



**AMERICAN SOCIETY OF HEATING,
REFRIGERATING AND AIR-
CONDITIONING ENGINEERS, INC.**

1791 Tullie Circle, N.E./Atlanta, GA 30329
404-636-8400

TC/TG/TRG DRAFT MINUTES COVER SHEET

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

DATE OF MEETING: 24th 4:15 PM to 6:15 PM

LOCATION: Denver, CO

MEMBERS PRESENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE (Corresponding Members)	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE (Guests)
Bob Jones	2010	Mihaela Spulber	Bach Tsan
Brian Bogdan	2012	John Molnar	Jerine Ahmed
Ron Domitrovic	2010	John Cummings	Roger Hundt
David Heckler	2010	Dave Yasher	Derek Kultgen
Dermot McMorrow	2012	Ana Ruiz	Eric Johnson
Chris Bellshaw	2012	Paul Doppel	Dave Durshe
		Pamela Androff	Umair Surani
		Andrew Moore	Cahrlie Landherr
		Bob Skorupsky	Steven Faulkner
		Arturo Thur de Koos	Mike Luke
		Bob Jones	Jim Lundblad
		Keith Reihl	Chandan Sharma
MEMBERS ABSENT	YEAR APPTD	Karine Leblanc	Bereket Nigusse
Jun Furuta	2012		Weston Taubenfeld
David Markusz	2012		Luis Escubar
Paul Solberg	2013		Tokahara Saegusa
Ishtiaq Christi	2011		John Bade
Dunston Macauley	2013		Ruben Huerta

DISTRIBUTION

<i>All Members of TC/TG/TRG plus the following:</i>	
TAC Section Head: Steve Duda	SH8@ashrae.net
TAC Chair: Craig Way	TACCHAIR@ashrae.net
ASHRAE Manager of Technical Services:	MORTS@ashrae.net
All Committee Liaisons as shown on TC/TG/TRG Rosters:	Program: PL8@ashrae.net Special Publications: PUBCHAIR@ashrae.net Handbook: HBS8@ashrae.net CTTC: CTTC8@ashrae.net RAC Research: RL8@ashrae.net PDC: PDCCHAIR@ashrae.net
Additional Distribution	
ASHRAE Manager Of Standards	MOS@ashrae.net

1. Call to Order

Chris Bellshaw called meeting to order

2. Welcome/Introductions

- b. Announcement made: 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

- a. Minutes from Winter 2013: copies were passed out
- b. No discussion
- c. Motion to accept, and 2nd
- d. Approved

4. Agenda Review/Updates: Any adjustment to the agenda?

- a. Agenda approved

5. Chair's Comments (Bellshaw)

Chair comments

Chris gave a review of the Special Session 2—Breaking VRF Myths. Positive comments and feedback from those who attended, especially Doppel 's . “mythbuster” outfit

Chair breakfast (Bellshaw)

New TAC presentation template was discussed at previous meeting. Will get template uploaded to website ASAP

New MTGs (multidisciplinary task groups) were discussed.

-Cold Climate Design Guides—They are looking for members and TC 8.7 should be represented— McMorrow volunteered to be liaison.

- Online ASHRAE Bios have changed, it was requested to review and update as appropriate.
- ASHRAE is looking for volunteers to review conference papers, we should propose VRF specialist
- If anyone would like a thank you letter sent to employer, please see the Chair after the meeting.
- Remember to take advantage of webcast and conf call features from ASHRAE

The coming meetings were discussed
 Jan 18-22 in New York—Next meeting
 June 28 – July 2 in Seattle—Annual Meeting

The TC was requested to think about Tour opportunities for future meetings

Roster: No one is rolling off the committee this year

6. Subcommittee Reports

6.1 Handbook Chapter (Doppel)

No activity at present, will begin the process of modification at next meeting

6.2 Membership

All OK, no members rolling off presently.

6.3 Program (Heckler)

The Tracks for NY were stated as:

1. Systems & equipment
2. Fund & Applications
3. Indoor Env. & Health
4. Building Information Systems
5. International Design
6. Improving performance
7. Hydronic Systems
8. Tall Buildings

Discussion was held about future programs, the following suggestion were put forward

- Control Integration VRF with building management (Chair: Pam)
- Owning & Operating costs & expected life of VRF--possibly joint session with TC 7.8 (Chair: Keith Reihl--Mitsubishi)
- Special Session Part 2—Mythbusters Chair: Domitrovic (same crew—Doppel, Bellshaw, Bogdan) Many additional topics will be covered
- VRF Handbook Forum (Paul D. Chair)

Pam suggests we should submit all 4, the deadline is August 12

Possible future topics that were discussed:
-History & Evolution of VRF

Conference papers are due in September for Seattle Annual meeting —It was noted that Androff is on the committee

If we have three papers, we can put together a VRF conference paper session if we have three papers. (EPRI, FSEC & Dermott—prof. in Canada) Ron D. will organize/chair.

Androff is looking for reviewers for three specific conference papers.

Permanent reviewers for VRF conference papers are Ron Domitrovic, Chris Bellshaw, Brian Bogdan, Mihaela Sulber, Bob Scorupsky, Chris Laughman, John Molnar, and Dermot McMorrow.

It was recommended that all Chairs should touch base with Track Chairs.

6.4 Research

Research Liaison (Dave Yashar) gave a brief on how RTAR process operates.
Work Statement will include an estimate of time & \$ that it will take to do the work.
There is an ASHRAE Research Manual, available on the ASHRAE website.

Requests are currently down for research so funding is available if there are good ideas.

RTAR 1684 (Steve Duda)

Formally accepted by RAC

TC 9.1 primary sponsor + Standard 15 & TC 8.7 (co-sponsors)

The RTAR will look at the calculation for permanent opening in Standard 15

Work Statement still needs to be written, this is sent to potential bidders

Meeting at Noon on Tuesday (6-25—Plaza Court 4). Looking to finish the Work Paper in ~6 months.

Status is accepted for further development

4 points that need clarification:

- 1) Greater detail on CFD validation
- 2) Description of what the \$\$ are used for
- 3) Clarify deliverables—what will results do?
- 4) RAC says they're happy to accept \$\$ from manufacturers to fund research.

Discussion:

Question: What does it have to do specifically with VRF as the RTAR issue is applicable to all systems. *Answer:* In part VRF was used as a selling technique to RAC, but yes, it is applicable to all system types.

Other comments: other research has been done (worldwide) for VRF refrigerant leaking. This should (could) act as a logical starting point. Bellshaw will provide several references.

McMorrow: move away from leak rate.

Kolandyan: RCL is starting point

Would be good to get “VRF” out of the Work Statement & use more generic wording.

It was discussed getting an article on VRF in the ASHRAE Journal and the process of having it approved. It was confirmed that the Journal editor has final say on what goes in regardless of input from reviewers

Discussion on how we can better work and improve this process with the Journal was discussed and it was suggested that we form a small subcommittee to look into this.

Other Research Ideas:

-Expected life of VRF systems.

Running a beta test for remote meeting at Denver.

Looking for a research subcommittee for TC 8.7—formalized

Volunteers:

Chris Bellshaw

Dominic Kolandayan

Allison Briede

Nick Kassanis

John Bade

Arturo Thur De Koos

Bob Scorupsky

Andrew Moore

Dermot McMorrow

Paul Doppel

Ron Domitrovic

Mihaela Spulber

Brian Bogdan

6.5 Standards & ASHRAE Learning Institute (ALI)

Bellshaw. & Scorupsky suggestion for VRF certification course through ASHRAE Learning Institute (ALI).

Motion: That TC 8.7 work with ALI to develop a course for VRF design, commissioning & installation.

2nd.

Passed

- Scorupsky. will head up the effort (He will look at forming a sub-committee for help) with a hope to get process moving prior to New York. He will send names to Domitrovic
A certification activity may be a follow on.

6.6 Webmaster

The website is updated and the TAC template will be added next week.
A request was made for additional VRF information to be added to the website.

ASHRAE Exchange is up and running on the ASHRAE website www.ashraeexchange.org
It is the new forum and it was recommended that members participate. There is an ongoing vibrant discussion on VRF.

Discussion was held on how to monitor & respond to comments on the exchange but no formal proposal was agreed to

7.0 Liaison Reports:

Section Head Report Steve Duda

Steve helps with general matters of the operation of the TC.

-Steve comments that TC 8.7 is a well-run and attended committee.

If any questions you can contact your TC Chair of Steve sh8@ashrae.com

90.1—(Andrew Moore)

2013 edition of 90.1 should be published this fall. Goal was 50% reduction in energy use over the 2004 90.1. PNNL is the calculator of the official energy reduction. Currently stands at ~30%.

Already looking at the 2016 version—looking at a system approach to energy calculation rather than just a product specific method.

Q: Any discussion to tying it to emissions, like CO2...

A: Not currently.

Paul Doppel was appointed as a “consultant” to 90.1

15—(Doppel)

Summary of 2L refrigerants. Discussion of need to update the standard. It is 10 years old and they realize there are some ambiguities that need to be sorted out.

Doppel will be taking on **62.1** so will not be the liaison to **15** anymore.

McMorrow volunteered to be the new liaison

62 (Doppel)

They are aspects of the standard that may be of interest to VRF---Table 8-1. Current version 62.1-2010. Will be republished this year

250 (Domitrovic)

No report—Domitrovic will not continue as liaison.

Committee is currently discussing chillers, nothing VRF yet.

8 Old Businesses:

None

New Business:

Doppel: DOE started a working group: certification & qualification for commercial systems.

This was to help DOE come up with suggestions for operational maintenance of systems:

-ASRAC Appliance Standards and Rulemaking Federal Advisory Committee and Working Group

The distinguished lecturer program was again mentioned and encouraged for those with expertise to participate

McMorrow suggests a social event around the Annual meeting, he will plan the event

Meeting Adjourned...