

**Minutes of ASHRAE Technical Committee 10.1**  
**Custom Engineered Refrigeration Systems**  
**Montreal, Quebec, CANADA Meeting – Fairmont Hotel – Holchelaga 5**

**Action items:**

**#1. Action Item:** Todd Jekel, Don Fenton, Kent Anderson, and David Wylie volunteered to assist Tom Wolgamot (Research Subcommittee Chair) with research.

**#2. Action Item:** The chapter review coordinating volunteers are:

1. Chapter 4: Todd Jekel (chapter in good shape).
2. Chapter 5: Todd Jekel (chapter in good shape).
3. Chapter 13: Dennis Halsey and Bruce Griffith
4. Chapter 45: Wayne Borrowman to obtain reviewers active in this area.
5. Chapter 46: Marty Timm and Dennis Halsey.
6. Chapter 50: Needed.

**#3. Action Item:** Kent Anderson and Doug Reindl volunteered to review the FAQ's for ASHRAE Standard 15.

**#4. Action Item:** TC 10.1 members volunteering for the cryogenic subcommittee are: Pradeep Bansal, Doug Reindl, Marty Timm, and James Young. The meeting time of this subcommittee will be on Sunday from 5:00PM to 7:00PM and is to be held in close proximity with the other TC 10.1 subcommittee meetings all occurring at the same time.

- 1) Call to order by Chairman Doug Scott at 2:15 PM.
- 2) Self-introduction and roster sign-in.
  - a) The Chairman requested self-introduction of members, corresponding members, and guests. All present were asked to sign the roster. There were 24 in attendance. See attachment A for contact information of those attending.
- 3) Quorum call.
  - a) A quorum was established with 7 of 9 voting members present (including chair). Present: Anderson, Borrowman, Griffith, Scott (chair), Siller, Sluga, Smith. Absent: Vallort, Cleland.
- 4) Approval of agenda. Added by chair was discussion of TC10.4 and review of frequently asked questions (FAQ's). Approved. (no vote taken)
- 5) Minutes from Winter 2010 (Las Vegas, NV) were approved as submitted. Vote: 6-0-0 (chair not voting).
- 6) Chairman's report.
  - a) TC Re-organization:
    - i. TC 10.9 combined with TC 10.5 has been accomplished.
    - ii. TC 10.4 has requested to join TC 10.1. Discussed later at this meeting. .
  - b) Website: The TC 10.1 website is up-to-date.
  - c) Nominations are needed for the Hightower Award. TC and TG members may submit nominations for this award.
  - d) Eckard Groll announced the CLIMA 13 and the Purdue Compressor Conferences next summer.
- 7) Liaison reports:

- a) Section 10 Head, Eric Adams: Awarded Doug Scott ASHRAE Certificate acknowledging his service as chair to TC 10.1. Well Done Doug!
  - b) Refrigeration Committee (REF), Don Siller
    - i. REF has re-affirmed two position documents: “Refrigerants” and “Ozone Depletion.” The “ammonia” document was approved last year.
    - ii. CTTC: Chapter Technology Transfer Committee:
      - 1. To promote refrigeration activity at the chapter level, presidential award of excellence (PAOE) points are available. This is to emphasize this year’s theme of refrigeration within ASHRAE. Don Siller is appointed to the Chapter Technology Transfer Committee (CTTC) as the REF liaison.
      - 2. This promotion of refrigeration at the chapter level through the change in the PAOE point criteria was approved by CTTC this past year as a result of CTTC’s review of technical activities supporting refrigeration in chapters. A chapter award, “R” in ASHRAE will be given to the chapter chair whose chapter has the most activity in refrigeration this year.
    - iii. The George Briley award winner will be posted on the REF website.
    - iv. REF budget is on track.
    - v. REF sponsored awards: Milt Garland Award: One submission and evaluation not completed as of the Montreal meeting.
    - vi. The project consisting of developing a Sustainable Energy Design Guide for Refrigeration has been submitted to RAC as a WS by REF. Kent Anderson reported that partial funding for this project will likely be secured by this fall. The WS has been approved by RAC pending co-funding.
    - vii. Refrigeration Commissioning was discussed at REF. A project is being developed that is likely to involve the development of a guideline where assistance will be needed by TC’s in section 10.
    - viii. New REF MBO’s:
      - 1. Streamline communication with TC’s and other committees within ASHRAE.
      - 2. A REF member has been assigned to each section 10 TC as a liaison.
  - c) IIAR Report: Bruce Badger:
    - i. IIAR is continuing the development of standards.
    - ii. Electronic versions of IIAR publications are in a trial phase for the international community and all IIAR members.
    - iii. IIAR is a strategic partner in the Global Cold Chain Alliance.
- 8) Action Items from Las Vegas meeting:
- #1. Action Item:** Doug Scott: notify all TC 10.1 members that passport, and possibly other documents, are needed to enter and leave Canada for the Montreal Annual Meeting this summer.
  - #2. Action Item:** David Wylie. Coordinate with TC 10.3 on revision of 1513 WS.
  - #3. Action Item:** David Wylie. Coordinate revision of 1514 WS and resubmit to RAC.
  - Current Status:** Action Item #1 is complete. Action Items #2 and #3 are carried over.

- 9) Subcommittee reports:
- a) Membership, Don Fenton
    - i. Incoming voting members: Dan Dettmers, Don Fenton, Jim Caylor. (7-1-2011 roster)
    - ii. Outgoing voting members: Don Cleland, Dennis Halsey, Gordon Struder. (Corresponding members 7-1-2011 roster)
    - iii. New provisional corresponding members: Robert Davis, Apichit L.Pongpana, Alan Needy, Mark Pearson.
  - b) Research, David Wiley.
    - i. David Wiley cannot continue as research subcommittee chair.
    - ii. Tom Wolgamot volunteered as the incoming research subcommittee chair.
      - 1. **Action Item #1:** Todd Jekel, Don Fenton, Kent Anderson, and David Wylie volunteered to assist Tom Wolgamot (Research Subcommittee Chair) with research.
    - iii. 1448-RP: Report by Bruce Griffith. Tasks 1 and 2 mostly complete and task 3 underway. Final report preparation has been started. Project PMS meeting was not held for this project at this ASHRAE meeting.
  - c) Program, Wayne Barrowman
    - i. Refrigeration programs at this meeting:
      - 1. Conference Paper Session 6: “Utilizing Refrigerant Management Strategies with Lower Global Warming Potential.”
      - 2. Seminar 27: “Toward Net Zero Energy Refrigeration.”
      - 3. Seminar 29: “Bridging the Disconnect between HVAC and Refrigeration Design in an Ice Arena.”
      - 4. Seminar 40: “Walk-In Coolers: Measuring and Modeling Performance.”
    - ii. Future refrigeration programs. Ideas discussed for seminars and forums at future meetings:
      - 1. Forum: Commissioning refrigeration systems.
      - 2. San Antonio meeting: Follow-up on previous forum: Distinction between compressor and condenser sizing – rated versus actual performance.
      - 3. Chicago meeting: Seminar on thermal storage for air-conditioning loop system located there. Three presentations suggested: refrigeration, tri-generation system, and low-temperature thermal storage.
      - 4. “Low Hanging Fruit,” low cost energy saving opportunities in industrial refrigeration systems.
      - 5. Expand use of natural refrigerants for commercial refrigerants (Bob Burdick suggested as resource).
      - 6. Optimum blast freezer temperatures.
      - 7. R22 in built-up systems.
      - 8. History of refrigeration in the baking industry. Alternatives for flooded systems; R22 to Ammonia conversions.
      - 9. B31.5 and mechanical integrity (probably wait several years for this).

- d) Handbook, John Sluga
    - i. Chapter reviews are to be coordinated by the following volunteers. Note: While those listed will review the chapters, other volunteers are expected to be recruited to review these chapters as well.
    - ii. **Action Item #2:** The chapter review coordinating volunteers are:
      - 1. Chapter 4: Todd Jekel (chapter in good shape).
      - 2. Chapter 5: Todd Jekel (chapter in good shape).
      - 3. Chapter 13: Dennis Halsey and Bruce Griffith
      - 4. Chapter 45: Wayne Borrowman to obtain reviewers active in this area.
      - 5. Chapter 46: Marty Timm and Dennis Halsey.
      - 6. Chapter 50: Needed
  - e) Standards, Bruce Griffith. See attachment B.
    - i. **Action Item #3:** Kent Anderson and Doug Reindl volunteered to review the FAQ's for ASHRAE Standard 15.
- 10) Old business:
- a) Review of previous MBO's:
    - i. MBO #1 – Develop programs (ongoing)
    - ii. MBO #2 – Support sustainability efforts (ongoing)
    - iii. MBO #3 – Increase research activities (ongoing)
  - b) TC 10.1 website is up-to-date.
  - c) Articles requested for ASHRAE Journal.
- 11) New business:
- a) Presentation of Dan Dettmer's MBO's
    - i. Continue development of refrigeration program.
    - ii. Promote sustainability in refrigeration.
    - iii. Increase research in refrigeration.
    - iv. Investigate commissioning of refrigeration systems.
  - b) Change in TC 10.1 scope to include industrial heat pumps.
    - i. Motion: Dan Dettmers: Seconded by Don Siller. The scope of TC 10.1 should be changed to include industrial heat pumps. Discussion included that the scope should be changed to include industrial heat pumps as it best fits in TC 10.1. Careful examination of the present scope of TC 10.1 may conclude that scope already includes heat pumps. Vote: 6-0-0 (chair not voting). Motion passed unanimously.
  - c) TC 10.4 combining with TC 10.1.
    - i. Motion. Dan Dettmers. Seconded by Don Siller. TC10.1 will absorb TC 10.4 with subcommittee representing cryogenics. Discussion involved how the absorption should occur -- a subcommittee was considered most appropriate. Also briefly discussed is a possible scope change for TC 10.1 because cryogenics involves temperatures below -100°F. Vote 6-0-0 (chair not voting). Motion passed unanimously.
    - ii. **Action Item #4:** TC 10.1 members volunteering for the cryogenic subcommittee are: Pradeep Bansal, Doug Reindl, and James Young. The meeting time of this subcommittee will be on Sunday from 5:00PM to

7:00PM and is to be held in close proximity with the other TC 10.1 subcommittee meetings at the same time.

- 12) Announcements: Kent Anderson: Being planned by ASHRAE and NIST is a “Refrigerants Conference” where new refrigerants – particularly blends developed to meet low GWP’s, natural refrigerants, and other new technologies – are to be included. This two-day conference will be chaired by Piotr Domanski (NIST) and is planned to be held during October of 2012.
- 13) Meeting adjourned at 4:15 PM.
- 14) Next meeting: January 23, 2012, Chicago, IL.

Submitted by: Don Fenton (Secretary, TC 10.1)  
July 19, 2011

Attachment B  
**Standards Notes – Montreal Summer 2011 (June 27, 2011)**  
**Submitted by Bruce Griffith at the TC 10.1 Meeting**

- The new versions of Standard 15 & 34 (2010) are available in the bookstore; packaged together.
- Standard 34 2L classification and updates to Standard 15 need to be submitted to IMC by January 2012 for the 2015 IMC. Would like to submit both the classification and the Standard 15 changes at the same time. There was a proposal for a class 2L ad hoc committee to submit change proposals. Change proposals to be reviewed by an advisory committee this fall.
- Standard 34 Designation and nomenclature subcommittee – went through the application process for moving class 2 refrigerants, 143a, 32, 717, 1234yf to class 2L. They were all approved. There were no new applications for class 2L submitted since Albuquerque.
- Standard 15 requested guidance from SSPC 34 to assure that future refrigerants defined in the 2L class have a flame propagation speed under 10 cm/sec.
- TC 8.7 VRF – recommended to submit change proposals to SSPC 15. Conducted a conference call to start addressing safety related issues for these new systems. Discussed refrigerant flow if there is a catastrophic failure. Working on handbook chapter. Have not formed an ad hoc committee with SSPC 15 yet. Proposal to make changes to the User's manual for VRF.
- SSPC 15 – Change proposals
  - Materials (9.1) – complete rewrite to section based on change proposal. Voted to move forward for public review in the fall 2011.
  - Volume (7.3) – defining breathing zone
  - Section 8.13 – voted to remove the section; should have been eliminated with 2010 version. (Manual emergency discharge of Ammonia Refrigerant)
  - Section 9.7.8 – Proposal to revise in its entirety in order to align with previous adopted addenda. Title of section - Discharge from Pressure Relief Devices. Proposal as addenda f. Voted to move forward and submit for public review.
- IIAR 2 has been formally adopted by ANSI.
- ICC past the new ventilation rates (30 ACH for R717).
- UL 1995 – Now only includes hermetic compressors up to 600 volt. UL 984 will include hermetic compressors from 600 to 7200 volts. This is in line with the IEC Standards. Also, 40+ proposals were submitted with a planned 5 year implementation. Many changes coming this fall.
- 1448 RP - During this reporting period, the following tasks were carried out: 1) the results to date were analyzed to try and develop a simple table or formula that would provide the ventilation rate versus refrigerant type (and RCL); 2) a simple method was developed and will be presented at the next PMS meeting for discussion; 3) initial work on the final report started.