TC/TG/TRG TITLE: TC 8.7 Variable Refrigerant Flow

DATE OF MEETING: Tuesday, January 25 2011, 3:30 PM to 6:00 PM

LOCATION: Pavilion 4, Hilton, Las Vegas

<table>
<thead>
<tr>
<th>MEMBERS PRESENT</th>
<th>YEAR APPTD</th>
<th>EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE</th>
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<tr>
<td>Bob Jones</td>
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<td>Alok Sing</td>
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<td>Paul Doppel</td>
<td>2007</td>
<td>SUM C.M. Hui</td>
<td>Heather Tullis</td>
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<td>Brian Bogdan</td>
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<td>Kirk Stifle</td>
<td>Andrew Moore</td>
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<td>Chris Bellshaw</td>
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<td>Scott Frey</td>
<td>David Markusz</td>
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<td>Ron Domitrovc</td>
<td>2010</td>
<td>Tim Young</td>
<td>Bob Skorupsy</td>
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<td>David Heckler</td>
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<td>Chiaki Okubo</td>
<td>Dermott McMorrow</td>
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<td>Oswaldo de S. Bueno</td>
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<td>Bo Shen</td>
<td>Paul Delaney</td>
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<td>Paul Solberg</td>
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<td>Christopher Lee</td>
<td>Norm Maxwell</td>
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<td>Arturo Thur de Koos</td>
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<td>Anton Wolmarans</td>
<td>Dominic Kolandayan</td>
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<td>Mbem Schemzer</td>
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<td>Vivi Koutsogianni</td>
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<td>Yasu Yushida</td>
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<td>Takauni Ochi</td>
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<td>Steve Opromolla</td>
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<td>Kazuyashi Shinozaki</td>
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<td>MEMBERS ABSENT</td>
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<td>Tamohiko Kasai</td>
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<td>Masakaza Sunada</td>
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<td>Richard Raustad</td>
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<td>John Bade</td>
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<td>John Vucci</td>
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<td>Osami Katauka</td>
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<td>Els Baert</td>
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<td>Harshal Upadhye</td>
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<td>Tom Bourquin</td>
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<td>Bach Tsan</td>
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1. Call to Order
Paul D. called meeting to order, Feb 1, 2011, Pavilion 4 conference room

2. Welcome/Introductions

Roster: We are set up to have a specific # of voting members (11) 9 are present at the meeting & unlimited corresponding members.

Voting members on roster:

(p) Chris B.
(p) Ron D.
(p) Oswaldo (International)
(p) Paul D.
(p) Dave H
(p) Robert J
(p) Paul S
(p) Artouro
(p) Brian B (LG)

To become a corresponding member—put your ASHRAE number on the attendance list being passed around & put CC next to your name.

3. Minutes Approval

Minutes were passed out.

Corrections or additions? None.
Motion to approve & 2nd
Passed 8-0-0 CNV
4. Agenda Review/Updates

Agenda—changes/deletions?
Motion to approve agenda.
Passed 8-0-0 CNV

5. Chair’s Comments (Doppel)

Next mtg. June 25-29 2011

Winter:
Chicago Jan 21-25, 2012
San Antonio
June 23-28, 2012

Section 8 chairs breakfast meeting:

Proposed by ASHRAE—multiple disciplinary task groups to share info between TCs to address specific measures involving multiple TCs.

We don’t currently have a membership subcommittee chair: Paul is asking for a volunteer? Dave Heckler volunteered as did Paul S. Paul S. will do it.

ASHRAE Google groups—for online collaborative space—post new info to the group.

Help wanted section of TC page of ASHRAE website. For help on ASHRAE topics, handbook, reviews, etc.

6.0 Liaison Reports:

Liaison to ASHRAE 15
John Bucci (on ASHRAE 15 committee) liaison to TC 8.7 was in attendance. Also liaison to TC 9.1, large buildings (Chapter 5—large buildings also has a piece on VRF & would like to coordinate effort / language.

Aug 6, 2010 TC 8.7 met to discuss ASHRAE 15.
Discussions about permanent openings & egress—attempted to interpret
Location of refrigerant piping

We came up with proposed re-writing & coordinated with ASHRAE 15 committee for a general discussion to learn their (ASHRAE 15) specific approach / meaning.
If there is an event that causes a catastrophic leak causing people to have to evacuate, concern is that flowing refrigerant would prevent people from leaving a building-> thus no refrigerant piping in areas for egress.

Similar discussions about other topics—meeting was productive.
Where we are now: We need to come up with suggested wording/changes for areas of our concern / interest.

Need to educate ASHRAE 15 members on the details & operation of VRF & how refrigerant leakage may occur & how it would be released.

Was discussion within ASHRAE 15 about internationalizing standards…nothing concrete.

Discussion about A2L refrigerants & options for refrigerant dispersion with & without mechanical ventilation.

Dominic mentioned need for a TC 8.7 person to interface with those (ASHRAE 15) working on A2L refrigerant requirements.

7.0 Subcommittee Reports

Handbook (Doppel)

Drop dead date is July 31 2011 to submit the completed VRF chapter.

Current plan:
Revisions discussed at Handbook sub-com. Meeting will be made & sent to sub-committee members prior to a March 2 meeting in Dallas for the Handbook subcommittee. Further revisions at meeting & send vote to accept by sub-committee by April 30. Then mail out to full committee for review & vote at Summer meeting. Drafts will be sent to all members & corresponding members

Comment: TC 8-11 handbook (chapter Unitary Chapter 44) has a ½ page description of VRF & would like to include a reference to the new VRF chapter.

Program:

For Montreal
Abstracts: Feb 14 deadline for Seminars & Forums  May 6 for presentation upload to ASHRAE.

Program track:
refrigerants
HVAC Fundamentals
Net zero
Professional skills
Alternative energy

We would like to propose VRF heat recovery under HVAC fundamentals (Domitrovic Chair)  Speakers: Chris B, Harshal, & Paul D??

Water cooled VRF also under Fundamentals (Dermot-Chair)
Other possible topics:
   Large buildings VRF
   Water cooled VRF also under Fundamentals (Dermot-Chair)

Chicago possible Topics:

Field performance of VRF (Dermot & Ron—papers)
Conference papers due April 18

Commissioning VRF (Andrew Moore)
Modeling (Dominic)

Standards (Chris B.)
None.

Webmaster (Dominic)

Website had to be changed from Task Group format to TC format—that is complete &
website is up to date.

If anyone has research papers they’d like to post on the website, send to Dominic.

8. Old Business

At last meeting we discussed starting research topics…any thoughts on research topics?
Previously suggested topic was refrigerant RCL?? No interest in that topic at this meeting.
Suggested that once Handbook chapter is printed, we will focus on research topics.
Research chair is Dunston M. (not at meeting).

9. Committee Status
TC-8.7

10. New Business

90.1 was approved last Jan. including VRF & was published in ~Sept. / Oct.

DOE is looking at ~April to react to the changes in 90.1 to incorporate into 10CFR part 431
(commercial buildings). This will get updated to reflect

ASHRAE 189.1—VRF is not included in it. We (TC?) tried to work through AHRI. Not
everyone was in agreement & AHRI has some concerns with 189.1.

AHRI certification program. AHRI approved certification program proposed by
manufacturers (1230).
By ~1st of April, certified numbers for VRF will be available on websites. DOE also has to
get standard into 10CFR part 431.

11. Adjournment
Next meeting in Montreal—June 2011.

Motion to adjourn—2\textsuperscript{nd}—passed.