TC/TG/TRG MINUTES COVER SHEET

(Minutes of all TC/TG/TRG Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

<table>
<thead>
<tr>
<th>TC/TG/TRG NO</th>
<th>DATE</th>
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</thead>
<tbody>
<tr>
<td>9.10</td>
<td>June 26th, 2012</td>
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</tbody>
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<table>
<thead>
<tr>
<th>TC/TG/TRG TITLE</th>
<th>DATE OF MEETING</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory Systems</td>
<td>June 26th, 2012</td>
<td>San Antonio</td>
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<table>
<thead>
<tr>
<th>Members Present</th>
<th>Year Apptd</th>
<th>Members Absent</th>
<th>Year Apptd</th>
<th>Ex-officio members and additional attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Henry Hays</td>
<td>2009</td>
<td>Pat Carpenter</td>
<td>2009</td>
<td>Wade Conlan</td>
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<tr>
<td>Jim Coogan</td>
<td>2008</td>
<td>Leon Alevantis</td>
<td>2008</td>
<td>Lou Hartman</td>
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<td>George Sestak</td>
<td>2008</td>
<td>Wayne M Lawton</td>
<td>2011</td>
<td>Charles E Henck</td>
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<tr>
<td>Guy Perrault</td>
<td>2008</td>
<td></td>
<td></td>
<td>Gordon P Sharp</td>
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<td>Adam R Bare</td>
<td>2011</td>
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<td>Frank J Spevak</td>
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<tr>
<td>Roland Charneux</td>
<td>2008</td>
<td></td>
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<td>John O Varley</td>
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<tr>
<td>Mary Foutz</td>
<td>2009</td>
<td></td>
<td></td>
<td>Robert H Weidner</td>
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<tr>
<td>Wei Sun</td>
<td>2008</td>
<td></td>
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<td>John P Castelvecchi</td>
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<td>Peter Gardner</td>
<td>2010</td>
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<td>Charles W Coward</td>
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<td>Fred Lorch</td>
<td>2010</td>
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<td>Jeff J Traylor</td>
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<tr>
<td>Gaylon Richardson</td>
<td>2010</td>
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<td>Davor Novosel</td>
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<td>Mitchell Swann</td>
<td>2010</td>
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<td>William A. Kumpf</td>
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<td>Brad C Cochran</td>
<td>2011</td>
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<td>Kelley Cramm</td>
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<td>Traci A Hanegan</td>
<td>2011</td>
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<td>Carol Donovan</td>
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<td>M Ginger Scoggins</td>
<td>2011</td>
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<td>David Rausch</td>
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<td>Nathan Ho</td>
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<td>Rajendera K. Kapoor</td>
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<td></td>
<td></td>
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<td>Kurt Rindoks</td>
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<tr>
<td></td>
<td>Jeff Hardin</td>
<td>Phil Wirdzek</td>
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<td>Steve Snyder</td>
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<td></td>
<td>Brent Fullerton</td>
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<td>Paul Lemestre</td>
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**DISTRIBUTION**

*All Members of TC/TG/TRG plus the following:*

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
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<tbody>
<tr>
<td>TAC Section Head</td>
<td>Thomas Lawrence</td>
</tr>
<tr>
<td>TAC Chair</td>
<td>Charles H. Gulp</td>
</tr>
<tr>
<td>All Committee Liaisons As Shown On TC/TG/TRG</td>
<td>John H. Nix</td>
</tr>
<tr>
<td>Rosters:</td>
<td></td>
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<tr>
<td>Standards liaison</td>
<td>Cecily M. Grzywacz</td>
</tr>
<tr>
<td>Manager of Research &amp; Technical Services</td>
<td>Michael R. Vaughn</td>
</tr>
<tr>
<td>Resarch liaison</td>
<td>Carl Huber</td>
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1. Call to order 3:30
   Coogan called the meeting to order and established a quorum with
   15 voting members present out of 18.

   As of July 1st 2012
   Wade Conlan – Chair
   Roland Charneux – Vice Chair
   Fred Lorch – Secretary
   Members rolling-off
   Leon Alevantis
   Roland Charneux
   Jim Coogan
   Guy Perreault
   George Sestak
   Wei Sun
   Members rolling-on
   So-Yeng Chen (international)
   Gordon Sharp
   John Varley

2. Introductions
   All present introduced themselves and were invited to sign the attendance sheet.

3. Membership Update
   All interested to be corresponding members should give their card to Jim, Wade or Roland with
   their ASHRAE number.

4. Approval of previous minutes
   Minutes from the Chicago meeting were reviewed. They were previously distributed by e-mail
   and posted on the TC website. Correction required: replace "Chicago" by "Montreal" in article
   4.
   Mitchel Swann moved to accept the minutes.
   Wei Sun seconded.
   Motion passed. (14-0-0 CNV)
5. House keeping and announcements from Technical Activities Committee

Roland Charneux reported news from the TC Chairs’ meeting:

- 2 new multidisciplinary groups has been formed (MTG)
- MTG – LOWGWP – Alternative lower global warming potential refrigerants
- MTG – EAS – Energy efficient air handling systems for non-residential building
- Quality control for society technical program. Each TC to propose a list of technical session chairs and reviewers. List to be sent to Tom Lawrence.
- Conference and exposition committee (CEC)
  - Evaluation of speakers continues; 25 speakers had rating below 3.5 in Chicago and received a letter
  - Track chairs will manage the review process
  - 95$ registration fees for speakers starting in Dallas
  - San Antonio sessions:

<table>
<thead>
<tr>
<th></th>
<th>Submitted</th>
<th>Accepted</th>
<th>Scheduled</th>
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<tbody>
<tr>
<td>Tech papers</td>
<td>43</td>
<td>31</td>
<td>10</td>
</tr>
<tr>
<td>Conf. papers</td>
<td>86</td>
<td>43</td>
<td>14</td>
</tr>
<tr>
<td>Seminars</td>
<td>120</td>
<td>67</td>
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</tr>
<tr>
<td>Forum</td>
<td>17</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

- Mini-conference in Denver on research
- TC websites, logo should be changed to new logo by TC’s webmasters
- Subcommittees web-meeting available. Ask Mike Vaughn for arrangements: mvaughn@ashrae.org
- New ASHRAE terminology wiki launched with over 6000 definitions at www.ashraewiki.org
- TAC prepare a PowerPoint presentation on TC’s that could be used at chapter dinners to explain what are the activities within a TC.

Mr. Thomas Lawrence gives a certificate of appreciation to Jim Cogan for his hard work and dedication to TC-9.10.
6. Program Subcommittee (Scoggins)

- San Antonio meeting – June, 2012
  a. Seminar 26 – Laboratories and Environmental Performance Criteria
     Michael Radcliffe/Philip Wirdzek/Gordon Sharp -- Monday 9:45 – 10:45

  a. Website: www.ashrae.org/dallas
  b. Schedule:
     June 1, 2012– Web Site Opens for Seminar, Forum, TPS and CPS Proposals
     July 9, 2012 – Final Conference Papers Submitted for Review
     Aug. 13, 2012 – Seminar, Forum, TPS and CPS Program Proposals Due
     Sept. 14, 2012 – Conference Papers Accept/Reject Notifications and Notifications of
        Seminar and Forum Accept/Reject Distributed
     Dec. 7, 2012 – Upload of PPTs Begin
  c. Tracks:
     1: HVAC&R Systems and Equipment
     2: HVAC Fundamentals and Applications
     3: Standards, Guidelines and Codes
     4: Energy Conservation
     5: Refrigeration
     6: Large Building Design
     7: Facility Management; Operations, Technology and Energy Improvements
     8: Industrial & Transportation Ventilation
  d. The following is a list of forums/seminars to be submitted:
     Forum – Gaylon Richardson – Energy recovery use in Labs
     Seminar – Brad Cochran – Stack Design – Ventilation track (Track 8)
     Seminar – Jim Coogan – Laboratory Codes (Track 3)
     Seminar – Carol Donovan (co-sponsor with TC 2.2) – BAS Data and laboratory
        maintenance (Track 7)
     Joint seminar with TC 9.1 Large Building Design – Case Studies – 2 speakers –
        Mitchell Swann
     Ginger to Chair – speakers Gaylon Richardson, Pete Gardner – Case Study on
        Unknown buildings (Track 6)

- Denver meeting – June, 2013
  b. Seminars/Forums Due : Feb. ??, 2013
  c. Tracks – Not on website yet
  d. 25% of slots will be scheduled for research results
  e. Programs discussed:
     Conference Paper - Wayne Lawton – High containment Bio-lab BSL-3AG (by Ken
        Gowl) and BSL-3 Enhanced Greenhouse (Yang Lu)
     Seminar - George Sestak – Standard 110 Update
     Technical Session -Wei Sun - Results of Project 1344
· Topics not completed from previous meetings:
  Seminar – Integrated Systems testing - Gaylon to let us know when the data is ready.
  Forum – Risk Assessment on Lab Contamination – Under Indoor Environmental Track.
  Seminar – Conlan/Richardson (co-sponsor with TC 7.7.)

· Laboratory Design Short-course:
  John Varley provided an outline and learning objectives for a short-course
  Approved by Staff
  Course scheduled for Dallas meeting

7. Research (Wayne Lawton)
· John Varley reported in the name of Wayne Lawton.
· RTAR-1573 "Determination of a suitable replacement to SF-6 when used as a tracer gas in
  accordance with ANSI/ASHRAE standard 110" was approved. A work statement should
  now be written.

8. Handbook (Hartman)
· Lou received the schedule from Georges Sestak (handbook liaison)
· Sub-committee had his first meeting
· Revised chapter 16 to be published in 2015
· Approval at summer meeting 2014

9. Standards (Richardson)
  Gaylon Richardson reported for the standards subcommittee.

  REPORT TO COME

10. Design Guide (Henry Hays)
· Henry presented a table with the advancement of each chapter
· Approximately 18 months before completion
· Henry will check if there is a need for peer review of the lab design guide

11. Journal (R. Charneux)
· No article published since last January.

12. Short course (Scoggins)
· John Varley have prepared an outline of the course, "basics and beyond"
· The PowerPoint should be ready by November and could be presented in Dallas

13. Liaison Reports

TC 1.4 Control Theory and Applications (Coogan)
"Method of tests for airflow control" is out for public review.
TC 2.2 Plant and Animal Environment (Hays)
- Looking at standards
- One seminar proposed for Dallas

TC 4.3 Ventilation Requirements and Infiltration (Cochran)
- Co-sponsor a seminar on stack design.

TC 4.10 Indoor Environmental Modeling
- Need someone to report.

TC 5.1 Fan Design and Application (Coward)
- Committee works on fans efficiencies
- Prepare a seminar for Dallas on high plume fans

TC 5.3 Room Air Distribution (Lorch)
- Nothing to report related to TC-9.10.

TC 5.8 Industrial Ventilation (Lawton)
- Wayne Lawton absent, no report.

TC 7.7 Test and Balance (Richardson)
- Nothing to report related to TC-9.10.

TC 7.9 Building Commissioning (Traylor)
- Commissioning standard will be out for full public review in Dallas with a final vote in one year from now.

TC 9.2 Industrial Air Conditioning (Kumpf)
- A report on heat loads of electrical equipment (transformers, bus ducts) should be available from ASHRAE publications in the near future.

TC 9.6 Healthcare Facilities (Hanegan)
- Discussed energy benchmarking. Facilities people are leery about our new technologies that will save energy, but might be more complicated to control or maintain.
- More discussion on requiring ante rooms at the entry to all rooms.
- Discussed the presentation at this conference by Wei Sun.
- Establishing a small group to do some overall committee strategic planning. Thinking about hospitals in the future, how we prioritize research, and where we focus in the next 7 or so years. What can we do quickly to have a big impact? What are our members in need of? Leverage our efforts. How we communicate? Who we involve? Where are we lacking in champions that are important to our goals?
TC 9.11 Clean Spaces (Charneux)
- Two research projects on pressurization done by M. Wei Sun completed
- Clean room design guide almost completed. Final text edit started

SSPC 62.1 Ventilation for Acceptable Indoor Air Quality (HO)
- Addendum "k" went out for public review. There was 16 comments: 6 negative and 6 positive
- Air classes seems not clearly defined
- Addendum "k" was a step to approve some air to air heat recovery on fume hoods

SSPC 90.1 (Conlan)
- Nothing to report related to TC-9.10.

SMACNA - (Richardson)
- No report.

NFPA 45 (Pelszinski))
- Paul Pelszinski was absent. David Rausch will report next year.

NSF (Spevak)
- Nothing to report related to TC-9.10.

ISPE (Gardner)
- Nothing to report related to TC-9.10.

AIHA Z9.5 (Coogan)
- They are going out of the standard business
- Standard approved by ANSI will be published soon.
- American Society of Safety Engineers takes the Z9.5 standard

Labs 21 (Sharp)
- The activities of Labs 21 are transferred to I²SL, "international institute for sustainable Labs", a private organization.
- Mr. Paul Wirdzek is the chair of I²SL
- The organization is looking on long term sustainability of labs and promotes EPC "environmental performance criteria" since LEED for labs is disbanded by USGBC
- I²SL is looking on how to recognize sustainable labs
- Potential seminars in Dallas on long term facility management
14. **Old business**
- Georges Sestak is preparing the documentation for the nomination of Gerhard Knutson to the grade of fellow. Georges asks for letters or recommendation from members who knows Gerhard.
- Wade Conlan will look to do the paperwork to nominate Gerhard Knutson for the Hightower Award

15. **New business**
- Charneux propose to restart the sub-committee on labs classification. Adam Bare and Guy Perreault accept to work on this topic. 30 minutes would be required for this sub-committee in Dallas
- College of fellows is working on connections and mentoring of young engineers by fellows
- Raj Kapoor proposed a manual for scientists
- Should and how designer communicate some kind of facility info to lab workers
- Risks associated with in depth description
- Refer the subject to handbook and design guide
- NIH December 13-14 conference on sustainability for labs. Focus on labs equipment

16. **Evaluation (Coogan)**
- Objectives were met on time
- All members and attendees wants to thank Jim for his dedication and accomplishments as TC-9.10 chair

17. **Adjourn 5:50 pm**

Proposed by Guy Perreault, seconded by Pete Gardner.