

TC 2.1 Physiology & Human Environment Main Meeting

Meeting Schedule

<i>Meeting</i>	<i>Day</i>	<i>Time</i>	<i>Room</i>
TC 2.1 Physiology & Human Environment	Tuesday	1:00-3:30P	CC Santo Domingo LL
TC 2.1 Research	Sunday	3:00-5:00P	CC Mesilla UL-East
TC 2.1 Handbook/Program	Sunday	5:00-7:00P	CC Mesilla UL-East

TC 2.1 Seminar in Albuquerque: Effects of Mechanical System Noise on Human Performance and Perception, Tues, 6/29 11-12:30 CC Dona Ana GL

Main Committee Agenda

1. **Call to Order:** 1:12 PM
2. **Read Scope:** TC 2.1 is concerned with the relationship of man's living environment, as altered by air conditioning, heating, and ventilation systems to his comfort, health and productivity.
3. **Introduction of Members, Guests, and Liaisons**

MEMBERS	PRESENT?
Eric Adams	X
Ed Arens	
Jim Bushnell	X
Charles Dorgan	X
Jaap Hogeling	X
Ray Horstman	
Mark Jackson	X
Paul Lebbin	
Hal Levin	X
Arsen Melikov (VM non-quorum)	
John Stoopes	
Diotima von Kempfski (VM non-quorum)	X
Lily Wang	X

Quorum of 8 out of 12

Summary:

Motions:

Motion 1: Approve RTAR 1503: Effects of Bedroom Temperature and Ventilation on Sleep Onset, Duration and Quality.

Proposed: Hogeling; Seconded: Dorgan

Vote: 6 /1/0 CNV

Negative comment: It is an important topic for research, but there are higher priority topics.

Motion 2: Approve RTAR 1504 as modified: Improved Knowledge of Clothing Insulation for Non-western Ensembles: The Effects of Clothing Materials and Stationary Body Postures

Proposed: Levin ; Seconded: Bushnell

Vote: 7/0/0 CNV:



TC 2-1 Approved
Minutes -Orlando - Ja

Motion 3: Approve minutes from Louisville Annual Meeting

Proposed: Levin Seconded: von Kempiski

Vote: 8/0/0 CNV :

Motion 4: Co-sponsor with TC 5.1: Update the Scientific Evidence for Specifying Lower Limit Relative Humidity Levels for Comfort, Health and IEQ in Occupied Spaces pending participation in development of WS

Proposed: Levin Seconded: Bushnell

Vote: No vote as no quorum.

Action Items:

Action Item	What	Who	When
#1	E-mail WS for RTAR-1504 to Eric Adams & Chandra Sekhar	Dennis Loveday	July 1st
#2	E-mail WS for RTAR-1504 to Mike Vaughn with TC Vote	Eric Adams	July 10th
#3	E-mail RTAR 1503 to Mike Vaughn with TC Vote and negative comments	Eric Adams	July 10th
#4	E-ballot on: Motion 4 (cosponsor with TC5.1);	Eric Adams	July 10th
#5	SLC-1 Thermal comfort & air movement preferences - follow-up with Levin & Wyon on whether can be e-balloted before Aug 15th	Chandra Sekhar	July 10th
#6	Send recommendation of PES to Chandra	Mark Jackson	By July

	Sekhar on URP-1611 Low Indoor Humidity (PES – David Wyon, Mark Jackson, Chuck Dorgan) for potential e-ballot by Aug 15 th .		15th

4. Orlando Minutes Approval:

5. Liaison Reports –

TAC Section Head – Brian Fricke

Chapter Technology Transfer Liaison – Mr. Frederic Genest

Program Liaison – Mr. William Atkinson

RAC Research Liaison – Dr. Iain Walker

ALI / PDC Professional Development Committee (EDUC) Liaison – Mr. Kenneth Fulk

Special Pubs Liaison – Mr. Mark Fly

Handbook Liaison – Mr. John Wells III – Jill Connell (Ch 9 Thermal/Ch 12 Odor)

Standards Liaison – Mr. Paul Cabot

Staff Liaison (Standards) – Mrs. Claire Ramspeck

Staff Liaison – Mr. Michael Vaughn

Std 55 Liaison – Gwelen Paliaga (and John Stoores)

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Liaison from TC 9.7(Educational Facilities) & 9.6 (Healthcare) – Ron Westbrook

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Liaison from 2.6 (Sound & Vibration) – Kenneth Roy

6.0 Chair's Report – Eric Adams

- Roster:
 - Rolling off – June '10: Eric Adams, Charles Dorgan
 - Rolling on – July '10: Chandra Sekhar, Peter Simmonds
- Handbook Chair: Peter Simmonds & Eric Adams
- Officers starting July 2010:
 - Chair: Paul Lebbin
 - Vice Chair: Mark Jackson
 - Secretary: John Stoores
- Looking for a new webmaster.



TC-2-1-Announcements-Albuquerque-201

Announcements

- Members can check status of TC membership at: www.ashrae.org – under membership - please update biographical record while there.
- Add “Help Wanted” section to website
- Webinar – 1-2 weeks before meeting for Research:
 - For more productive Sunday meeting – short and more productive
- Final draft research strategic plan available at ASHRAE website.
- Provisional corresponding member – alternate method to get on committee – on ASHRAE website or by calling ASHRAE
- Tech Council steering committees – new part of ASHRAE website
- TC members for reviewers and session chairs – for Las Vegas
- Google Groups List Serve – members only password protected access – someone needs to manage – keeps record of all correspondence – collaborative tool
 - Ron Westbrook – Electronic Communication Committee Liaison, TC9.7 Chari (looking for corresponding members) westbror@upstate.edu - Webinar Training on Google Groups – discussion, pages, file section (directly post handbook revisions (on-line review and commenting), etc.
- Next Meetings:
 - Jan 29 – Feb 2nd , Las Vegas, Zero Energy Design
 - Paper deadlines – Aug 6th
 - June 25-29 – Montreal, Net Zero Buildings
- Hightower Award Recipient: Due Sep 1st
- Thank you letters to employers – www.ashrae.org – Thank you letter on website.
- “International Member” will now be “Voting Member, non-quorum”. Two (2) positions per TC – if person does not show up, does not count against quorum. If here, count toward quorum and quorum count.
- New Research Strategic Plan for 2010-2015: see public review at www.ashrae.org/technology/page39
- 2010 Purdue 20th Compressor Engineering, 13th Refrigeration and Air Conditioning and 1st High Performance Buildings Conferences, July 12-15, 2010
- IAQ2010 – Kuala Lumpur, Malaysia, 10-13 Nov 2010 – on ASHRAE Website.
- PALENC 2010, Passive & Low Energy Cooling for the Built Environment, 5th European Conference on Energy Performance & Indoor Climate in Buildings & 1st Cool Roofs Conference, Isle of Rhodes 29 Sep – Oct 1st.
- 6th Windsor Conference on Thermal Comfort, Oxford-Brookes, Aug 9-1, 2010.
- IAQVEC2010 – Syracuse, NY, 15-18 Aug 2010 Syracuse, NY www.iaqvec2010.org
- 10th IEA Heat Pump Conference: May 16-19, 2011, Tokyo, Japan – <http://www.hpc2011.org> – abstracts due June 30, 2010.
- IndoorAir 2011 – Austin, TX, 5-10 June 2011 www.indoorair2011.org
- Environmental Health – Position Document on Green Buildings – looking for comments.
 - Recommend Psychologist and Neurologist included in review.

Membership

- Membership
 - Please see the Chair if you are interested in CM or M status – please give the chair your business card. New status will begin in July 2010.
 - Handbook Chair: Peter Simmonds & Eric Adams
 - Chair: Eric Adams
 - Vice Chair: Paul Lebbin
 - Secretary: Mark Jackson

Please see the chair if you have an interest in becoming more active in TC2.1. We are actively seeking members and corresponding members. Please get involved with Research and programs subcommittees on Sunday afternoon as well as the main meeting on Tuesday.

7. Subcommittee Reports

Programs – James Bushnell

ASHRAE website – search “program” for all key dates.

Albuquerque:

RP-1128 – Lily Wang presenting Transaction on “Trade-off function for the combined effects of noise and temperature on human comfort and performance.”

Las Vegas – submittal Aug 6th: Names, Titles, Affiliations

(Program – search web – Tiffany Cox, Conference Program Administrator – tcx@ashrae.org, 404 636-8400 ext 1137)

Upload PPTs : Dec 10th

Seminar – non peer reviewed ; Symposium – peer reviewed

- Global Thermal Comfort Evaluation and Standards: International Approaches
 - Baizhan Li - China
 - Ken Parsons & Dennis Loveday – U.K.
 - Peter Simmonds – U.S.
 - ??? (no name yet) India or Chandra Sekhar, Singapore
- Seminar on Low Humidity (health impacts as well as chemical free water treatment for humidification)
 - 9.7 wants to do this
 - DTU Paper – Wyon
 - UCB

For Montreal: Sep 17th for conference & technical papers

Paul Lebbin – working on Transaction or Seminar for Montreal

TC 9.6 Healthcare – Low Humidity – Healthcare now 20-60%

TC 9.7 – RTAR on low humidity

- Impact of low humidity on transmission of bacteria and viruses
- Li Fang – DTU
- Japan – 40-60% study in '60's survival of viruses
- Yugou Li – moisture content
- Hal Levin – moisture and virus survivability
- Mark Jackson – summary of what we know
- Are you hot & cold – is there a lower humidity limit?

Aug 6th –

Diotima – Perception of dry air and humidity

Research – Sitaraman Chandra Sekhar (Iain Walker is Research Liaison – rl2@ashrae.net)

<u>ITEM/PI or Main Author</u>	<u>TC/TG</u>	<u>TITLE</u>	<u>ACTION NEEDED</u>
<p>1445-RTAR David Wyon</p>	<p>2.1</p>	<p>ENERGY CONSERVATION, AIR-CONDITIONING AND PRODUCTIVITY IN HOT-HUMID TROPICAL REGIONS</p>	<p>Info to communicate to authors: Rewrite of work statement: definition of productivity (task performance); Energy Efficiency more explanation; Identify confounders (ergonomics, mood, etc). Can be resubmitted at Tech Weekend in October. Occupants health (absenteeism is available) and task performance, subjective perception and objective measurements (T, %RH, etc.). Chicago '09 - waiting feedback from Mike Vaughn Louisville '09 – Mike Vaughn - Extensive re-write in terms of method of approach needed prior to resubmission. Action time: confirm authors or find new authors to rewrite. Next opportunity to submit Aug 15, Dec 15 – have to submit in 2010 or go back to WS stage. Orlando '10 – RAC did not vote as there was a confusion re the date in the document (2008) vs. 2009 date. It was subsequently clarified after a short discussion among Eric, David and Mike Vaughn that RAC indeed had the correct version except that the date was not updated. Mike will include this on the agenda during RAC's meeting on Wednesday (27 Jan 2010). [Input after TC2.1 Meeting - WS1445 was discussed on Wed during RAC meeting and David Wyon clarified several points that RAC asked at the meeting. Generally positive but another round of documentation may be required clarifying what David said at that meeting in written form. Awaiting response from Mike Vaughn regarding official feedback from RAC meeting] Albuquerque '10 - feedback provided by RAC, suggestions have not been incorporated - in process.</p>
<p>1503-RTAR David Wyon</p>	<p>2.1</p>	<p>Effects of Bedroom Temperature and Ventilation on Sleep Onset, Duration and Quality</p>	<p>Chicago'09 – Research Com recommends to resubmit. Eric Adams to discuss with Iain Walker. Louisville – Eric Adams discussion with Iain Walker. Iain will be supportive of a smaller scope (down scope and say what we really want – researching comfort, NOT sleep). Eric Adams – draft by Sep '09. Orlando '10 – reduce scope – [Temperature and outdoor air supply rate – measure room temp and CO2 and movement (using “wrist watch”) and resubmit.] Albuquerque - focus on thermal comfort aspect on sleeping time. Potential energy</p>

			savings implication. RTAR approved by full TC-2.1 committee in Albuquerque.
1504-RTAR Dennis Loveday	2.1	IMPROVED KNOWLEDGE OF CLOTHING INSULATION FOR NON-WESTERN ENSEMBLES: The Effects of Clothing Materials and Stationary Body Postures	Voted to approve and resubmit to RAC in SLC. Chicago '09 – returned Louisville '09 – RAC asked that 1504 and 1505 be combined. Approved by RAC as combined RTAR – Keep #1504 and start Work Statement. WS committee: Dennis Loveday. Orlando '10 – Dennis will submit work statement for review before Albuquerque meeting. Albuquerque '10 – Revise WS to reduce # of ensembles and cost – vote on Tue (6/29). Level of effort reduced from \$200K to \$120K. Removed S. America in order to expand scope. RTAR approved by full TC 2.1 committee in Albuquerque.
1515-RTAR John Stoop	2.1	THERMAL AND AIR QUALITY ACCEPTABILITY IN BUILDINGS THAT REDUCE ENERGY BY REDUCING MINIMUM AIRFLOW FROM OVERHEAD DIFFUSERS	WS to be prepared by Chicago (Paliaga). SUBMIT WORK STATEMENT BEFORE DECEMBER 15, 2009 OR TOPIC WILL BE REMOVED FROM DISPLAY ON PLAN. WS MUST BE SUBMITTED AND APPROVED FOR BID BY FEBRUARY 1, 2012 OR TOPIC WILL BE DROPPED PERMANENTLY BY RAC. Louisville '09 - Stoops – conflicts with reviewers resolved. Reviewers: John Stoops, Jorn Toftum, Dan Int-Hout III, Ahmet Ugursal - TC 2.1 letter ballot prior to RAC October meeting. PS to report to TC by Aug 1st. Ahmet Ugursal added to reviewers in full committee – see Motion 2. Awaiting response from RAC. Albuquerque '10 RAC approved proposal – cofounded by CEC – awaiting final approval by RAC & Tech Council.
1332-RP Charlie Huizenga	2.1 SSPC 55	Thermal Comfort Tool	Paliaga – check with Iain Walker on status of funding. Orlando '10 – Funding received ~Jan 20, 2010. Delivery by Albuquerque. Update to be sent to Mike Vaughn. Recommend 12 month no cost extension. A β version has been released to TC 2.1 and SSPC 55 awaiting feedback – looks good based on TC 2.1 reviewer feedback. SSPC 55 to serve as PMS and make recommendation to TC 2.1
RTAR's Under development:			
SLC-1 Hal Levin & David Wyon	2.1	Individual control of thermal comfort & air movement preferences	Levin, Paliaga, Melikov, Adams – Report in Chicago Chicago '09 still under development Louisville – Changing upper limit in Std 55. Paper at ASHRE paper LO-09-037, “Modeling of the Human Body to Study the Personal Micro Environment” and paper on Indoor Air Journal website

			by Rim, Novoselac & Morrison – “The influence of chemical interactions at the human surface on breathing zone levels of reactants and products” . Draft RTAR by Orlando. Desire for higher air velocity even at thermal neutrality. Orlando '10 Split into 2 RTARs (“IAQ Effects on Thermal Comfort” & “Does Ozone Effect Preference for Air Movement?”) Albuquerque '10 - Work on both RTARs is in process. Aug 15th is deadline for submission from an e-mail ballot.
SLC-2 Peter Simmonds, Gwelen Paliaga, & Ed Arens	2.1	Thermal comfort in non-sedentary environments	Simmonds – Draft by Chicago Chicago '09 – Ed Arens, Gwelen Paliaga interested in working on RTAR. Louisville '09 – Simmonds – prepare draft for Orlando. Orlando'10 Chandra to forward references to Gwelen on non-sedentary comfort environments. Keep on list until Albuquerque – any institutions interested at looking at this? Albuquerque '10 Ed Arens to write RTAR by Jan '11 for Las Vegas meeting.
SLC-3	2.1	Exposure Duration to AC & thermal comfort	Sekhar, Loveday, Jones, Stoops, Humphreys – Draft by Chicago Chicago '09 – draft by Louisville Louisville '09 – draft by Orlando – Sekhar lead (clarify with Byron Jones). Orlando '10 – no action – keep on list until Albuquerque. Chandra Sekhar to write RTAR by Jan'11 for Las Vegas meeting.
CHI-1 David Wyon, Hal Levin, Chandra Sekhar	2.1	Sustainable Solutions to Classroom Ventilation	Wyon, Levin, Sekhar, Team with TC-2.3 & TC-2.4. Getting children air of good quality without high energy cost. Ways of cleaning up gas phase pollutants, particulates. Gas phase absorption with regeneration when children not present. Does reducing gas phase pollutant help children’s health and productivity (i.e. a follow-on to 1257-RP). Options including: gas phase cleaning, automatic OA intake (fan driven by CO2), etc. Louisville '09 – need input from Wyon. Orlando '10 - David will resend to Hal & Chandra - take an e-mail vote by committee – Deadline to RAC is Feb 20th. Albuquerque '10 – August 15th deadline for letter ballot.
LOU-1 Diotima von Kempski	2.8,2.1, 9.3,TG1	Towards a new Holistic Indoor Environmental Criteria	Louisville'09 – support 9.3 – implements a cellular response to IEQ variables, hedonic value, etc. Tool for green buildings to combine IEQ and energy efficiency: An integrated approach to IEQ – RTAR for scoping study. Scoping issue to get to a realistic budget by Orlando. Orlando '10 – revised draft of RTAR to be sent to Chandra. Being re-written and sent by e-mail to Chandra
UPR-1611		On the Association of	Recommendation to be made by Las Vegas. TC9.6 (Healthcare) is

		Low Indoor Humidity in Schools With Children's Absenteeism	interested in co-sponsoring. Project Evaluation Subcommittee (PES) [Sekhar, Wyon, Jackson] (TC22.1). If passed in Las Vegas, include TC 9.6 (Michael Keen) on Project Monitoring Subcommittee (PMS)
Julian Rimmer		Lower Body Comfort at Elevated Air Speeds And Varying Temperatures	New RTAR subject.
Co-sponsor with TC5.11	TC 5.11	Update the Scientific Evidence for Specifying Lower Limit Relative Humidity Levels for Comfort, Health and IEQ in Occupied Spaces	Need to include IAQ. Low humidity will impact emission rates (i.e. emission and concentration of formaldehyde). Scope is too broad.

RAC meets 4 times a year – deadlines: March 3rd, May 15th, Aug 15th, Oct 15th

Honors and Awards – Chair

Ralph Nevins Award Nominations (research work by a person less than 40 years of age): had multiple nominations – winner: Gwelen Paliaga.

Handbook – Chair – Eric Adams

Chapter 9 – Thermal Comfort (latest revision 2009)

Chapter 12 – Odors (latest revision 2009 – TC-2.1 responsible for 2013 revision)

Chapter 9: Peter Simmonds → Eric Adams

By end of Albuquerque meeting have locations for review identified.

Rough draft by Montreal.

Think about CD version as primary – any ways to spice up the chapter with visuals? More detailed research results? Multi-node models, Thermal Plume, CFD?

Update papers since last revision that reference Std. 55 or thermal comfort.

SSPC 55 has requested that a chart in chapter 9 be updated to the latest version of standard 55.

Output of GPC 10P should be included in the next major revision 4 years from now.

Check Google Groups as potential communication tool.

Chapter 12 – Odor: Diotima Von Kempfski

Bill Cain, UCSD reviewed chapter and provided some comments and direction. Von Kempfski will request Cain to provide a rough draft by Las Vegas meeting.

Standards –

SSPC 55: Thermal Env. Cond. For Human Occupancy (liaison – Gwelen Paliaga)

- Std 55-2010 in line to be published
- Low energy buildings – expanded comfort zones – increased air velocity (cooling fans)
- Compliance for ms and checklists to make more relevant to engineering practice

- Cooling effects of air movement
- Several addenda to SSPC 55 – on website
- Interaction with USGBC & LEED – real discussion – letter template to document design assumptions.

SSPC 62.1: ASHRAE/USGBC/IESNA Standard for the Design of High-Performance Green Buildings except Low-Rise Residential Buildings (liaison – Chandra Sekhar)

- 2010 version published
- Users Manual 62.1-2010 – expected to be published this year

SSPC 62.2: Ventilation and Acceptable IAQ in Low-Rise Residential Buildings (liaison – Mark Jackson)

- Looking at an alternative IAQ procedure (similar, but more prescriptive than 62.1)
- Removing Hot Humid/Cold Cities
- Proposal to move Unvented combustion exclusion to Section 2.2 “acceptable IAQ may not necessarily be achieved”

GPC 10P: Achieving Acceptable Indoor Environment (liaison - Hal Levin)

- Expect IAQ Guideline to be published later this year .
- Qualitative statement on interactions on IAQ in spaces.

SPC-189.1: ASHRAE/USGBC/IESNA Standard for the Design of High-Performance Green Buildings except for Low-Rise Residential Buildings (liaison – Hal Levin)

- Standard published.

SPC – 161P: Air Quality Within Commercial Aircraft (liaison – Byron Jones) – Paul Lebbin

- Standard 161 document published
- New aircraft may not have any bleed air off the engines (electrically powered compressors compress outside air for aircraft cabin use)
- Guideline 28 document (for Standard 161) under development – expected publication Fall 2010.

Webmaster – Paul Lebbin Website: <http://tc2.1.ashraetcs.org/index.html>

Website is up to date?

Link to website from www.ashrae.org/technology/page/1721 functional?

Listserv for member mailings – status?

8.0 Old Business –

9.0 New Business

Ron Westbrook:

- social networking tools for better TC communication
- Google Groups pages.
- Can Request an ASHRAE alias

Next Meeting: Las Vegas – January 29-February 2, 2010

Adjournment: 3: PM **Proposed:** ; **Seconded:**

Input outside the meeting: