

[**Pending Committee name change:** TC 2.7, Seismic and Wind Resistant Design”] – Not changed as of Jan. Meeting

Committee Scope: Technical Committee 2.7 is concerned with fundamental scientific and engineering design principles for seismic and wind resistant design of HVACR equipment and building mechanical/electrical service systems.

Chair: Greg Meeuwsen, The Trane Company, gmeeuwsen@trane.com
Vice-chair: Karl Peterman, Vibro-Acoustics, kpeterman@vibro-acoustics.com
Secretary: Robert Simmons, Petra Seismic Design, rsimmons@petraseismicdesign.com
Website: <http://www.ashrae.org/technology/page/1727>

1. Meeting was called to order at 3:30 PM.

2. All present, including members and guests, introduced themselves. See summary cover sheet above.

3. Quorum was established with 13 of 14 quorum voting members present and the non-quorum international members was present.

4. Previous minutes from Albuquerque, June, 2010, were approved by unanimous vote:

5. TC Chair's Report (Greg Meeuwsen)

- A. ASHRAE is attempting to downsize room requirements for TC meetings. TC Subcommittees are encouraged to meet between ASHRAE Meetings through means such as web conferencing. The idea is that if a subcommittee can accomplish much of its work prior to arriving at the ASHRAE meeting, then the remaining work and report can be completed within the main TC meeting. This way there is no need to use a separated subcommittee meeting room, thereby reducing meeting room space requirements. ASHRAE intends to provide web conferencing to support hosting such intermittent meetings. Contact Mike Vaughn for details
- B. TCs are asked to make sure their websites are up to date. We are to add 5–year Management By Objectives items to our website that focus on long-term planning.
- C. ASHRAE is once again considering charging speakers conference registration.
- D. Conference themes will be eliminated after Chicago meeting. So we will no longer have to try to shoehorn seismic and wind design into a “theme” when vying for programs.
- E. Passports required for June Montreal meeting.

6. Publications Subcommittee (Jim Carlson)

A. Practical Guide:

Jim Tauby is under contract to update the Practical Guide to Seismic Restraint to reflect changes in codes, add a chapter for SPC171 regarding qualification of equipment, and other updates. The progress of updates is a little behind schedule so there was no update info to review at this meeting. Jim anticipates updates and revision to be ready for review in March or April. Jim will forward a copy to TC2.7 for review and comment on the changes by the summer meeting.

- B. Handbook: The Handbook subcommittee completed the final draft of the 2011 Seismic and Wind Design chapter and turned it into ASHRAE. Jim Carlson will coordinate galley proofs and any possible art that ASHRAE may need for publication.

In the Summer Montreal Meeting the subcommittee will begin to assign sections to volunteers to begin review and update of the next Handbook edition.

7. **Programs Subcommittee** (Dick Sherren)

- A. 2011 Winter Meeting (Las Vegas) –
 - 1) Seminar: Seismic Code Compliance for HVAC Equipment; Chair: Doug Fitts;
Speakers: Jim Carlson – AHRI, Greg Meeuwsen – AC 156
Seminar was well attended (150+). The audience showed tremendous interest and asked many questions
- B. 2011 Summer Meeting (Montreal) No Programs
- C. 2012 Winter Meeting (Chicago)
 - 1) Seminar: Back To Basics; Chair: Jim Tauby
 - a) Specifying Seismic Restraints – Paul Meisel
 - b) Specifying Wind Restraints – Richard Sherren
 - c) Code Changes for 2012 – Robert Simmons
 - 2) Forum: How are You Getting Seismic Certification; Chair: Jim Carlson
- D. 2012 Summer Meeting (San Antonio)
 - 1) Seminar: HVAC Equipment and Restraint Selection for Hurricanes and Tornadoes;
Chair: Robert Simmons; Speakers: Dr. Zuo, others TBD. ; Seminar will discuss IBC 2009,, ICC 500, FEMA 361.
- E. Other future program ideas
 - 1) Seminar on Non-structural, ASCE-10 code updates.
 - 2) Seminar on new updated Practical Guide for Seismic Restraint for MEP, chair: Robert Simmons; Overview, Connections, System & Equipment
 - 3) Seminar to discuss UC San Diego testing (Jim Tauby, Jim Carlson, Bob Bachman, UC San Diego speaker).
- F. Note that all seminars must now contain New York PDH Objectives/requirements. There is a new program option called Conference Paper Session. It is a paper with less peer review than a Transaction/Symposium paper..... AKA “Symposium Light”. There would be one paper reviewer suggested by the cognizant chair. It is hoped that the shorter review process will encourage more papers.
- G. Jim Tauby is working on a PDS for ASHRAE **????**
- H. ALI has requested a course be developed that ASHRAE may offer. Contact Joyce Abrams at ASHRAE for more info

8. **Membership** (Karl Peterman)

- A. Currently we have 14 members and 1 international member. In July we will have 4 voting members roll off and 3 will roll on as Voting members, giving us 13 members and 1 international member. Rolling off: Greg Meeuwsen, Warren Blazier, David Jelts, Pat Marks. Roll on as new voting members: Panos Pappavizas, Dan Abbate, Scott Campbell All members are encouraged to reach out to other colleagues and related groups (PEER, MCEER, etc.) to invite new participants to TC2.07.
- B. Current officers include:
 - 1) Greg Meeuwsen, Chair
 - 2) Karl Peterman, Vice-Chair, Membership
 - 3) Robert Simmons, Secretary
 - 4) Jim Carlson, Handbook
 - 5) Jim Tauby, Standards and Webmaster
 - 6) Dick Sherren, Programs
 - 7) Dan Rau, Research Chair
 - 8) Don Warick, ALI Liaison

9) John Giuliano, Long Range Planning

C. New officers starting in July 2011

- 1) Karl Peterman, Chair
- 2) Robert Simmons, Vice-Chair, Membership
- 3) Pat Marks, Secretary
- 4) Jim Carlson, Handbook
- 5) Jim Tauby, Standards and Webmaster
- 6) Dick Sherren, Programs
- 7) Dan Rau, Research Chair
- 8) Don Warick, ALI Liaison
- 9) John Giuliano, Long Range Planning

D. New Corresponding members that need to be added: Roger Aisladie, Frank Polinski.

E. New membership and officers were voted on and approved (11,0,3) (3 officer candidates abstaining)

9. **Research Subcommittee** (Dan Rau)

A. **Minutes for Research Subcommittee Breakfast – Jan 31, 2010 - Las Vegas**

1) Strategic Plan

No Change. See the *ASHRAE Research Strategic Plan 2010-2015 – Navigation for a Sustainable Future*. Goal 9 – Support the development of improved HVAC&R components ranging from residential through commercial to provide improved system efficiency, affordability, reliability and **safety**. Seismic and wind are referenced in the technical challenges for goal 9.

23 Work Statements in backlog – 18 going out for bid this spring. RTARs and Work Statements created after July 2010 should indicate which of the 11 strategic goals are addressed by the research.

2) Technical Activities Committee

Beginning to form MTG's or Multi-Discipline Task Groups for the following purposes:
Research across several TC's on strategic goals
Actively pursue funding outside of ASHRAE
Could be formed around goal areas in strategic plan

B. **Current TC2.7 Reserch**

All RTARS have now expired

Next submission deadline for RTAR's is May 15, 2011

1598-RTAR, “*Wind Shielding Effects of Louvered Screen Walls on Roof Top Mounted Equipment;*” Responsible Committee: **TC 2.07** (Seismic and Wind Restraint Design); Status: **Rejected and withdrawn**. Mention of screen walls seemed to imply to RAC that it was not in scope of ASHRAE. It was discussed and agreed that the TC feels that the affect of wind loads on ASHRAE type equipment is an important subject and can have significant cost affect on the installation and material used. So we may need to re-issue the RTAR and emphasize the importance to ASHRAE constituents. We will further discuss to be revival of RTAR 1598 in our TC at the Montreal meeting

1601-RTAR, “*Numerical Seismic Modeling of HVAC&R Isolation/Restraint Systems;*” Responsible Committee: **TC 2.07** (Seismic and Wind Restraint Design); Status: **Returned**. See below comments from RAC were very general:

1. Not well explained. Listing the capabilities of the CFD model is given, but that is not enough technical information.
2. Need a list of proposed tasks under the Objectives section rather than describing capabilities of the numerical model.
3. The RTAR describes the need and the potential benefit, but it is not clear what the potential magnitude of the benefit might be.
4. The RTAR describes the characteristics of the numerical model (which is helpful) rather than the approach to determining these characteristics (which would be more helpful).
5. The RTAR should provide background on commonly used analytical techniques or numerical methods from other industries, fields, etc.
6. Numerical models could be used globally. A first step should be to see if these models are available and perhaps to be adapted for US situation. No reference is mentioned to literature outside USA.
7. The RTAR describes the characteristics of the numerical model rather than the approach to determining these characteristics. No mention of the need for experimental validation of the model. This would seem appropriate and would mean the current budget is probably inadequate.
8. The goal is unclear: Is it to produce software or design guidance from comprehensive simulation

Iain Walker was not available via phone call from Dan Rau. In a discussion at the breakfast he asked us to submit our questions in writing via email as preferred means of communication.

He confirmed the RTAR would need to be rewritten to align with the current strategic plan.

Main areas that need work:

- Quantifying the benefit
- Literature search – Japan
- Numerical modeling method

Dan Rau to work on 1601 to revise and resubmit for approval.

C. Other research ideas:

Housekeeping pad reinforcement – Deleted from our Research Plan

Piping connections – Jim Carlson - Carlson to forward files to Rau. Rau to summarize status for committee and possibly revive RTAR per new strategic goals. UN Reno was supposed to do testing on piping connections. Also possible research at University of Southern California. Jim Carlson to see if a useful report was done from any USC testing and if there is anything to incorporate into our RTAR.

Research on “rules of thumb” for screw spacing. Shake curbs or similar sheet metal type items per AC 156.- Karl Peterman

D. Other Items:

UCSD Testing –. NEES BNCS Five Story full-scale building for NCS testing:

Currently only the seismic portion of the test is funded. Design is finishing up and construction will begin in early April (April 1 scheduled). Pull-planning session with installers Wednesday, February 9th, from 9am-11am, on the campus of San Diego State University. Project looks to be about 4 months behind schedule which would put the start of testing at the end of this year.

AMCA Louver study - AMCA study on Louver Porosity and its affect on wind loads:
Paper has been completed and Dr. Zuo is seeking publication.

Dan Rau gave a summary presentation of the research as an AHR educational session

10. **Standards Subcommittee** (Jim Tauby)

- A. SPC 171 Maintenance – There was discussion from a committee to address any improvements or maintenance that may be needed. It was decided that a number of changes would be needed and that a new committee would be formed to work on the standard. The standard must be revised to the ISO format. SPC 171 was submitted to ICC for reference in the IBC, but it was rejected due in part to the absence of the ISO format. There was also discussion on whether dynamic testing should be added. The consensus was that a SSPC 171 should be formed to revise the standard as needed. Jim Tauby made a motion to establish an SSPC 171, John Giuliono second the motion. Motion carried (13,0,0,1)
- B. Discussion of a chair for the new SSPC 171 took place. Dan Rau motioned that Jim Tauby be made the chair. Jim was the chair of the original SPC and would therefore have thorough insight on the standard. Pat Marks second the motion. Motioned carried (12,0,0,1,1)
- C. Wind Standard – Greg Meeuwsen and Scott Campbell may work on this and see if there is interest in AHRI and AMCA. Robert Simmons will ask if EGSA may also be interested.

11. **Website** (Jim Tauby)

- A. New TC website is up and running. See <http://www.ashrae.org/technology/page/1727> .
- B. TCs are asked to make sure their websites are up to date. We are to add 5–year Management By Objectives items to our website that focus on long-term planning.

12. **Liaison Reports**

- A. TC 2.HVAC Security (Scott Campbell) – Interest is building. They hosted a seminar attended by 80 people. They are working on Guideline 29 (Risk Assessment) and proposing a practical guide.
- B. TC 2.6 (Pat Marks) – Karl Peterman reported on progress of SPC 197 that is meeting to investigate a Method of Test (MOT) for vibration isolation devices. The ISO Standard 10-846 is being investigated as a possible solution to what is needed to fill the SPC 197 MOT. The real challenge is getting a test machine that can handle the desired frequency range. Robert Simmons reported TC2.6 Vibration Isolation subcommittee has submitted a Research Topic Acceptance Request (RTAR) addressing installed performance of vibration isolators. The RTAR was returned and must be renewed with the new RTAR format. The TC2.6 Vibration Isolation subcommittee also updated the VI schedule in the handbook.
- C. ASCE 7 (Jim Carlson) – The 2010 is now available. There are changes in the conduit, pipe, and duct exemptions to bring them more in line with standard practice. ASCE Commentary to address lingering problems was scheduled to be finished in April, 2011.
- D. ICC – (Jim Carlson) Chapter 17 of the IBC 2012 is being revised to clear up language. Verbiage to better define inspection entities to be addressed. ASHRAE SPC 171 was submitted, but rejected due to absence of ISO format.
- E. BSSC (Scott Campbell) – No report. Jim Tauby will be joining group in 2011.
- F. VISCMA (Don Warick) – met Saturday, Jan. 29th. See website for new VI suggested specifications and new whitepapers. Rating standard is on hold.
- G. SMACNA (Mark Terzigni) – New Seismic Restraint Manual published. OSHPD version available as PDF
- H. AHRI (Greg Meeuwsen) – Standard/guideline for seismic analysis of equipment is complete. Their seismic subcommittee approved the standard and their parent committee will vote in March for the approval. It will then be sent to the Standards committee to vote in June, 2011. A committee has been set up to look at a wind certification for Florida.
- I. ATC69 (Jim Carlson) - FEMA 74, an e-document on Practical Application of Non-structural Restraint, has been updated. A specification has been added and direction to owners on identifying

risks. Jim Carlson will send a link to the final ATC draft to TC2.7 for review.

13. **Old Business** – none.
14. **New Business**
 - A. non
15. **Next Meeting:** Montreal, Canada, June 28, 2011
16. **Adjournment** –The meeting was adjourned at 4:50 PM.