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)

Incoming members: Rob Risley, David Underwood

Staff: Caroline Sevier

Guests: Stephen Roth, Ross Montgomery, Gerald Kettler, Jake Kopocis, Amy Gupta, Nate Boyd

Principal Motions

Motion #1: Bill Dean moved and Chris Balbach seconded that the meeting minutes from Jan 13, 2019 be approved.

Vote: Motion passed with unanimous voice vote (7-0-0, CNV)

New and Open Action Items

June 23 Kansas City Annual Meeting

✓ **Al 1:** Caroline Sevier to send a copy of Dave Palty’s subcommittee report to GAC to Lilas Pratt for distribution to Bill Klock and Doug Cochrane. (Note: report sent on 6/23/2019)

✓ **Al 2:** Lilas Pratt to contact Michael Deru and ask for an update on 1771-RP that can be distributed to the committee. (Note: email sent on 7/24/2019)

• **Al 3:** Doug Cochrane to visit Members Council to ask about a YEA liaison to Building EQ

✓ **Al 4:** Lilas Pratt to set up the ExCom call for the upcoming SY for Friday’s at 11am Eastern Time.

✓ **Al 5:** Lilas Pratt to set up the monthly Methodology Subcommittee call for the upcoming SY for the 2nd Thursday at 11am Eastern time.

June 22 Business Development Subcommittee Meeting

✓ **Al 1:** Lilas Pratt to update presentation based on meeting notes and send to committee by July 15 (Note: Presentation sent on 7/17/2019).

• **Al 2:** Doug Cochrane to send out the new presentation to the DL’s the week of July 15

• **Al 3:** Hugh Crowther to create short recordings of the presentation in 3 to 4 chunks to be posted by July 19.

• **Al 4:** John Constantinide to provide a name to Lilas Pratt for a contact on a case study/testimonial on the Brevard Public Schools project.

✓ **Al 5:** John Constantinide to work with Bruce Lindsey on seminar submission for Orlando.

• **Al 6:** Lilas Pratt to reach out to ASE to get more information on their Blog requirements.

✓ **Al 7:** John Constantinide to contact Nate Boyd about a case study and/or a seminar presentation from UCF.

1 All votes are recorded as yes-no-abstain.
• **AI 8:** Hugh Crowther to do the first draft of a university focused presentation by the August Business Development Subcommittee call.

• **AI 9:** Hugh Crowther and Esteban Baccini (with Lilas Pratt) to put together a preliminary proposal for AGBC to be reviewed by Methodology for accuracy/reality. A call will be scheduled in August.

• **AI 10:** David Underwood to follow up with NRCan regarding interest in the Portal.

• **AI 11:** Lilas Pratt to reach out to Glenn Remington on the status of the Michigan utility interest in the Portal.

• **AI 12:** Lilas Pratt to reach out to Alice Yates on the status of the Washington DC opportunity.

• **AI 13:** Committee to reach out to energy modeling players (LEED/final design players and schematic design players) including TC 4.7 to determine how Building EQ As Designed might work with existing modeling tools.

### June 22 Methodology Subcommittee Meeting

• **AI 1:** Charles Eley to do a comparison of the effect of a multiplier change on Building EQ scores.

### January 13, 2019 Atlanta Winter Meeting

• **AI 1:** Lilas Pratt to contact Montana University regarding ASHRAE use of their one hour course. **On-going**

### January 12, 2019 Business Development Subcommittee Meeting

• **AI 3:** Lilas Pratt to develop French Portal examples (screens/reports/etc.) by March 23 for use on sales calls to Hydro Quebec. **On-going**

### 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 CDT**
   a. Introductions

2. Review of Agenda (Bill Klock)

3. Report from the Chair (Bill Klock)
   • Bill Klock and Doug Cochrane reported on their meeting with the Government Affairs Committee (GAC) at the ASHRAE Annual Meeting. GAC remains an excellent resource for promoting Building EQ.
   • Bill Klock also reported on the status of the Portal translations. The French translation of the Portal is complete and is live and ready for use. The next step will be to update the reports starting with the label report and the Narrative audit report. The Spanish translation has been initiated and is in process.

4. Report from the Coordinating Officer
The ExO presentation will be sent out with the meeting notes and will be posted on Basecamp (File: FINAL_06112019_ExO Presentation 2019 Annual.pdf)

Dennis Knight stressed to the committee that he is the committee’s voice to the BOD and that he will continue to support the committee to the BOD.

There is a new strategic plan and the committee is encouraged to look at how Building EQ can support the plan and how the committee can align their activities and the Building EQ portal with the goals in the plan.

5. Old Business (Klock)
   a. Approval of minutes
      - January 13, 2019 web meeting (File: bEQ_13Jan2019_MtgMinutesDraft.pdf)

Motion #1: Bill Dean moved and Chris Balbach seconded that the meeting minutes from Jan 13, 2019 be approved.
Vote: Motion passed with unanimous voice vote (7-0-0, CNV)

b. Review of Action Items

c. 1771-RP Research Project Update (Michael Deru)
   - Chris Balbach reported that the project is on schedule and the contractor expects there will be another meeting with the PMS in about a month.

d. Work Statement for 1836-RP Project Update (Chris Balbach)
   - This project is to develop standardized EEM descriptions.
   - The RFP was sent out and there were 7 responsive bidders. TC 7.6 recommended a bidder for selection which will be voted on this meeting.
   - Chris Balbach will be PMS chair.
   - Building EQ is a co-sponsor so the committee can have member on the PMS if desired.

e. Alignment with ASHRAE Standard 211 Update
   - The work to fully align Building EQ with the reporting requirements for Standard 211 was broken into four phases. Phase 1 was initiated under the FY 2018-19 budget and is now underway.
   - Phase 1 includes the addition of about 20 individual fields on various accordions in the Building EQ Portal as well as the updating of the two audit reports to include these fields as part of what is auto-populated in those reports.
   - The remaining three phases of work are on the list of projects to be considered for the next several fiscal year’s budgets.

f. Purchase of reports from Portal
   - Reports are not currently being purchased from the Portal. There have not been a lot of submissions (roughly 20 to date), so the universe of who could purchase the reports is still fairly small.
   - The Committee will want to discuss how to get the word out on these reports as increasing the desire and use of the reports should also increase submissions.
   - One suggestion to make people more aware is to create a user tip on the reports and to provide better example on the website.
• It would also be helpful to determine why people aren’t using the reports. Possible explanations include;
  □ They not doing audits (and therefore don’t need an audit report)
  □ The reports don’t fill the user’s needs for an audit
  □ The users are not aware of the reports
  □ Some other reason

g. Web Portal Statistics (as of 6/21/2019)
• Total Users: 882 (632 at beginning of SY)
• Projects: 505 (262 at beginning of SY)
• Submitted/Approved projects: 30/28 (11 at beginning of SY)
• Reports Purchased: 1 ($250) (no change since beginning of SY)
• Paid Credentials: 33 (21 at $15 and 14 at $25 = $665) (27 at beginning of SY)

6. Methodology Subcommittee Report (Attachment A)
• Charles Eley recapped the discussion from the Methodology Subcommittee. Details of the discussions are shown in Attachment A.
• Topics covered by the committee include:
  □ Site source multipliers – reduction in electricity factor from 3.14 to 2.8 (EPA) or 2.64 (189.1) and the use of e-grid subregions.
  □ BuildingSync – XML schema for data transfer. Allows for output or input of data files form one application to another. In Building EQ case, it would be inputting data from another source into the Portal. Chris Balbach is a contactor NREL (who manages BuildingSync) to demonstrate use cases for BuildingSync. Building EQ is one of the use cases in that project.
  □ PRM Methodology for As Designed Rating – Charles Eley made a short slide presentation on the proposed methodology as shown in Attachment B.

• Bill Dean recapped the discussion from the Business Development Subcommittee. Details of the discussion are shown in Attachment B.
• Topics covered by the committee included:
  □ A review of the member oriented presentation.
  □ Highlighting Building EQ as a member benefit and utilizing GAC and other ASHRAE grassroots groups to help promote the Portal.
  □ Developing a case study for the Brevard Public Schools Building EQ initiative
  □ Reviewing the University focused work
  □ Reviewing the market feasibility of several items discussed by the Methodology Subcommittee

8. New Business
• Budget Update (Attachment A) – the committee is waiting on final approval of the budget by the BOD to know what their budget will be for next year.
• Grassroots committees connections – YEA would like to have a stronger connection with Building EQ. Adding an official liaison was discussed.

9. Closing Comments (Bill Klock)
- Bill Klock thanked the committee everything done this year to move the ball forward.

10. Incoming Chair (Doug Cochrane)
- Doug Cochrane thanked Bill Klock for his leadership this past year.
- He also detailed the planned subcommittees for the upcoming year.
  - Methodology: Balbach (chair), Eley, Underwood, Hunn, Tucker
  - Business Dev: Risley (chair), Crowther, Baccini, Redmond
  - ExCom: Cochrane, Constantinide, Risley, Balbach
- In order to ensure that the committee has documentation of the details of the Buidling EQ program operation and calculations, Lilas Pratt agreed to create a framework (on paper) of the methodology and let Charles fill in additional details from that.

11. Upcoming Meetings
- Subcommittee meetings TBD
- Training webinar for new members, existing members, GAC members TBD

12. Adjourn – **Meeting adjourned at 11:15am CDT**
Saturday, June 22, 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, Hugh Crowther, John Constantinide, Esteban Baccini

**Guests:** Billy Austin, Marcus Myers, Mohamed Osman

1. **Call to Order** – *Meeting convened at 11:05am CDT*

2. **Site-Source Energy conversion factors**
   - Building EQ uses source energy and has been using a site-source multiplier of 3.145 for electricity. Revisions are being proposed to this multiplier. EPA has already changed their multiplier to 2.8, and Standard 189.1 has just completed a public review of a change to 2.64. In addition, EPA divides the country into roughly 26 e-grid subregions, so Standard 189.1 has calculated a separate multiplier for each sub-grid.
   - The numbers are getting lower due to a methodology change in how non-combustible energy generators are calculated. Previous methods assumed the energy to produce energy is the same as a fossil fuel plant which is not realistic.
   - EPA moved to a source site multiplier of 1 for non-combustible energy sources – this assumes that the input energy is the same as the output energy. Standard 189.1 has gone one step further and assumed that the input energy is 0.
   - The question is whether or not Building EQ should make a similar change. Any change to the multiplier would affect all projects in the system even those that have been submitted and approved. Because the multiplier used in the Building EQ Portal are the same for both then numerator and denominator, a change to the multiplier would not be expected to have a huge effect on the scores. However, it would be helpful to know just how big an impact a change would have. Charles Eley could do a comparison.
   - It was also agreed that feedback from Business Development SubC on the market impact of changing the multipliers would be helpful.

3. **Building Sync Update**
   - A Google Doc has been created that shows the setup of the Portal and how the fields are used and the database behind them.
   - Chris Balbach anchored the 200 elements in the Google Doc to BuildingSync. Roughly 60 of the elements are in the Building Information (e.g., contacts) section with the remaining elements sprinkled across both ratings.
   - The next step is to sit down with Lilas Pratt and Stephen Roth to determine the use case for importing data and to determine priority for the data elements.
   - Specifications are needed as to what is in the file. Initial thoughts were to prioritize modeling data over operational data.
   - Once the use case is determined and the elements will be hard coded into a public facing website where others can load elements and select a use case and test it.
   - The input is based on all required items being available. But not everything has to be required. It may make sense to make all elements optional so whatever is available can be imported.
• It was also reported that TC 7.6 now has a Building Data Exchange subcommittee that meets on Monday morning 8-10am.

4. Integration of the Building EQ As Designed rating with Standard 90.1 PRM
• This concept has been in discussion for some time and is somewhat related to the anticipated results from 1171-RP.
• PRM (performance rating method) produces a performance cost index where the baseline is a modeled building roughly equal to 90.1-2004. It is now used pretty widely and is included in both 189.1 and 90.1. It can be used for compliance with these standards and for LEED.
• The idea is to hitch Building EQ to that procedure and make it possible to calculate the As Designed rating with the work already being done for PRM. This would make it possible to use the same work flow for all these things.
• Information on the methodology for this process has been documented in both long and short form. The initial estimate came in at $13,500 to make changes to the Portal.
• Benefits of using this methodology:
  - Makes it easy to get an As Designed rating if have already done the PRM procedures (build on existing work flows),
  - Software developers are already automating PRM including OpenStudio, Trane Trace, etc.
  - Moves the comparison back to a modeled to modeled comparison, rather than trying to build an appropriate candidate building model to compare to an empirical baseline. With the PRM methodology, operational assumptions cancel each other.
  - Would still be able to compare In Operation and As Designed ratings.
• Additional considerations Include:
  - Energy data would need to be broken down by end use (to differentiate between regulated and unregulated energy).
  - In order to address the need to put different buildings on an equal footing, the current method forces that with standardized input. To address that with the new methodology, the unregulated energy is the same in both the top and bottom of the calculation with a ratio comparison between the scores.
  - The next phase of the 1771-RP should generate some data that will allow improvement of the percentages even more.
  - The only international issue would go back to the site-source issue. This methodology would likely simplify adoption in other countries.
  - This becomes even more useful once BuildingSync is working.

5. Portal Updates
• Multiple admins per account
  - The need for this request came about so that multiple people would be able to manage an account (add users, create projects, etc), but also so that they could see the “full” left hand menu in the Portal. However, a number of questions and potential issues have arisen that may be insurmountable.
  - If someone is already an account manager for their own account and they are then made an account manager on a second account, they will have access and edit ability to projects on both accounts but there will be no way to tell which projects belong to which account (the functionality for this is not in the Portal).
  - These additional admins will not be able to edit the account itself. Allowing that would create additional problems which the Portal functionality can’t overcome.
However, if the person assigned to a project is in fact an account admin for their own account, they will see the full left hand menu when they log in. And, the projects they have been assigned to by another account admin will show up in their project list. The proposed solution is to simply provide additional instruction (and perhaps a user tip) on how to best manage an account.

- Automatic reminder notes
  - Auto reminder notes need to be fleshed out more before proceeding and there is value in getting input from the Business Development Subcommittee.
  - There is some concern that reminder emails could annoy Portal users, so it might also make sense to send some manual reminders first to see how well they are received.
  - There was also some discussion about how to distinguish between real projects where a reminder would make sense and “test” projects that are unlikely to ever be completed.

6. Licensee requests – Argentina Green Building Council
   - The current climate in Argentina is not good for spending big money on new programs. In the 12 months, Argentina currency has lost about ½ of its value (100% devalue), the country is experiencing 50% inflation, and Presidential elections are coming up in October. So, everything is in stand-by mode in the country right now.
   - It still makes sense to have a conference call between ASHRAE and AGBC to work out the technical questions and get an estimate for what it would cost to accommodate the request/requirements of AGBC. The suggestion is for the Building EQ committee to put together a team to develop a proposed scope and budget to put before the committee. The goal would be to have deal closed by the winter meeting.
   - This will be discussed further by the Business Development Subcommittee.

7. Scope for Querying the Database
   - Discussion deferred.

8. BEQ sponsored 1771-RP Research Project Update
   - Discussion deferred.

9. LEED v4.1 BD&C Alternative Compliance Path Proposal
   - A proposal has been sent to USGBC by John Constantinide to include Building EQ In Operation to meet the requirement for a Standard 211 Energy Audit in the O&M section of LEED to certify or continue certification. This is now being presented to the appropriate TAC.
   - The proposal that would cover the As Designed methodology is on hold pending a possible change to the proposed PRM methodology.

10. Adjourn – Meeting adjourned at 12:39pm CDT

Return to top
**Current bEQ As-Designed Rating**

**Building EQ As Designed Score**

\[
bEQ \text{ Score} = \frac{\text{EUI Rated Building}}{\text{EUI Empirical Baseline}} \times 100
\]

- Baseline EUI is based on CBECS median for the building type, corrected for location
- Rated building uses standardized modeling inputs of building operating parameters (COMNET*)
  - Occupancy, plug and process loads, schedules, setpoints, etc.
  - Assumptions depend on building and space type
- EUIs calculated for source energy using US national site-to-source factors

* COMNET Commercial Buildings Energy Modeling Guidelines and Procedures
### Current bEQ As-Designed Rating

#### Modeling Inputs

**That Affect Rating**
- Building Envelope
- HVAC system type
- Cooling type
- Heating Type
- Service water heating
- Fuel types
- Lighting systems
- Other energy efficiency measures

**That are Neutral**
- Plug Loads
- Occupancy
- Ventilation Rates
- Processes
- Schedules – includes lights, receptacles, HVAC Operating hours, HVAC set points, domestic hot water use, refrigeration, elevators, etc.
### Appendix C - Schedules

This spreadsheet is protected. Please register in order to download the file in read-only format.

<table>
<thead>
<tr>
<th>Description</th>
<th>Task</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighting</td>
<td>Fraction</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>HVAC</td>
<td>Fraction</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Cooling</td>
<td>Fraction</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Heating</td>
<td>Fraction</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
</tr>
</tbody>
</table>

The 90.1-2016 Performance Rating Method
90.1-2016 Performance Rating Method

Proposed Design Energy Model  Baseline Building Energy Model

Same form and configuration but upgraded or downgraded to meet roughly Standard 90.1-2004
- Insulation U-factors
- Fenestration area, SHGC, and U-factor
- Lighting power and controls
- Standard HVAC system and equipment efficiencies

Charles Eley, FAIA, PE, June, 2016

90.1-2016 Performance Rating Method

Proposed Design Energy Model  Baseline Building Energy Model

Model is rotated four times and the average energy performance is used.

Charles Eley, FAIA, PE, June, 2016
The 90.1-2016 Performance Rating Method

90.1-2016 Performance Rating Method

Proposed Design Energy Model  
Baseline Building Energy Model

Both models use the same:
- Energy simulation software
- Temperature setpoints
- Hours of operation
- Plug loads
- Occupants
- etc.

Software developers are automating the entire process, including Open Studio. It is necessary to create a model only for the rated building.

---

The 90.1-2016 Performance Rating Method

Performance Rating Method Applications

LEED  
IgCC  
ASHRAE Standard 189.1

Federal Tax Incentives

Energy Code Compliance for all States

90.1-2016 Appendix G (Performance Cost Index)

Federal Buildings

Building EQ

Charles Eley, FAIA, PE, June, 2018
How it Would Work

Estimated Building EQ Score (for buildings that comply with 90.1-2016)

<table>
<thead>
<tr>
<th>Climate Zone</th>
<th>1A</th>
<th>1B</th>
<th>2A</th>
<th>2B</th>
<th>3A</th>
<th>3B</th>
<th>4A</th>
<th>4B</th>
<th>4C</th>
<th>5A</th>
<th>5B</th>
<th>5C</th>
<th>6A</th>
<th>6B</th>
<th>6C</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>ApartmentHighRise</td>
<td>0.51</td>
<td>0.53</td>
<td>0.57</td>
<td>0.58</td>
<td>0.59</td>
<td>0.59</td>
<td>0.60</td>
<td>0.60</td>
<td>0.60</td>
<td>0.60</td>
<td>0.60</td>
<td>0.60</td>
<td>0.60</td>
<td>0.60</td>
<td>0.60</td>
<td>0.60</td>
<td>0.60</td>
</tr>
<tr>
<td>ApartmentMiddleRise</td>
<td>0.58</td>
<td>0.60</td>
<td>0.63</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
</tr>
<tr>
<td>Hospital</td>
<td>0.59</td>
<td>0.62</td>
<td>0.65</td>
<td>0.66</td>
<td>0.66</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
</tr>
<tr>
<td>HotelLarge</td>
<td>0.55</td>
<td>0.58</td>
<td>0.61</td>
<td>0.62</td>
<td>0.63</td>
<td>0.63</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
</tr>
<tr>
<td>HotelSmall</td>
<td>0.57</td>
<td>0.61</td>
<td>0.64</td>
<td>0.65</td>
<td>0.66</td>
<td>0.66</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
<td>0.67</td>
</tr>
<tr>
<td>OfficeLarge</td>
<td>0.58</td>
<td>0.61</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
</tr>
<tr>
<td>OfficeMedium</td>
<td>0.60</td>
<td>0.63</td>
<td>0.66</td>
<td>0.68</td>
<td>0.68</td>
<td>0.69</td>
<td>0.70</td>
<td>0.70</td>
<td>0.70</td>
<td>0.70</td>
<td>0.70</td>
<td>0.70</td>
<td>0.70</td>
<td>0.70</td>
<td>0.70</td>
<td>0.70</td>
<td>0.70</td>
</tr>
<tr>
<td>OfficeSmall</td>
<td>0.62</td>
<td>0.65</td>
<td>0.68</td>
<td>0.70</td>
<td>0.70</td>
<td>0.70</td>
<td>0.71</td>
<td>0.71</td>
<td>0.71</td>
<td>0.71</td>
<td>0.71</td>
<td>0.71</td>
<td>0.71</td>
<td>0.71</td>
<td>0.71</td>
<td>0.71</td>
<td>0.71</td>
</tr>
<tr>
<td>OutpatientHealthCare</td>
<td>0.55</td>
<td>0.58</td>
<td>0.6</td>
<td>0.61</td>
<td>0.62</td>
<td>0.63</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
<td>0.64</td>
</tr>
<tr>
<td>RestaurantFastFood</td>
<td>0.74</td>
<td>0.76</td>
<td>0.78</td>
<td>0.79</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
</tr>
<tr>
<td>RestaurantFullService</td>
<td>0.68</td>
<td>0.70</td>
<td>0.71</td>
<td>0.72</td>
<td>0.72</td>
<td>0.72</td>
<td>0.72</td>
<td>0.72</td>
<td>0.72</td>
<td>0.72</td>
<td>0.72</td>
<td>0.72</td>
<td>0.72</td>
<td>0.72</td>
<td>0.72</td>
<td>0.72</td>
<td>0.72</td>
</tr>
<tr>
<td>RetailSpecialty</td>
<td>0.69</td>
<td>0.72</td>
<td>0.73</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
<td>0.74</td>
</tr>
<tr>
<td>RetailStripmall</td>
<td>0.30</td>
<td>0.36</td>
<td>0.38</td>
<td>0.39</td>
<td>0.40</td>
<td>0.40</td>
<td>0.41</td>
<td>0.41</td>
<td>0.41</td>
<td>0.41</td>
<td>0.41</td>
<td>0.41</td>
<td>0.41</td>
<td>0.41</td>
<td>0.41</td>
<td>0.41</td>
<td>0.41</td>
</tr>
<tr>
<td>SchoolPrimary</td>
<td>0.35</td>
<td>0.38</td>
<td>0.41</td>
<td>0.43</td>
<td>0.44</td>
<td>0.44</td>
<td>0.44</td>
<td>0.44</td>
<td>0.44</td>
<td>0.44</td>
<td>0.44</td>
<td>0.44</td>
<td>0.44</td>
<td>0.44</td>
<td>0.44</td>
<td>0.44</td>
<td>0.44</td>
</tr>
<tr>
<td>SchoolSecondary</td>
<td>0.32</td>
<td>0.36</td>
<td>0.39</td>
<td>0.42</td>
<td>0.43</td>
<td>0.44</td>
<td>0.45</td>
<td>0.45</td>
<td>0.45</td>
<td>0.45</td>
<td>0.45</td>
<td>0.45</td>
<td>0.45</td>
<td>0.45</td>
<td>0.45</td>
<td>0.45</td>
<td>0.45</td>
</tr>
<tr>
<td>Warehouse</td>
<td>0.48</td>
<td>0.51</td>
<td>0.54</td>
<td>0.56</td>
<td>0.56</td>
<td>0.56</td>
<td>0.57</td>
<td>0.57</td>
<td>0.57</td>
<td>0.57</td>
<td>0.57</td>
<td>0.57</td>
<td>0.57</td>
<td>0.57</td>
<td>0.57</td>
<td>0.57</td>
<td>0.57</td>
</tr>
</tbody>
</table>

Notes:
1. There may be some discrepancies between the ENERGY modeling outputs and those used in the PHALE green building code.
2. The OfficeLarge prototype has a data center that could be taken out by the Building EQ modeling rules.
3. Scores are lower in colder climates, indicating that the Standard 90.1-2016 insulation requirements are more effective in these climates.

Charles Erley, FAIA, PE, June, 2016
Questions and Discussion

Benefits
- Easy to get Building EQ As-Designed rating for buildings that are already using the PRM method for code compliance, LEED points, etc. Larger market.
- Software developers are automating the PRM process.
- The challenge of finding a set of operating conditions that matches the CBECs 2003 empirical data goes away.
  - Plug loads
  - Schedules
  - Ventilation rates
  - etc.

Drawbacks
- The web portal will need to be updated, along with other materials.
- Electricity, gas, etc. will need to be entered for both the rated building and the standard design building.

Questions
- Useful input from RP-1771?
- Timing?
Saturday, June 22, 2019

Business Development Subcommittee Members:
Available: Bill Dean (chair), Esteban Baccini, John Constantinide, Hywel Davies, Hugh Crowther, Lilas Pratt (staff liaison)
Not Available: Daniel Redmond
Other Committee members: Bill Klock, Doug Cochrane, Charles Eley, Chris Balbach, Bruce Hunn
Guests: Billy Austin, Ron, Gagnon, David Underwood,

1. Call to Order – Meeting convened at 1:17pm CDT
   a. Introductions

2. Review of Action Items (Dean)
   • GAC has a number of initiatives. Doug Cochrane asked them to provide a liaison to Building EQ. They have recommended Ross Montgomery.

3. ASHRAE Member/Building Energy Audits Campaign
   • Review of Member Oriented Presentation
     □ The presentation will fill a roughly a 30 to 40 minute slot
     □ Hywel Davis will provide updated information on global efforts
     □ Chris Balbach will provide bullet points on the DOE Asset Score and Modeling tools for the slide that compares Building EQ to other tools.
     □ Lilas Pratt will update time estimate information to specify time needed to enter information into the Portal versus time needed for the full assessment.
     □ Lilas Pratt to add some general notes explain what BuildingSync is.
     □ Lilas Pratt will change “on-line tool” to “Portal” in the presentation as appropriate
     □ Lilas Pratt will add notes to slides 4 and 6 that anyone using the Portal can get a score.
   • Once completed the next steps are:
     □ Presentation should be sent to the DL’s who present on Building EQ.
     □ If the presenters want more technical information, Building EQ can provide that. It might make sense to develop a few slides in advance of any requests.
     □ This is the official Building EQ presentation and if the DLs are doing something different, it would be helpful to understand what and why.
     □ This should replace the “official” presentation on the web page as there are other folks who may want to give the presentations.
     □ Ask CTTC to leverage this presentation with the chapters.
     □ Make a recording of the presentation and post that.

4. Public School Campaign - Brevard Public Schools (BPS) & Florida Institute of Technology (FIT)
   • The pilot program continues (1 HS, 2 MS, 2 EL) with help from the local ASHRAE chapter and FIT student branch.
   • BPS is getting both benchmarking and Level 1 Energy Audits for the pilot buildings which gives them a template for improving buildings, adds value to the schools, and makes the most of the public funding that supports them.
   • FIT is working with ASHRAE to pursue a DOE grant on training that fits with the work going on in BPS.
• The committee would like to make this work into a testimonial and/or case study. ASHRAE staff could reach out to the folks and help with the writing of the case study.
• The case study could be worked a number of ways for different audience and deployed to several venues: Journal article, BEQ webpage, ASE blog, etc.
• BPS would like to do a seminar at an upcoming ASHRAE conference. BEQ and TC 7.6 might be willing to co-sponsor. Deadlines for submission for the Orlando conference in early August 2019.

5. University Campus Campaign
• Interaction with APPA
  □ Tim Wentz leads a coordination committee between between Building EQ and APPA. Daniel Redmond is the liaison also on the committee.
  □ An update on the committee’s work is needed from Dan Redmond or Tim Wentz
• Carlton University and University of Central Florida (UCF) are both candidates for additional case studies.
• University of Arizona has no new updates
• The committee needs to focus a message for this group including a PPT that is specific to that message. The PPT could then be turn into a webinar, etc. Case studies would be helpful as part of the messaging.

6. Institutional Customer Campaign
• District of Columbia city
• NYSERDA (Long Island Chapter)
• City of Orlando
  □ Municipalities are another target audience, but it is not clear if they should come before or after universities. Both can be done in this Society year.
  □ There may be interest from municipalities for some common features that could be added to the Portal.
  □ NYSERDA and AIA were moving in similar directions and are now connected as of this morning’s GAC meeting.
  □ Doug Cochrane is meeting with Bill Artis on Tuesday in Kansas City in regards to the NYSERDA interest in Building EQ.
  □ Jeff Benavides is the contact at City of Orlando with OUC as a potential licensee
• Michigan Utility
• Hydro Quebec
  □ Nothing has been heard from the Michigan Utility for some time.
  □ Ron Gagnon will reach out to the contact and report back to the committee.
• Argentina Green Building Council (AGBC)
  □ The plan is for Hugh Crowther and Esteban Baccini to develop a proposal that can be run past Methodology Subcommittee for accurate and then be presented to AGBC to start a dialog and negotiation.
  □ The proposal should pick three to five things that meet AGBC needs and distinguish ASHRAE from competitors.
• Canadian Government (NRCan)
  □ A better contact is need to pursue interest at NRCan.

7. Other Opportunities
• USGBC (LEED)
  □ As reported in the Methodology Subcommittee meeting, the LEED proposal is being considered by USGBC.
• Alliance to Save Energy (ASE)
  ▪ The ASE has offered to promote Building EQ with their blogs and have specifically requested case studies for that purpose.

• IFMA
  ▪ ASHRAE has been working to building a relationship with IFMA which may open opportunities for Building EQ down the road.

• BOMA
  ▪ Building EQ could possible be used to support the energy component of BOMA 360.

• Modeling Tools
  ▪ The committee may wish to Investigate how to tie the As Designed rating into Trace Trane and improve the value proposition of the As Designed rating.
  ▪ Trane is sunsetting Trace 700, but will still support Trace 3Dplus.
  ▪ The Revit tool will have the capability to link into OpenStudio – this may be a role for Building EQ.

8. New Business
• The Methodology subcommittee would like feedback from the Business Development Subcommittee on several initiatives that they are exploring including:
  ▪ Changing the electricity site-source rations in the Portal,
  ▪ Adding site-source rations for EPA egrid subregions,
  ▪ Developing automatic reminder emails,
  ▪ Incorporating the PRM methodology into the As Designed rating.

9. Adjourn – **Meeting adjourned at 2:59pm CDT**
# Building EQ Budget - Status Update

**Updated Dec 18, 2018**

<table>
<thead>
<tr>
<th>Expenses</th>
<th>Prior Year</th>
<th>Last Year</th>
<th>Current Year</th>
<th>Future Years</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual 16-17</td>
<td>Actual 17-18</td>
<td>Jul-Nov 18-19</td>
<td>Budget 18-19</td>
<td>Budget 19-20</td>
</tr>
<tr>
<td>Salaries</td>
<td>$45,000</td>
<td>$54,600</td>
<td>$22,700</td>
<td>$45,200</td>
<td>$47,400</td>
</tr>
<tr>
<td>Payroll Taxes &amp; Benefits</td>
<td>$11,800</td>
<td>$15,300</td>
<td>$6,400</td>
<td>$13,400</td>
<td>$14,200</td>
</tr>
<tr>
<td>Promotion¹</td>
<td>$27,900</td>
<td>$3,900</td>
<td>$0</td>
<td>$10,000</td>
<td>$10,000</td>
</tr>
<tr>
<td>Transportation for Members</td>
<td>$15,100</td>
<td>$14,700</td>
<td>$0</td>
<td>$15,000</td>
<td>$15,000</td>
</tr>
<tr>
<td>Travel for Promotion of bEQ</td>
<td></td>
<td></td>
<td>$6,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel Staff</td>
<td>$1,000</td>
<td>$400</td>
<td>$0</td>
<td>$500</td>
<td>$500</td>
</tr>
<tr>
<td>Telephone &amp; Communications</td>
<td>$400</td>
<td>$200</td>
<td>$0</td>
<td>$500</td>
<td>$500</td>
</tr>
<tr>
<td>Development</td>
<td>$0</td>
<td>$8,000</td>
<td>$13,000</td>
<td>$14,000</td>
<td>$30,000</td>
</tr>
<tr>
<td>Outside Services²</td>
<td>$0</td>
<td>$13,300</td>
<td>$5,400</td>
<td>$11,600</td>
<td>$12,800</td>
</tr>
<tr>
<td>Opportunity Funds</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Depreciation Expense</td>
<td>$0</td>
<td>$1,500</td>
<td>$16,700</td>
<td>$65,000</td>
<td>$65,000</td>
</tr>
<tr>
<td>Totals</td>
<td>$101,200</td>
<td>$111,900</td>
<td>$64,200</td>
<td>$181,200</td>
<td>$195,400</td>
</tr>
</tbody>
</table>

**Notes:**

¹The signage for the Portal Demo will cost $200 to $500 -- Invoicing has not yet been received.

²An additional payment of $5350 is being processed to cover maintenance and hosting through the end of the 2018-19 SY, making total for this line = $10,750