Jim	Intertek	jim.kline@intertek.com	Y
5	Meeuwesen, Greg	Trane	gmeeuwesen@trane.com	Y
6	Meisel, Paul	Kinetics Noise Control	pmeisel@kineticsnoise.com	Y
7	Michaud, Alexander	Price Industries	alexm@price-hvac.com	Y
8	Resetar, Michael	Armacell	michael.j.resetar@armacell.com	Y
9	Reynolds, Brian	Trane	breynolds@trane.com	Y
10	Simmons, Robert	Petra Seismic Design	rsimmons@petraseismicdesign.com	Y
11	Wang, Jack	Trane	jjwang@trane.com	Y
12	Wang, Lily	University Of Nebraska	lwang4@unl.edu	Y
13	Wang, Zhiping	Morrison Products	zpwang@morrisonproducts.com	Y
14	Wise, Steve	Wise Associates	stevewise@att.net	Y

Visiting Guests				
Index	Name	Affiliation	E-Mail	Present?
1	Brooks, Joe	AMCA International	jbrooks@amca.org	Y
2	Campbell-Kyvreghyar	University of Wisconsin	campbeln@uwm.edu	Y
3	Cincotti, Franco	Comefri USA	fcincotti@comefriusa.com	Y
4	Herin, David	University of Kentucky	dherrin@engr.uky.edu	Y
5	Kuski, Tim	Greenheck	tim.kuski@greenheck.com	Y
6	Mathson, Tim	Greenheck	tim.mathson@greenheck.com	Y
7	Minear, Zach	Morrison Products	zminear@morrisonproducts.com	Y
8	Orris, Tim	AMCA	torris@amca.org	Y
9	Peters, Curtis	Nailor	cpeters@nailor.com	Y
10	Smith, Mark	DMI Companies	msmith@dmicompanies.com	Y
11	Warick, Jr., Don	Vibration Eliminator	donjr@veco-ny.com	Y

ASHRAE TC 2.6 Sound and Vibration Control

Main Committee Meeting Agenda

2:15-4:15 PM Monday, June 30, 2014

Room 606–Washington State Convention Center Level Six – Seattle, WA

NOTE: All Task Group Chairs and Subcommittee Chairs are asked to submit written report to the Secretary (Dan LaForgia) before July 21.

1. **Call to order** (Meredith) [3 minutes]
 - 1.1. Read scope of TC 2.6 – D Meredith
 - 1.2. Read ASHRAE Code of Ethics statement: "The ASHRAE Code of Ethics is to be adhered to by those doing ASHRAE business whether or not they are an ASHRAE member (www.ashrae.org/about-code-of-ethics)."
 - 1.3. Additions and/or modifications to the agenda - NONE
2. **Introduction of those present** (All) [5 minutes]
 - 2.1. Welcome new members and visitors - Meredith
3. **Confirmation of current voting members** (Schwob) [3 minutes] – 13 Voting Members Present
4. **Review and approval of the minutes** (Meredith) [3 minutes] – 1) Eichelberger 2) Osborn
5. **Secretary's report** (LaForgia) [3 minutes] – Subcommittee Chair Reports due by July 21st
6. **TC Chair's meeting report** (Meredith) [5 minutes] – Employment Discipline – All members update Bio on ASHRAE Website – Track ideas not set for Orlando 2016 – Thank you letter available from ASHRAE to Employers if needed
7. **Chair's announcements and correspondence** (Meredith) [3 minutes] – Meeting Minutes will be posted within 60 days of July 2nd. – Subcommittee chairs can meet by webex if needed – Upcoming meetings – Chicago 2015 / Atlanta 2015
8. **Subcommittee reports (written reports to be provided to Secretary)**
 - 8.1. **Research Subcommittee** (Eichelberger) [20 minutes]
 - 8.1.1. Research Chair's meeting report – Harvey Sachs is our Liaison
 - 8.1.2. Ongoing research projects
 - 8.1.2.1. RP-1408 Attenuation of Lined Ducts with PI Reynolds/UNLV (Lilly) – No cost extension awarded to finish by Jan '16. – Voted on – 1.) Lilly 2.) Dunlop
 - 8.1.2.2. RP-1529 Numerical Modeling of Lined Ducts with PI Herrin/UK (Marks)
 - 8.1.3. Work Statements/RTAR's/URP's
 - 8.1.3.1. RTAR-1560 Installed Performance of Vibration Isolators (J. Wang)
 - 8.1.3.2. RTAR-1707 Annoyance Thresholds of Tones in Noise (L. Wang)
 - 8.1.3.3. RTAR-*** Effect of HVAC Noise in Hospitals (Roy)
 - 8.1.3.4. RTAR-*** Room effect (Bridger)
 - 8.1.4. Topics for future research – 1.) Flow Generated Noise in Ducts and fittings – 2.) Room effects – 3.) Non-Fibrous Duct Liners – 4.) Plumbing Noise – 5.) Speech Privacy for health care facilities
 - 8.2. **Programs Subcommittee** (Miller-Klein) [15 minutes]
 - 8.2.1. Program Chair's meeting report

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- 8.2.2. Programs this meeting
 - 8.2.2.1. Seminar 44 – Basics of HVAC Noise Control: Environmental Noise Impact & Mitigation (Wang / LaForgia / Miller-Klein)
- 8.2.3. Potential programs next meeting – Chicago, January 2015 – Basics of noise control - Generators
- 8.3. **Publications Subcommittee** (Wise) [10 minutes] – Chapter 48 revisions – Applications –
 - 1.) Vibration Iso – differences between chapter 55 and 48 – 2.) AHRI 885 – Ceiling effect check – 3.) Break-in / Breakout
- 8.3.1. Handbook chapters
 - 8.3.1.1. Handbook Applications 2015 (Wise/Peppin)
 - 8.3.1.2. Handbook Fundamentals 2017 (Weinstein/Wise)
- 8.3.2. Other publications
 - 8.3.2.1. Algorithms for HVAC Acoustics? – Possible re-launch of old algorithms from 1991 – Hot topic in Chicago
- 8.3.3. Web page (Schwob) – Roster / Subcommittee pages updated – Request to move 2.6 website to ASHRAE server – update in Chicago
- 8.4. **Standards Subcommittee** (Ronsse) [20 minutes]
 - 8.4.1. SPC 79 – Method of Test for Fan Coil Units (Oliver) – Out for review – make changes this week.
 - 8.4.2. SPC 130 – Method of Test for Rating Ducted Air Terminal Units (Zimmerman) – Includes exhaust boxes and now valves – out for public review soon.
 - 8.4.3. SPC 189 – Design for High Performance Green Buildings (Bridger/Miller-Klein) – How to improve language for codes
 - 8.4.4. SPC 197 – Method of Test for Passive Vibration Isolators (J. Wang/Peterman) – Leadership change – parallel effort to RTAR in progress
 - 8.4.5. SPC 200 – Method of Test for Chilled Beams (Zimmerman) – Out for public review – completed soon
 - 8.4.6. GPC 10 – Interactions Affecting the Achievement of Acceptable Indoor Environments (L. Wang) – Under continuous review
 - 8.4.7. Updates from Other Standards Organizations
 - 8.4.7.1. AHRI (Abbate) – SPC79 on review – finished SP rating of chiller units – AHRI 370
 - 8.4.7.2. AMCA (Brooks) – AMCA301 fan sound ratings out for public review.
 - 8.4.7.3. ANSI (Ali Herfat) - NONE
 - 8.4.7.3.1. Working Group on Sound Measurement in Rooms (Lilly) – Out for review
 - 8.4.7.4. ASTM (Peppin); E33 (Lilly) – Modification for ASTM E477-13 – Round robin test soon – data collected from IAC
 - 8.4.7.5. ISO (Reynolds); ISO TC205/TC43.2 (Roy) – None – On TC43 building acoustics – criteria for office / school healthcare buildings
- 8.5. **Standing Subcommittees** [10 minutes]
 - 8.5.1. Sound Criteria (L. Wang) – work statement – tones in noise – FYI – people bidding cannot be on PMS
 - 8.5.2. Vibration Isolation (Peterman) – Fix confusion between chapters 48 and 55 – RTAR for testing isolators (methods)

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8.6. **Operations Subcommittee** (Schwob) [15 minutes]

- 8.6.1. Bylaws (Meredith) – Posted on Website
- 8.6.2. Honors and awards (L. Wang) – Curt Eichelberger / Pat Marks receive a distinguished service award – David Herrin – Technical paper award.
- 8.6.3. Long range planning (Meredith) – Michael Schwob remains webmaster / membership – Erik Miller Klein moves to Secretary – Dan LaForgia moves to Vice Chair.
- 8.6.4. Membership (Schwob) -17 voting / 2 non-quorum / 73 corresponding members
- 8.6.5. Liaisons (Schwob) – N / A
 - 8.6.5.1. International Green Construction Code update (Bridger) – Joe Bridger to provide update in Chicago
 - 8.6.5.2. ASHRAE TC 2.1 Physiology and Human Environment (L. Wang)
 - 8.6.5.3. ASHRAE TC 2.7 Seismic and Wind Restraint Design (Meissel) – SPC 171 meeting – testing method for seismic restraints – RTAR – effect of shielding for wind forces
 - 8.6.5.4. ASHRAE TC 5.1 Fan Design and Application (Osborne) – fan system effects
 - 8.6.5.5. ASHRAE TC 5.2 Duct Design (Hassler) – incorporate lined duct data into database
 - 8.6.5.5.1. Duct Design Guide – N / A
 - 8.6.5.5.2. Tuesday's Panel Discussion – N / A
 - 8.6.5.5.3. Duct fitting database – N / A
 - 8.6.5.6. ASHRAE TC 5.3 Room Air Distribution (Zimmerman) – update to SPC 79,130, and 200 (chilled beams)
 - 8.6.5.6.1. AHRI 880/885 Air Terminals – 880 – Adding rating point for exhaust terminals / 885 – Appendix E – Radiated discharge sound – create additional appendix.
 - 8.6.5.6.2. AHRI 1240 Performance Rating of Chilled Beams – adopted when SPC 200 is adopted.
 - 8.6.5.7. ASHRAE TC 6.10 Fuels and Combustion (Herrin) - NONE
 - 8.6.5.8. ASHRAE MTG.EAS (Eichelberger/Meredith)
 - 8.6.5.9. ASA (L. Wang) – Meeting October 14 in Indianapolis IN.
 - 8.6.5.10. VISCMA (Peterman) – checkout new website – papers available.
 - 8.6.5.11. Others: CTI – Sound testing, INCE – NoiseCon in September – Ft Lauderdale – Mark Schaffer is a key speaker, NCAC (Bridger) - NONE, CIBSE(Swan) - NONE. ECSA- Rating exhaust silencers on site for gensets.

9. **New business/Old business** [5 minutes]

- 9.1. Review Scope of Committee - Meredith

10. **Next meeting date and location – Chicago, IL; January 26, 2015**

11. **Adjournment**

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Curt Eichelberger (curtis.eichelberger@jci.com)

Highlights of Research Chair's meeting:

- Harvey Sachs (RL2@ashrae.net) is our new liaison. Reminder that our Research Liaison, should review all RTARs and WS; and if possible, should participate in PMS meetings. Please copy Curt Eichelberger on all correspondence with the Research Liaison.
- There are no projects on hold for funding.
- RTARs due May 15, August 15 and December 15.

Ongoing Research Projects:

RP-1408 The effect of lining length on the insertion loss of acoustical duct liner. Jerry Lilly PMS chair. Dr. Doug Reynolds, UNLV, principle investigator. The objective of this research is to show how the sound attenuation of lined ducts depends on duct length. This project is operating under a no-cost extension. The UNLV Lab has finished testing all the round ducts. The rectangular ducts were fabricated and tested at E. H. Price and these ducts are presently being shipped to UNLV. There is an issue with the duct transitions and, as soon as this is resolved, UNLV will start testing the rectangular ducts. Target date for completion of this project is January 31, 2015.

RP-1408 Extension. An extension to the 1408 Work Statement was approved January 2010. The purpose is to collect vibration and sound intensity test data on a small subset of duct configurations. This test data will then be used to validate the analytical models of breakout noise that will be developed in RP-1529. UNLV have done some preliminary sound intensity testing to validate their test apparatus.

RP-1529 Full frequency numerical modeling of sound transmission in and radiation from lined ducts – Pat Marks, PMS Chair. Dr. David Herrin, University of Kentucky, principle investigator. This project will develop and validate full-frequency numerical modeling techniques for sound transmission through, and radiation from, HVAC ductwork. So far the preliminary analysis models look promising. The PMS requested that models be developed for the same ducts that are being tested in RP 1408. Dr. Herrin and Dr. Reynolds to coordinate. All duct configurations will be run by October 2014. TC 2.6 voted to recommend a no-cost extension to January 1, 2015. This is the target completion date for the final report.

RTARs:

RTAR-1707 Annoyance Thresholds of Tones in Noise as Related to Building Services Equipment. Lily Wang championed this RTAR. RAC conditionally approved the RTAR in their June 2013 meeting and instructed the TC to proceed with preparing the Work Statement. During the last two meetings of the TC2.6 Criteria Subcommittee, Lily Wang has prepared a draft WS which will be sent to the TC 2.6 voting members for letter ballot.

Vibration Isolation Dynamics Test for HVAC Equipment. Jack Wang prepared a new draft of an RTAR (formerly RTAR-1560). The draft was reviewed and edited at the Vibration Subcommittee. Jack and Karl Peterman will be revising further and submitting to TC 2.6 voting members for letter ballot.

Topics discussed and prioritized for future research:

The top topics discussed during the research subcommittee meetings are listed below in order of priority.

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1. **Speech privacy in healthcare facilities** – Ken Roy prepared a draft RTAR and sent copies to Curt Eichelberger and JR Babineau to review and edit. We will likely be looking for input and support from TC2.1 and TC9.6.
2. **Flow noise generation in ducts and fittings** – No champion for this topic at this time. We need a volunteer to do a literature review, as some of this information may already be published.
3. **Room effect** (include effect of single pass ceiling systems) – Joe Bridger agreed to champion this topic and prepare an RTAR, along with Ken Roy and Erik Miller-Klein. This task should start with a good literature review.
4. **Plumbing noise** (defined in terms of flow and pressure drop) – Champion Erik Miller-Klein
5. **Non-fibrous” duct liners** – Application related, not product ratings. No champion for this topic at this time.
6. **Fluctuation criteria** – Objective would be to develop a metric for Criteria section of Handbook. Criteria subcommittee decided to work on tone criteria first.

Added topics that were discussed, but not prioritized, include:

- **Criteria** - What is the basis for values that were chosen for room use. Need evidence based, rather than accepted design practice.
- **Flex duct** – Where does the sound go? Where should duct end correction be applied?
- **IL in terminal units** – Why isn't this accounted for and is it important?
- **Vibration of HVAC equipment** - Develop a uniform method of reporting vibration for HVAC equipment and evaluate typical vibration spectra for installed equipment.
- **With ASHRAE rebranding itself and promoting a boarder scope to include the built environment, we may want to consider added topics such as:**
 - Speech privacy, and the opposite, speech communication.
 - Noise intrusion from outside or adjacent interior spaces.
 - Background noise consideration that extends beyond HVAC system noise, such as sound masking.

ASHRAE TC2.6 Programs Subcommittee Report

Submitted by: Erik Miller-Klein

Program Topics –NYC, Seattle, and Chicago

Program Topics –Seattle, Chicago, and Atlanta

Status	Subject	Type	Champion
Seattle 2014 (Wednesday 7/2 @ 9:45 AM)	Basics of HVAC Noise Control or Workshop (Seattle - Track 5: Applications or Track 6: Standards, Guidelines, Codes) <ul style="list-style-type: none"> Environmental Noise Codes: Current and Future (Miller-Klein) Objectionable: Tones & Fluctuations (Lily Wang) Outdoor Equipment Noise Control (Dan Laforgia) 	Seminar 44	Erik Miller-Klein
Chicago 2015	1-Day Acoustics Seminar? (TBD) (Full Day – Basics of HVAC Noise Control)		Mark Schaffer
Chicago 2015 or Atlanta 2015	Track 1: Systems and Equipment (Track Chair: Andrea Zarour, azarour@greaterbaymechanical.com) Partnered with TC 5.3 - Air Distribution (co- sponsor): Randy Zimmerman Practical Seminar on Quietening Air Distribution Systems <ul style="list-style-type: none"> Duct Velocities Insulation of VAVs Radiated/Inlet Noise for Fan Powered Boxes Pressure drop across the valve 		Randy Zimmerman
Chicago 2015 *	Track 4: Large Buildings: Mission Critical Facilities and Applications (Track Chair: Joel Primeau, joel.primeau@wspgroup.com) <ul style="list-style-type: none"> Generator Noise Control (Laforgia) Transformer & Generator Vibration Noise Control for upper level installations (Keith) Manufacturer Perspective (Robert Simmons) 		Mark Schaffer Jerry Lilly Reggie Keith Robert Simmons
Chicago 2015	Track 8: Hospital Design and Codes (Track Chair: Chuck Curlin, ccurling@shultzeng.com - This track explores design and code requirements to ensure patient comfort.) <ul style="list-style-type: none"> Speech Privacy (Ken Roy) HCAHPS & Alarm Fatigue (Erik Miller- Klein) 2014 FGI Guidelines (Kenric Van Wyk) 		Erik Miller-Klein

Chicago 2015	Track 2: Fundamentals and Applications Track 3: Industrial Facilities Track 5: Energy Efficiency Track 6: Life Safety		
Resubmit - Atlanta 2015	Track 8: High Performance Building Green Building Acoustic Performance – LEED, IGCC, PMP Best Practices <ul style="list-style-type: none"> • Kenneth Roy • Lily Wang • Curt Eichelberger 	Seminar	Lily Wang
Atlanta 2015	Track 5: Building Operation & Commissioning <i>Real engineering as applied to operation, maintenance and operational optimization or “commissioning” can bring increased comfort and offers huge financial returns</i> <ol style="list-style-type: none"> Workshop – Case Studies of Predicted vs. Actual 		
Atlanta 2015	Track 2: Fundamentals & Applications Basics of HVAC Noise Control (New Sub-Topics) <ul style="list-style-type: none"> • Duct Liner, Breakout & Flanking (Doug Reynolds) • Updated algorithms for insertion loss, break-out 		
Future	Advanced Topics, Conference Papers... <ul style="list-style-type: none"> • Speech Privacy and Interior Noise with Low Noise Open Offices 		

Chicago 2015 (Winter Conference)

January 24 – 28, 2014

Upcoming Deadlines:

July 7, 2014 – Final Conference Papers Due

August 11, 2014 – Seminar and Forum Program Proposals Due

1-Day Acoustics Seminar proposed by ASHRAE Learning Institute in Chicago

Atlanta 2015 (Summer Conference)

Upcoming Deadlines:

September 22, 2014 – Conference & Technical Paper abstracts Due

February 9, 2015 – Seminar and Forum Program Proposals Due

2. Systems & Equipment

3. Fundamentals& Applications

4. Research Summit - *brings together researchers to present and discuss the latest research. Papers describing ASHRAE-related research are encouraged as well as papers from societies and associations worldwide.*

a.

5. Refrigeration

6. Building Operation & Commissioning - *real engineering as applied to operation, maintenance and operational optimization or “commissioning” can bring increased comfort and offers huge financial returns*

a. Workshop – Case Studies of Predicted vs. Actual

7. Indoor Air Quality - *Indoor air quality is closely linked to comfort and to occupant satisfaction, productivity and health*

a.

8. Modeling throughout Building Life Cycle

9. High Performance Building - *the design and measured performance of these buildings by seeking papers on these successes as well as identifying shortfalls where high performance has fallen considerably short of the design.*

a. **(Wang) Green Building Acoustic Performance – LEED, IGCC, PMP Best Practices**

Orlando 2016 (Winter Conference)

Upcoming Deadlines:

March 2015 – Conference & Technical Paper abstracts Due

July/August 2015 – Seminar and Forum Program Proposals Due

Attendance

Name	Affiliation	e-mail
Michael Schwob	JBA	
Kim Osborn	Temtrol-CES Group	
Dustin Meredith	Trane	

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FrencoCincotti	Comfri USA	fcincotti@comefriusa.com
Rami Alkhalil	Spectrum	
Ahmed Alaa El Din	GGAC RVC RAL	
Randy Zimmerman	Titus	
Luis Vargas	Krueger	lvargas@krueger-hvac.com
Steve Wise	Consultant	
Erik Miller-Klein	SSA Acoustics	erik@ssaacoustics.com
Andrew Mitchell	Pottorff/Dynasonics	amitchell@pci-industries.com
Robert Hassler	Kinetics Noise Control	rhassler@kineticsnoise.com
Tom Ponder	Certainteed Corp	Thomas.e.ponder@saint-gobain.com
Matthew Hooti	Vibro-Acoustics	mhooti@vibro-acoustics.com
Paul Meisel	Kinetics Noise Control	pmeisel@kineticsnoise.com
Victor Clemente	IAC Acoustics	Victor.clemente@iac-acoustics.com
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Karl Peterman	Vibro-Acoustics	kpeterman@vibro-acoustics.com
Lauren Rons		

ASHRAE TC2.6 Publications Subcommittee Report

Meeting Minutes

Submitted by: Steve Wise

Applications Handbook, 2015 revision

The TC approved, in January, the composite revisions to Ch48 for submittal to ASHRAE in the usual 4-year print version rev cycle.

After that, we had two new issues which held up final edits until this meeting:

1. It was noted that in the break-in/break-out section we had some ambiguous references to the duct transmission loss data tables, so we made a couple of minor changes.
2. We did not progress on the suggestion and examples of a revised master table in the VIBRATION section was presented by Reggie Keith in January. Reggie, Curt, Rich, Steve, Don had agreed to start coordinating on an update for that – tentatively scheduled to be presented in Seattle, but since several could not attend Seattle this did not happen. However, Karl Peterman pointed out that between Ch55 (seismic) and Ch48 there were discrepancies as to “isolator type”, so we added a note to reconcile that.

Fundamentals Handbook, 2017 revision

Eric Sturm has taken the first look at it to start the rev cycle. There was no further action in Seattle. We do not have much to do on this one.

Other pubs -

1. Application of Manufacturer Sound Data Guide -Curt, Pat, Dustin agreed to look further at that to decide if we want to do an update. There is a possibility of Research funding if necessary revision are extensive. However at this point, the first step is to have volunteers draw up a list of urgent problems. We plan to devote an appropriate amount of time to this effort in Chicago next January.
2. Algorithms – Pat M, Pat O, Doug R, Andrew, Dustin, Joe B, Mike S are going to look at the old algorithms and decide if we want to do an update.
3. We need to decide if the Applications chapter should do a more thorough job referencing other pubs available at the bookstore like:
*ASHRAE STD 189 “Green Buildings”
*“Performance Measurement Protocol”

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Webmaster and Membership Report

Web page (Michael Schwob)

The following updates have been made to the website:

- Roster and Subcommittees page to reflect current positions
- Agenda and Meeting Schedule for this meeting

Society has informed us that they would like us to move our website to ASHRAE servers. We don't have any details at this time. We will discuss this with Michael Vaughn following this conference.

Membership (Michael Schwob)

We currently have 18 voting members, 2 non-quorum members, 73 corresponding members and 3 provisional corresponding members.

We use information from the ASHRAE bio database to keep our record up to date. Please update you bio on the ASHRAE website.

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TC 2.6 Criteria Subcommittee

Meeting Minutes - Seattle WA

June 30th 2014 (3-4 PM)

Attendees: V. Clemente, C. Eichelberger, P. Marks, D. Meredith, A. Michaud, E. Miller-Klein, C. Papadimos, K. Peterman, L. Ronsse, K. Roy, M. Schwob, R. Simmons, E. Sturm, J. Wang, L. Wang, S. Wise

- I. Scope/purpose of the criteria committee: "To define and promote measurement protocols and benchmarks/guidelines/criteria to evaluate building acoustics, as related to building mechanical systems"

- II. Update on RTAR on Tones
 - A. RAC voted in Denver (June 2013) to conditionally accept our RTAR 1707 for further development into a work statement (WS), provided that the RAC approval condition(s) below are addressed to the satisfaction of your Research Liaison in a revision to the RTAR first.
 1. "Justify estimated cost & duration. Compared to similarly scoped projects, the budget and time allotted seems excessive by 50% or more."
 2. "The following additional issues should be addressed in the work statement draft:
 - a. Clearly describe the project's technical approach.
 - b. Define in greater detail the project's scope of work.
 - c. Seek out co-funding sources for the project"

- III. Development of Work Statement on Tones:
 - A. The attendees worked on fine-tuning a draft of the Work Statement #1707.

- IV. Ongoing Tasks
 - A. L. Wang to liaison further with RAC representative
 - B. Subcommittee will finalize details of Work Statement to send out for email vote, ideally before the next RAC deadline.

ASHRAE TC 2.6 Standards Subcommittee Report

Meeting Date: June 30, 2014

Submitted by: Lauren Ronsse

This report provides a summary of the standards updates provided during the ASHRAE TC 2.6 main meeting.

1. The standards subcommittee is comprised of liaisons from TC 2.6 to SPCs and Working Groups to make sure that TC 2.6 has input on all ASHRAE standards with sound and vibration control content.
2. Updates from SPC and WG liaisons:
 - a. SPC 79: Method of Test for Fan Coil Units (Eichelberger replacing Oliver)
 - i. Incorporating sound testing for fan coil units – mandate how they shall be tested (AHRI 260, AHRI 350 – harmonize SPC 79 with this standard)
 - ii. Out for public review
 - b. SPC 130: Method of Test for Rating Ducted Air Terminal Units (Zimmerman)
 - i. Updating method of test for terminal units...update to include end reflection and more types of products (i.e. exhaust)
 - ii. Some significant acoustics changes – adding in end reflection corrections (currently in AHRI A80, will be removed from 130)
 - iii. Adding test procedures for exhaust to account for sound path from the exhaust back into the room. Add back into exhaust terminals.
 - iv. Will do letter ballot to get out for review
 - c. SPC 189.1: Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential (Miller-Klein/Bridger)
 - i. Standard 189.1 is under continuous maintenance
 - ii. Jeff Boldt is organizing a task group within 189.1 to generate acoustics content for the standard. Involving volunteers from TC 2.6 to serve on the task group.
 - iii. Updating language to be appropriate for code
 - d. SPC 197: Method of Test for Passive Vibration Isolators (Wang replacing Peterman)
 - i. Intent – determine method of test for vibration isolators
 - ii. Developed a draft based on an ISO standard
 - iii. Industry is currently lacking in a method for testing isolators (particularly at high frequencies)
 - iv. RTAR not allowed since developing a new standard; work in progress
 - e. SPC 200: Method of test for chilled beams (Zimmerman)
 - i. New standard for testing active chilled beams: testing airflow and conduction rate of diffusers
 - ii. Standard still out for public review; comments currently being addressed
 - f. GPC 10: Interactions Affecting the Achievement of Acceptable Indoor Environments (Wang)
 - i. Now a published document after 19 years of work. It is under continuous maintenance.

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- ii. Looking for input on lighting section
- iii. Comments continuously reviewed
- 3. Updates from other standards organizations
 - a. AHRI (Abbate)
 - i. Standards under review
 - 1. AHRI 260
 - 2. AHRI 370
 - b. AMCA (Brooks)
 - i. AMCA 301: Predicts ratings for fans, out for public review. Updated information: some calculations using 1/3-octave bands; generalized and specific sound power methods modified to give same results
 - c. ANSI (Herfat)
 - i. Working Group on Sound Measurement in rooms (Lilly)
 - 1. Standard finished by working group and submitted to ANSI. ANSI returned draft with comments that J. Lilly is addressing. Standard will be out for public review soon. J. Lilly will do hot topic session on this standard at next ASHRAE meeting in Chicago.
 - d. ASTM (Peppin)
 - i. E477 has been re-approved. Starting round robin testing of silencers in multiple labs.
 - ii. E33 (Lilly)
 - e. ISO (Reynolds)
 - f. ISO TC205 (Roy)
 - i. This was originally running through ASHRAE, now work has been transferred to ASTM at the ISO level
 - ii. Working Group 6: writing performance standards on the indoor environment (pertinent to acoustics) – no longer meeting directly with TC205.
 - iii. Focusing on offices, schools, and healthcare buildings