

**Building EQ Committee  
Atlanta Winter Meeting  
January 13, 2019**

**Participants:** Bill Klock (chair), Doug Cochrane (vice-chair), Bill Dean, Charles Eley, Esteban Baccini, Chris Balbach, John Constantinide, Hywel Davies, Hugh Crowther, Bruce Hunn, Daniel Redmond, Dennis Knight (CO), Lilas Pratt (staff liaison)

**Staff:** Jim Scarborough, Jeremy Pollack

**Guests:** Darryl Boyce, Stephen Roth, Michael Deru, David Handiwork, Walter Lenzi, Florentino Roson, Yash Shukla, Clayton Miller, Art Geisler, Steve Kavanaugh, Gerald Kettler, Martin Weiland, Francisco Gomez.

**Principal Motions<sup>1</sup>**

**Motion #1:** John Constantinide moved and Bill Dean seconded that Building EQ Committee approve the meeting minutes from the November 13 web meeting.

**Vote:** Motion passed 6-0-1 CNV (Hywel Davis abstained as he did not attend the meeting)

**Motion #2:** Charles Eley moved and Chris Balbach seconded that Building EQ authorize the contractor for 1771-RP to share the three new models (worship, service, and university) with DOE for prototype use.

**Vote:** Motion passed 7-0-0, CNV

**Motion #3:** John Constantinide moved and Esteban Baccini seconded that this committee approve the Building EQ/LEED OM v4.1 proposal and for John Constantinide to approach USGBC, on behalf of the committee, to request that USGBC incorporate this proposal into LEED O&M v4.1.

**Vote:** Motion passed 7-0-0, CNV

**Motion #4:** Esteban Baccini moved and John Constantinide seconded that ASHRAE initiate the currency designation now.

**Vote:** Motion passed 7-0-0, CNV

**New and Open Action Items**

**January 24, 2019 Atlanta Winter Meeting**

- **AI 1: Lilas Pratt** to contact Montana University regarding ASHRAE use of their one hour course.
- **AI 2: Lilas Pratt** to scope out the Standard 211 alignment requirements so as to get a quote from Stephen Roth by February 15, 2019. (Note: Quote received on February 15.)

**January 23, 2019 Business Development Subcommittee Meeting**

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<sup>1</sup> All votes are recorded as yes-no-abstain.

- **AI 1: Lilas Pratt** to send additional fact sheets to Daniel Redmond for outreach to Universities (Building fact sheet for the facility side). (Note: information sent)
- **AI 2: Doug Cochrane** to reach out to David Underwood (GAC Chair) to identify three opportunities to pursue for Building EQ (where NYSERDA is the first opportunity).
- **AI 3: Lilas Pratt** to develop French Portal examples (screens/reports/etc.) by March 23 for use on sales calls to Hydro Quebec.

#### January 23, 2019 Methodology Subcommittee Meeting

- **AI 1: Charles Eley** to discuss the PRM methodology with Stephen Roth.

#### November 13, 2018 Web Meeting

- **AI 1: Pratt & Klock** to pursue involvement in ASTM E50 Standard (Building Energy Performance Assessments)

#### January 21, 2018 Chicago Winter Meeting

- **AI 7: Pratt** to talk with Brendan Owens for an update on incorporating Building EQ in LEED. (*Constantinide to inquire via internal channels in USGBC*)

#### June 25, 2017 Long Beach Annual Meeting

- **AI 6: Methodology** to look at how to address Data Centers and using PUEs. **On-hold**

### Meeting Minutes

1. Call to Order – **Meeting convened at 8:30am EST**
  - a. Introductions
2. Review of Agenda (Klock)
  - Discussion of the LEED Proposal was added to the agenda.
3. Report from the Chair
  - a. Report on Grassroots Liaison activity
    - Bill Klock reported that he, Doug Cochrane, and Hugh Crowther visited four grassroots committees (GAC, CTTC, YEA, and Student Activities) on Saturday morning and received a great reception from all four committees.
    - One item that came from the meetings is that NYSERDA has shown interest in Building EQ.
    - There are several DL's for Building EQ and they are in good demand.
  - b. Web Portal Updates
    - Live Portal Demo – Sunday, 1/13 at 3pm-4pm (GWCC, Room A404)
4. Report from the President Elect (Boyce)
  - Darryl Boyce reported that his theme will focus on building operations and that Building EQ is an important tool to help with that. He noted that there is real interest in a tool like this that doesn't just benchmark, but also puts buildings into an action mode for improvements.

- There has been some concern due to the discussion of budgets, but those discussions are really about good use of resources and if ASHRAE has programs that are effective, they need to be supported.
  - In discussions with some organizations, such as NRCAN, who have decided to adopt Energy Star for benchmarking, when ASHRAE suggests that they consider Building EQ, they ask for a business case as to why they should use it.
  - ASHRAE will continue to work with APPA to promote and effectively use the Building EQ program in higher education.
  - ASHRAE will also be meeting with BOMA and APPA this week.
5. Report from the Coordinating Officer
- Dennis Knight congratulated the committee on their hard work and the way that the committee is moving the program forward and making effective use of volunteer time.
  - Society leadership is softening the budgeting message somewhat and focusing more on evaluating operations and finding the most cost effective way to get things done.
  - Building EQ committee will get a spreadsheet to fill out and should fill it in with realistic numbers moving forward.
  - ExCom agrees that this is a great program that is spreading ASHRAE's message and mission to the industry and the market.
6. Old Business
- a. Approval of minutes
    - November 13 web meeting (File: [bEQ\\_13Nov2018\\_MtgMinutes\\_Draft.pdf](#))

**Motion #1:** John Constantinide moved and Bill Dean seconded that Building EQ Committee approve the meeting minutes from the November 13 web meeting.

**Vote:** Motion passed 6-0-1 CNV (Hywel Davis abstained as he did not attend the meeting)

- b. Review of [Action Items](#)
- c. Building EQ University Course update
  - The Professional Development committee is trying to determine how best to move forward with the Building EQ University course. The course materials continue to be downloaded and indications are that the materials are being used at various universities.
  - One question is who "owns" the content of the course in terms of maintaining and updating the content. The committee agreed that the Building EQ committee needs to take ownership and that review/update of the content needs to be part of the committee's regular duties.
  - David Handwork (from the APPA BOD) noted that APPA wants to continue the relationship with ASHRAE/Building EQ, get the students involved, benchmark campus buildings, and update those assessments regularly.
  - Feedback from Arkansas University is that they are having a hard time bringing a 3-hour course into the curriculum. Having one hour "guest" lecturer or a one hour course would be a great add to the Building EQ University offerings.
  - Montana State has developed a 1-hour version of the course. The committee would like to request a copy of that course.

- There has also been at least one request for a version of the course to fit into a shorter (10 week) semester.
  - Building EQ should brand these courses as “experiential learning.”
  - It was suggested that the update of the 3-hour course and the development of a 1-hour course be proposed to Darryl Boyce’s PEAC.
- d. 1771-RP Research Project Update (
- Michael Deru reported that the first three tasks are now completed for 1771-RP (Energy Modeling of Typical Commercial Buildings in Support of the ASHRAE Building Energy Quotient Rating System).
  - Part of this work included the development of three new models. They are using those plus all the ones developed for DOE prototypes and a supermarket model.
  - The PI is now working on task 4 to adjust the median EUI’s. They have developed the methodology and come up with key variables and adjustments.
  - Task 5 is to adjust for operational tasks and should begin in Fall 2019.
  - This is a huge project with tens of thousands of simulations and is taking a little longer than expected. They have been granted a one year no-cost extension which extends the project to March 2020.
  - There has been a request make the new models (worship, service, and university) available to DOE for prototype use.

**Motion #2:** Charles Eley moved and Chris Balbach seconded that Building EQ authorize the contractor for 1771-RP to share the three new models (worship, service, and university) with DOE for prototype use.

**Vote:** Motion passed 7-0-0, CNV

- e. 1836-WS Project Update (Chris Balbach)
- Chris Balbach reported on 1836-WS (Developing a Standardized Categorization System for Energy Efficiency Measures).
  - The Research Administration Committee (RAC) voted to conditionally accept 1836-RTAR in July 2018. The Work Statement is being developed now with the expectation that the project would go to bid in the spring 2019 cycle.
  - Chris Balbach will be the chair of the PMS.
- f. ASTM E50 Standard – Building Energy Performance Assessments
- See action items.
- g. Web Portal Statistics (as of 1/4/2019)
- Total Users: 752 (632 at beginning of SY)
  - Total Projects: 362 (262 at beginning of SY)
  - Approved Projects: 22 (11 at beginning of SY)
  - Reports Purchased: 1 (\$250) (no change since beginning of SY)
  - Paid Credentials: 30 (17 at \$15 and 13 at \$25 = \$340) (27 at beginning of SY)
7. Methodology Subcommittee Report ([Attachment A](#))
- Charles Eley recapped the discussions from the Methodology Subcommittee’s January 12, 2019 meeting. Meeting notes from that meeting are shown in [Attachment A](#).

- The PRM methodology proposal for the As Designed Building EQ score was discussed.
  - Concerns raised by Bruce Hunn were addressed.
  - The next step will be to discuss this proposal with Stephen Roth to determine what would be required to implement that methodology.
  - This methodology would simplify the As Designed rating and help it gain traction.
  - There was a 22 page document on this methodology distributed this past summer.
- The subcommittee was updated on Building Sync activity.
  - Building Sync is a file exchange protocol that is still developing.
  - Chris Balbach is involved in that work and it is important for this committee to know that there is an advocate for Building EQ involved in the development of Building Sync.
  - Down the road it will be an important schema for Building EQ.
- The accommodation of licensing opportunities was discussed. This discussion was largely prompted by a request from the Argentina Green Building Council (AGBC). Several recommendations were put forth:
  - When the program is adapted for local needs, the scale should stay the same (0 as zero energy, 100 as median, etc.) even though the median baseline may not be the same as in the standard Building EQ methodology.
  - A turn of the millennium baseline should not be required, but ASHRAE may want to note the difference in the baselines and how other baselines relate to the standard Building EQ baseline
  - A standard Building EQ score should always be generated even if it doesn't show up in the licensee application, screens, or label, and even if they don't want to use it. In this way, the standard score would be in the database for all buildings.
  - ASHRAE should always have access to all the data from all licensee applications, with the acknowledgement that there might be confidentiality issues. This would not include the database that is used to create the median EUI.
  - The Business Development Subcommittee needs to look into the question as to whether the logos and labels should change for specific licensees and just how much branding change makes sense?
- The need to query the database via MySQL (structured query language) was discussed.
  - It was agreed that the first step should be to provide Lilas Pratt access to query the database.
  - Once there is a better understanding of what might be beneficial, then the committee should move to set up some standard queries for use by subscribers.

#### 8. Business Development Subcommittee Report ([Attachment B](#))

- Subcommittee's January 12, 2019 meeting. Meeting notes from that meeting are shown in [Attachment B](#).
- The various opportunities that are in the pipeline were reviewed by the Subcommittee. Hugh Crowther recapped and framed each of those opportunities in terms of the value proposition, the sales channel, and the sales force/main contact for the effort.
- The committee has identified specific target groups. Target groups include:
  - Opportunities in universities follow two primary paths: the academic side and the facilities side. These each require different tools.
  - Opportunities in public schools include the school district in Florida working that is working with a local university to enter their buildings into the Portal.
  - Institutional customers/licensee opportunities are now one group.

- The committee needs to better define the groups, come up with a value proposition, develop appropriate tools, determine the sales channel, and the best person to deliver the message.
- The targets also need to be prioritized on which should be pursued first. Realistically, the committee will only be able to adequately address two or three targets this FY.
- Each of these target groups is a campaigns and the message changes to each group/end user. Marketing can help with how the message is delivered. The committee will need to identify the conduit to deliver that message.
- The subcommittee identified five distinct campaigns to develop. These will be discussed on the next subcommittee call which will result in a set of deliverables and action items. The goal is to target the actions on those in the next 30 days.
- As these are pursued, the committee also needs to stay in touch with the ASHRAE grassroots and leverage those relationships with other organizations. It will also be important to look at the international implications, especially in India and in the Region-at-Large.
- Not aware of any fiscal impacts at his time other than use of some of the travel budget which has been allocated for these type of these uses.
- ASHRAE has a tool that helps people manage their resources, improve their performance and improve their bottom line.

## 9. New Business

### a. New Features for Building EQ Portal

- The committee discussed potential new features for the Building EQ Portal. Agreed to priorities are: Currency Designation, Standard 211 alignment, Spanish translation, and CCD/HDD automation.
- It was suggest that the translation work be started now by the chapters and the addition of that work to the Portal be put into 19-20 budget be executed at the start of that FY.

### b. LEED proposal ([Attachment C](#))

- John Constantinide explained the proposal to add Building EQ to LEED OM v4.1 which he would like to submit as a USGBC member. He would like to be able to say that ASHRAE and Building EQ support this.
- There does not seem to be anything that this body needs to do in response, unless there is a desire to get an approval by the committee for this effort.

**Motion #3:** John Constantinide moved and Esteban Baccini seconded that this committee approve the Building EQ/LEED OM v4.1 proposal and for John Constantinide to approach USGBC, on behalf of the committee, to request that USGBC incorporate this proposal into LEED O&M v4.1.

**Vote:** Motion passed 7-0-0, CNV

### c. Budget Update ([Attachment D](#))

- Very little of the promotion money has been spent to date.
- The travel money is for the Atlanta and Kansas City meetings. It usually covers an interim meeting that the committee probably won't have this year.
- These may provide money for some of the small things on the new feature list.

- It was suggested that the currency designation be initiated now as this was a low cost item that would improve the usability of the data base in future.

**Motion #4:** Esteban Baccini moved and John Constantinide seconded that ASHRAE initiate the currency designation now.

**Discussion:**

- What about the other items on the list that were deemed important by the committee?
- There would seem to be three ways to spend money right now: Standard 211 alignment, the CDD/HDD calculation, and on promotion of the program. The committee needs to hear from the Business Development Subcommittee on what is needed for promotion before pushing out one of the higher cost items.

**Vote:** Motion passed 7-0-0, CNV

10. Upcoming Meetings

- Business Development Subcommittee – TBD (Doodle Poll to be sent).
- Methodology Subcommittee – February 14, 2019

11. Adjourn – **Meeting adjourned at 11:20am EST**

## Attachment A – Methodology Subcommittee Meeting

**Saturday, January 12, 2019**

### **Methodology Subcommittee Members:**

**Available:** Charles Eley (chair), Chris Balbach, Bruce Hunn, Lilas Pratt (staff liaison)

**Not available:** Shanta Tucker

**Other Committee members:** Bill Klock, Doug Cochrane, Bill Dean, Hugh Crowther, John Constantinide, Hywel Davies, Daniel Redmond

**Guests:** Bill Artis, Nate Boyd, Clayton Miller, Yash Shukla, Edward Tsui, David Underwood, Artem Zhukov

1. Call to Order – **Meeting convened at 11:14am EST**
2. Review of Agenda (Eley)
  - No changes
3. Integration of the Building EQ As Designed rating with Standard 90.1 PRM
  - Charles Eley reviewed the previous discussions on the proposal to integrate the Building EQ As Designed rating with Standard 90.1 Performance Rating Method.
  - Benefits of the approach include:
    - Current methodology is based on a model of the candidate building which uses a set of standardized assumptions (based on COMNET) on occupancy/operational variables, but there is no way of knowing if those assumptions align with the CBECS 2003 empirical data. Switching to the PRM methodology would automatically align the candidate building with the baseline because both would be modeled and both would use the same assumptions.
    - 1771-RP (Energy Modeling of Typical Commercial Buildings in Support of the ASHRAE Building Energy Quotient Rating System) is on-going and one of the goals was to find a set of modeling assumptions that align with CBECS 2003.
    - The PRM method is now used in LEED.
    - Because tools have been created in the marketplace for the 90.1 PRM methodology, this would simplify the use of the As Designed rating.
    - The same workflow could be used for code compliance, LEED points, and a Building EQ As Designed rating/submission.
  - One concern is that with the PRM methodology, the assumptions would vary from building to building making it more difficult to compare two buildings with different operations. Charles Eley developed an adjustment for each prototype building to have a standard unregulated EUI in order to address this concern.
  - Bruce Hunn related his concerns about this proposal due to the change in the baseline from CBECS to this new methodology (which would essentially use 90.1-2014 as a baseline).
  - Bruce Hunn also noted that all methodologies have some level of uncertainty and that he would therefore want to see this as an alternative rather than a replacement. Unfortunately, having two alternatives might open the program up to gaming.

- The PRM methodology might actually be easier to check that the submitter has done the project correctly (calculations) because you could make them specify the software used.
- This methodology is not ready to implement yet. Next steps include:
  - Charles Eley to talk with Stephen Roth about the approach.
  - Run an existing As Designed project both ways to see how different the results are.

#### 4. BuildingSync Update

- Chris Balbach reported that money allocated by DOE for improving building schema for BuildingSync is moving forward.
- Some tasks are needed including:
  - Synchronizing the NYC Level 2 audit template with Building Sync
  - Aligning BuildingSync with XML
  - Testing Building EQ link to Building Sync.
- Chris Balbach will be working on the Building EQ testing specifically and will coordinate with Stephen Roth as needed.
- This work will help align auditing tools and Building EQ with other programs.
- Chris Balbach will provide a status update on the next Methodology Subcommittee call.
- The next major update/demo on this will be forthcoming in the next six months.

#### 5. Accommodating Licensee requests

- Several licensing opportunities have materialized including Argentina Green Building Council (AGBC) and a utility in Michigan.
- AGBC wants to develop their own methodology for calculating the baseline using a database of local buildings and a specific set of variables. It is unclear whether or not they plan to do this on their own or have it developed by ASHRAE.
- Recommendations from the December Web Meeting on these requests are that Building EQ Committee should:
  - Maintain the same scale (0 as zero energy, 100 as median, etc.).
  - Not require a turn of the millennium **baseline** (but may want to note the difference in the baselines and how other baselines relate to standard Building EQ baseline)
  - Always generate the standard Building EQ score even if that doesn't show up on the licensee application, screens, or label.
  - Always include access to all the data from all licensee applications in the main Building EQ Portal (after accounting for any privacy concerns).
- It was also agreed that the Business Development Subcommittee needs to look into the question as to whether the logos and labels should change for specific licensees and if yes, how much branding change makes sense.

#### 6. Scope for Querying the Database

- The database is getting larger and is starting to approach the point where there might be some useful data that could be mined by ASHRAE and/or others.
- Eventually, ASHRAE will want to be able to offer subscribers the ability to mine the data in aggregate (without identifying individual sites).
- All the data is in MySQL (standard query language). Anyone conversant in SQL would be able to query that information. Currently, only the developer has access into the Portal database to do that.

- The first step in this process might be to provide the ASHRAE Super Admin (Lilas Pratt) access to the database along with instruction on basic MySQL queries.
- Down the road, the suggestion is to create some standard queries for subscribers to choose from, which would allow ASHRAE to protect confidential information.
- GAC asked about having a demo project(s) that can be viewed
- Making projects visible would require some sort of check box where the user would agree to allow their data to be seen publically.
- The committee agreed that querying should include both programs (AD and IO).
- It was noted that information in the database are self-selected data which should be noted and understood by users of that data.
- One question is how big does the database need to be in order to be valuable (or statistically relevant)? The suggestion is that between 700 and 1000 projects would be needed. The database has close to 400 projects after one year.

#### 7. New Feature Priorities

- The subcommittee discussed the projects on the new features list and voted on their top two projects out of the five already quoted projects. The results of this strawman were:
  - CDD/HDD Auto Calculation – 4 votes
  - Spanish Translation – 4 votes
  - Auto reminders – 2 votes
  - Currency Designation – 0 votes
  - Translation Tool – 0 votes

#### 8. 1771-RP Research Project Update

- Michael Deru updated the subcommittee on the progress of 1771-RP (Energy Modeling of Typical Commercial Buildings in Support of the ASHRAE Building Energy Quotient Rating System).
- The Principle Investigator (PI), Wangda Zuo has requested that three building models developed for the project (service, worship, and university) be made publicly available, specifically for use by DOE in their prototype models for 90.1 determination.
- As the cognizant committee, Building EQ would need to approve this action.
- The subcommittee agreed that this would be fine and will bring a motion for vote at the main committee meeting.

#### 9. New Business (Eley)

- a. Building EQ for LEED v4.1 points
  - This will be discussed in the main committee meeting on Sunday.

#### 10. Adjourn – **Meeting adjourned at 12:50pm EST**

[Return to top](#)

## Attachment B – Business Development Subcommittee Meeting

**Saturday, January 12, 2019**

### **Business Development Subcommittee Members:**

**Available:** Bill Dean (chair), Esteban Baccini, John Constantine, Hywel Davies, Hugh Crowther, Daniel Redmond, Lilas Pratt (staff liaison)

**Other Committee members:** Bill Klock, Doug Cochrane, Charles Eley, Chris Balbach, Bruce Hunn

**Guests:** Jinew Adenwala, Bill Artis, Billy Austin, Sam Bernstel, Andy Manos, Clayton Miller, Dave Palty, David Underwood,

1. Call to Order – **Meeting convened at 1:24pm EST**
2. Review of Agenda
  - No changes.
3. Grassroots Building Energy Audits
  - Bill Klock reported that the Building EQ Leadership visited GAC, CTTC, YEA, and Student Activities committee meetings on Saturday morning. A positive reception was received from all four groups.
  - Bill Artis (Long Island chapter and Region 1 GAC chair) noted that he was working with NYSERDA and a New Jersey utility. Both organizations have funding opportunities and requirements for benchmarking and energy audits. The goal is get them to standardize around Standard 211 and Building EQ. Programs in process include:
    - Engineers Week where a DL will present on Building EQ.
    - Buildings New York which is focused on property managers.
    - Program called “Beyond Benchmarking” which includes working with IFMA.
    - Getting them to use Building EQ as a change agent to improve their buildings
4. College and University Campus Engagement
  - Interaction with APPA which includes connecting ASHRAE and APPA through Sheila’s living labs initiative.
  - Carleton University is working on entering their campus buildings into Building EQ.
  - University of Central Florida is working on entering their campus buildings into Building EQ. Twelve buildings have been submitted and approved to date.
  - A message to Universities should include the following points:
    - Building EQ is a program to tie into their academic program and allow students to participate
    - The In Operation assessment process is tied to an ASHRAE Level 1 energy audit in a structured way,
    - All the building data is in a single database and the Portal allows them to manage a portfolio/campus of buildings
    - The Portal has university oriented technical tools (labs, multi-use properties, central plants)
    - Benefits to universities include student involvement and improved energy performance of their buildings.

- Possible Case studies include the article by Nate Boyd on UCF and the success story from Montana University. It is worth trying to get a few paragraph on these and then decide how to distribute that information.
- In summary: the committee needs a way to tell the story and leverage the information on the benefits of Building EQ on their campuses. Actions include: update the web pages, create case studies, find these customers, and identify the sales force.

## 5. Public School Opportunities

- Brevard County School district has signed off to use Building EQ instead of Energy Star in order to do energy audits which also meets state law for energy audits on new or renovated buildings.
- Building EQ is a score that they can report and then show how they can improve. Energy Star is a pass/fail and voters don't like to hear "fail." Building EQ allows them to look at where they are and at where they can go.
- The school is working with Florida Institute of Technology (FIT) student branch to do energy audits and also enter historical data via the copy project feature for four pilot projects (1-high school, 2-middle schools, and 1-elementary school).
- Brevard County Schools liked the fact that Building EQ is reliable and non-judgmental, and it has the image of availability.
- FIT likes it as a training tool for students and because it is cost effective.
- Value propositions include: multi-use and central plants, portfolio tool, reliability, ASHRAE 3<sup>rd</sup> party, cost effectiveness.
- The best channel to this market is probably through the chapter network.

## 6. Institutional Customers / Licensee Program Opportunities

- Argentina Green Building Council (AGBC)
  - Three meetings to date between AGBC and ASHRAE/ Building EQ.
  - Esteban Baccini forwarded a work statement request from AGBC.
  - They are requesting a proposal/quote from ASHRAE /Building EQ so they can evaluate against another company (competitor).
  - There are a few technical questions on the proposal that need to be answered in order to get a price.
- District of Columbia City
  - Jim Scarborough is coordinating with the city on both this as well as in regards to a zero energy standard. Doug Cochrane will be the Building EQ contact for this effort.
  - A webinar has been suggested to provide a demonstration of the Portal.
  - Benefits: The portfolio feature and the fact that the Portal is customizable. Building EQ can set up "sales calls" to meet with them. The selling channel is GAC.
- NYSERDA
  - Potential opportunities are detailed above in the Grass Roots discussion.
  - Bill Artis is driving this effort.
- Michigan Utility
  - They reached out to ASHRAE through an ASHRAE member about using Building EQ as part of their incentive programs.
  - A webinar was conducted in December to introduce the Portal to their staff.
  - ASHRAE is waiting to hear back from them.
  - Hugh Crowther is the contact on this effort.

- Canadian Government (NRCan)
  - Hydro Quebec
    - Canadian efforts are on hold until the French translation is uploaded to the Portal.
    - Ron Gagnon is the conduit to Hydro Quebec.
    - Once the translation of the input screens is completed, the committee will need to address the reports.
    - Sample screens and reports in French are needed to illustrate what it looks like.
    - There is a Regional Planning meeting on 3/23/2019.
7. Translation Opportunities
- French – Still in process, looking for completion by the end of February.
  - Spanish – On the new feature list. Before initiating, the committee would need to approve spending \$8k to add this to the Portal.
8. Other Opportunities
- Urban Land Institute (ULI) – The ASHRAE BOD is reaching out for potential partnerships and ULI is one of the organizations involved. They will be at the leadership lunch.
  - IFMA – Dick Pearson, Chuck Gulledge, and John Constantinide working with IFMA to promote energy management courses, once these become successful, Building EQ should be the logical next step.
  - AIA – Building EQ might tie into their 2030 goals.
  - Society of American Military Engineers (SAME) – John Constantinide submitted a proposal to present a session at their joint conference. The message will be that Building EQ is a tool to assist with improving energy resiliency because energy performance contributes to resiliency.
9. Additional notes
- Feedback is that Building EQ builds on Energy Star. Building EQ presents the data (performance of a building) in a simple easy to understand way.
10. Recap of potential campaigns as detailed above:
- Universities
  - Public Schools
  - Licensees
  - Build a tool kit for energy audits that includes the standard, certification, the tool.
  - One member, one building – this is the grassroots effort.
11. Next meeting – A doodle poll will be sent out.
12. Adjourn – **Meeting adjourned at 3:00pm EST**

[Return to top](#)

## Proposal 2: Added Requirement for LEED v4.1 Building Operation and Maintenance (LEED O+M)

### Intent

The intent of this proposed added requirement for LEED v4.1 for Building Operation and Maintenance (LEED O+M) is to add the ASHRAE Building Energy Quotient (Building EQ) as a step towards completing an energy audit procedure for EA Prerequisite: Energy Efficiency Best Management Practices. The additional step is intended to assist in providing recommendations for an ASHRAE Level 1 Energy Audit or the energy audit procedure defined in EN 16247-2:2014. Moreover, Building EQ would provide an accurate score reflecting a building's energy performance based on inputs from the candidate building, analysis from ASHRAE Standard 100, and methodologies developed by the DOE national laboratories. The Building EQ score would ensure that the candidate building would still comply with ASHRAE 62.1.

### Background

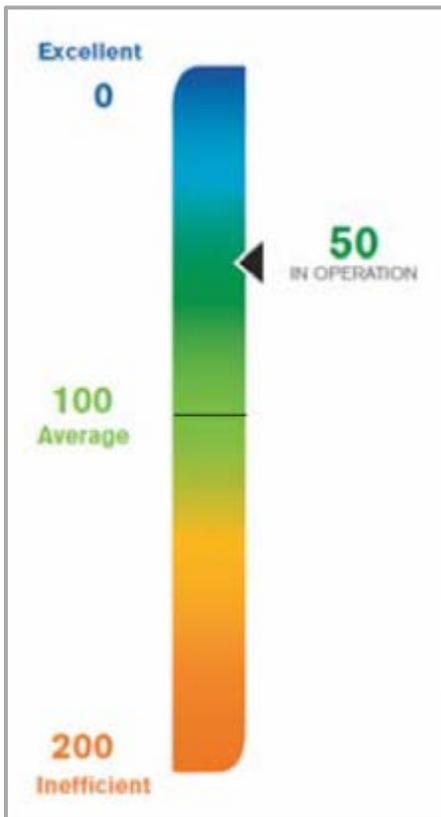
As of the LEED v4.1 Operations and Maintenance Guide, published November 2, 2018 as a Beta stage guide, LEED O+M would require that an ASHRAE preliminary energy use analysis and an ASHRAE Level 1 Energy Audit, or an energy audit procedure defined in EN 16247-2:2014 is required to meet EA Prerequisite: Energy Efficiency Best Management Practice.

The ASHRAE Building EQ In Operation score assists the energy audit process through an evaluation of building energy performance by benchmarking against the median performance of existing US buildings of similar building use, normalized by climate and occupancy. The methodology used in the Building EQ system to establish the benchmarks are based on those of ANSI/ASHRAE/IES Standard 100-2015 Energy Efficiency in Existing Buildings using methodologies developed at Oak Ridge National Laboratory (ORNL)<sup>2</sup>. Note that, while Standard 100 uses site energy for benchmarking, the Building EQ ratings are based on source energy using national average source/site conversion factors. The Building EQ benchmarks include median source energy use intensity (EUI) values for forty-eight (48) commercial building types, plus high-rise residential, using data from the 2003 Commercial Building Energy Consumption Survey (CBECS) using the standard Principal Building Activity (PBA) and PBA Plus building types. The ORNL work disaggregated the national EUI values into separate values for each of sixteen climate zones and three classes of building operating hours using simulation results from prototypical and reference commercial building energy models developed by the National Renewable Energy Laboratory and Pacific Northwest National Laboratory.

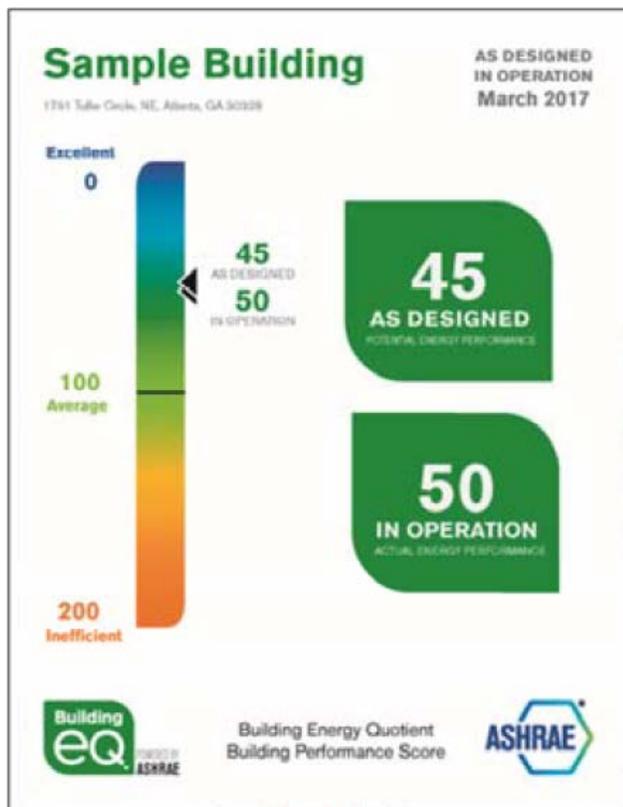
The Building EQ system provides a numerical score. The Building EQ score is calculated as the ratio of the measured source EUI, recognizing on-site renewable energy, and the median source EUI of similar buildings, normalized for climate and operating hours, multiplied by 100. In other words, a typical existing building with median performance would receive a score of 100. A building that uses 25% less source energy than the median would have a Building EQ score of 75. A net zero energy building would have a Building EQ score of 0. Examples of the score and label are provided in Figures 1 and 2.

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<sup>2</sup> Sharp, T.R. 2014. Derivation of building energy use intensity targets for ASHRAE Standard 100. ORNL/TM-2004/215, Oak Ridge National Laboratory.  
<http://info.ornl.gov/sites/publications/files/Pub49965.pdf>



**Figure 1.** Building EQ In Operation Scale



**Figure 2.** Building EQ Label with As Designed and In Operation Scores

Utilizing the Building EQ In Operation procedure also provides recommendations that may be utilized in an ASHRAE Level 1 walk-through assessment or an energy audit procedure defined in EN 16247-2:2014, which is currently the compliance path for EA Prerequisite: Energy Efficiency Best Management Practices. Furthermore, the Building EQ In Operation procedure provides an option for the project team to pay a nominal fee to the Building EQ for an audit narrative report. ASHRAE Building EQ may be utilized for projects within and outside of the United States. For projects outside the U.S., consult ANSI/ASHRAE/IESNA Standard 90.1-2010, Appendices B and D, to determine the appropriate climate zone.

### **Proposed Additional Requirement**

It is proposed that an additional requirement be added to the Requirements and Guidance sections of the EA Prerequisite: Energy Efficiency Best Management Practices. The proposed text for the LEED O+M Guide is underlined as follows.

#### ***EA Prerequisite: Energy Efficiency Best Management Practices Requirements***

Conduct an ASHRAE Building EQ In Operation procedure that assists with an energy audit that meets both the requirements of the ASHRAE preliminary energy use analysis and an ASHRAE Level 1 walk-through assessment identified in the ASHRAE Procedures for Commercial Building Energy Audits or equivalent. Projects in Europe may use the energy audit procedure defined in EN 16247-2:2014.

Prepare and maintain a current facilities requirements and operations and maintenance plan that contains the information necessary to operate the project efficiently. The plan must include the following:

- a current sequence of operations for the building;
- the project occupancy schedule;
- equipment run-time schedules;
- setpoints for all HVAC equipment;

- setpoints for lighting levels throughout the project;
- minimum outside air requirements;
- any changes in schedules or setpoints for different seasons, days of the week, and times of day;
- a systems narrative describing the mechanical and electrical systems and equipment in the project; and
- a preventive maintenance plan for equipment described in the systems narrative.

#### Data Centers

Use the U.S. Department of Energy's DC PRO Profiling Tool to perform a preliminary assessment of energy consumption in data center spaces for critical systems.

#### **Guidance**

The credit requirements are similar to LEED v4. Follow the guidance in the LEED v4 reference guide.

##### Required Documentation

- ASHRAE Building EQ Score Sheet
- Audit date
- ASHRAE preliminary energy use analysis and ASHRAE Level 1 audit summary
- Current facility requirements (CFR) and operations and maintenance plan (OMP) or an excerpt thereof
- For data centers, preliminary assessment results from the DC Pro Profiling Tool

[Return to top](#)

# Attachment D – Budget Update

Updated Dec 18, 2018

## BUILDING EQ BUDGET - STATUS UPDATE

	Prior Year		Last Year		Current Year		Future Years			Comments
	Actual 16-17	Actual 17-18	Actual 17-18	Actual 17-18	Jul-Nov 18-19	Budget 18-19	Budget 19-20	Budget 20-21	Budget 20-21	
Expenses										
Salaries	\$45,000	\$54,600	\$54,600	\$45,200	\$22,700	\$45,200	\$47,400	\$48,400	\$50,800	Based on Salary allocation
Payroll Taxes & Benefits	\$11,800	\$15,300	\$15,300	\$13,400	\$6,400	\$13,400	\$14,200	\$14,600	\$15,300	Based on Salary allocation
Promotion <sup>1</sup>	\$27,900	\$3,900	\$3,900	\$10,000	\$0	\$10,000	\$10,000	\$10,200	\$10,700	Brochures and other publicity efforts
Transportation for Members	\$15,100	\$14,700	\$14,700	\$15,000	\$0	\$15,000	\$15,000	\$15,000	\$15,800	
Travel for Promotion of bEQ				\$6,000		\$6,000				Travel cost reimbursement for committee travel to support/promote Building EQ program.
Travel Staff	\$1,000	\$400	\$400	\$500	\$0	\$500	\$500	\$500	\$500	Had not previously been in budget, but roughly 1/2 of staff liaison travel to winter/annual meetings is charged to this committee
Telephone & Communications	\$400	\$200	\$200	\$500	\$0	\$500	\$500	\$500	\$500	Committee has switched to primarily using GoToMeeting rather than Intercall.
Development	\$0	\$8,000	\$8,000	\$14,000	\$13,000	\$14,000	\$30,000	\$30,600	\$32,100	Covers adjustments/enhancements to Portal Some enhancements will be required to allow access to the database by subscribers/users.
Outside Services <sup>2</sup>	\$0	\$13,300	\$13,300	\$11,600	\$5,400	\$11,600	\$12,800	\$14,000	\$14,700	2018 Portal hosting = \$600/yr 2018 Portal maintenance = \$10,500/yr Increased traffic to site will increase costs
Opportunity Funds	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Depreciation Expense	\$0	\$1,500	\$1,500	\$65,000	\$16,700	\$65,000	\$65,000	\$32,500	\$34,100	Portal capital expenditure
<b>Totals</b>	<b>\$101,200</b>	<b>\$111,900</b>	<b>\$111,900</b>	<b>\$181,200</b>	<b>\$64,200</b>	<b>\$181,200</b>	<b>\$195,400</b>	<b>\$166,300</b>	<b>\$174,500</b>	

Notes:

<sup>1</sup>The signage for the Portal Demo will cost \$200 -- invoicing has not yet been received.

<sup>2</sup>An additional payment of \$5950 is being processed to cover maintenance and hosting through the end of the 2018-19 SY, making total for this line = \$10,750