

**TECHNICAL COMMITTEE 2.8 – Meeting Notes: Summer Conference – Atlanta**

MEETING MINUTES – June 2015

**ASHRAE**

1791 Tullie Circle, NE / Atlanta, GA 30329  
404-636-8400

**TC/TG/TRG MINUTES COVER SHEET**

TC/TG/TRG No. TC 2.8

DATE: June 28, 2015

TC/TG/TRG TITLE: Building's Environmental Impact and Sustainability

DATE OF MEETING: June 28, 2015 LOCATION: Hilton Hotel Downtown, Atlanta, GA

<b>MEMBERS PRESENT</b>	<b>YEAR APPTD</b>	<b>MEMBERS ABSENT</b>	<b>YEAR APPTD</b>	<b>EX-OFFICIO MEMBERS &amp; ADDIT'L ATTENDANCE</b>
Mr. Dunstan L Macauley, III	2013	Mr. Don Brundage	2014	
Ng Yong Kong	2014	Mr. David Ellis	2013	
Mr. Douglas David Fick	2013	Mrs. Diotima Von Kempiski	2012	
Mr. Kevin R Brown	2011			
Ms. Joy Altwies	2012			
Dr Thomas M Lawrence	2012			
Mr. Frank Mills	2013			
Mr. Tom Cappellin	2012			
Dr. Paul Torcellini	2013			
John Swift	2014			
Mr. Abdel Daewich	2012			
Mr. David L Grumman, P.E.	2013			
Ms. Janice Means	2010			
Mr. Stanton Stafford	2014			
E. Mitchell Swann	2014			

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**DISTRIBUTION**

**ALL MEMBERS OF THE TC/TG/TRG**

TAC CHAIR	Eric Adams
TAC SECTION HEAD	Thomas Sobieski
STANDARDS LIAISON	Cyrus Nasser
HANDBOOK LIAISON	Larry Akers
RAC RESEARCH LIAISON	Harvey Sachs
CTTC LIAISON	Chris Fudge
ALI LIAISON	Darin Nutter
STAFF LIAISON (RESEARCH)	Michael Vaughn

**Note:** These draft minutes have not been approved and are not the official, approved record until approved by this committee.

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<b>TC/TG/TRG MEETING SCHEDULE</b>					
<b>LOCATION – past 12 months</b>		<b>DATE</b>	<b>LOCATION - planned next 12 months</b>		<b>DATE</b>
Seattle, WA		June 2014	St. Louis, MO		June 2016
Chicago, IL		January 2015	Orlando, FL		January 2016
<b>TC/TG/TRG SUBCOMMITTEES</b>					
<b>Function</b>			<b>Chair</b>		
International Program Handbook Research			Ashish Rakheja, Frank Mills Kevin Brown Doug Fick Joy Altwies		
Green Guide Existing Buildings Energy+Water Nexus			Tom Lawrence Dunstan Macauley Calina Ferraro, Fred Betz		
<b>RESEARCH PROJECTS – Current</b>			<b>Monitoring</b>	<b>Report Mode</b>	
<b>Project Title</b>		<b>Contractor</b>	<b>Comm. Chm.</b>	<b>At Meeting</b>	
<b>LONG RANGE RESEARCH PLAN</b>					
Rank	Title	W/S Written	Approved	To R & T	
<b>HANDBOOK RESPONSIBILITIES</b>					
<b>Year &amp; Volume</b>	<b>Chapter Title</b>	<b>N</b>	<b>Deadline</b>	<b>Handbook Subcom. Chair/Liaison</b>	
2017 Fundamentals	Energy Resources	34	August 2016	Fick / Brundage / Akers	
2017 Fundamentals	Sustainability	35	August 2016	Fick / Akers	

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<b>STANDARDS ACTIVITIES - List and Describe Subjects</b>
<b>TECHNICAL PAPERS from Sponsored Research - Title, when presented (past 3 yrs. present &amp; planned)</b>
Appendix 3
<b>TC/TC/TRG Sponsored Conference Papers - Title, when presented (past 3 yrs. present &amp; planned)</b>
Appendix 4
<b>TC/TG/TRG Sponsored Seminars – “Blue Is the New Green: The Emerging Focus on Integrated Water Management” (1/2015), “Biomass Combustion Strategies for Building Applications: Energy Efficiency with Low Emissions” (1/2015), “What is a Net Zero Building, and How Can We Get There?” (6/2015), “Energy Efficiency and Renewable Energy Sources for Cold Chain” (6/2015), “Innovation for Food Retail: The 50% Advanced Energy Design Guide for Grocery Stores” (6/2015)</b>
Appendix 5
<b>TC/TG/TRG Sponsored Forums – “AASA: A Dream Come True?” (1/2015), “Best Practices in Sustainable Design around the Globe, Track: High Performance Buildings” (6/2015)</b>
Appendix 6
<b>JOURNAL PUBLICATIONS - Title, when published (past 3 yrs. present &amp; planned)</b>

**ASHRAE TC 2.8 - Building's Environmental Impact and Sustainability**

**2015 SUMMER MEETING (Atlanta)**

**1. Roll call and Introductions** (Macauley)

- 1.1. Meeting called to Order w/ Quorum at 5:05 PM
- 1.2. Roll Call
- 1.3. Introduction

**2. Accept Agenda/Approve Minutes of Previous Meeting** (Stafford)

- 2.1. Review Meeting Agenda
  - 2.1.1. Revisions / Modifications
    - 2.1.1.1. None.
- 2.2. Approval of Chicago Meeting Minutes:
  - 2.2.1. Remove “up in the air” in favor of alternate phase.
  - 2.2.2. Motion by McCauley.
  - 2.2.3. Seconded by Lawrence.
  - 2.2.4. Minutes approved unanimously with no amendments (10-0-0, CNV)

**3. Announcements/Membership/Listserv** (Macauley)

- 3.1. Chair reviewed 2015-2016 Voting Members.
- 3.2. Review of ASHRAE Code of Ethics.
- 3.3. Updates from TAC / Section 2
  - 3.3.1. Section 2 liaison transition.
- 3.4. Update from 189.1 (see notes below)

**4. Standing Committee Liaison**

- 4.1. TAC
  - 4.1.1. None.
- 4.2. RAC
  - 4.2.1. None.
- 4.3. Handbook
  - 4.3.1. None.
- 4.4. Standards
  - 4.4.1. None.
- 4.5. Special Publications
  - 4.5.1. None.
- 4.6. ALI
  - 4.6.1. None.

**5. Subcommittee Reports**

- 5.1. Research (Joy Altwies)
  - 5.1.1. Current research project status:

**1627-RP** An Evaluation of the Actual Energy Performance of Small Office and K-12 School Buildings Designed in Accordance with the 30% ASHRAE *Advanced Energy Design Guide*

## **TECHNICAL COMMITTEE 2.8 – Meeting Notes: Summer Conference – Atlanta**

### MEETING MINUTES – June 2015

- 5.1.1.1. Dennis Jones provided the update from Group14. He is now the PI for the project, replacing Xia Fang who has left the company.
- 5.1.1.2. They have completed the selection of AEDG and code buildings and normalization of the building EUI data for weather.
- 5.1.1.3. They have also completed site visits of ten buildings. Dennis showed the normalized EUI's for the real buildings, and the baseline buildings. He also showed the buildings that were selected for site visits.
- 5.1.1.4. There was some discussion about the selection of the 10 site visit buildings, including one that was a code building. The PMS has asked that Dennis provide a couple of viable options for doing another visit to an AEDG building, since the data from the one code building won't necessarily be useful (has no other comparables in the site visit group.) The PMS was interested in a well-performing gas heat office.
- 5.1.1.5. He showed a potential chart for visually displaying the collected IEQ survey results for each building as well. The survey was given to the building occupants and covered several factors (temperature, lighting, air flow, etc.)
- 5.1.1.6. Dennis listed a few preliminary observations on potential "common factors" for high and low performing buildings. Developing these common factors is the next step.
- 5.1.1.7. He also mentioned a few early recommendations for future AEDG's, which will be among the final steps.

5.1.2. Follow up on previous research topic ideas

#### 5.2. Programs (Kevin Brown)

5.2.1. Three Seminars and one Forum in Atlanta

5.2.2. Orlando Call for Seminars

- 5.2.2.1. Standing Seminar: Blue is the New Green: Need topic, chair and speakers. Dunstan and Kevin
- 5.2.2.2. Blue is the New Green: Technical presentation, Rakheja (may merge the two seminars into one)
- 5.2.2.3. Look at CalGreen and similar codes that are being adopted/required by states/entities: needs chair and speakers Ellis to conceptualize – try for Orlando
- 5.2.2.4. Lead from 7.4... (asking for Co-Sponsors) How a low energy potential source approach benefits a CO2 analysis for IGCC and ASHRAE 189 compliance. Chair = David Ellis try for Orlando
- 5.2.2.5. Comparing Green Building Rating systems As-Designed vs. Actual Performance – Frank Mills, Janice Means, NYK – probably needs a paper as foundation (Means, Lawrence) 7.2 would co-sponsor (need timeline from Janice, maybe St. Louis)... somewhat related = MTG proposal to investigate impact on All ASHRAE Standards and the built environment
- 5.2.2.6. Seminar: Site Energy, Source Energy, Energy Costs, and Carbon Emissions – Neil Leslie – willing to be Speaker maybe a panel? Orlando, Track 7 – The Great Debate! Aug 10, 2015 deadline
- 5.2.2.7. Definitions of Renewable (Biomass – different versions of renewable energy - wood, Landfill Gas, vs Wind and Solar, GSHP, Air Source now adding cooling) Neil Leslie Chair; framed as a seminar with open debate co-sponsor with 6.7 Solar Energy Utilization (add cooperation from TGAC – Dunstan)
- 5.2.2.8. Neil Leslie – requesting conference papers relating to residential (possibly from an outside expert, a network contact of one of ours, specifically for St Louis)
- 5.2.2.9. For Vegas... Energy Water Nexus track may be offered. Start identifying speakers/topics in Orlando.
- 5.2.2.10. ICC 700 Co-Sponsor for Orlando – look for heads up from Neil

#### 5.3. Handbook (Doug Fick)

5.3.1. Meeting focused on "Sustainability" chapter.

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#### 5.4. GreenGuide (Tom Lawrence)

- 5.4.1. Working towards June 2017 vote/approval, 2018 printing, June 2018 to market
- 5.4.2. Schedule for 5th Edition publication
  - 5.4.2.1. Initial thoughts on changes to be made – June 2015
  - 5.4.2.2. Initial drafts of each chapter due January 2016
  - 5.4.2.3. Review and editing January – June 2016
  - 5.4.2.4. Critical review (outside agent?) summer 2016
  - 5.4.2.5. Targeting June 2017 approval by TC 2.8 for publication
  - 5.4.2.6. Release in late 2017, push sales at winter 2018 meeting
- 5.4.3. Moving away from a small group of editors to a larger committee coordinated by the chair.
- 5.4.4. Residential Ad Hoc representatives will be taking charge of the new chapter on Residential.
- 5.4.5. Proposed book re-organization (not too late for changes but now basically set)

#### 5.5. International (Ashish Rakheja / Frank Mills)

- 5.5.1. Programs sponsored by TC 2.8 International Sub-Committee at Atlanta are:
  - 5.5.1.1. Forum : Best Practices in Sustainable Design around the world
  - 5.5.1.2. Seminar : Energy Efficiency and Renewable Energy Sources for Cold Chain
- 5.5.2. Seminars planned in future on following:
  - 5.5.2.1. Voluntary efforts for Green Rating and Sustainable Practices around the world.
  - 5.5.2.2. Learnings from Past.
  - 5.5.2.3. Engineer's role in designing Sustainable master-planning of projects.
  - 5.5.2.4. Energy Water Nexus : Work with Water Energy Sub-committee
- 5.5.3. Sub-committee looking at a new article for ASHRAE Journal on following topics
  - 5.5.3.1. Article on Sustainability Practices in Australasia.
  - 5.5.3.2. Net Zero Energy Buildings in world
  - 5.5.3.3. Green Building Ratings
- 5.5.4. The sub-committee will provide comments on Green Guide from experts around the world and seek their inputs.
- 5.5.5. Residential focus for TC 2.8
  - 5.5.5.1. Forum/Workshop on Low Energy Residential buildings from the globe
  - 5.5.5.2. Standards for Residential Buildings
  - 5.5.5.3. Case Studies for Low Energy Buildings.
  - 5.5.5.4. Building Envelope materials for Residential Buildings.

#### 5.6. Standards (Tom Lawrence)

- 5.6.1. SPC 189.1 Standard for the Design of High-Performance Green Buildings except Low-Rise Residential Buildings
  - 5.6.1.1. 2017 updates in process.
  - 5.6.1.2. ASHRAE in agreement with ICC for 189.1 to develop technical content for IGCC.
- 5.6.2. SPC 189.3P Design, Construction and Operation of High Performance Green Healthcare Facilities (Fick)
  - 5.6.2.1. Met this meeting. Determining next steps.
- 5.6.3. SPC 191P Standard for the Efficiency Use of Water in Building, Site and Mechanical Systems
  - 5.6.3.1. New Chair is Fred Betz.
  - 5.6.3.2. Target to publish standard by June 2016.

#### 5.7. Existing and Future Building Challenges (Macauley for Ferraro)

- 5.7.1. Discussed the need to properly define the title purpose and scope of the subcommittee.
- 5.7.2. The scope of the sub-committee currently crosses over several topics in ASHRAE that are currently covered by other TC's.
- 5.7.3. Areas of focus for the subcommittee:
  - 5.7.3.1. How to improve the indoor health of buildings.



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5.7.3.2. Develop programs to sell / teach simple payback analysis to promote more life cycle costing in determining different approaches to building equipment retrofits.

5.7.4. Provide input to chapter 19 of the ASHRAE GreenGuide 5<sup>th</sup> Edition.

#### 5.8. Water-Energy Nexus Subcommittee (Macauley for Betz, Ferraro)

5.8.1. Inaugural meeting

5.8.2. The scope of the subcommittee is not yet clearly defined. There was discussion about how encompassing it should be: site only (i.e. to the meter) or back to water use at power plants, or back further to water use for resource extraction (e.g. mining coal or hydraulic fracturing). General discussion leaned toward a scope including source and extraction water/energy use.

5.8.3. Fred Betz noted that Standard 191 for building water use will be released before next meeting in Orlando.

5.8.4. Focus of subcommittee will be on education initially to bring the topic to the membership and assess the current level of expertise. Sign in Sheet was distributed with a column to fill in suggested educational topics. In addition a number of topics were suggested in roundtable discussion.

5.8.5. A literature review was suggested to determine what known information is available and to evaluate if it is current. The DOE “Big Ideas” program will focus on Water-Energy Nexus in the future and may be a funding opportunity for future research.

5.8.6. There have been two “Blue is the New Green” seminars at previous conferences. We will continue running programs under this theme for continuity. Submission deadline for seminars in Orlando is August 10th.

#### 5.9. Website (Lisa Ng)

5.9.1. New, customizable Beta design has been developed

5.9.2. Added functionality linked to ASHRAE database/website

5.9.3. TAC and contract website consultant are working toward a site that ASHRAE can test

## **6. Related Activities Reports**

#### 6.1. ASHRAE Advanced Energy Design Guides (Torcellini)

6.1.1. 50% Grocery Stores is on the street; webinar and road show to follow

6.1.2. Forum on “How are people using the AEDGs?” at ASHRAE Summer Meeting (Atlanta)

6.1.3. Input/testimonials on the value of the AEDGs is needed to determine course of program

6.1.4. Approaching 600,000 AEDG downloads

#### 6.2. ASHRAE bEQ

6.2.1. None

#### 6.3. Input from other TCs

6.3.1. None

## **7. Old Business**

#### 7.1. TC 2.8 Scope Revision / Expansion

##### **Scope**

**Technical Committee 2.8** is concerned with the environmental, social and economic impacts of buildings; means for identifying and reducing these impacts and fostering the resiliency needed to adapt to a changing climate. The committee works to enhance ASHRAE member awareness while advancing technologies to address these issues. Building impacts of concern include, but are not limited to, biological and mineral resource depletion; environmental impacts of energy and water production, conversion, delivery and use; future energy resources and systems; pollution of air, water, and soil; and encroachment on sensitive habitats and ecosystems. The issues of concern affect long-term sustainability of both our indoor and outdoor environment and the quality of life for current and future generations.

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**8. New Business**

- 8.1. TC 2.8 participation (Kevin Brown) in a new MTG formed to create RTAR tied to waste head recovery
  - 8.1.1. Motion by Altweis
  - 8.1.2. Seconded by Brown
  - 8.1.3. Friendly amendment that Mills to conduct fact-finding mission before committing to participation in MTG
  - 8.1.4. Motion approved unanimously (7-0-1, CNV)
  
- 8.2. High Performing Buildings magazine – need ideas for increasing readership, economic viability (contact Dave Grumman or Jay Scott)

**9. Adjourn**

- 9.1. Motion by Torcellini
- 9.2. Seconded by Grumman
- 9.3. Motion approved unanimously (8-0-0, CNV)
- 9.4. Meeting adjourned at 6:48 PM.

**TC 2.8 Web Site**

[www.tc28.ashraetcs.org](http://www.tc28.ashraetcs.org)

**TC 2.8 E-mail List**

This list is only for communications related to ASHRAE TC 2.8 Building Environmental Impacts and Sustainability. Do not distribute messages of any commercial nature.

To subscribe or unsubscribe to the list, you can go to the TC 2.8 list web site:  
<http://lists.onebuilding.org/listinfo.cg/tc28-l-onebuilding.org>

To send a message to all subscribers to the list, address your message to:

[tc28-l@lists.onebuilding.org](mailto:tc28-l@lists.onebuilding.org)

*Note: ASHRAE does not operate this list. Please do not ask them for help. If you have any questions, please contact: Jason Glazer [JGlazer@gard.com](mailto:JGlazer@gard.com)*

*Thanks to Jason and GARD Analytics for hosting this list!*

**ASHRAE Green Guide 5<sup>th</sup> Edition Update Committee  
2015 ASHRAE Annual Meeting Minutes  
Atlanta, 28 June 2015**

**Attendees:**

Tom Lawrence	University of Georgia	<a href="mailto:lawrence@engr.uga.edu">lawrence@engr.uga.edu</a>
Marianna Vallejo	University of Texas – Arlington	<a href="mailto:marianna.vallejo@maus.uta.edu">marianna.vallejo@maus.uta.edu</a>
Ng Yong Kong	NYK Engineering	<a href="mailto:nyk@nyk.com.my">nyk@nyk.com.my</a>
Dave Grumman	Grumman/Butkus Assoc.	<a href="mailto:dlgrumman@sbcglobal.net">dlgrumman@sbcglobal.net</a>
Kevin Cross	Honeywell	<a href="mailto:jkevin87@comcast.net">jkevin87@comcast.net</a>
Fred Betz	Affiliated Engineers, Inc.	<a href="mailto:fbetz@aeiend.com">fbetz@aeiend.com</a>
Lisa Ng	NIST	<a href="mailto:lisa@ng.nist.gov">lisa@ng.nist.gov</a>
Seenu Pillai	Astad Project Management	<a href="mailto:seenuicc@gmail.com">seenuicc@gmail.com</a>
Ioanna Deligkioci	Center for Research and Tech.	<a href="mailto:delig_ioanna@hotmail.com">delig_ioanna@hotmail.com</a>
Janice Means	Lawrence Technological Inst.	<a href="mailto:jmeans@ltu.edu">jmeans@ltu.edu</a>
Dunstan Macauley	WSP	<a href="mailto:dmacauley@gmail.com">dmacauley@gmail.com</a>
Ashish Rakehja	Aeon Consultants	<a href="mailto:ashish.rakheja@aecom.com">ashish.rakheja@aecom.com</a>
Donald Bivens	Retired	<a href="mailto:bivco2@comcast.net">bivco2@comcast.net</a>
Abdel Darwich	Guttman & Blaevoet	<a href="mailto:adarwich@gb-eng.com">adarwich@gb-eng.com</a>
Carl Huber	Waterfurnace	<a href="mailto:carl.huber@waterfurnace.com">carl.huber@waterfurnace.com</a>
Tania Ullah	NIST	<a href="mailto:tania.ullah@nist.gov">tania.ullah@nist.gov</a>

1. Introductions and call to order
2. Schedule for 5<sup>th</sup> Edition publication
  - a. Initial thoughts on changes to be made – June 2015
  - b. Initial drafts of each chapter due January 2016
  - c. Review and editing January – June 2016
  - d. Critical review (outside agent?) summer 2016
  - e. Targeting June 2017 approval by TC 2.8 for publication
  - f. Release in late 2017, push sales at winter 2018 meeting
3. Review of the approach and organizational structure for the Green Guide editorial committee for this edition

Moving away from a small group of editors to a larger committee coordinated by the chair.

Residential Ad Hoc representatives will be taking charge of the new chapter on Residential.

4. Proposed book re-organization (not too late for changes but now basically set)
  - a. Chapters organization, update on new chapters
  - b. Review champions for each chapter, any changes needed?

Received several requests for people to be added to individual chapter champions.

- c. any time references are made to other chapters of this book, make sure they are correct since chapters are moving around

Emphasized that all images must have approval to publish signed forms, even if you are the person who created that image.

## 5. Dropbox structure and usage

Took note of those who request to be added to the Dropbox folder.

## 6. Help wanted

Other notes: Delete the Building Type Green Tip on Existing Buildings, now that a full chapter will be created for that.

Goal is to keep the same number of pages, even with the new chapters.

## TC 2.8 Water-Energy Nexus Subcommittee Meeting

Atlanta, Georgia

Hilton Rm 315

28-Jun-15

<b>Name</b>	<b>Company</b>	<b>Email</b>
Calina Ferraro	Randall Lamb	<a href="mailto:cferraro@randalllamb.com">cferraro@randalllamb.com</a>
Fred Betz	Affiliated Engineers, Inc.	<a href="mailto:fbetz@aeieng.com">fbetz@aeieng.com</a>
Dunstan Macauley	WSP	<a href="mailto:dlimacauley@gmail.com">dlimacauley@gmail.com</a>
David Grumman	Grumman/Butkus Assoc	<a href="mailto:dlgrumman@sbcglobal.net">dlgrumman@sbcglobal.net</a>
Ralph Muehleisen	Argonne National Lab	<a href="mailto:rmuehleisen@anl.gov">rmuehleisen@anl.gov</a>
Ng Yong Kong	NYK Engineering	<a href="mailto:nyk@nyk.com.my">nyk@nyk.com.my</a>
Marianna Vallejo	UT Arlington	<a href="mailto:marrianna.vallejo@mavs.uta.edu">marrianna.vallejo@mavs.uta.edu</a>
Tom Lawrence	Univ. of Georgia	<a href="mailto:lawrence@engr.uga.edu">lawrence@engr.uga.edu</a>
Scott Sherwood	EcoCare Corp	<a href="mailto:ImproveYourAir@gmail.com">ImproveYourAir@gmail.com</a>
Daniel Nall	Syska Hennessy	<a href="mailto:dnall@syska.com">dnall@syska.com</a>
Tania Ullah	NIST	<a href="mailto:tania.ullah@nist.gov">tania.ullah@nist.gov</a>
Michael Deru	NREL	<a href="mailto:michael.deru@nrel.gov">michael.deru@nrel.gov</a>
James Sweeney	Tamu Reel	<a href="mailto:jsweeney@tamu.edu">jsweeney@tamu.edu</a>

## Meeting Minutes

TC 2.8 Water-Energy Nexus Subcommittee Meeting  
Atlanta, Georgia  
Hilton Rm 315

28 June 2015

1. Dunstan Macauley introduced Calina Ferraro and Fred Betz as sub-committee co-chairs for the newly formed Water-Energy Nexus subcommittee. This committee will fill the need within ASHRAE to look at the interconnected issues of water and energy that aren't captured in any other ASHRAE committee.
2. The scope of the subcommittee is not yet clearly defined. There was discussion about how encompassing it should be: site only (i.e. to the meter) or back to water use at power plants, or back further to water use for resource extraction (e.g. mining coal or hydraulic fracturing). General discussion leaned toward a scope including source and extraction water/energy use.
3. Fred Betz noted that Standard 191 for building water use will be released before next meeting in Orlando.
4. Focus of subcommittee will be on education initially to bring the topic to the membership and assess the current level of expertise. Sign in Sheet was distributed with a column to fill in suggested educational topics. In addition a number of topics were suggested in roundtable discussion. Suggested topics are as follows:
  - a. Whole building water modeling (SPC 191)
  - b. Comparison of mechanical cooling system's water consumption
  - c. Overall sustainability (Standard 189.1)
  - d. Water filtration increasing
  - e. Energy efficiency & sustainability
  - f. Water reclamation
  - g. Residential rainwater harvest
  - h. Water-energy nexus quantification
  - i. Degradation of water ways downstream of power plants due to concentrated cooling tower blowdown.
  - j. Desalinization plants
5. A literature review was suggested to determine what known information is available and to evaluate if it is current. The DOE "Big Ideas" program will focus on Water-Energy Nexus in the future and may be a funding opportunity for future research.
6. There have been two "Blue is the New Green" seminars at previous conferences. We will continue running programs under this theme for continuity. Submission deadline for seminars in Orlando is August 10<sup>th</sup>.

## TC2.8 Research Subcommittee Minutes

June 28, 2015, Atlanta Hilton room 315

Attendees: Joy Altwies, Ng Yong Kong, Kevin Brown, Max Shirley, Lisa Ng, James Sweeney, Scott Sherwood, Daniel Nall, Abdel Darwich, Kevin Cross, Cary Smith (TC 6.8 rep), Douglas Fick, Tania Ullah

**1:20** Introductions  
Harvey Sachs gave an update. He is rolling off as section 2 liaison. He reminded that we are listed as co-sponsor of WS-1650, so we need to follow up with TC 7.3 to see if we will indeed be co-sponsoring.

**1:25** Presentation/update of current research project status by Group14:

**1627-RP** An Evaluation of the Actual Energy Performance of Small Office and K-12 School Buildings Designed in Accordance with the 30% ASHRAE *Advanced Energy Design Guide*

- Dennis Jones provided the update from Group14. He is now the PI for the project, replacing Xia Fang who has left the company.
- They have completed the selection of AEDG and code buildings and normalization of the building EUI data for weather.
- They have also completed site visits of ten buildings. Dennis showed the normalized EUI's for the real buildings, and the baseline buildings. He also showed the buildings that were selected for site visits.
- There was some discussion about the selection of the 10 site visit buildings, including one that was a code building. The PMS has asked that Dennis provide a couple of viable options for doing another visit to an AEDG building, since the data from the one code building won't necessarily be useful (has no other comparables in the site visit group.) The PMS was interested in a well-performing gas heat office.
- He showed a potential chart for visually displaying the collected IEQ survey results for each building as well. The survey was given to the building occupants and covered several factors (temperature, lighting, air flow, etc.)
- Dennis listed a few preliminary observations on potential "common factors" for high and low performing buildings. Developing these common factors is the next step.
- He also mentioned a few early recommendations for future AEDG's, which will be among the final steps.

**2:05** Follow up on previous research topic ideas. Ideas included:

List of research topic ideas:

Past Research Topic Idea	Generated by	Update/Status	Next Step
Training Requirements for Sustainable, High Performance Building Operations (TC 7.3, WS-1650)	TC 7.3, from Michael Bobker	WS is conditionally accepted	Joy will follow up with TC 7.3 to see what their next steps are and if they would like us to submit a person to serve on the PMS if the WS is approved. Kevin Brown is still interested in being



			involved. Lisa Ng also indicated she would be interested and at least would like to stay in the communication loop.
Do buildings built to Standard 189.1 perform as expected?	Kevin Cross, Joy Altwies, Tom Lawrence	Kevin Cross and Brent Stephens developed an early stage RTAR	Still keeping on hold until further buildings are built, perhaps 1 year or more. Looking into whether preliminary data can be collected on 189.1 buildings
Develop a process to determine WUI (similar to EUI) and water modeling tool to inform Std 191	John Swift	John indicated at the main meeting that this can be removed from the list	Will remove this for next agenda.
Embodied energy of building systems & equipment – how much more efficient does it need to be to outweigh its embodied energy?	Kevin Cross & Dunstan	Will potentially pursue after Journal article is published	Keeping on the list, waiting on Dunstan to publish paper
Energy Efficiency in Ag Buildings	TC 2.2	new research topic – potentially several RTAR's to investigate need	Dunstan was unable to attend the TC 2.2 meeting in January, and will try again here in Atlanta.
<b>New Research Topic Idea</b>	<b>Generated by</b>	<b>Update/Status</b>	<b>Next Step</b>
Guidelines for Avoided Electrical generation/Source Energy Consumption (title of proposed MTG)	Cary Smith, TC 6.8	ASHRAE has suggested the formation of an MTG (with members from 6.8 and several others), who would submit this.	TC 6.8 is trying to get members together for the MTG by Wednesday, and is asking TC 2.8 for their interest in having a member. Kevin Brown has indicated he is interested in getting more involved. This was added to New Business at the main meeting.
Comparing high-performance homes to code-built homes	Dunstan (at main TC meeting)	This was posed as a way to provide some research/data in regard to potential rollback/delay of code update cycles (due to pushback from homebuilders on costs.)	Dunstan will follow up with Grassroots Government Activity committee

2:30

Adjourn (next meeting in this room: **TC 2.8 Handbook**)

Anyone interested in pursuing research topics (including those who generated ideas above) are asked to take a look at the new RTAR form to start fleshing out their ideas.

- The 2013 example RTAR form can be accessed here:  
<https://www.ashrae.org/File%20Library/docLib/Research/2013-RTAR-Form-r1.pdf>  
and an example RTAR is shown here:  
<https://www.ashrae.org/File%20Library/docLib/Research/2013-RTAR-Form-Example-r1.pdf>

**For reference:** Current (2010) ASHRAE Strategic Research Plan Goals. Ideally, research topics should address one of these goals:

1. Maximize the actual operational energy performance of buildings and facilities
2. Progress toward Advanced Energy Design Guide (AEDG) and cost-effective net-zero-energy (NZE) buildings
3. To reduce significantly the energy consumption for HVAC&R, water heating and lighting in existing homes
4. Significantly advance our understanding of the impact of indoor environmental quality (IEQ) on work performance, health symptoms and perceived environmental quality in offices, providing a basis for improvements in ASHRAE standards, guidelines, HVAC&R designs and operation practices
5. Support the development of ASHRAE energy standards and reduce effort required to demonstrate compliance
6. Building Information Modeling (BIM) of energy efficient, high-performing buildings
7. Support development of tools, procedures and methods suitable for designing low energy buildings
8. Facilitate use of natural and low global warming potential (GWP) synthetic refrigerants and seek methods to reduce refrigerant charge
9. Support the development of improved HVAC&R components ranging from residential through commercial to provide improved system efficiency, affordability, reliability and safety
10. Significantly increase the understanding of energy efficiency, environmental quality and the design of buildings in engineering and architectural education
11. Understand influences of HVAC&R on airborne pathogen transmission in public spaces and develop effective control strategies

The full ASHRAE document explaining these goals in detail can be found here:  
[http://ashrae.org/File%20Library/docLib/Public/20100621\\_strategicnavigationbrochure.pdf](http://ashrae.org/File%20Library/docLib/Public/20100621_strategicnavigationbrochure.pdf)

## **TC2.8 Existing Buildings Subcommittee Minutes**

June 28, 2015, Atlanta Hilton room 315

1. Discussed the need to properly define the title purpose and scope of the subcommittee.
2. The scope of the sub-committee currently crosses over several topics in ASHRAE that are currently covered by other TC's.
3. Areas of focus for the subcommittee:
  - a. How to improve the indoor health of buildings.
  - b. Develop programs to sell / teach simple payback analysis to promote more life cycle costing in determining different approaches to building equipment retrofits.
4. Provide input to chapter 19 of the ASHRAE GreenGuide 5<sup>th</sup> Edition.