

**Laboratory Method of Test of Fault Detection and Diagnostics  
Applied to Commercial Air-Cooled Packaged Systems  
Standards Project Committee 207P  
Meeting Minutes**

**Monday, January 22, 2018, 8am-10am – Chicago**

These draft minutes must be approved by this committee to be the official approved record.

Note: For votes concerning standards actions all members must be given an opportunity to vote. In the event all members are not present at the meeting a letter ballot will be sent to the absent members to vote, that will include all negative votes at the meeting and a Chair's response. In the event negative votes are received during the continuation ballot a recirculation ballot will be conducted.

Negative voters with comment on publication public review votes will be given an opportunity to appeal once the Board of Directors has approved the document for publication. Negative voters who do not comment **will not** be offered a right to appeal.

**ATTENDEES**

**VOTING MEMBERS**

Adrienne Thomle	X
Amr Gado, Pentair	
Brent Eubanks, Integral Group	
Christopher Benson, Total Bldg Cx	
Dale Rossi, FDSI	
Daniel Sullivan, Target	
David Shipley, ICF	X
David Yuill, University of Nebraska	X
Dick Lord, Carrier	
Glenn Remington, Consumers Energy	X
Jan Peterson, XCSpec	
Jay Enck, CxGBS	
Jon Douglas, Lennox	
Klas Berglof, ClimaCheck	
Kristin Heinemeier, UC Davis – EEC	
Liping Wang, University of Wyoming	X
Mike Brambley, PNNL	X
Mikhail Gorbounov, UTC	X
Robert Mowris, Verified	
Sean Gouw, SCE	X
Vance Payne, NIST	
Vern Smith, Smith Energy Engineers	X
Wayne Guelfo, Johnson Controls	

**LIAISONS, NON-VOTING MEMBERS, VISITORS**

Aniruddh Roy, Goodman
Antonio Lewis, Siemens
Caleb Joiner, Trane
Grant Wheeler, NREL
Jia Huang, PG&E
John House, JCI
Lee Millies, SPLS Liaison
Mark Modera, UC Davis
Mark Shoemaker, Carrier
Mohid-Eslam Dahdolan, Univ. Nebraska

## MAIN COMMITTEE MEETING MINUTES

### SELF INTRODUCTIONS, ROLL CALL, MEMBERSHIP, LIAISONS

- Discussion RE SPC member attendance and process to address including transition from voting to non-voting.
- Vern Smith indicated he would likely be rolling-off after Houston meeting.
- Sean Gow has indicated he wishes to transition off as SC Chair, willing to serve during transition (GTR made comment RE acknowledging Sean for his hard work to date on this area)
- Related, David Y reiterated “no one had tried Standard” is uncomfortable with many on committee
- David Y reiterated the TPS change as being approved
- Discussion RE rigor of members read / review / comment the draft version of Standard to date and need for members to increase rigor and comment participation.

### APPROVE MINUTES

- No quorum; no action taken.

### ROADMAP FOR COMPLETION

- Request is for current round back by February 5<sup>th</sup>.
- GTR volunteer to provide group Skype / conference line for group discussion
- M Brambley has concern if document is ready for review, too many incompletions, has work yet to advance to readiness for review. Whether this goal of next step is among working group or wider membership, suggest current draft needs to be solidified and moved toward completion – prior to full committee review and endorsement.
- Adriene T have some comment RE process to date and need for balance
- David Y add some comment RE process to date and difficulties
- Continued discussion RE Kristin’s suggestion to move toward completion, and other ideas.
- GTR suggest monthly Skype / Conference Call working sessions and for Houston meeting flip the meeting order to working group sessions earlier and have full meeting last so we can move this to actionable document.

### INTERNAL REVIEW

- Discussion RE current draft and work yet to do / timeline / means to advance toward completion readiness for final (internal) review / comment process – to prepare for external advisory public review.
- Liping inquired / suggested that the early drafts have larger developed lists of terminology. Suggest maybe go back and bring back in to document. David Yuell concurs it may be a helpful way forward.

## PHYSICAL TESTING

- Sean Gouw commented he has been running into trouble for further continued physical testing. Discussion about various options / levels of rigor needed. Recommendation that we take a closer look at CC Title 24 has a reference to help craft the refined test plan. Reiterate previous discussions about developing RTAR to support this as needed funding, need help from ASHRAE.
- Grant Wheeler suggested NREL has similar efforts underway (would still need funding), action item to discuss further after this morning session.

## DRAFT DEVELOPMENT

- Adrienne commented on various sections that are better developed than others. Reiterate above discussion RE way forward – much to do / need to make plan.

## NEXT STEPS

- Discussion. M Brambley suggestion, create a road map for working groups to ID sections or pieces of document, then send out for review / comments from larger group. Recommendation to assign specific pieces to specific authors to enable individual work on sections and have it brought back together.
- GTR repeat suggestion that we revisit the fixed time slots and re-allocate / re-calibrate to align with new TPS.
- Adrienne suggested some sections may be closer to readiness than others, next work may be to take an inventory of the various sections to characterize what sections may need what work and define them 6.5 / 6.6 / 6.7 / 6.8 / 6.9 Jan Peterson may be the former designee, need to pick this back up. Adrienne will reach out to Jan Peterson to see if we can re-engage.
- Michael Brambley inquired RE annexes A & B, do need to be complete and include prior to Advisory Public Review?
- GTR suggestion we go back and look for former content in aged drafts to evaluate for possible bring back in. GTR subsequently volunteered to look for previous drafts that may contain this material to support later meetings / discussion this afternoon.
- Some discussions RE whether Title 24 may have some content that can help
- Some further discussion RE need to review former informative annexes for material that may support the new TPS vs some of that prior work would have been for now-dropped matter from former TPS.
- Further discussion RE the need to find funding to enable testing support.
- Further discussion RE issue of confidentiality of draft document was reiterated, suggestion to get guidance from RAC / Standards committee.
- Congratulations to Adrienne Tromle who has become an ASHRAE fellow.

## ADJOURN MAIN COMMITTEE MEETING

## 10:00 WORKING GROUP MEETING: USABILITY AND VERIFICATION

- Attendees: Sean Gouw, Caleb Joiner, Glenn Remington, Vern Smith, Aniruddh Roy, Jia Chang
- Levels of review of the draft standard
  1. Answer survey questions
  2. Provide tracked comments on draft
  3. Design test plan using the draft standard, T-24 target specification
  4. Conducting physical laboratory tests
- Draft survey Q's

<http://bit.ly/2sPDUqO>

- Notes on questions:
  - Don't ask questions that don't yield useful answers
  - Multi choice vs freeform sentences, need both
  - Avoid "terms" that may not be universally understood
  - Ask that reviewers propose solutions when raising problems
- Questions to answer:
  - Can different users/labs interpret the tests and yield consistent, repeatable results?
  - Any language too vague or open to gaming?
  - Are the results from performing these tests reasonably representative of actual performance?
  - Major tests that were missed?
  - Are the tests easy to follow? Does a user have the detail needed to perform the tests?
  - Easy to figure out equipment needed, facility, & staff? Modifications needed? Cost?
  - What is the level of effort needed? Total cost to run? Level of staff?
  - Who are the facilities?
  - Which parts were difficult?
  - Attempt to validate? Results?
  - Missing steps?
  - Streamlining test?
  - Overall approach sound?
  - Comfortable w specifying FDD tools with this standard?
  - Would you buy this product / do you find this useful?
- Sean / GTR reiterate that we are in agreement with M Brambley earlier recommendation that the document be to some measure of complete prior to Advisory Public Review stage.
- Members of group discuss / review suggested "Internal Reviewer stakeholder questionnaire / attachment, with an aim that it may become Draft Document Advisory Public Review Questionnaire / attachment.
- Continued discussion of need for a functional test exercise to support validating the draft document test plan. Looking for funding / test lab support resources.

- Some notion of independent is minimizing bias of a manufacturer lab / intellectual property constraint.
- Such as NIST / NREL / University / private Independent Test Lab / utility lab
- University of Oklahoma apparently had been previous mention
- Purdue Herrick Lab (Jim Braun as potential resource)
- Maybe a difference between stakeholders that can provide Review only / as separate from testing. Do we need two different survey questionnaires or can we use (1) for both?
- GTR suggest Ferris State University
- GTR suggest we reach out to training provided for HOB0 Data Logger testing of economizer equipment course Stetz consulting materials provided to Sean Gow (applies to built up AHU w economizer, but may be a useful lead for new SPC membership and / or review).
- The idea of in-between working group meetings be extend past document draft development but also used by section work – GTR feedback is grouped can decide how to use the resource.
- Went thru Survey Q by Q line by line, Sean Gow took notes.

#### 4:30 WORKING GROUP MEETING: DRAFT DEVELOPMENT

- Attendees: Adriene Tromle, David Shipley, Sean Gow, Aniruddh Roy, Jia Chang Huang, Caleb Joiner
- GTR (stepped out 30 minutes for TC 7.5 Building Operations Dynamics sub-committee mtg)
- Follow up from early, Jan Peterson wrote back to Adrienne and is willing to assist with sections and parts and provided a lead to a Belimo rep whom may be able to help (name TBD).
- Begin looking over Adrienne's work to align w ASHRAE definitions and begin filling in missing terms.

#### 6:30 WORKING GROUP MEETING: REFRIGERATION AND DEVELOPMENT

- No further notes / open discussion and dinner