

bEQ Committee
Chicago Winter Meeting
January 25, 2015

Members Present: Ross Montgomery (Chair), Michael Brandemuehl (Vice-chair), Larry Markel, Ray Patenaude, Filza Walters, Harry Misuriello, Dan Nall, Hoy Bohanon, Hywel Davies, Charles Eley, Tim Wentz (Coordinating Officer)

Guests: Sayani Hari Babu, Charles Bertuch, Brandon Birkes, Alamelu Brooks, Daryl Boyce, Nate Boyd, Burns Bradford, Mohamad Nour Elayoubi, Ahmed Alaa Eldin, Blake Ellis, Kirshnan Gowri, Yunzhi Huang, Bruce Hunn, Gerald Kettler, Ron Nelson, Ashish Rakheja, Paul Torcellini, Edward Tsui, Branislav Todorovic, David Underwood, Martin Weiland

ASHRAE Staff: Lilas Pratt (staff liaison), Vanita Gupta, Claire Ramspeck, Nicole Jones

Principle Motions

Motion #1: That the meeting minutes from the November 2014 face-face meeting be approved.

Vote: Motion passed by unanimous voice vote, CNV

Motion #2: That the free submissions for ASHRAE members be expanded from two to twelve submissions.

Vote: Motion passed by unanimous voice vote, CNV

Motion #3: That the bEQ rating system be extended to rating of campuses using the mixed use building procedures for both In Operation and As Designed ratings.

Vote: Motion passed unanimous voice vote, CNV.

Motion #4: That the In Operation workbook be changed to include an optional worksheet on water usage.

Vote: Motion passed by unanimous voice vote, CNV

Motion #5: Brandemuehl moved and Markel seconded that the bEQ committee submit the As Designed rating RTAR and Work Statement to RAC for funding.

Vote: Motion passed by unanimous voice vote, CNV

Motion #6: Markel moved and Brandemuehl seconded that the assignment of committee liaisons be approved as indicated.

Vote: Motion passed unanimous voice vote, CNV

Motion #7: Brandemuehl moved and Patenaude seconded that the proposed budget as shown in Appendix J be approved.

Vote: Motion passed unanimous voice vote, CNV

New and Open Action Items

New Action Items from January 25, 2015 Chicago Winter Meeting:

- **AI 1:** **Hoy Bohanon** to contact TC 9.9 regarding the EPA data set for data centers.
- **AI 2:** **Markel and Patenaude** to draft up a plan on working with the City of Orlando for **David Underwood** to present to ExCom.
- **AI 3:** **Michael Brandemuehl** to have **Methodology Subcommittee** evaluate the submission review process for further automation and speed.
- ✓ **AI 4:** **Walters** to contact **ASHRAE Publications** staff about adding a “submit” button to the home page of bEQ webpage. (Note: Email sent on 1/25/15, Updates completed on 2/3/15)
- ✓ **AI 5:** **Pratt** to send the details on developing economies discount to **Tim Wentz**. (Note: Information sent on 3/3/2015).
- **AI 6:** **Montgomery** to ask **Steve Comstock** for Journal articles guidelines on bEQ subject matter.
- **AI 7:** **Pratt** to send **Nate Boyd** information on previous bEQ Journal articles.
- **AI 8:** **Brandemuehl** to work with **Krishnan Gowri** on his request to incorporate bEQ into the rapid capture for energy modeling project.
- **AI 9:** **Eley** (Standard 189.1 Liaison) to explore the use of bEQ as a compliance tool with outcome based codes with Standard 189.1 as appropriate.

Open Action Items from previous meetings:

November 16-17, 2014 Atlanta meeting:

- ✓ **AI 2:** **Lilas Pratt** to notify **Ross Montgomery** and **Michael Brandemuehl** when phase 1 of the Godfrey work is completed for review and approval by the committee. (Note: Godfrey presented Phase 1 report to committee on 3/4/15.)
- **AI 7:** **Committee members** to provide feedback to **Ray Patenaude** on the concept of the video he is working on with **Ross Montgomery**. A link will be sent to the committee.
- **AI 8:** **Committee members** to communicate to **Ross Montgomery** and **Jim Colton** on potentially interested parties that would benefit from the Terry Townsend training program.
- **AI 11:** **Lilas Pratt** to work with **Steve Comstock** to add “Powered by ASHRAE” to the bEQ headers on the website and workbooks and to determine if the phrase is registered.
- **AI 12:** **Lilas Pratt** to work with **Charles Eley** as needed to complete the updates to the bEQ In Operation and As Designed workbooks.
- **AI 13:** **Lilas Pratt** to coordinate with **Jodi Scott** to create press releases about changes to bEQ approved during this meeting (when those changes occur) including extension of the “free submission” offer, addition of mixed use buildings, and campuses, beta launch of As-Designed rating, etc.
- **AI 16:** **Methodology Subcommittee** to finalize the research project Work Statement to reconcile bEQ methodologies with ASHRAE Standards.
- **AI 17:** **Charles Eley** and **Harry Misuriello** to communicate to SSPC 189.1 (Eley) and SSPC 90.1 (Misuriello) about the planned bEQ research project and potential tie-in between bEQ and these standards.
- **AI 18:** **Ross Montgomery** to update SPC 214P on the status and goal of the bEQ research project.
- **AI 19:** **Ross Montgomery** and **Michael Brandemuehl (lead)** to put together an editorial write-up for the ASHRAE Journal on the research project intent and benefits. Write-up to be reviewed by **Larry Markel**.

- ✓ **AI 22:** Lilas Pratt and Bert Etheredge to create a sample workbook for use in the University course. (Note: Sample workbook completed on 2/24/2015)

August 27 & 29, 2014 Methodology SubC Conference Calls

- **AI 6:** Pratt to modify As Designed procedure instructions, for review by the bEQ Committee, to reflect that fully designed buildings can get a preliminary label that would then be verified after construction is complete. – **Ongoing as part of Workbook updates**

June 29, 2014 Seattle Annual Meeting

- **AI 1:** Eley to lead an effort to write a conference paper for the bEQ In Operation process and methodology.

May 21, 2014 Marketing Subcommittee Conference Call

- **AI 6:** Nall to put together a first draft for an ASHRAE HQ building case study with help from Walters.

January 19, 2014 New York Winter Meeting

- **AI 4:** Pratt to catalog articles about bEQ on the ftp site for access by the Committee.

December 15-16, 2013 Atlanta Meeting

- **AI 1:** Lilas Pratt to contact EPA about providing a consultant for the bEQ committee roster.

Meeting Minutes

1. Call to Order - Meeting convened at 8:30am CST

- a. ASHRAE Code of Ethics ([Appendix A](#)) – Information Item
- b. Committee Structure & Roster ([Appendix B](#))
- c. Committee Purpose and Scope ([Appendix C](#)) – Information Item
 - An EPA representative has been suggested for the committee
 - During the course of the meeting, many guests expressed interest in becoming more involved in bEQ and/or becoming committee members.
 - It was noted that the committee is a Board level standing committee with defined membership as outlined in the Rules of the Board (ROB). Information on how to nominate for a position on the committee was provided to the assembly.
- d. Review of Agenda by committee; ask for any proposed changes.
 - No changes
- e. Review of Voting rules
 - Committee has 8 voting members; Quorum is more than 50% = 5 voting members.
 - All matters to be decided by a majority of those voting, with fiscal matters requiring a two thirds majority.
- f. Officer Reports

- President-Elect David Underwood thanked the committee for their work on bEQ and noted his interest in both the training being conducted by Terry Townsend and in the growing traction of the bEQ program.
- Treasurer Tim Wentz reported that the Finance Committee is in the process of approving the budget and that he has noted that money will be needed to implement the marketing plan once it is complete.
- Tim Wentz also suggested the need for the committee to have an operations plan and possibly an Operations Subcommittee to deal with program details (e.g., automated data entry, submission review) and program revenue.
- The committee agreed that an Operations Subcommittee made sense and noted that additional committee members may be needed to support another subcommittee.
- Vice-president Daryl Boyce noted that Carlton University has submitted two buildings will plans to do several more.

2. New Business (Montgomery)

a. Approval of Minutes from November 2014 face-face meeting

Motion #1: Patenaude moved and Markel seconded that the meeting minutes from the November 2014 face-face meeting be approved.

Discussion: None.

Vote: Motion passed by unanimous voice vote, CNV

3. Proposal to Expand ASHRAE Member Free Submission Offer ([Appendix D](#))

Motion #2: Patenaude moved and Markel seconded that the free submissions for ASHRAE members be expanded from two to twelve submissions.

Fiscal Impact: There is no revenue right now, so this would have no real impact on revenue.

Background: See Appendix D

Discussion:

- The intent is to encourage additional submissions and generate interest and awareness.
- The offer is currently only available to qualified ASHRAE members and has generated 11 free submissions.
- Expanding the program would continue to reduce barriers to submissions.
- The committee needs to be sure that the Councils and BOD know what we are doing.
- The committee may wish to consider extending this offer for another year in order to get a critical mass of submissions.
- However, that decision should wait on the results of the marketing plan.
- There is not currently a lot of demand, so zero cost makes sense at this time, but as demand rises, it would make sense to modulate the price in regard to demand.

Vote: Motion passed by unanimous voice vote, CNV

4. Chicago chapter request to bEQ regarding bEQ related seminars

- There were some mishaps with the set-up and administration.
- A process needs to be established for dealing with these types of issues moving forward.

5. Methodology Subcommittee Report (Brandemuehl)

a. Old Business

- Workbook changes are still pending. Some dramatic changes have been made to the As Designed rating and the workbooks need to reflect that. The target is to have everything updated by the end of February. (Secretary's note: Target has slipped to March.)
- b. Conference call 1/13/15 ([Appendix E](#))
- Campus Ratings
 - The committee had previously approved a mixed use methodology for mixed use buildings using a weighted average for the median EUI.
 - The methodology committee supports the use of this methodology for campus buildings.
 - Data Centers
 - EPA has added data centers to their rating, but use PUE (Total Energy /IT Energy) rather than EUI for the rating metric. They require that the data center be separately metered which essentially allows them to treat the data center as a separate entity from the rest of the building.
 - The long term goal for bEQ is to have a mixed rating where the data center area is based on PUE, the remainder of building is based on EUI, and these two metrics are combined to calculate the full building rating.
 - This is pending further development from other ASHRAE committees as data are needed to move forward with this plan. There is a big difference between financial service type data centers and cloud providers.
 - Because there is not a way to rate data centers right now, the intent would be to subtract the data center from the rest of the building. The data center needs to be separately metered.
 - Hoy Bohanon will contact TC 9.9 to ask their opinion about the existing data set created for EPA.

AI 1: Hoy Bohanon to contact TC 9.9 regarding the EPA data set for data centers.

- Canadian Site-Source Ratios
 - The subcommittee noted that this is a slippery slope.
 - Strictly speaking, every municipality in the world has a different site-source ratio and creating a new one for one area/country/etc. opens the door for everyone else.
 - Another issue is that the same site-source ratio is used for both the baseline and candidate building. There is not currently a methodology for dealing with a change to both of these and they need to be consistent. Because the same ratio is applied to both the baseline and candidate building, the impact is a second order effect.
 - The subcommittee's recommendation is to leave the program as is with a single set of ratios.

Motion #3: Brandemuehl moved and Markel seconded that the bEQ rating system be extended to rating of campuses using the mixed use building rules for both In Operation and As Designed ratings.

Discussion: None.

Vote: Motion passed by unanimous voice vote, CNV.

- c. SubC meeting Chicago 1/24/15
- Water Usage

- The federal green building rating requirements include monitoring water usage in order to demonstrate water savings over time.
- bEQ is an energy rating system, but the assessment also surveys IEQ conditions, so does it make sense to add water measurements.
- The subcommittee feels that providing the data would satisfy the requirements. Up to the full committee and is not opposed to this change.
- It would be quite easy to adapt the forms to include the collection of water utility information and this would not affect the calculation of the rating.
- This would be an informative change and an optional addition to the In Operation workbook (only). There are not sufficient data on water usage to include this as a normative type of addition.
- Water is arguably more important than anything in Florida; combined energy and water tracking is on-going.
- One suggestion is to break out the water tracking by potable (sanitary) water, non-potable, irrigation, reclaimed water, process/cooling water, etc.

Motion #4: Brandemuehl moved and Markel seconded that the In Operation workbook be changed to include an optional worksheet on water usage.

Discussion:

- It might sense to refer to Standard 191P in the instructions. (Secretary's note: ASHRAE policy would prevent any references to a proposed standard.)
- Including water information opens up some additional energy audit opportunities such as reviewing the metering situation in regards to evaporative losses.
- There is no real benchmark information to compare to, but this would still provide good information for the building and be a good client benefit (e.g., identifying possible cost savings on sewerage and water).
- From a developing economies perspective, in most of CZ 0 and the developing world, water is of great interest. In India, gray water has to be reclaimed and recycled. Any building beyond 200K SF must be a zero discharge site.
- TC 7.6 has noted that their scope deals with both water and energy. And, the Performance Measurement Protocol publications deal with both.
- The problem is a normalization problem as each building would be different. TC 7.6 is trying to come up with data on the normalization and benchmarking.
- Florida now has a Water Star program. The U.S. Army Corps of Engineers has data on water usage.
- The motion is to include this as information only: no benchmarking, no normalization.
- This is an enabling motion to add water usage in the workbook, so that bEQ meets the federal requirements.
- The market wants this, so it makes sense to do this.

Vote: Motion passed by unanimous voice vote, CNV

- Climate Zone 0
 - The subcommittee recognizes that there are places in the world that are hotter than climate zone one.
 - However, there are the other activities going on within the society; this is on hold until other committees (TC 4.2 and SPC 169) develop the data needed in order to act on this.
 - This is an active area of exploration within ASHRAE that needs to play out before this committee makes changes to the rating.
- Research Project Work Statement

- The subcommittee has been working on this for some time.
- The full committee received the most recent draft as part of Jan 13 Methodology SubC conference call agenda. The draft has not substantially changed since then.
- The subcommittee recommends that this be submitted to RAC and co-sponsors be solicited from TC 4.7 and TC 7.6.
- The executive summary states:
The goal of this proposed research is to understand the differences between empirical and modeled baselines for building energy performance and to identify sets of building operation inputs for schedules, plug loads, ventilation rates, etc. that when used with energy models provide better agreement with the empirical data. Empirical baselines are typically used with existing buildings, while modeled baselines are used for new buildings. The results of this research would provide consistent energy performance metrics for the ASHRAE Building Energy Quotient As Designed and In Operation ratings. The research will also lead to consistency of energy performance metrics for Standard 90.1 (and LEED), Standard 189.1, and Standard 100.

Motion #5: Brandemuehl moved and Markel seconded that the bEQ committee submit the As Designed rating RTAR and Work Statement to RAC for funding.

Discussion:

- RAC has reached the end of their existing TRP queue for bidding, so the timing is right to submit this project.
- The committee will seek co-sponsorship from TC 4.7 and TC 7.6.
- This project is really going to allow bEQ to coordinate the asset and operational ratings in a way that no one else is doing and is really going to upgrade how the ratings are done.
- The other intent is for one energy modeling workflow to be able to comply with 90.1, 189.1, LEED submission, and bEQ rating.
- The research will address an issue that has been at the core of the asset rating, which is that it is a very complicated problem.

Vote: Motion passed unanimous voice vote, CNV

6. Marketing Subcommittee Report (Markel)

a. Old Business

- Godfrey's on-line survey effort garnered about a 2.5% response. This is somewhat disappointing, as this was a targeted survey, which would have been expected to generate a better response.
- Another surprise was the level of awareness, which was surprisingly high. However, this could be because those that were aware of bEQ were also the most likely to respond, within the 2.5% response sample.
- Godfrey is in the midst of the 1:1 interviews with the identified market segments.
- The committee will get a report on both when they are complete.

b. SubC meeting Chicago 1/24/15

● Training Sessions

- The training by Terry Townsend is really training on how to improve a building and it covers retro-commissioning and energy auditing in addition to bEQ.
- The Chicago training was conducted the week before the Chicago conference. Action items will be gathered from the training for follow-up. Follow up is also on-going from the Salt Lake City training.

- Townsend was reminded that he is to submit notes of the training activities, identifying or recommending follow-up activities and other action items to the bEQ Chair.
- BOMA 360
 - Jim Bochat (ASHRAE representative to BOMA 360) reported that BOMA is interested in improving their technical energy toolbox by including bEQ. They are not in favor of having it as a competitive rating program, but feel it would be a good addition to their toolbox. This would “embed” the bEQ process (and associated ASHRAE products such as Standard 100, audit methodologies, and other publications) within BOMA 360. There may be benefits to ASHRAE to pursue this.
 - BOMA feels the big value of bEQ is in the process as it provides information to improve the building, which differentiates it from other rating systems.
 - While the subcommittee feels the process should be emphasized, they don’t want to eliminate the rating system.
 - There is interest from the full range of buildings in the marketplace (not just high performing buildings), so it was suggested that the committee may want to expand the scale to include plus and minus for grades beyond just the A level.
- City of Orlando
 - The city of Orlando is enacting BERDO policy (Building Energy Reporting and Disclosure Ordinance) on benchmarking and auditing for buildings.
 - The city sees the bEQ process as a compliance tool for the auditing requirements, which would apply to all buildings below the 50% percentile in Energy Star. They would expect bEQ submissions of roughly 600 properties over a five year period.
 - Orlando wants to have the BERDO policy codified by 2016.
 - The city is currently putting together a network of city buildings that could be used to check on energy usage and improvements – they are interested in using bEQ on these buildings.
 - The city might also like to partner with ASHRAE as a way to populate an interactive city map with pop-up energy information on the buildings. The might include a time series of Dashboards and/or interactive dashboards. The committee may need to look at modifying what information is included on the Dashboard.
 - Orlando is also focusing on water conservation (developing a “water star” program).
 - There are distinct opportunities with City of Orlando especially with the Winter Meeting in Orlando in January 2016.
 - Perhaps make an announcement that ASHRAE has entered into some type of agreement to work with the city of Orlando to provide a model that could then be applied to other cities. Perhaps an ASHRAE officer and bEQ chair could more formally present this to the city.
 - There is a group of cities working with NRDC (National Research Defense Council) and IMT (Institute for Market Transformation) on creating and enhancing BERDO.
 - This subject would make a nice specialty conference (municipal issues, not limited to bEQ) that could be held in the City of Orlando in the next Society year.
 - It was suggested that an ASHRAE officer meets with the city of Orlando in 2nd qtr 2015 with a specialty conference scheduled for 3rd qtr 2015.
 - By the Orlando Winter meeting in 2016, a plan of action would be developed.
- Relevant UK/European experience
 - It was stated by one of our members that they believe that the EU made a mistake by requiring labeling. The result is that once a bad building gets a label, they don’t have to do anything else but display the label.

- They went on to say the label isn't the key thing, but rather it is the fact that you get information that tells you how your building is doing and how it can be improved.
- A major step up from the European experience is how to improve built assets through labeling.

AI 2: Markel and Patenaude to draft up a plan on working with the City of Orlando for David Underwood to present to ExCom.

7. Old Business

- a. Review of **Action Items** ([Appendix F](#))
 - See Appendix F
- b. Workbook Changes/Updates Status ([11/17 AI #12](#)) (Pratt)
 - Current updates are targeted for rollout on or about March 1, 2015.
 - It was suggested that a standard schedule be adopted for updates to the forms. One way to approach this would be to have an annual form that is issued each year for use in that year.
- c. Review of bEQ submissions to date ([Appendix G](#))
 - Concerns were expressed about the length of the time line to get the award notification back from ASHRAE on a submission. A two week turnaround was suggested as an appropriate timeline.
 - It was noted that Energy Star is a two week turnaround, but that is because it is an automated process. The turnaround is a minimum of six weeks when a submission is audited for manual review. One example was offered of an ENERGY STAR submitted in October that had not yet completed processing.
 - The review is currently conducted by ASHRAE staff, but some other process might be considered. One suggestion was for committee members to review the submissions.
 - One recommendation was to categorize submissions by the complexity of the submission and the level of expertise required for the review, making it open-ended as to who would review the submission. One possibility mentioned was using College Fellows to review or pre-review some types of submissions.
 - As a counterpoint, it was noted that bEQ is a commercial product and a tool for revenue so that utilization of volunteer effort for the review of submissions doesn't seem appropriate.

AI 3: Michael Brandemuehl to have Methodology Subcommittee evaluate the submission review process for further automation and speed.

- d. Evaluation of "free trial offer" ([Appendix G](#))
 - Eleven submissions were received through November 30, 2014 as part of the free submission offer.
- e. bEQ Video Production Status and Progress-to-Date
 - Two videos have been produced by ASHRAE staff and are available on the bEQ website. Additional videos are planned.
 - The development of a video by Patenaude and Montgomery is on-going. They were unable to complete a draft video prior to this meeting, but a link to the video will be sent to the committee soon.
 - Feedback on the videos would be appreciated.

- f. Townsend Training Performed/Planned ([Appendix H](#))
- g. Review of bEQ Contact Follow-up List and Updates ([Appendix H](#))
 - The contact list in Appendix H is a living list that is updated continuously and allows for follow-up on leads both for new training opportunities and for training that has already be conducted.
- h. eLearning courses for In Operation/As Designed Workbooks Status
 - Staff continues to work with the committee members for each course. Hoy Bohanon is working on the In Operation course and Michael Brandemuehl is working on the As Designed course.
 - The development of these courses are on hold until the new updates to the process are finalized and rolled out.
- i. bEQ website Review and Comments (www.buildingenergyquotient.org)
 - Staff is always looking to improve the website. Input is always welcome.
 - One suggestion is that there be a button or menu item on the home page of the website to allow for easy access to the submission pages.
 - Another suggestion was to provide contact information for local chapters.

AI 4: Walters to contact ASHRAE Publications staff about adding a “submit” button to the home page of bEQ webpage. (Note: Email sent on 1/25/15, Updates completed on 2/3/15)

- j. University Course Update (Wentz)
 - The class has started and the ASHRAE Procedures for Commercial Building Energy Audits is the text book. A number of committee members have volunteered to do lectures for the class which will be conducted mostly on line.
 - The university has agreed to pay for the rating submissions for the buildings assessed as part of the course.
 - The initial building pre-assessment will be conducted on February 4 and the walk-through will be done on February 11 with whole class. This first building is small office building.
 - The remaining buildings will be divided between the students.
 - There are nine students (two graduate) divided into three teams. The class make-up includes architecture, engineering, and construction management students.
 - The plan is to share the class model with other universities. They will be able to take it from the on-line information and use it at their own universities.
 - It may be possible to include this into ASHRAE Student Design competition.
 - There is a need to include description of rate structures and metering in the class. The local utility has volunteered to provide a lecture. Markel noted that ALI has a metering/rates course developed by TC 1.9.
- k. Developing Economies Advocacy Request to Provide Info and Guidance (Wentz)
 - The committee continues to talk with the Ad-hoc.
 - The Ad-hoc will not exist beyond this presidential year, but the work will be handed off to appropriate committees and continue.
 - The committee was reminded about the approved discount for developing countries and that the implementation of this discount is on-hold due to the free submission offer.

AI 5: Pratt to send the details on developing economies discount to Tim Wentz. (Note: Information sent on 3/3/2015).

- l. Chicago Forum/Workshop; Monday 4-5pm (Brandemuehl, Patenaude)
 - This will be a fabulous opportunity to showcase bEQ.
- m. Methodology Conference Paper ([6/29/14 AI #1](#)) (Eley)
 - Eley noted that the outline for this paper is completed and progress continues.
 - It will be a highly technical paper that is much more appropriate as conference paper.
- n. Journal Article Update
 - An editorial article is in progress by Montgomery and Brandemuehl ([11/17 AI #19](#))
 - Terry Townsend is working on an article for Insights on his experience in Bermuda.

AI 6: Montgomery to ask Steve Comstock for Journal articles guidelines on bEQ subject matter.

AI 7: Pratt to send Nate Boyd information on previous bEQ Journal articles.

- o. HQ Case Study
 - Dan Nall has agreed to take on this case study.
 - Work is just getting started.
- p. Utility Pilot Program Status
 - A concept Paper has been developed
 - Florida Power & Light – Business Energy Evaluation (BEE) in March/April- 2015
 - South Dakota Black Hills Power – interested in bEQ
 - City of Orlando – BERDO policy (Building Energy Reporting and Disclosure Ordinance)
- q. “Powered by ASHRAE” - ([11/17 AI #11](#))
 - Implementation of this tag line is on hold pending the report from Godfrey
- r. ASHRAE HQ bEQ Ratings
 - In Operation rating performed by Jay Enck (A- Very Good)
 - As Designed rating to be performed by Jeff-Ross Bain (pending workbook changes)
- s. CTTC visit in Chicago ([11/16 AI#1](#))
 - CTTC voted to add to the award language that energy efficiency information be provided in CBECS format or in Building Energy Quotient (bEQ) In Operation rating format.
 - The intent is to encourage more people to look at the bEQ process and use it to provide their energy information for the award. In addition, encouraging the bEQ format would help move the information into a uniform format that might simplify judging and comparison.
 - The committee felt that then after a couple of years of accepting data both ways, they could drop the CBECS and go only to the bEQ format.
 - The change will be implemented and be in effect for the next awards year (2015-16 SY).
- t. Marketing efforts by Godfrey ([Appendix I](#))
 - Survey Results (private and confidential)
 - 1:1 interviews (4 confirmed as of 1/15/15) – three more added last week.
 - Still asking for Facility Manager suggestions.
 - Interim Report Status – expected in February

- Approval of Phase 1 / Move to Phase 2

8. Other Important Activities and Actions

a. Nomination and Assignment of Liaisons

- Standard 100 – Patenaude
- Standard 90.1 – Misuriello
- Standard 189.1 – Eley
- Standard 62.1 – Bohanon
- Standard 241P – Montgomery
- Technical Committees (TC 4.7, TC 7.6) – Brandemuehl
- The committee may also want to include a formal liaison to GGAC/Advocacy once the new committee is finalized.

Motion #6: Markel moved and Brandemuehl seconded that the assignment of committee liaisons be approved as indicated.

Vote: Motion passed unanimous voice vote, CNV

b. Global Outreach Activities-update

- Activity is on-going.

c. bEQ Budget 2014-15, 2015-16 ([Appendix J](#))

- The proposed budget is shown in Appendix J

Motion #7: Brandemuehl moved and Patenaude seconded that the proposed budget as shown in Appendix J be approved.

Discussion:

- Background on numbers at bottom of sheet.
- Research project would be funded by ASHRAE's Research Fund, not the bEQ budget.
- This is considered to be a benefit to the members.
- We are a non-profit and there are plenty of things that we do that don't make money.

Vote: Motion passed unanimous voice vote, CNV

d. MBO Status and Update ([Appendix K](#))

- Information item.

9. Additional Business (TBD)

a. GGAC challenge to all chapters to do at least one bEQ.

b. Krishnan Gowri reported that PNNL is exploring market potential and application for rapid capture energy modeling. They have an energy dashboard with current building energy information and would like to include bEQ as part of this dashboard if useful.

c. There is a BIM model behind the energy model; however it is not COBie compliant. It can be converted, but there has been no need yet.

AI 8: Brandemuehl to work with Krishnan Gowri on his request to incorporate bEQ into the rapid capture for energy modeling project.

d. Collaboration with REHVA

- No activity at this time.

e. IgCC/189.1 and outcome based codes

- There would seem to be an opportunity for bEQ with the IgCC/189.1 consolidation and outcome based codes. The use of actual metered data aligns with bEQ.
- Because of ASHRAE involvement in the consolidation, there may be an opportunity for bEQ to become a compliance tool in that arena.
- It would allow an ASHRAE member to use an ASHRAE tool to satisfy both compliance and client needs.
- This connection needs to be explored.

AI 9: Eley (Standard 189.1 Liaison) to explore the use of bEQ as a compliance tool with outcome based codes with Standard 189.1 as appropriate.

10. Upcoming Meetings/Presentations

- Spring face-face meeting – (TBD pending approval from Coordinating Officer)
- Next Conference Call (TBD)
- Atlanta Annual Meeting, June 2015

11. Adjourn – Meeting adjourned at 11:47am CST

Appendix A: ASHRAE Code of Ethics

1.140.001.1 As members of ASHRAE or participants in ASHRAE committees, we pledge to act with honesty, fairness, courtesy, competence, integrity and respect for others in our conduct.

A. Efforts of the Society, its members, and its bodies shall be directed at all times to enhancing the public health, safety and welfare.

B. Members and organized bodies of the Society shall be good stewards of the world's resources including energy, natural, human and financial resources.

C. Our products and services shall be offered only in areas where our competence and expertise can satisfy the public need.

D. We shall act with care and competence in all activities, using and developing up-to-date knowledge and skills.

E. We shall avoid real or perceived conflicts of interest whenever possible, and disclose them to affected parties when they do exist.

F. The confidentiality of business affairs, proprietary information, intellectual property, procedures, and restricted Society discussions and materials shall be respected.

G. Each member is expected and encouraged to be committed to the code of ethics of his or her own professional or trade association in their nation and area of work.

H. Activities crossing national and cultural boundaries shall respect the ethical codes of the seat of the principal activity.

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Appendix B: bEQ Committee Structure – FY 2014-2015

bEQ Committee Members (voting): Ross Montgomery (Chair), Michael Brandemuehl (Vice-chair), Larry Markel (Tech Council Representative), Ray Patenaude (Members Council Representative), Filza Walters (Pub-Ed Council Representative), Hoy Bohanon (Member-at-Large), Harry Misuriello (Member-at-Large), Dan Nall (Member-at-Large)

bEQ Consultants/Others (non-voting): Hywel Davies, Charles Eley, EPA (to be named), Tim Wentz (Coordinating Officer)

Marketing Subcommittee: Larry Markel (chair), Ray Patenaude, Filza Walters , Hywel Davies, Tim Wentz

Methodology subcommittee: Michael Brandemuehl (chair), Hoy Bohanon, Harry Misuriello, Dan Nall, Charles Eley

Appendix C: bEQ Scope, Purpose and Operation

This committee is responsible for the business planning, training and marketing of the programs of this enterprise. This committee has the overall responsibility to determine technical developments that are required to support these activities. This committee has the responsibility for directing the development of marketing programs to determined target audiences.

The committee shall report through ExCom to the Board of Directors.

This committee is responsible for the operation of the BEQ enterprise as determined by the Board and for coordinating the activities of all three councils regarding the ASHRAE Building Labeling program.

This committee shall review its Rules of the Board. Each change recommended by this committee shall be submitted to the Board for vote.

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Appendix D: Free Submission Offer Proposal

Proposal from Ray Patenaude for expanding the ASHRAE member free submission offer

Proposal: To expand the number of free submissions from two to twelve for each qualified ASHRAE member

Background: The major intent of the “free submission offer” is to generate new submissions to the bEQ program, increase awareness, promote energy efficiency practices, build on the database to help support the methodology and trials so as to improve the program, and just simply “kick-off” some awareness. It occurred to me that “more is better” and by restricting the number of free submissions for this period could be a “missed opportunity” to get more of what the committee wants and needs. In the full meeting a couple of members mentioned that they will have the opportunity to have more than 2 submissions in the near future. This could also be happening in the minds of other ASHRAE members. Each submission touches at least 5 other entities and increases awareness, such as the assessor, the owner, the facility staff, the chapter, and our committee. Increasing the number of “free submissions” would be very helpful for the bEQ program and help to “kick-off” some awareness. The program competes with other programs in the marketplace that are “free” to submit on, and with much more robust automation. We have to get the bEQ program “out there” to gain awareness of bEQ’s superior methodology.

Fiscal Impact: Zero. Using the same logic as was used in the original motion, the \$500 is a non-significant factor in the revenue versus expense of the bEQ program. If the bEQ program costs ASHRAE \$100K per year to operate and administrator, it would take 200 submissions to break-even. To date bEQ has 18 submissions in 3 years. If the committee does not make this program more successful in the near future, it will be in danger of deletion, and all the past expenses will be lost.

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Appendix E:

bEQ Methodology Subcommittee Tuesday, January 13 Web Conference Call Meeting Notes

Participants: Michael Brandemuehl, Hoy Bohannon, Charles Eley, Dan Nall, Larry Markel, Lilas Pratt

1. Welcome – Meeting convened at 3:00pm EST
2. Review of Agenda
 - No changes.
3. Space Percentage Rules for Mixed Use Buildings ([Attachment A](#))
4. Rules for Campus Buildings ([Attachment B](#))
 - For the mixed use rating procedures, the subcommittee agreed that:
 - There should be no restriction on the space use percentage for buildings to use the mixed use approach. As per the rules in Standard 100P, all buildings have the option of using either a single use or mixed use approach to rate their building – with three exceptions.
 - The exception is that those buildings which are inherently mixed use, must use the single use method to rate the building. These buildings are hospitals, schools, and hotels/motels.
 - Buildings using the mixed use approach would divide the building by space use type and operating hours – divisions do not need to be by discreet floor divisions. So, if there are two different office areas with different operating hours, they can be counted as two different spaces in the weighted average calculation.
 - The subcommittee agreed that bEQ should use the mixed use algorithms detailed above to also apply to campuses of multiple buildings on a single meter.
 - The weighted average would again be based on space use type and operating hours rather than by discrete buildings.
 - All the rules detailed for mixed use buildings (including the 10% rule) would apply to campuses.
 - Individual buildings on a campus could also be rated by themselves as long as they are separately metered.
 - The rules for renewables detailed in the general instructions work well with a campus environment, so no changes are needed to accommodate this addition.
 - The label will have to specify whether it is a CAMPUS or a BUILDING that has been rated.

Motion 1: Brandemuehl moved and Nall seconded that Methodology Subcommittee approve the bEQ rating system be extended to rating of campuses using the mixed use building rules for both In Operation and As Designed ratings and that this change be recommended to the full committee. **Note:** Motion passes unanimous voice vote, CV.

5. Data Centers ([Attachment C](#))
 - The attachment details how ENERGY STAR deals with data centers. Essentially, they made the decision to rate these buildings using PUE (Power Usage Effectiveness) rather than EUI (Energy Use Index).
 - EPA worked with a number of ASHRAE members who are also active on TC 9.9 (Mission Critical Facilities, Data Centers, Technology Spaces and Electronic Equipment) and SPC 90.4P (Energy Standard for Data Centers and Telecommunications Buildings).
 - It was noted that there will likely be a distinction made between computer rooms and data center with Standard 90.1 continuing to cover computer rooms and Standard 90.4 covering data centers.
 - A Data Center is contained in one space with dedicated cooling with UPS (uninterrupted power source), which typically means it is separately metered.
 - To get an ENERGY STAR designation, the data center has to be separately metered.
 - $PUE = \text{Total Energy} / \text{IT Energy}$
 - The PUE calculation compares the metered energy input to the total building to the output of the UPS. The implication is that the data center is treated as a separate entity from the building without the data center. A rating system needs to be able to address these two spaces with two different ratings.
 - Since bEQ doesn't currently have a way to rate data centers, the rule should be just to exclude the data center entirely.
 - The key requirement for this is that the data center has to be separately metered. As long as it is 10% to 50% of the floor area and separately metered, the data center can be excluded under the Standard 100P rules that bEQ proposes to use.

- The subcommittee agreed to hold off on adding data centers to the bEQ rating until further action by Standard 90.4P and/or TC 9.9.
 - The subcommittee agreed that buildings should deal with mixed use data centers by subtracting them under the Standard 100P rules.
6. Canadian Site-Source Ratios ([Attachment D](#))
- The subcommittee recognizes that all the site-source ratios currently in the rating procedures have all been determined based on US site-source ratios and they would prefer to not change that.
 - The alternative would be to allow users to apply ratios for their own country based on a method yet to be determined by the subcommittee wishes.
 - The second option would have to correct our tables.
 - Three things are affected by this: the original median EUI tables, the percentage of gas to electric, and the specific site-source ratio used
 - Leaving the site source ratios as is would result in a second order error because the same ratios are used for both the target and rated building and bEQ is trying to rate the building and not the local utility.
 - The committee also noted that the ratios are national ratios and therefore do not allow specific areas in the US to use site-source ratios more appropriate for their specific area (such as allowing areas with hydropower to use a different ratio than areas with coal).
 - This does muddy the distinction somewhat between site and source by imposing a US national ratio on all buildings
 - The subcommittee agreed that the site-source ratios should remain as is with no changes or adjustments for different countries or different areas.
7. DOE Rules on Water Savings
- Discussion deferred until Chicago or some later meeting.
8. Climate Zone 0
- Discussion deferred until Chicago or some later meeting.
9. Research Project Work Statement
- Due to the work done by Eley, the current work statement is in good shape. This would be a good time to approach TC 7.6 and 4.7 about co-sponsoring the research.
 - Additional discussion deferred until Chicago or some later meeting
10. Other business
- Discussion deferred until Chicago or some later meeting.
11. Meeting in Chicago
- The official Subcommittee meeting will be conducted at 1:30pm as scheduled.
 - The subcommittee will have additional conversation about these items before Sunday meeting.
 - Available subcommittee members will meet at the ASHRAE HQ room at 3:30pm on Saturday, January 24..
12. Adjourn – Meeting adjourned at 4:32pm EST.

Attachment A – Mixed Use Detail from Standard 100

7.2 Determining Energy Target (EUI_t)

7.2.1 The energy manager (EM) or qualified person shall determine the energy target (EUI_t) according to Section 7.2.2 for single-type/activity buildings and Section 7.2.3 for mixed use buildings, and shall complete Form B.

7.2.2 Energy targets for buildings with a single activity shall be calculated as follows:

$$(EUI_t) = S \times (EUI_1)$$

where (EUI₁) is the building activity energy target value in

Table 7-2 for the appropriate building activities/types and climate, and S is the building operating shifts normalization factor in Table 7-3.

7.2.3 Energy targets for buildings with multiple activities shall be determined using weighted averages of building activity energy target for each area with a single activity, per the following equation, and reported on Normative Annex C, Form B:

$$EUI_t = (A \times S \times EUI_{t1})_1 + (A \times S \times EUI_{t1})_2 + \dots + (A \times S \times EUI_{t1})_i + \dots + (A \times S \times EUI_{t1})_n$$

Where:

$(A)_i$ = percentage of the gross floor area with single building activity i

$(EUI_{t1})_i$ = building activity target from Table 7-2 for space i

$(S)_i$ = operating shifts normalization factor from Table 7-3 for space i

$(A \times S \times EUI_{t1})_i$ = the weighted space EUI target for space i

Exceptions:

1. Spaces where more than 75% of the gross floor area has a unique building activity shall be reported as a single-use building or as a multiuse building in accordance with either Section 7.2.2 or Section 7.2.3.
2. Spaces less than 10% of the gross floor area with a unique building activity can combine their floor area with the floor area within the building that has a similar building activity as determined by the EM or other qualified person.
3. Spaces in buildings with multiple activities that are not listed in Table 7-1 and have a total combined area, comprising less than 10% of the building gross floor area (A_{gross}) can be excluded from building energy target calculations if the energy use of such space is metered separately. The energy target for the remaining part of the building shall be calculated after deducting the unlisted building type floor area from the building gross floor area ($A_{gross} -$).
4. Spaces in multiple-activities buildings with activities not listed in Table 7-1 comprising more than 10% but not more than 50% of the gross floor area shall comply with either Section 7.2.3, Exception 3, or Sections 4.1, 4.2, 4.3.1, and 4.3.3.

Attachment B – UK Rating program rules for Campus submissions

From: Hywel Davies

Sent: Monday, November 17, 2014 1:55 PM

To: Michael J Brandemuehl; Pratt, Lilas

Subject: Campus ratings

Mike

Text of our guidance for in-operation ratings – one or two bits have changed, although the guidance has not, but its broadly there.

Hope this is some help?

Regards

Hywel

4.2 Application to groups of buildings on a site

The Regulations apply to buildings (or parts thereof designed or adapted to be used separately) and the current legal advice is that, with the exception of the transitional arrangements, there is no scope for applying the approved operational rating methodology to groups of buildings on a site (e.g. a campus or hospital). Each qualifying building must display its own DEC (Display Energy Certificate). However, many public authorities have campus-style facilities where, currently, metering is at the site level rather than at the individual building level. In such cases it is reasonable for the Display Energy Certificates to be based on the metered site energy demands, but with the consumption disaggregated into the demands for each building on an area weighted basis. Over time, metering provision should improve as Part L of the Building

Regulations requires additional metering to be installed in both new buildings and existing buildings that are being refurbished. This will allow DEC's that are specific to each individual building to be produced.

The process of disaggregating the energy on an area weighted basis means that the OR for each building will be the same and equivalent to the value that would have been obtained if a site-based calculation had been carried out.

On some sites, individual buildings may have dedicated metering, and in such a situation, building specific DEC's should be produced wherever possible, i.e. where:

- (a) the individual building(s) have dedicated metering for all fuels used in the building; *and*
- (b) there is an appropriate benchmark for that building activity; *and*
- (c) the individual building(s) fall(s) within the public display requirement, unless a voluntary DEC is being produced.

A building-specific DEC should be produced for those buildings. For the remaining buildings on the site, DEC's should be based on the whole site consumption, excluding those buildings that are separately assessed. The benchmark should be based on the site benchmark, but adjusted by the emissions associated with the benchmarks for the buildings that have been separately assessed.

For example, if an operating theatre block at a teaching hospital had its own gas and electricity metering, it would be impractical to produce a DEC for the theatre block since benchmark data for theatre blocks are not available, whereas a benchmark for the site, i.e. a teaching hospital, is available. However, if the separately metered building were an administration building (i.e. essentially an office), it could be benchmarked independently, and the revised site benchmark, BMr for the remaining buildings would be:

$$\text{BMr} = \frac{(\text{A}_{\text{site}} \text{BMr}_{\text{site}} - \text{A}_{\text{office}} \text{BMr}_{\text{office}})}{(\text{A}_{\text{site}} - \text{A}_{\text{office}})} \quad (4.1)$$

When the DEC is updated each year, the procedure described above should be repeated rather than continuing with the status quo. This means that in the above example, if benchmark data had become available for operating theatres in the period since the previous DEC was produced, the theatre block would henceforth be treated separately from the rest of the site.

In the context of a site, the advisory report should encourage the preparation of a specific energy survey for each qualifying building as soon as possible, but certainly before the next advisory report is due. If such reports are already available, then the free form entry can be used to log the recommendations that have already been made.

Note: the requirement for a DEC applies only to buildings over 1000 m². Consequently, if the total area of the buildings on a site exceeds 1000 m², but this comprises several individual buildings, none of which is on their own of greater area than 1000 m², there is no requirement for a DEC to be produced. If one or more buildings exceeds 1000 m², a DEC is required for each such building.

Attachment C – EPA Calculation of Data Center Performance

Attachment D – Canadian Site-Source Ratios

From: Pratt, Lilas
Sent: Tuesday, August 19, 2014 12:12 PM
To: 'michael.brandemuehl@colorado.edu'
Subject: FW: bEQ Submission Question

Michael,

Here is another question for the Methodology Committee to consider on next week's call (see correspondence below). In a nutshell, does the committee wish to allow different countries to use different site source ratios for their metered data?

While it would be easy enough to allow a change in the ratios used for the candidate building data entered on Form 2 (and for Canada, one could rely on the ratios used in ENERGY STAR Portfolio Manager for Canada); it would be much more

difficult to adjust the site-source ratios used for the median EUI calculations – although, I don't think the assessor is asking about changing those (as those calculations are now hidden). Some questions/thoughts that come to mind include:

- Does having two different sets of ratios (between the median and candidate building EUIs) create any issues?
- For countries that don't have a convenient Portfolio Manager set of ratios, how would we verify what is being used?

From: Mike Attard [<mailto:mattard@virtagroup.com>]

Sent: Tuesday, August 19, 2014 11:23 AM

Hello Lilas,

I was hoping you'd be able to help me out. Are you able to adjust for Canadian Source-Site Ratio? Please see the attached document (pg. 1) for Canadian Ratios. This would obviously have a huge impact on the rating of the building.

Alternatively, is there a Canadian version of the spreadsheet.

Please let me know, and I will provide the Spreadsheet for an update.

Would de-rating the metered data be an acceptable alternative?

The data could include a reduction to match the reduced site-source ratio for Canadian electricity.

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Appendix F: Action Item Status

New Action Items from January 25, 2015 Chicago Winter Meeting

- **AI 1:** **Hoy Bohanon** to contact TC 9.9 regarding the EPA data set for data centers.
- **AI 2:** **Markel and Patenaude** to draft up a plan on working with the City of Orlando for **David Underwood** to present to ExCom.
- **AI 3:** **Michael Brandemuehl** to have **Methodology Subcommittee** evaluate the submission review process for further automation and speed.
- ✓ **AI 4:** **Walters** to contact **ASHRAE Publications** staff about adding a “submit” button to the home page of bEQ webpage. (Note: Email sent on 1/25/15, Updates completed on 2/3/15)
- ✓ **AI 5:** **Pratt** to send the details on developing economies discount to **Tim Wentz**. (Note: Information sent on 3/3/2015).
- **AI 6:** **Montgomery** to ask **Steve Comstock** for Journal articles guidelines on bEQ subject matter.
- **AI 7:** **Pratt** to send **Nate Boyd** information on previous bEQ Journal articles.
- **AI 8:** **Brandemuehl** to work with **Krishnan Gowri** on his request to incorporate bEQ into the rapid capture for energy modeling project.
- **AI 9:** **Eley** (Standard 189.1 Liaison) to explore the use of bEQ as a compliance tool with outcome based codes with Standard 189.1 as appropriate.

November 16-17, 2014 Atlanta meeting:

- ✓ **AI 1:** **Ray Patenaude** and **Ross Montgomery** to investigate the status of adding bEQ as a judging criterion for the CTTC Technology Awards.
- ✓ **AI 2:** **Lilas Pratt** to notify **Ross Montgomery** and **Michael Brandemuehl** when phase 1 of the Godfrey work is completed for review and approval by the committee. (Note: Godfrey presented Phase 1 report to committee on 3/4/15.)
- ✓ **AI 3:** **Methodology Subcommittee** to discuss options and provide recommendations to the **full committee** for bEQ to comply with the DOE rules on public review and demonstrating continued water savings.
- ✓ **AI 4:** **Jim Colton** to check with **Steve Comstock** on the use of the HPB subscriber list for the Godfrey survey.
- ✓ **AI 5:** **Larry Markel** to put together a strawman of suggested market segments for **Committee members** to review and comment on.
- ✓ **AI 6:** **Jim Colton** to talk with the University of Chicago about video-taping the training session to be conducted in Chicago.
- **AI 7:** **Committee members** to provide feedback to **Ray Patenaude** on the concept of the video he is working on with **Ross Montgomery**. A link will be sent to the committee.
- **AI 8:** **Committee members** to communicate to **Ross Montgomery** and **Jim Colton** on potentially interested parties that would benefit from the Terry Townsend training program.
- ✓ **AI 9:** **Tim Wentz, Ross Montgomery, and Larry Markel** to initiate a meeting with **John Nix** and Florida utility companies to discuss a pilot bEQ program in Florida.
- ✓ **AI 10:** **Larry Markel** to develop a strawman proposal on the Florida utility pilot program for the **committee** to review and comment on.

- **AI 11:** **Lilas Pratt** to work with **Steve Comstock** to add “Powered by ASHRAE” to the bEQ headers on the website and workbooks and to determine if the phrase is registered.
- **AI 12:** **Lilas Pratt** to work with **Charles Eley** as needed to complete the updates to the bEQ In Operation and As Designed workbooks.
- **AI 13:** **Lilas Pratt** to coordinate with **Jodi Scott** to create press releases about changes to bEQ approved during this meeting (when those changes occur) including extension of the “free submission” offer, addition of mixed use buildings, and campuses, beta launch of As-Designed rating, etc.
- ✓ **AI 14:** **Lilas Pratt** to verify that the bEQ definitions have been sent to TC 1.6.
- ✓ **AI 15:** **Michael Brandemuehl** to hold a methodology subcommittee conference call prior to Chicago, if needed.
- **AI 16:** **Methodology Subcommittee** to finalize the research project Work Statement to reconcile bEQ methodologies with ASHRAE Standards.
- **AI 17:** **Charles Eley** and **Harry Misuriello** to communicate to SSPC 189.1 (Eley) and SSPC 90.1 (Misuriello) about the planned bEQ research project and potential tie-in between bEQ and these standards.
- **AI 18:** **Ross Montgomery** to update SPC 214P on the status and goal of the bEQ research project.
- **AI 19:** **Ross Montgomery** and **Michael Brandemuehl (lead)** to put together an editorial write-up for the ASHRAE Journal on the research project intent and benefits. Write-up to be reviewed by **Larry Markel**.
- ✓ **AI 20:** **Lilas Pratt** to check on how to contact the IPEEC BEET to inform them about bEQ.
- ✓ **AI 21:** **Lilas Pratt** to resend the university course documentation to the **full committee** for their review and comment. (Note: Email sent on 11/19).
- ✓ **AI 22:** **Lilas Pratt** and **Bert Etheredge** to create a sample workbook for use in the University course. (Note: Workbook completed on 2/24/2015)
- ✓ **AI 23:** **Lilas Pratt** to update the how-to workbook for use in the university course (and in the eLearning courses under development).
- ✓ **AI 24:** **Methodology Subcommittee** to discuss how to best address the request for customized site-source ratios for Canada and to make a recommendation back to the **full committee**.

September 9, 2014 Marketing SubC Conference Call

- ✓ **AI 2:** **Jim Colton** to coordinate the Chicago energy training with the local ASHRAE Chapter, Terry Townsend (Townsend Engineering), and the University of Chicago.

August 27 & 29, 2014 Methodology SubC Conference Calls

- **AI 6:** **Pratt** to modify As Designed procedure instructions, for review by the bEQ Committee, to reflect that fully designed buildings can get a preliminary label that would then be verified after construction is complete. – **Ongoing as part of Workbook updates**

June 29, 2014 Seattle Annual Meeting

- **AI 1:** **Eley** to lead an effort to write a ~~Journal paper or some other documentation~~ conference paper for the bEQ In Operation process and methodology.

May 21, 2014 Marketing Subcommittee Conference Call

- **AI 6:** Nall to put together a first draft for an ASHRAE HQ building case study with help from Walters.

January 19, 2014 New York Winter Meeting

- **AI 4:** Pratt to catalog articles about bEQ on the ftp site for access by the **Committee**.

December 15-16, 2013 Atlanta Meeting

- **AI 1:** Lilas Pratt to contact **EPA** about providing a consultant for the bEQ committee roster.

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Appendix G: bEQ Submission Status

#	Submittal Date	Submission Type	Country	CZ	Building Type	Building Size	Status	Approval Date
1	8/27/12	In Operation	USA	4	Office	75,157	Award - C	11/15/12
2	9/11/12	In Operation	USA	3	Office	126,000	Award - B	2/12/13
3	11/9/12	In Operation	USA	5	K-12 School	47,000	Award - B	3/8/13
4	12/3/12	In Operation	USA	3A	Office	354,209	Award - B	1/22/13
	5/14/13	Withdrawn	Bermuda	2A	Office	99,220	Withdrawn	N/A
	5/31/13	Withdrawn	Bermuda	2A	Office/Whse	53,651	Withdrawn	N/A
5	7/19/13	In Operation	USA	2A	Fire Station	13,345	Award - A-	9/17/13
6	8/3/13	In Operation	USA	3A	Office	34,721	Award - A-	11/17/13
7	8/29/13	In Operation	Bermuda	2A	Office	199,707	Award - C	9/25/13
8	9/28/13	In Operation	USA	2	Fire Station	7,191	Award - C	11/17/13
9	7/29/13	In Operation	Mexico	3	Office	1,586	Award - A	11/17/13
10	3/11/14	In Operation	USA	2A	Fire Station	8,221	Award - B	5/30/14
11	3/11/14	In Operation	USA	2A	Fire Station	8,706	Award - C	5/30/14
12	6/26/14	In Operation	Canada	6A	College	149,826	Award - C	7/28/14
13	9/12/14	In Operation	Philippines	1A	Office	91,041	Award - C	9/30/14
14	11/3/14	In Operation	Hong Kong	2A	Office	329,055	Award - B	12/31/14
15	11/4/14	In Operation	USA	4A	Other Office	15,000	Award - C	12/31/14
16	11/10/14	In Operation	USA	4A	Govt Office	33,968	Pending	
17	11/22/14	In Operation	USA	2A	Office	870,094	On Hold	
18	11/24/14	In Operation	USA	5A	Office	6,268	Award - A-	12/31/14
19	11/28/14	In Operation	Canada	6B	College/Unv	110,000	Pending	
20	11/28/14	In Operation	Canada	6A	Dormitory	181,593	In Process	
21	11/29/14	In Operation	USA	5A	Prof Office	32,220	In Process	
22	11/29/14	In Operation	Mexico	3A	Conv Store	2,332	Pending	
23	11/30/14	In Operation	Hong Kong	2A	Mixed Office	577,493	In Process	
24	11/30/14	In Operation	Argentina	3A	College/Unv	30,386	In Process	

Note: Shaded rows indicated buildings submitted during “free trial offer”

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Appendix H: Contact and Follow-up List

bEQ Follow-up Listing (updated as of January 21, 2015)

1. City of Milwaukee

Training Timeframe: Training conducted in March 2014.
Building Used: Public branch library
of Attendees: 22
Pending Actions: City interested in using bEQ for 19 other libraries, with others on the way
ASHRAE Contact: Terry Townsend did training. Tim Wentz did the follow-up with the City.
City Contact: Erick Schaumberger
Chapter Contact: Jason Leffengwell
Status: Unknown

2. University of Wisconsin

Training Timeframe: ?
Building Used: ?
of Attendees: NA
Pending Actions: ?
ASHRAE Contact: Tim Wentz
University Contact: ?
Chapter Contact: NA
Status: ?

3. Salt Lake City

Training Timeframe: Training conducted in August 2014
Building Used: Fire Department (SLC), Culinary Arts Building (Utah)
of Attendees: 28
Pending Actions: None
ASHRAE Contact: Terry Townsend
City Contact:
State Contact: Daniel Hanson
Chapter Contact: Trent Hunt
Status: Follow up needed with city and state on other buildings. Terry has asked the Chapter to submit the completed In Operation Workbook

4. Bermuda

Training Timeframe: December 9 & 10, 2014.
Building Used: Global House
of Attendees: 6-12
Pending Actions: Tom Phoenix will be there the week before and talk both about forming an ASHRAE Chapter there, as well as the benefits of bEQ
ASHRAE Contact: Terry Townsend, Barrett Lightbourne
Government Contact: Steve Conway
Chapter Contact: NA
Status: This training is at the request of the Bermudan government, which is interested in using bEQ to improve the energy efficiency of their buildings. President Phoenix and Terry Townsend have a planned visit in December 2014.
1/20/15; Bermuda government official has sent TT an editorial article for the Journal; TT submitted to HQ staff for consideration.

5. Seattle

Training Timeframe: January 2015
Building Used: ?
of Attendees: ?
Pending Actions: Establish firm date for training. Confirm # of attendees. Provide PDFs to attendees when identified.
ASHRAE Contact: Terry Townsend
City Contact: Duane Jonlin
Chapter Contact: Tamas Benczik
Status: Still very interested. Timing delayed to coordinate with training request from 2030 District.

6. 2030 District (Seattle)

Training Timeframe: January 2015
Building Used: ?
of Attendees: ?
Pending Actions: Establish firm date for training. Confirm # of attendees. Provide PDFs to attendees when identified.
ASHRAE Contact: Terry Townsend
City Contact: Duane Jonlin
Chapter Contact: Tamas Benczik
Status: 2030 District wants training as well. 2030 District is interested in doing this training around the US and Canada.

7. University of Chicago

Training Timeframe: January 20, 21, 2015
Building Used: Stuart Hall classroom building. Will also be the site for the instruction.
of Attendees: 14
Pending Actions: Provide PDFs for attendees, when identified. done
ASHRAE Contact: Terry Townsend
University Contact: Kevin Rodgers
Chapter Contact: Michael Infanger
Status: Occurred Tuesday and Wednesday before the Winter Conference. U of Chicago did not have equipment for videography. City of Chicago is now interested as well. Looking at 2/10-2/11.
1/20/15- Training is being done in Chicago as scheduled.

8. Boulder, CO

Training Timeframe: ?
Building Used: ?
of Attendees: NA
Pending Actions: Establish firm date for training. Confirm # of attendees. Provide PDFs to attendees when identified.
ASHRAE Contact: Terry Townsend
City Contact: ?
Chapter Contact: Jessie Jones
Status: ?

9. ASHRAE Chapter, Region 3 (Pittsburg)

Training Timeframe: Spring 2015
Building Used: ?
of Attendees: ?
Pending Actions: Establish firm date for training. Confirm # of attendees. Provide PDFs to attendees when identified.
ASHRAE Contact: Terry Townsend
City Contact: ?
Chapter Contact: Christopher Albright
Status: Chris has confirmed he wants to do the training for their CRC meeting in the spring. 2030 District wants to help with this.

10. Lincoln, NB (is this the University course??)

Training Timeframe:
Building Used:
of Attendees:
Pending Actions:
ASHRAE Contact: Tim Wentz
University Contact:
Chapter Contact: NA
Status:

11. University of Nebraska

Training Timeframe: January 10 to May 10
Building Used: 12 buildings on the UNL campus (yet to be determined)
of Attendees: 10 students
Pending Actions: Under development
ASHRAE Contact: Tim Wentz
Local Contact: Same
Chapter Contact: Nebraska Chapter
Status: TW advises that the course is approved and has a full student enrollment starting in January 2015. TW has asked bEQ committee for assistance in preparing and submitting course materials and content.

12. San Antonio

Training Timeframe: 2015
Building Used: ?
of Attendees: 40
Pending Actions: Establish firm date for training. Confirm # of attendees. Modify existing training to match the specifications needed by San Antonio.
ASHRAE Contact: Terry Townsend
City Contact: Aaron Steinberg
Chapter Contact: NA
Status: Needs energy management training for 40 facility operators. Effectiveness must be determined by a 3rd party. Proposed training similar to what Terry did for Milwaukee, with a local PE conducting bEQ for a baseline and using the second upload to show performance improvement. Waiting to see if the proposal is accepted.

13. Cleveland

Training Timeframe: 2015
Building Used: 2030 District member's building
of Attendees: ?
Pending Actions: Establish firm date for training. Confirm # of attendees. Modify existing training to match the specifications needed by San Antonio.
ASHRAE Contact: Terry Townsend, Jim Colton
City/District Contact: ?
Chapter Contact: May want to get local chapters involved as volunteers and for exposure.
Status: Was informed of this 11/114/14 by email from Vincent Martinez.

14. Navy Federal Credit Union

Training Timeframe: ?
Building Used: ?
of Attendees: NA
Pending Actions: ?
ASHRAE Contact: Terry Townsend, Jim Colton
University Contact: NA
Chapter Contact: NA
Status: Originally, NFCU wanted training for their engineers at the Pensacola campus (Data Center for NFCU). Afraid focus on efficiency would impair the performance of the data processing. Very interested in using bEQ at their many branch offices.

15. EESI (Tennessee)

Training Timeframe: ?
Building Used: ?
of Attendees: NA
Pending Actions: ?
ASHRAE Contact: Terry Townsend, Jim Colton
EESI Contact: NA
Chapter Contact: NA
Status: Want to train energy managers. Interested in bEQ to help reduce the energy costs of educational buildings throughout the State. Program is held up due to politics.

16. Tampa Florida

Training Timeframe: Spring/summer 2015?
Building Used: USF and TBT offices
of Attendees: Proposed 50-75
Pending Actions: Ross Montgomery is working with FWC chapter to organize
ASHRAE Contact: For now, Ross Montgomery, later will likely be Terry Townsend, Jim Colton
Chapter Contact: Christopher Pille
Status: Setting up a training seminar for the Tampa area using Terry's format. Chris is making the agenda now; more to follow.

17. Lockheed Martin

Status: Jim Colton is talking to them initially.

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Appendix I: Godfrey Update

Email Survey Status and Update:

- Initial survey completed and approved on 12/16/2014
- Survey programmed into Survey Monkey on 12/19/2014
- Survey sent out via ASHRAE mailing process on 12/19/2014
- A total of 14,142 surveys were delivered with 523 bounce backs
- Reminder sent out via ASHRAE mailing process on 1/12/2015
- Initial response is 359 responses or a 2.5% response rate
- Survey raw data information distributed as separate attachment: **ASHRAE beq survey11915.pdf**

1:1 Phone Interview Status and Update

- Suggested list of interviewees finalized and sent to Godfrey on 1/2/2015
- To date, four phone interviews have been scheduled
- Interviews will continue through February
- Godfrey has requested additional contacts for Facility Engineers, Managers, and Purchasers

Next Steps

- Godfrey will issue a report on Phase 1 upon completion of the 1:1 interviews (early February)
- Report will also contain initial recommendations for consideration
- bEQ Committee will need to review and approve the Phase 1 work before authorizing Godfrey to move onto Phase 2 work

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Appendix J: Draft Budget

bEQ Committee Budget Planning - FY 2015-16

PROPOSAL UPDATE 12/30/2014

Budget Line Items	Previous Actual FY 13-14	Current Budget (FY 14-15)	Current Actual (7/14-11/14)	Proposed Budget (FY 15-16)	Proposed ForeCast (FY 16-17)	Notes
Revenues/Income						
Submission Income	\$ 2,500.00	\$ 15,000.00	\$ -	\$ -	\$ 5,000.00	No revenue is expected during free submission offer
Expenditures						
Salaries and Benefits						
Salaries	69,300.00	85,000.00	30,600.00	85,000.00	85,000.00	
Payroll Taxes and Benefits	19,500.00	23,600.00	8,600.00	23,600.00	23,600.00	
Total	\$ 88,800.00	\$ 108,600.00	\$ 39,200.00	\$ 108,600.00	\$ 108,600.00	
Promotion						
Brochures				5,000.00	5,000.00	Brochure printing is on-going University Course is being piloted in FY 14-15 These numbers to be revised when final mktng plan rec'd
Workshops/Webinars/ Univ Course				5,000.00	5,000.00	
Marketing Plan Implementation*				200,000.00	200,000.00	
Total	\$ 17,900.00	\$ 25,000.00	\$ 1,400.00	\$ 210,000.00	\$ 210,000.00	
Committee Travel (Transportation only)						
Winter, Annual Meetings		10,000.00	600.00	8,000.00	8,000.00	
Interim Meeting (2 days)				4,000.00	4,000.00	
Committee Presentation Travel		1,500.00		1,500.00	1,500.00	
Total	\$ 18,800.00	\$ 11,500.00	\$ 600.00	\$ 13,500.00	\$ 13,500.00	
Conference Calls	\$ 600.00	\$ 1,400.00	\$ 400.00	\$ 1,000.00	\$ 1,000.00	
Development Costs						
Utility Pilot Program				5,000.00		Pilot Program being pitched to Florida Utilities
Development Costs for future application		15,000.00		5,000.00	5,000.00	
Total	\$ 15,000.00	\$ 15,000.00	\$ -	\$ 10,000.00	\$ 5,000.00	
Outside Services						
ELJI Verification Work		5,000.00				RTAR being developed for verification work***
In Operation Rating of HQ building		5,000.00		5,000.00		
Other				5,000.00	5,000.00	
Total	\$ 10,000.00	\$ 10,000.00	\$ 600.00	\$ 10,000.00	\$ 10,000.00	
Depreciation						
On-line Data Entry & Database **						
Total		\$ 33,333.00		\$ 50,000.00	\$ 50,000.00	Depreciation from \$150K expected capital cost
TOTAL REVENUES	\$ 2,500.00	\$ 15,000.00	\$ -	\$ -	\$ 5,000.00	
TOTAL EXPENDITURES	\$ 151,100.00	\$ 171,500.00	\$ 42,200.00	\$ 353,100.00	\$ 348,100.00	
DEPRECIATION	\$ -	\$ 33,333.00	\$ -	\$ 50,000.00	\$ 50,000.00	
NET TOTALS	\$ (148,600.00)	\$ (189,833.00)	\$ (42,200.00)	\$ (403,100.00)	\$ (393,100.00)	

***Marketing Plan Implementation Breakdown**

Trade Publication Ads	\$75,000
Website redesign	\$25,000
Rebranding (Logo redesign & registration)	\$15,000
Rebranding (Label & documentation redesign)	\$20,000
Brochures (develop copy, art, design, & printing)	\$20,000
Brochure mailing costs	\$10,000
Social media marketing	\$10,000
Media and Association Relations	\$25,000

**** On-Line Data Entry & Database Breakdown**

Design (4 weeks)	\$27,000
Development (12 weeks)	\$81,000
Implementation (3 weeks)	\$27,000
QA & Deployment (2 weeks)	\$15,000

*** Research project would be covered through Research Fund rather than bEQ budget

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Appendix K: MBO status

MBO 2014-15					
Strategic Direction 3 - ASHRAE will position itself as an essential resource for optimizing the performance of building and energy systems throughout their life cycles.					
Assigned to: bEQ Committee					
Theme: President Tom Phoenix; "People, Passion and Performance."					
Item #	MBO (rev 6/29/14-supercedes earlier versions)	Status: /Vice Chairman and Staff to track and report at bEQ meetings- As of 1/2015	Date Due	Assigned To Lead Efforts	MBO Comments
1	Each member of the committee become responsible to facilitate/preform and/or sell 1- rating submission of AD or IO	on-going	6/1/2015	Committee	Several submissions have been made
2	Complete validation methodology for 25 building types in "As Designed" rating	complete	6/1/2015	METHODOLOGY	November 2014-Launched beta A/D all building types
3	Create an agenda for a BEQ WORKSHOP and TRAINING program ;distribute to chapters for their use.	on-going	1/1/2015	METHODOLOGY/Marketing	being developed
4	Up-date bEQ DL Presentations with new information, changes to program, videos, added occupancies, and features/benefits.	on-going	continuous	Staff	our bEQ website has been updated
5	Plan and submit for a bEQ Forum or Seminar at Winter meeting	complete	9/1/2014	MARKETING	Chicago Program
6	Create formal survey to BEAP/BEIMP/PE and possible AEDG/IAQG/PCEA to ask bEQ marketing questions. Coordinate with marketing plan.	complete	9/1/2014	Marketing / Committee	Godfrey
7	Update BEQ Brochure and distribute to 3-Councils,GGAC,+ chapters.	on-going	1/1/2015	Staff	we will likely wait to update again until the Spring
8	Determine % data base usage of EUI's between AD and IO ratings between Standard 100 and EnStar/Tafi/PortMgr and make decisions about a path to consistency.	complete	1/1/2015	METHODOLOGY	Included in RTAR research project scope
9	New Journal and/or Insights article. Topics can include bEQ successes, case studies, methodology behind our multipliers and/or logic behind using Std. 100 tables, benefits behind our scaling,etc.	on-going	2/1/2015	MARKETING/METHODOLOGY	MB/RM/LM planning article-abstract drafted
10	Make a plan for bEQ-Residential and/or High-rise residential and/or community rating program extension	complete	6/1/2015	MARKETING	HR residential complete-Residential postponed until another time
11	Coordinate the Commercial Energy Audit publication with bEQ Level 1 energy audit requirements and forms; consider changing bEQ forms to match/plug into CEA forms so both can be used together in a single step.	complete	12/1/2014	MARKETING	discussed and agreed to make appropriate revisions although not exact matches
12	Review for stringency and possible even expand IEQ questions regarding Enclosures, IAQ, Lighting, Daylighting,etc. Coordinate allowable global equivalents of related standards and codes.	complete	1/1/2015	METHODOLOGY	changes were made to workbooks by HB
13	Establish a formal relationship and liase with GGAC and Advocacy Committees	complete	continuous	Committee	liasion = RM
14	Evaluate the "free trial" offer July-Nov 2014; Make recommendations to consider revised pricing and discount structure for bEQ program	on-going	1/1/2015	Marketing	at mid-year, we are seeing successful trend
15	Follow up with FLORIDA RATING SYSTEM LEGISLATION to take advantage of new law	on-going	9/1/2014	METHODOLOGY	working on codes course with FBC to present bEQ objectives

Item #	MBO (rev 6/29/14--supercedes earlier versions)	Status: /Vice Chairman and Staff to track and report at bEQ meetings- As of 1/2015	Date Due	Assigned To Lead Efforts	MBO Comments
16	Work with USGBC to achieve benefit to LEED (new and existing) by a bEQ rating relative to the EA energy credits. (GBCI already does this)	complete	1/1/2015	MARKETING	bEQ leadership CO, EVP, and President Phoenix met with USGBC and US Army
17	Propose for a Marketing plan and work scope for bEQ related activities, including hiring a consultant for 2014. Create budget, motion to the BOD to ask for money. (Urgent need-top priority)	complete	7/30/2014	MARKETING	Godfrey hired
18	Identify marketing opportunities and targets to sell bEQ, ie. AFE, BOWMA, PES, Real estate associations, banking associations, financial planners, states, large campuses, etc. Develop specific strategies to market bEQ to organizations and market sectors. Develop a list of short "video" segments that could be used to market bEQ to market sectors, and present to the committee for evaluation and implementation.	on-going	9/1/2014	MARKETING	formal follow-up list initiated by committee
19	Make a business plan for automating bEQ on-line; develop a list of specific automated tasks and benefits/features. Estimate costs and time schedule to complete. Start initial phase of development.	on-going	6/1/2015	MARKETING	proposed costs and process are calculated; waiting outcome of Marketing plan
20	Identify standards and highlight attributes that deal with bEQ issues, such as 105, 202, 189, 90, 55, 62, etc. Communicate these attributes to the PC's and update the bEQ DL presentation.	on-going	9/1/2014	METHODOLOGY	we will vote official liasions in Chicago
21	Identify major cities with sustainability plans that could align with bEQ, ie. Salt Lake City, Orlando, Ashville, etc. (J. Colton/staff is a resource for this info). Form a strike force to communicate to these opportunities.	on-going	1/1/2015	MARKETING/Staff	follow-up list established
22	Identify Global bEQ outreach and application of our bEQ program outside US. Create instruction set for inclusion into our instructions.	on-going	1/1/2015	MARKETING	progress being made in Chicago
23	Establish relationships with Green building rating providers to communicate the value of bEQ to their program, ie., USGBC, GG, other GBC's in different countries. Update DL presentation with ppt slides to document features and benefits. Add benefit related adjectives to bEQ program such as "performance verification" and "benchmarking" and "tool" to help enhance perception of bEQ (not just a rating program); coordinate with marketing plan.	complete	6/1/2015	MARKETING	bEQ leadership CO, EVP, and President Phoenix met with USGBC and US Army
24	Coordinate 90.1(G), 100, 189, 1, 214P with bEQ for consistency and to identify potential conflicts	complete	9/1/2014	MARKETING	outcome of marketing plan
25	Create Research project submission that performs a parametric analysis of our current AD rating using a single EU versus dual EU tables, and to coordinate using Standard 100, 90.1, CBECs, and our current strategy.	on-going	1/1/2015	METHODOLOGY	we will vote official liasions in Chicago
26	Update rules and instructions for dealing with mixed use building occupancies and large campus occupancies. Establish "boundaries" and guidelines for submitting mixed use types using area weighted algorithm or equivalent method.	on-going	10/1/2014	METHODOLOGY	Chicago agenda
27		complete	10/1/2014	METHODOLOGY	methodology subc has recommended rules

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