**TC/TG/TRG No.** TC 4.2  
**DATE:** January 15th, 2014

**TC/TG/TRG TITLE:** Climatic Information

**DATE OF MEETING:** June 25th, 2013  
**LOCATION:** Denver, CO.

<table>
<thead>
<tr>
<th>MEMBERS PRESENT</th>
<th>MEMBERS ABSENT</th>
<th>EX/OFFICIO MEMBERS AND ADDITIONAL ATTENDEES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Didier Thevenard (Chair, Web, VM)</td>
<td>Norm Bourassa (VM)</td>
<td>David Beswarth</td>
</tr>
<tr>
<td>Dru Crawley (VC, Res, Stds, VM)</td>
<td>J Patrick Carpenter (VM)</td>
<td>Abram Conant</td>
</tr>
<tr>
<td>Juan-Carlos Baltazar (Sec, VM)</td>
<td>Stuart Malkin (VM)</td>
<td>Lu Xing</td>
</tr>
<tr>
<td></td>
<td>Ronald Petersen (VM)</td>
<td>Michael R Bilderbeck (TAC SH)</td>
</tr>
<tr>
<td></td>
<td>John Kennedy (VM)</td>
<td>Harris Sheinman (Liaison)</td>
</tr>
<tr>
<td>Neal Lott (VM)</td>
<td>Evyat Erell (NQ)</td>
<td></td>
</tr>
<tr>
<td>Philip Jarret (VM)</td>
<td>Geoffrey Levermore (NQ)</td>
<td></td>
</tr>
<tr>
<td>Joe Huang (VM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chip Barnaby (VM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steve Cornick (CM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Larry Degelman (CM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dave Westberg (PCM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chuck Khuen (PCM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steve Cornick (CM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Larry Degelman (CM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dave Westberg (PCM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chuck Khuen (PCM)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Abbreviations:**  
VM = Voting Member, CM = Corresponding Member, NQ= Member Non-quorum
ASHRAE TC 4.2 Minutes

Thursday, January 16, 2014

ASHRAE TC/TG/TRG ACTIVITIES SHEET

DATE: Current as of 1st February 2013

TC/TG/TRG NO.: TC 4.2

TC/TG/TRG TITLE: Climatic Information

CHAIR: Didier Thevenard

VICE CHAIR: Dru Crawley

SECRETARY: Juan-Carlos Baltazar

TC/TG/TRG MEETING SCHEDULE

<table>
<thead>
<tr>
<th>Location-Past 12 Months</th>
<th>Date</th>
<th>Location-Planned Next 12 Months</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dallas, TX</td>
<td>2013-01-29</td>
<td>Seattle, WA</td>
<td>2014-07-01</td>
</tr>
<tr>
<td>San Antonio, TX</td>
<td>2012-06-26</td>
<td>Chicago, IL</td>
<td>2015-01-27</td>
</tr>
</tbody>
</table>

TC/TG/TRG SUBCOMMITTEES

<table>
<thead>
<tr>
<th>Function</th>
<th>Chairman</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handbook</td>
<td>Neal Lott</td>
</tr>
<tr>
<td>Research &amp; Standards</td>
<td>Drury Crawley</td>
</tr>
<tr>
<td>Program</td>
<td>Joe Huang</td>
</tr>
<tr>
<td>Honours</td>
<td>Joe Huang</td>
</tr>
</tbody>
</table>

RESEARCH PROJECTS-CURRENT

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Contractor</th>
<th>Monitoring Comm.</th>
<th>Report Made At Meeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1413-TRP Developing Standard Procedures for Filling Weather Data- Gaps During Analysis of Measured Building Energy Use</td>
<td>University of Oklahoma</td>
<td>Didier Thevenard (Chair), Chip Barnaby, Steve Cornick, Neal Lott</td>
<td>No cost extension to the end of September 2013</td>
</tr>
<tr>
<td>1613-RP Update Climatic Design Data in Chapter 14 of the 2013 Handbook of Fundamentals</td>
<td>Numerical Logics</td>
<td>Robert Morris (Chair), Neal Lott, Steve Cornick, Steve Bruning, Dru Crawley</td>
<td>completed</td>
</tr>
<tr>
<td>1561-RP Procedures to Adjust Observed Climatic Data for Regional or Microclimatic Variations</td>
<td>Novus Environmental Inc.</td>
<td>Robert Morris (Chair), Neal Lott, Steve Cornick, Dru Crawley</td>
<td>On progress and in time. Expected to be complete by June 2014</td>
</tr>
<tr>
<td>1700-RTAR Moisture Design</td>
<td>Yes</td>
<td>Yes</td>
<td>Reference Years for Hygrothermal Analysis and Design of Buildings (1325-RP Update)</td>
</tr>
</tbody>
</table>
LONG RANGE RESEARCH PLAN

<table>
<thead>
<tr>
<th>Rank Title</th>
<th>RTAR</th>
<th>Work Statement</th>
<th>RAC Approval for bidding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 1610-WS, Development of a Transposition Model for Clear-Sky Solar Irradiance | Yes | Yes | Yes | Yes | Yes | Yes | No progress |
| 1700-RTAR Moisture Design Reference Years for Hygrothermal Analysis and Design of Buildings (1325-RP Update) | Yes | Yes | | | | | Cornick will put a draft RTAR on the TC Google group by August 15th |

HANDBOOK RESPONSIBILITIES

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume</th>
<th>Chapter Title</th>
<th>No.</th>
<th>Deadline</th>
<th>Handbook Sub. Liaison</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>HOF</td>
<td>Climatic Design Information</td>
<td>14</td>
<td>2013-02</td>
<td>James Dale Aswegan</td>
</tr>
</tbody>
</table>

STANDARDS ACTIVITIES – List and Describe Subjects

TC 4.2 is the cognizant TC for Std.169 Weather Data for ASHRAE Building Standards. The TC 4.2 HOF data has been incorporated into this proposed standard. Other coordination will be undertaken as needed such as with SSPC 169.

TECHNICAL PAPERS from Sponsored Research–Title, when presented (past 3 yrs. present & planned)

- Poster Session, Methods for estimating heating and cooling degree-days to any base temperature (1453-RP) (LV-11-021)
- Updating the ASHRAE Climatic Data for Design and Standards (1453-RP) (AB-10-012)
- Impact of Typical Weather Selection Approaches on Energy Analysis of Buildings (RP-1477) (OR-10-042)
- Influence of Long-term Trends and Period of Record Selection on the Calculation of Climatic Design Conditions and Degree-Days (OR-10-045)
- Evaluation of Typical Weather Year Selection Approaches for Energy Analysis of Buildings (1477-RP) (Louisville, June 2009) (LO-09-072)

TC/TG Sponsored Transactions–Title, when presented (past 3 yrs. present & planned)

## TC/TG Sponsored Seminars—Title when presented (past 3 yrs. present & planned)

- Seminar 65 - Impacts of Environmental Change on Building Design and Their HVAC Systems – San Antonio, TX, June 2012
- Seminar 16: Climate Change: It’s Happening, So Who’s Responding? TC 2.5 and TC 4.2 Co-sponsor – Las Vegas, January 2011
- Seminar 11: Background on Load Calculations Methodologies (Past and Present); Current ASHRAE Information (Handbook and Publications), TC 4.1 (TC 4.2 co-sponsor) – Orlando, January 2010.

## TC/TG Sponsored Forums—Title, when presented (past 3 yrs. present & planned)

- Climatic design information in the 2013 Handbook – Montreal, June 2011

## JOURNAL PUBLICATIONS, when published (past 3 yrs. present & planned)

Attachments:

Schedule and Agenda
Minutes
Action Items
TC4.2 Handbook Meeting
TC/TG Activity Feedback Form
Research Subcommittee Agenda
## 2013 Annual Meeting Schedule and Agenda, Denver, CO

**TC 4.2 (Climatic Information) and Related Activities**

<table>
<thead>
<tr>
<th>Time/Date</th>
<th>Meeting/Event</th>
<th>Hotel, Room, Floor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Saturday, 22 June 2013</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>No activities planned</em></td>
<td></td>
</tr>
<tr>
<td><strong>Sunday, 23 June 2013</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30 a.m. - 10:30 a.m.</td>
<td>1413-RP, &quot;Developing Standard Procedures for Filling Climatic Data Gaps for use in Building Performance Monitoring and Analysis&quot;</td>
<td>Colorado (TZ)</td>
</tr>
<tr>
<td>11:00 a.m. - 12:30 p.m.</td>
<td>Conference paper session 1 (intermediate) <em>Energy Efficiency Modeling in Buildings</em> Evaluation of a Climate Modelling Procedure Against Observed Meteorological Data, by Qui, Roth, Fuquan, Hains and Slusarczyk</td>
<td>Governors Square 14</td>
</tr>
<tr>
<td>1:00 p.m. - 2:00 p.m.</td>
<td>1613-RP, “Update Climatic Design Data in Chapter 14 of the 2013 Handbook - Fundamentals” and TC 4.2 Handbook Subcommittee Meeting</td>
<td>Columbine (TT)</td>
</tr>
<tr>
<td>2:00 p.m. - 3:00 p.m.</td>
<td>TC 4.2 Program subcommittee</td>
<td>Columbine (TT)</td>
</tr>
<tr>
<td>3:00 p.m. - 4:30 p.m.</td>
<td>1561-PES, “Procedures to Adjust Observed Climatic Data for Regional or Mesoscale Climatic Variations”</td>
<td>Columbine (TT)</td>
</tr>
<tr>
<td><strong>Monday, 24 June 2013</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:00 a.m. – 9:30 a.m.</td>
<td>Technical paper session 5 (intermediate): <em>Improvements to Climatic Data for ASHRAE Design Calculations</em></td>
<td>Plaza Ballroom A</td>
</tr>
<tr>
<td></td>
<td>• Revising ASHRAE Climatic Data for Design and Standards, Part 1: Overview and Data, by Thevenard and Cornick</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Revising ASHRAE Climatic Data for Design and Standards, Part 2: Clear-Sky Solar Radiation Model, by Gueymard and Thevenard</td>
<td></td>
</tr>
</tbody>
</table>
• An Analysis of NASA’s MERRA Meteorological Data to Supplement Observational Data for Calculation of Climatic Design Conditions, by Westberg, Crawley, Hoell, Chandler and Zhang

10:00 a.m. - 12:00 p.m.  
Weather Data SSPC 169, *Weather Data for Building Design Standards*  
Director’s Row I (PL)

4:15 p.m. - 6:00 p.m.  
TC 4.2 Research Subcommittee Meeting  
Century (TZ)

**Tuesday, 25 June 2013**

1:00 p.m. to 3:30 p.m.  
TC 4.2, Climatic Information, Full Committee Meeting  
Plaza Court 6 (PC)

**Wednesday, 26 June 2013**

*No activities planned*
AGENDA, ASHRAE TC 4.2 Climatic Information
1:00 – 3:30 PM, Tuesday, 25 June 2013

Scope: TC 4.2 is concerned with identification, analysis and tabulation of climatic data for use in analysis and design of heating, refrigeration, ventilation and air-conditioning systems. Promotion of effective use of weather information in these applications is also included.

1:00 PM Call to order
Roll call
Introductions
Approval of agenda
Approval of minutes of Dallas meeting (January 2013)
Report from the Chair/Announcements
Introduction of liaisons (liaison announcements/requests)

1:15 PM Membership Roster Rollovers (for July 2013)

1:20 PM Review of Action Items and Status

1:35 PM Research
Reports on status of current, future and completed research projects:
- 1413-RP (Filling of data gaps in climatic records)
- 1561-RP (Mesoscale modeling of climatic data)
- 1610-WS Clear sky transposition model
- 1613-RP (Update Climatic Design Data in Chapter 14 of the 2013 Handbook - Fundamentals)
- A Global Database of Moisture Design Reference Years for Hygrothermal Analysis and Design of Buildings: 1325-RP Update (Steve Cornick)
- Long-term research plan
- Other potential research projects

2:05 PM Handbook
- Revisions and errata

2:20 PM TC-4.2 developments

2:40 PM Program
- New York, Jan 18-22, 2014
- Seattle, Jun 28-Jul 2, 2014
- Future conferences

2:55 PM Standards Report
SSPC 169 Weather Data for Building Design Standards

3:10 PM Old business

3:20 PM New business

3:30 PM Adjournment

Next Meeting: New York, NY, Tuesday 21st January 2014
Minute: ASHRAE TC 4.2 Climatic Information
1:00 – 3:30 PM, Tuesday, 25 June 2013

Scope: TC 4.2 is concerned with identification, analysis and tabulation of climatic data for use in analysis and design of heating, refrigeration, ventilation and air-conditioning systems. Promotion of effective use of weather information in these applications is also included.

1:00 PM Call to order
Chair Didier Thevenard opened the meeting

Roll call
Baltazar
Roll Call and introductions. A voting quorum (7 of 11 voting members) was present

Approval of agenda
Mr. Barnaby move to approve the agenda, Dr. Lott second
Voting: Unanimous (7-0-0)

Approval of minutes of Dallas, TX meeting (June 2012)
Crawley move to approve the minute, Mr. Barnaby second
Voting: Unanimous (7-0-0)

Report from the Chair/Announcements
1) New MTG(CCDG) Cold Climate Design Guide
2) Recommended that the Field of employment Activity be selected in ASHRAE individual profiles
3) Thanks you letter for your employer are available on request
4) September 23th, 2013 is the Hightower Award Outstanding technical leadership.
5) 2013-2014 Services ASHRAE Research nominations by the end of September
6) Deadline to submit abstracts and full papers for 2014 Annual conference- Seattle June 28-July2
7) Call for Papers for ASHRAE-CIBSE Technical Symposium April 3-4, 2014 | Dublin
8) Call for Papers for 2014 ASHRAE/IBPSA-USA Building Simulation Conference— September 10 - 12, 2014 | Atlanta, GA, USA

Introduction of liaisons (liaison announcements/requests)
No Liaison was present

1:15 PM Membership Roster Rollovers (for July 2013)

Roster Rollovers (after June 2013)
Thevenard
Dr. Thevenard and Dr. Baltazar will be vicechair will roll to Corresponding Member for a year
Dr. Cornick and Prof. Degelman Dr. Khuen will become Voting Member
Mr. Huang becomes Secretary
Dr. Neil Lott continue of subcommittee chair of the Handbook

1:20 PM Review of Action Items and Status
Crawley
TC 4.2 members to review Long-term research plan and provide comments back to Cornick
No other Action Items

1:35 PM Research
Crawley
Reports on status of current, future and completed research projects:

- **1413-RP** (Filling of data gaps in climatic records)
  
  Contractor is having progress is preparing final reports and the PMS make a recommendation of no cost extension to the contractor thru the 30 of September 2013.
  
  No discussion
  
  Voting: Unanimous (7-0-0)

- **1613-RP** (Update Climatic Design Data in Chapter 14 of the 2013 Handbook of Fundamentals)
  
  Dr. Crawley informed that: Contractor have provided final and handle the material to be published there a minor issue with the WDViewer5.0, which will be resolved relatively quick. Dr. Lott informed that PMS recommended and vote to accept the report, with not comments except that some mentioned that it was very well written.
  
  Dr. Lott move the motion to be approve the report, Dr. Crawley seconded
  
  No discussion
  
  Voting: Unanimous (7-0-0)

- **1561-RP** (Mesoscale modeling of climatic data)
  
  On time and progress, PMS met and has planned the draft final report for the 2014 annual conference

- **1610 WS**
  
  No progress

- **1700RP** A Global Database of Moisture Design Reference Years for Hygrothermal Analysis and Design of Buildings: 1325-RP Update (Steve Cornick)
  
  This project will be co-sponsored by the TC4.4
  
  It is targeted to be completed by August 15th, 2013

- **1699WS, Update Climatic Design Data in Chapter 14 of the 2017 Handbook of Fundamentals (Lott)**
  
  It has been conditioned accepted last meeting of RAC. PES
  
  A PES was integrated by: Dr. Lott- chair, Prof. Degelman, Dr. Cornick, Mr. Brunning, Dr. Arguez and Dr. Jarret.

- Long-term research plan
  
  Receiving inputs and expected to be reviewed in New York winter meeting. Posted in the TC4.2 google site.

- Other potential research projects
  
  1709 URP, PES formed by Dr. Cornick- chair, Mr. Bourassa, Dr. Crawley, Dr. Lott and Mr. Huang.

---

Handbook  
Lott

- **1613-RP** Update of Climatic Data for 2013 Handbook of Fundamentals

- Revisions and errata

Dr. Lott/Thevenard gave a report of the issues with the clear sky model between Chapter 14 and Chapter 35 (Solar energy), and it was mentioned that the old model will be fixed and retire. Also is being review the sun position formulas and nomenclature that are used
Weather Data Viewer is almost completed with enhancements and available pretty soon to ASHRAE.

2:20 PM
TC-4.2 developments
Cornick
No developments

2:40 PM
Program
Mr. Huang reported:
- New York, Jan 18-22, 2014
  Denver Seminar was rejected for second time. But there was a Technical Session given to TC4.2 with technical paper already accepted.
  New York Seminar will be propose: “Extreme Weather and Building Design Liability”
  Dr. Cornick will deal with the paper work and Mr. Bourassa will chair it.
- Seattle, Jun 28-Jul 2, 2014
  Technical Papers from 1413 and 1561 RP will be ready for the annual conference of Seattle.
- Future conferences
  No information was provided

2:55 PM
Standards Report
Crawley
SSPC 169 Weather Data for Building Design Standards
Dr. Crawley informed that SSPC 169 will in Public review on this coming Friday June 28th, 2013

3:10 PM
Old business
Cornick/Thevenard
None

3:20 PM
New business
from floor
- Special Visitor: John Proctor from Proctor Engineering Group, Ltd.,
  made a presentation and wanted to bring to the attention of the TC 4.2 that the Cooling Degree days are having a trend and need to be considered for the Handbook of 2017.

  It was informed that the TC4.2 is aware of the fact and is being that was published in a couple of papers which will be send it to the presenterin a near immediate opportunity
  The last paper summarizing the results of ASHRAE 1613-RP (later in that day Dr. Thevenard send and email with the following information: The last paper summarizing the results of ASHRAE 1613-RP (the research project that was tasked with updating the tables of climatic design conditions in the Handbook; Revising ASHRAE Climatic Data for Design and Standards—Part 1: Overview and Data, by D. Thevenard and S. Cornick, DE-13-016) states:

  As was noted in previous editions of Handbook, climatic design conditions change somewhat from one edition to the next. Although conditions may vary either way for each individual station, the general trend is an increase in dry-bulb and dew point design conditions, an increase in cooling degree-days, and a decrease in heating degree-days. These changes are consistent with a general warming of the climate but may also include the influence of changing local land use patterns, such as increased urbanization, resulting in a greater heat island effect. In addition, some changes at a few individual
weather stations maybe due to siting or instrumentation changes. These trends are confirmed with the 2013 edition of Handbook. Average station-to-station changes between the 2009 and 2013 editions amount to a

- +0.30°F (+0.16°C) increase in 99.6% heating dry-bulb temperatures,
- +0.19°F (+0.10°C) increase in 0.4% cooling dry-bulb temperatures,
- +0.06°F (+0.03°C) increase in 0.4% evaporation wet bulb temperatures,
- +0.07°F (+0.04°C) increase in 0.4% dehumidification dew point temperatures,
- +0.17°F (+0.09°C) increase in yearly average temperatures,
- –45.4°F-day (–25.2°C-day) decrease in annual heating degree-days base 18.3°C (65°F), and
- +31.0°F-day (+17.2°C-day) increase in annual cooling degree-days base 50°F (10°C).

These changes are consistent with values observed in past editions of Handbook and those published in Thevenard (2010). In particular, the increase in cooling dry-bulb temperatures is similar to the increase in average temperatures, while the increase in heating dry-bulb temperatures is higher. Also noticeable is the increase in cooling degree-days and decrease in heating degree-days; as a consequence of these changes, climate zones will shift northward in future editions of Standard 169 (and a new climate zone, “0,” will be added for extremely hot climates).

We also took note of your desire to have those trends reflected at the station level; we will consider that suggestion in future editions of the Handbook (the form this can take is still open to discussion; if you have any idea let us know).

3:30 PM Adjournment
Crawley moved, Jarret seconded
Voting: Unanimous (7-0-0)

Minutes prepared by Juan-Carlos Baltazar, TC 4.2 Secretary
ASHRAE TC 4.2 Climatic Information
TC 4.2 Action Item Summary

Dallas, TX (January 2013)

<table>
<thead>
<tr>
<th>Item</th>
<th>Who</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC 4.2 members to review Long-term research plan and provide comments back to Cornick</td>
<td>TC 4.2 Members</td>
<td>Continued</td>
</tr>
</tbody>
</table>
TC 4.2 - Handbook - Chair: Neil Lott
ASHRAE, June 2013 meetings

1613-RP, 1699-WS, and HOF subcommittee (Jun 23 primary meeting, Jun 24 Research meeting, Jun 25 TC 4.2 meeting)

- 1613 PMS members:
  - Steve Cornick, steve.cornick@nrc.ca
  - Dru Crawley, dcrawley@gmail.com
  - Neal Lott, neal.lott@noaa.gov
  - Steven Bruning, sbruning@newcomb-boyd.com
  - Bob Morris, robert.morris@ec.gc.ca

- 1613 Contractors:
  - Didier Thevenard (lead), dthevenard@numlog.ca
  - Mark Shephard, mark.w.shephard@gmail.com
  - Chris Guymard, chris@solarconsultingservices.com

- Handbook subcommittee meeting and follow-up (Jun 23-25):
  - Present for Jun 23 meeting:
    - Didier Thevenard
    - Neal Lott (PMS)
    - Philip Jarret
    - Steve Cornick (PMS)
    - Larry Degelman
    - Dave Westberg
    - Juan-Carlos Baltazar
    - Research Liaison - Srinivas.garimella@me.gatech.edu, being replaced by TBD
  - Vote on 1613 final report (email by Didier to the PMS) will occur during full TC meeting. 
    **Action:** Vote occurred and all in favor to accept.
  - Chap 14 galley proof review – Didier, Bob, Neal reviewed galley proofs and provided extensive feedback. This is now finalized.
  - Chap 14 vs Chap 35 solar data issues – differences in solar data info was evaluated by Didier, Neal, and Steve C – final resolution to be determined in updated Chap 35. 
    **Action:** Didier and Neal attended TC 6.7 meeting where this was discussed. Main issue is Chap 35 referencing the older clear sky model – TC 6.7 agreed to remove this entirely and reference the new model in Chap 14. Other lesser issues were discussed during the meeting with consensus generally reached on all questions.
  - Weather Data viewer in final testing – not working well in Google Chrome. Didier made numerous changes and enhancements based on TC 4.2 input. Will be provided to ASHRAE in next few weeks.
    **Action:** Didier to provide Neal/NCDC with information concerning errors found in ISD metadata and data.
  - 1699-WS (2017 HOF update) was conditionally approved 10-0-0 by RAC – will address question about the $150K budget and add sentence(s) showing that all tasks will be approved by PMS before moving on to next task. Consensus of those at this meeting is that $150K is reasonable, especially given the expanded scope (eg – using 1561-RP results). 
    **Action:** Neal will update and follow up with Research Liaison and RAC. Will also provide PES names/contacts to RAC and Research Liaison. The PES members were confirmed at the TC 4.2 meeting. Had brief discussion regarding potential inclusion of climate trends in the 2017 tables. Details on this TBD. 
    **Action:** Neal to see if additional wording is needed in the WS regarding climate change.
### TC/TG/TRG Activity Feedback Form

Please provide feedback on your TC/TG/TRG activities and return this form to your Section Head by email or drop off a printed copy in the Section Head's mailbox folder outside the ASHRAE Headquarters Room by Tuesday night 9:00 pm.

**PLEASE DO NOT LEAVE NUMERIC CELLS EMPTY. ENTER 0 IN CELLS IF THERE IS NO COUNT.**

<table>
<thead>
<tr>
<th>TC#</th>
<th>Committee Name:</th>
<th>Climatic Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.02</td>
<td>Didier Thevenard</td>
<td></td>
</tr>
</tbody>
</table>

#### Membership

<table>
<thead>
<tr>
<th>Voting Members (excluding Non-Quorum Members)</th>
<th>Number Present</th>
<th>Remote Participants</th>
<th>Total on Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-Quorum Members</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corresponding Members</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Provisional Members</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Visitors/Guests</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th># members/guests who are also YEA members</th>
<th>0</th>
</tr>
</thead>
</table>

#### Handbook Responsibilities

<table>
<thead>
<tr>
<th>Volume and Chapter (i.e. A17 Printing Plants)</th>
<th>Standards Number (i.e. SPC 178, Std 90.1, Gdl 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F14</td>
<td>SPC 169</td>
</tr>
</tbody>
</table>

#### Standards Responsibilities

<table>
<thead>
<tr>
<th>Total Number of Chapters</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td># Chapters voted out this meeting</td>
<td>0</td>
</tr>
<tr>
<td># Standards recommended</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Program Activities (For This Meeting)

<table>
<thead>
<tr>
<th>Total # of Forums</th>
<th>Total # of Technical Paper Sessions</th>
<th>Total # of Conference Paper Sessions</th>
<th>Total # of Seminars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submitted*</td>
<td>Sponsor</td>
<td>Co-sponsor</td>
<td>Submitted*</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Current Research Activities (active)

<table>
<thead>
<tr>
<th># of active RTARs</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td># of active Workstatements</td>
<td>0</td>
</tr>
<tr>
<td># of active TRPs</td>
<td>0</td>
</tr>
<tr>
<td># of active RPs</td>
<td>0</td>
</tr>
<tr>
<td>Total # of Active Projects</td>
<td>0</td>
</tr>
<tr>
<td>Problems getting RTAR/WS approved?</td>
<td>TC has a website (yes/no)</td>
</tr>
<tr>
<td>Website Up-to-date? (Yes/No)</td>
<td>YES</td>
</tr>
<tr>
<td>Minutes completed on Time?</td>
<td>YES</td>
</tr>
<tr>
<td>Agenda distributed on time?</td>
<td>YES</td>
</tr>
<tr>
<td>Members asked to Reconfirm participation (winter)?</td>
<td>NO</td>
</tr>
<tr>
<td>Roster Workbooks Completed (Winter)</td>
<td>YES</td>
</tr>
<tr>
<td>Distinguished Service Award</td>
<td>0</td>
</tr>
<tr>
<td>Exceptional Service Award</td>
<td>0</td>
</tr>
<tr>
<td>Other: Hightower, Research, etc (specify below)</td>
<td>0</td>
</tr>
<tr>
<td>Award:</td>
<td>YES</td>
</tr>
</tbody>
</table>

#### Any Concerns or requests for the Technical Activities Committee? (Please type in Space Below)

### Award Nominations (last six months)

<table>
<thead>
<tr>
<th>Distinguished Service Award</th>
<th>Exceptional Service Award</th>
<th>Other: Hightower, Research, etc (specify below)</th>
<th>Award:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

* For submitted sessions, include only sessions which your TC initiated and submitted FOR this meeting.
AGENDA

ASHRAE TC 4.2 Research Subcommittee
4:15-6:00 pm, Monday, June 23rd, 2013
Century, Mezzanine Floor, Sheraton Tower
Denver, Colorado

4:15 Call to order / introductions / changes to the agenda Crawley

4:20 Active Research Projects
- 1561-RP Procedures to AdjustObserved Climatic Data for Regional or Microclimatic Variations Cornick
- 1613-RP Update Climatic Design Data in Chapter 14 of the 2013 Handbook of Fundamentals Lott

4:50 Draft Work Statements (on Research Plan or submitted)
- 1699-WS Update Climatic Design Data in Chapter 14 of the 2017 Handbook of Fundamentals Lott
- 1700-RTAR A Global Database of Moisture Design Reference Years for Hygrothermal Analysis and Design of Buildings Cornick

5:05 New Research Topics/Research Plan
- XX-RTAR Models for Generating Sky Temperatures for Building Modeling Barnaby/Gueymard
- XX-RTAR Evaluation of CSFR Data Applicability for Climatic Data and Simulation Bourassa/Huang
- XX-RTAR Delivering Design Data in New Ways Cornick/Bourassa
- XX-RTAR Urban Climatology Gueymard
- Heat and cold waves Thevenard
- New Research Topics (RTARs and WSs can be submitted 4 times a year—six weeks before Winter and Annual meetings and 1 March/1 August.)

5:20 Old Business
- Progress by the NASA Power Team to Generate ASHRAE Climatic Design Conditions and Global Climate Zone Maps using MERRA Data Westberg
- GPC 20 XML Definitions / gbXML / Climatic Data Definitions Barnaby

5:50 New Business

6:00 Adjourn

Next Meeting: January 20, 2014 New York, New York