

TC 2.7, Seismic and Wind Resistant Design

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: Karl Peterman, Vibro-Acoustics, kpeterman@vibro-acoustics.com
Vice-chair: Robert Simmons, PetraSeismic Design, rsimmons@petraseismicdesign.com
Secretary: Patrick Marks, Johnson Controls, patrick.c.marks@jci.com
Website: <http://www.ashrae.org/technology/page/1727>

1. Meeting was called to order at 3:34PM.
2. All present, including members and guests, introduced themselves. See summary/cover sheet above.
3. Quorum was established with 9 of 12 quorum voting members present. The non-quorum international member was not present.
4. **Previous minutes from Dallas were posted to the website:** Change p.5, section 10: ASCE revision should be in 2016. Votes (9-0) carry with the one change noted.
5. **TC Chair's Report** (Pat Marks for Karl Peterman)
 - CEC
 - Bio Updates
 - New RAC Liasion

Honors and Awards (Steve Duda) – Steve discussed the levels of awards. Jim Tauby was nominated for the Distinguished Service Award we will find out the status by the New York meeting. Robert urged everyone to update their bios on-line.

Long Range Planning (Matthew Hooti) – Dan Rau brought up a current thrust for blast testing and analysis. Dan will discuss this with Scott Campbell and see if TG HVAC Security would be interested in working with us on this. The committee also discussed the possibility of adding a section in the Handbook on Seismic Certification and Compliance. Jim Carlson discussed the possibility of adding tornado and flood requirements to the chapter. Scott Campbell mentioned that ASCE-07 is looking towards doing a performance based design for seismic qualification. Jim Carlson suggested that ASHRAE publish papers that could be referenced in addition to the AHRI standard.

6. Publications Subcommittee (Jim Carlson)

- **Practical Guide (Jim Tauby):** The Guide is published – it is now an approved ICC manual.
- **Handbook (Jim Carlson):** Jim has recruited a subcommittee to begin editing. He will add a section on seismic certification. Panos and Dan have completed editing of the wind load section of the chapter. Doug Fitts indicated the need to add air-device restraints to the handbook. Revisions must be completed during the fall of 2013.

7 Programs Subcommittee (John Giuliano)

- At the current conference (Denver), we had no programs on the schedule. Our submission for “Specifying Seismic and Wind Restraints” was denied. Apparently, there was no track that it would fit into.

1. Future Programs

- a. For NYC we are trying to get “Specifying Seismic and Wind Restraints” approved this time, under the track, ‘Fundamentals and Applications’. This is to be chaired by Jim Tauby, though the speakers and topics changed slightly.
 - i. Sami Elkhazin – Specifying Seismic Restraints
 - ii. Richard Sherren – Specifying Wind Restraints
 - iii. One of our foreign members – Code applications and examples from either Europe or Asia

The intent here is to hope this change will help get approved since NY is an international show.

- b. Also for NYC, Robert Simmons will chair a forum or seminar on “Lessons Learned from Sandy”. We will try to utilize the information from the AIA document “Post-Sandy”. The intention is to have a discussion on the wind issues and one on the flood issues. Robert will be moving this through.
- c. For Seattle 2014, Panos Papavizas is going to contact the individuals involved with the “Shake and Bake” testing from UCSD. The intention is to have this be a paper, which would need to be submitted by Sept 23rd.
- d. Also for Seattle, we discussed a possible seminar to review the issue of thermal expansion and seismic restraint of piping. As these are not independent problems, the industry has been looking for clarification. Dan Rau will chair this and be contacting TC 5.1 for interest. For now, Richard Sherren would be speaking for the seismic restraint portion, and Robert Simmons will be speaking on riser systems.

- e. For further out, we can have a seminar on the rewrite of SPC171.

- f. Also for future consideration, Michael Morby was going to look into a potential discussion of Factory Mutual (FM) requirements for cooling towers.

- g. There was a discussion to start a process of possibly every 2 – 3 years of having a recurring 'basic' isolation/restraint seminar to continue educating the industry of changes in codes. For now the reception was only luke-warm.

No other topics came up. So for now we will need to start to get creative and involve long term planning, or we will run out of topics. Otherwise, the idea of a recurring seminar may be the only way to go.

8. **Membership** (Robert Simmons)

- Other new officers:
 - Pat Marks, Vice Chair
 - Dan Rau, Secretary
 - Panos Papavizas, Research Chair
 - John Giuliano, Programs Chair
 - Jim Tauby, Standards Chair/Web Master
 - Jim Carlson, Publications/Handbook Chair
- Rolling off:
 - Jim Carlson, Mike Froelich, Dick Sherren, Dan Rau, Eren Kalafat, Karl Peterman, Don Warick
- Rolling on:
 - Robert Simmons, Jim Tauby, Paul Meisel, Greg Meeusen, Okan Sever, Martin Deveci, Pat Marks

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

No change to ASHRAE Strategic Plan.

David John, our research liaison has finished his term. He is being replaced by Harvey Sachs of ACEEE (American Council for an Energy Efficient Economy). Harvey Sachs works on building codes, standards, and market transformation for the residential and commercial sectors. Market transformation activities include evaluating emerging technologies, and specific programs for energy-saving technologies and practices.

Current Research Activities

Currently 58 research projects are funded (\$11 million) and active. Eleven new projects were started. Fourteen projects were completed and 14 projects went are tentative (out for bid). The drought of research projects continues and TC's are encouraged to submit more RTARS.

RAC evaluated 5 RTAR's in Denver. 2 accepted, 2 returned, 1 rejected

RAC evaluated 2 WS's in Denver. 1 accepted, 1 returned

New RTAR form: Interactive PDF. Focused on guiding authors toward brevity and clarity. Text fields will have character limits.

TC 2.7 activities

Work continues on converting the URP submitted by IBHS into a TC2.7 work statement. The work statement has been rewritten but the Scope and Technical approach need to be finished. The deadline for WS is August 15. The challenges are:

Issue 1

Designated list of parameters to test result in too many tests. Action, Rau is working with Papavizas (others?) to determine what tests and parameters can be eliminated and still maintain meaningful results

Issue 2

Per the URP, many of the tests were to be conducted at large model scale (1:5). At this scale, you cannot obtain louvers from manufacturers. Scale models would have to be made and they would be fairly large and therefore quite expensive. Blade thickness would be very thin and not practical. Should 1:5 scale eliminated? Building size at full scale is limited to 40 ft x 30 ft plan. Will results still be meaningful if conducted at full scale and 1:50 small model scale.

Issue 3

One of the items that greatly increases the number of tests is the fact that the number of wind angles for each parameter is 0, 15, 30, 45, 60, 75, 90. The 15 degree increments are required for the research to be accepted by ASCE 7 (per Morrison). While ultimately we want this research to lead to code acceptance, is it necessary at this stage? Rau's opinion – we might not ever get funding for this again and sacrificing parameters and keeping the angles is the way to go.

Subcommittee supported keeping the 7 wind angles and sacrificing other parameters such as screen types and free areas in order to keep cost at an ASHRAE fundable level.

Panos pointed out that we have missed the 2016 cycle and the next cycle would get research into the 2022 code.

CURRENT TC 2.7 RESEARCH

No RTAR's or Work Statements are active.

Research ideas: Blast

OTHER AREAS OF INTEREST

SHAKE and BAKE – UCSD - NEES BNCS Five Story full-scale building for NSC testing:

Per the website final paper is to be completed by October of 2013.

Drafts of paper(s) by UCSD have been reviewed by Rau and Papavizas this spring

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

- SSPC 171: Met Tuesday morning. Tackled the hardest of the six protocols. Loosely based on the FM-1950 standard for the bracing of piping. On target for the goal of draft completion in June of 2014 with a vote in early 2015. Standard has been changed to a method of test and rating.

11. **Website** (Jim Tauby)

Website is currently up to date. We need to provide Jim with the new roster effective 7/1. New link to the SPC-171 website.

12. Liaison Reports:

- **TC 2.HVAC Security** (Scott Campbell) – Putting together an RTAR on BIM and security. Forum for Guideline 29. Updating the handbook chapter for next March.
- **TC 2.6** (Pat Marks) – Back to Basics Program tomorrow, 6/26. SPC-197 MOT for high frequency performance of isolators – discussion with David Herrin (UK), now moving toward a target of a method of test. Initial work will be done to provide a framework for the development.
- **TC 9.9 (Jim Carlson)** Attended meeting – are concerned with seismic, but do not have any specific actions.
- **TC 1.5** (Dan Rau) Presentation on Quality BIM objects – Dan spoke on the need for manufacturer's trade associations to work with the BIM designers.
- **TC 9.4** (Doug Fitts) Publishing a justice facility design guide. Will have seismic provisions in the guide.
- **ASCE 7** (Panos) – Wind load met in Seattle. New page on the SEI website that defines the schedule for code completion. 2016 version is targeted for 2018 code adoption. Wind load committee will have all work finished by the spring of 2014. There is a lot of data on wind velocity values that will result in revisions to the maps. Risk category 4 will now get its own map with higher velocities. Mean reoccurrence levels will change for each risk category. Chapter 29 – a proposal to eliminate the 60 foot height restriction has passed the subcommittee and will be moving to the main committee. The wind load committee will be looking at performance based design as it related to wind load. Carlson – TS-8 is shooting for an early spring completion as well. 7/12 conference call coming up with a face-to-face meeting in September.
- **ICC** – (Jim Carlson) No changes to chapter 17. Phil Caldwell – ASCE is evaluating whether it should acquire the AC-156 standard.
- **BSSC** (Robert Simmons) – Robert is the ASHRAE liaison.
- **NHERP** (Scott Campbell) – Switched to an issue driven format. Non-structural components were not an issue, so they were not discussed. Caldwell – FEMA has tried to take money from other projects and get non-structurals back on the agenda, but they were unable to.
- **VISCMA** (John G. for Don Warick) – Not doing a rating standard for ASHRAE-171. The website is being updated to give additional guidance to the installing contractor and specifiers. FEMA 412, 413 and 414 will be updated and published by VISCMA for free download. Two chapters in the ASHRAE handbook don't agree. VISCMA will meld the two ASHRAE chapters together and come up with something uniform.
- **SMACNA** (Eli Howard) – Will start revisions of the seismic bracing manual this fall. Target completion date – fall 2014. Will meet with OSHPD on a kitchen bracing document and an update of the OSHPD document. Paul Meisel will provide input to SMACNA on the 12 inch rule.
- **AHRI** (Mike Woodford) – Seismic Standard AHRI 1270 Revision underway right now – should be approved in September. Working with ASCE to get 1270 reference in the codes. Did a February web session on 1270 for members. AHRI 1310 – wind loading design is being developed – it should be finished by the end of 2014. It will be a method of determining compliance with existing codes.
- **ATC69** (Jim Carlson) FEMA 74 is now online. ATC-58 is under development – performance based design.
- **ASTM** (Karl Peterman) No report.

13. **Old Business:** none.

14. **New Business:** none.

15. **Next Meeting:** New York, NY, January 2013

16. **Adjournment:** The meeting was adjourned at 5:27PM



TC 2.07 Honors & Awards Report

2014 Winter Meeting, New York City

George B. Hightower Award:

- *Recognizes excellence in volunteer service in the area of Technical Committee, Technical Group, and Technical Research Group activities, excluding Research & Standards (which have separate awards).*
- Our nominee from TC 2.07 this year was **Paul Meisel**, and his nomination was forwarded to TAC for final selection. Paul has more than the required points and has served TC 2.07 faithfully for a long time, including include programs and papers, a tour through the Vice-Chair and Chair positions, and his service to the Seismic Chapter of the Applications Handbook, having contributed in three consecutive editions (2003, 2007, 2011). However, TAC only awards one per year, and they chose a different candidate.
- Nominations for the next award cycle are due September 1, 2013. Please help me identify suitable candidates from this TC, and I will prepare the nomination. We can resubmit Paul Meisel or choose another candidate. Desirable qualities include include Seminar and Conference Paper programs, Handbook & Program subcommittee work including officer positions, and service as TC officer.

Service to ASHRAE Research Award:

- *Recognizes excellence in volunteer service in the area of Society research.*
- Nominations for the next award cycle are due September 30, 2013. Please help me identify suitable candidates from this TC, and I will prepare the nomination. Desirable qualities include include authorship of RTARs and Work Statements, participation or chairing of multiple PMS and PES, Research subcommittee work including officer positions.

ASHRAE Fellow:

- *Recognizes distinction in the arts relating to the sciences of heating, refrigeration, air conditioning or ventilation, or the allied arts and sciences, or in the teaching of major courses in said arts and sciences, or who by reason of invention, research, teaching, design, original work, or as an engineering executive on projects of unusual or important scope, has made substantial contribution to said arts and sciences, and has been in good standing as a full grade Member for at least ten (10) years is eligible for election to the grade of Fellow.*
- New nominations are due December 1 of each year. Please help me identify suitable candidates from this TC, including yourself if you feel you are eligible. **I have a candidate from TC 2.07 in mind** and will work to obtain the necessary biographical data – but I am sure there are others who also qualify.

Distinguished Service Award:

- *Recognizes members who have served ASHRAE faithfully as a member of committees or otherwise giving freely of his/her time and talent on behalf of the Society. Lifetime cumulative points-based system with a minimum of 15 points required.*
- The points tally sheet is available on the ASHRAE website or directly from me.
- On behalf of TC 2.07, I formally nominated **Jim Tauby** this year, and the nomination is pending. If approved, the formal award presentation will be at the Plenary Session of the 2014 Annual Conference in Seattle.



- **I have a few candidates in mind** and will work on this between now and May 1. But don't be shy – if you feel you qualify or know somebody who is, please contact me. New nominations are due May 1 of each year. Self-nominations are permitted. Please help me identify additional suitable candidates from this TC, including yourself if you feel you are eligible and have not yet received this award. There is no quantity limit on nominees.

Exceptional Service Award:

- *Recognizes members who have served the Society faithfully and with exemplary effort, far in excess of that required for the Distinguished Service Award.* Lifetime cumulative points-based system with a minimum of 45 points required.
- The points tally sheet is available on the ASHRAE website or directly from me.
- New nominations are due May 1 of each year. Self-nominations are permitted. Please help me identify additional suitable candidates from this TC, including yourself if you feel you are eligible and have not yet received this award.

Other Awards on my Radar:

- Standards Achievement Award. *Recognizes excellence in volunteer service for developing ASHRAE Standards and/or Guidelines.* Nominations are due annually on September 30.
- Pioneers of the Industry Award. *Honors deceased individuals who have made milestone contributions to the growth of HVAC&R. Candidates must have shown evidence of distinction, either technically for academically.* This is one of the very few ASHRAE Honors to be awarded posthumously. **ACTION ITEM:** It has been suggested to me that this may be an appropriate vehicle to honor the memory of Marx Ayres, Warren Blazier, or Ted Carnes. Nominations are due December 1 each year, and a maximum of two are awarded per year. Our TC would need to agree on one nominee to submit.
- Andrew T. Boggs Service Award. *Recognizes a past Exceptional Service Awardee for continued, unselfish, dedicated and distinguished service to the Society.*
- Louise & Bill Holladay Distinguished Fellow Award. *Recognizes a Fellow of the Society who continues preeminence in engineering or research.*
- F. Paul Anderson Award. *Honors a member for notable achievement, outstanding work or service in any field of the Society. This is ASHRAE's highest honor.*

Respectfully submitted by:

A handwritten signature in blue ink that reads "Stephen W. Duda".

Stephen W. Duda
TC 2.07 Honors & Awards Chair
January 6, 2014