

Zero Energy Commercial Buildings Consortium (CBC)
Building Envelope Working Group Call Notes
Thursday, June 3, 2010
3:00-4:00pm EST

Key Conclusions

- The Building Envelope chapter of the *Next Generation Technologies Report* will look out 30-40 years and ask what are the building envelope elements and characteristics in a zero energy building.
- The scope covers both new and existing buildings.
- Questions and considerations will include technology, cost, code, and market acceptance issues.
- Some issues may be related to areas other groups are working on and working groups should make the effort to connect and communicate about these. Some groups Building Envelope might coordinate with include:
 - Codes & Standards
 - Integrated Design and Delivery
 - Mechanical Systems, Plumbing and Controls
 - Lighting/Daylighting and Controls

Next Steps

- Chairs will develop a questionnaire to circulate to members.
- Members will provide input through [Building Envelope Questionnaire](#) responses. – Please send responses to Abi Kallushi (akallushi@ase.org) by **June 18, 2010**.
- Members can provide feedback on the scope and outline.
- Next call will be scheduled the week of June 21st

Meeting Discussion

Opening Comments

Kate Offringa opened the call by reiterating the Commercial Interest and Antitrust Guidelines.

Diana Lin provided an overview of this WG and the deadlines for the report (to be submitted to DOE). Those deadlines follow below:

- Internal draft: late August
- DOE report: September

Building Envelope Scope & Outline

Kurt Roth reviewed the group's scope and outline ([see online](#)). Kurt described the group's visionary approach: What will it take to get to zero energy based on the 3 milestones (2030- new construction; 2040 – ½ building stock; 2050—all commercial buildings)?

- How do we get NZECBs to be commonplace? What new technologies, processes, and tools, for both existing and new construction are needed?
- Thinking needs to take a systems approach and a holistic view of future ZEBs.

- What are the barriers to getting to that vision? This includes technological, cost, code, and other market acceptance issues.
- We cannot separate technologies and policy barriers clearly. This group will need to articulate what the barriers are and provide that input and feedback to other working groups focused solely on those issues.

Brad Hollomon added that in terms of identifying technologies and characterizing barriers – think beyond things that aren't quite off the shelf. What is critical to getting us beyond the incremental?

Kurt noted that the scope of this group is broad, especially once systems integration is taken into account, so we will really need members to help prioritize the issues and condense it into a succinct 8-10 page report.

Building Envelope Process & Timeline

In the next 2 weeks, members should respond to a questionnaire the chairs will develop to provide input on what are the top of mind technologies and barriers. The chairs will synthesize that information and use it as a basis for discussion on the next call to take place the week of June 21st.

Group Discussion

Q: What is the timeline? Is it very long-term (out to 2050)? Since changes in technology are so fast-paced, if we have such a long horizon, whatever we might envision may be obsolete or way off.

A: The statute specifies milestones at 2030 and 2040, with 2050 being the end goal. Kurt responded that he thinks the Congress, DOE, and organizers selected this time horizon to encourage and challenge us to look beyond emerging and novel technologies.

Q: Is renewable energy part of the scope?

A: Kurt answered yes, integration of renewable energy with the building envelope is fair game. Jeff Harris added that we can get rid of some fixed assumptions. For instance building envelopes are fixed loads, but perhaps they can be neutral or net-resource for energy. Envelopes can have more than one function (not just structural), multiple layers of envelopes. Diana Lin also noted that there is another group looking at multi-building systems and grid integration, and this might be one area to coordinate with them.

One member observed that the group will also need to be mindful of what is outside of the envelope and consider how the surrounding environment may impact the design and energy use of the building in question.

Evaluating the potential health and safety issues is a crucial aspect of assessing the viability of new building technologies, systems, and practices. For instance, if a building is designed to harvest rain water, how does this affect the potential for moisture issues with the building envelope materials and, in turn, what are the health implications of? In particular, a system-level assessment of moisture flows is critical to minimize the potential for degradation of envelope durability.

Occupant comfort is another key market acceptance issue that this WG will address. In general, occupant behavior can also have a major impact on whether or not a building designed to be NZE ultimately performs at that level.