

## Buildings Technology Research and Development Subcommittee

December 20, 2007

Location: 950 L'Enfant Plaza DOE  
Time: 1:30-3:30 p.m.

### Attendees<sup>1</sup>

Shyam Sunder

Jerry Dion

Kevin Hurst

Paul Domich

Dru Crawley

Alan Schroeder

Mark Halverson

Patrick Hughes

Paul Torcellini

Bobbie Lippiatt

Andy Persily

Steve Bushby

John R Weber

Ken Sandler

Alan Hecht

Dana Bres

Kevin Kampschroer

Martin Weiland

Julio Arocho

Russell Conklin

Mike Ritter

Donna McIntire

Ewa Lewandowska

Jon J. Gibbons

### Agency/Office

DOC/NIST

DOE/EE-Buildings

EOP/OSTP

DOC/NIST

DOE/EE-Buildings

DOE/EE-Buildings

PNL

ORNL

NREL

DOC/NIST

DOC/NIST

DOC/NIST

Architect of the Capitol

EPA/Green Buildings

EPA/Sustainable Development

HUD/PD&R

GSA/Applied Science

GSA

USACE

DOE/CCTP

USDA Forest Service

DOS/OBO

Smithsonian

Smithsonian

BTRD Co-chair

BTRD Co-chair

BTRD Ex-Sec

**Next Meetings:** February 7, 2008, 1:30 - 3:30 PM, location TBD)

February 7, 2008

February 21, 2008

March 20, 2008

April 17, 2008

May 15, 2008

June 19, 2008

July 17, 2008

August 21, 2008

September 18, 2008

October 16, 2008

November 20, 2008

December 18, 2008

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<sup>1</sup> Active Members not attending identified in light gray

**Introductions:** Workgroup Co-chairs Jerry Dion (DOE) and Shyam Sunder (NIST) opened the meeting of the Buildings Technology Research and Development (BTRD) Subcommittee welcoming the agency representatives and thanking them for their participation. Dion provided a brief overview of the Energy Infrastructure and Security Act of 2007 passed by Congress and signed by the President.

**Review of the Agenda:** The agenda was review and revised to accommodate new topics.

**International Outreach:** Kevin Hurst (OSTP) described a recent meeting with the European Commission (EC) on the topic of energy technology innovation. At the meeting, the EC described its “technology platform” on construction technology ([www.ectp.org](http://www.ectp.org)), in which private-sector stakeholders provide consensus recommendations to the EC regarding R&D priorities and the technology roadmap. Hurst suggested that this could be a good opportunity for expanded US-EU cooperation, e.g., sharing best practices and RD&D outcomes, and collaborating on international standards related to sustainable buildings. With concurrence from the BTRD, he will suggest this to the National Security Council and the State Department as a possible action item for the next US-EU Summit in spring 2008.

**Review of the Subcommittee Charter:** The Charter for the BTRD Subcommittee was approved and signed by OSTP Associate Director for Technology Richard Russell, Co-chair of the NSTC Committee on Technology.

**Proposed 2008 Workshop:** Dru Crawley briefed the Subcommittee on a proposed spring 2008 workshop focusing on soliciting stakeholder input on technology R&D focused on energy efficiency for buildings. An earlier email to the Subcommittee previously described the workshop and outlined proposed goals and outcomes (attached). A facilitator has been engaged by DOE to help with the definition of the workshop, help organize the event, and in facilitating execution of the workshop.

**Action Items:** Crawley will organize the steering committee that will direct the programmatic aspects of the workshop and fix the date for the workshop for the 2 day event in April or May in coordination with the BTRD Co-chairs.

**Review of Progress:** Paul Domich (BTRD Ex Sec) provided a high-level overview of the report status to be discussed in detail including development of the Introduction and Section 3 on Desired Outcomes, reorganization of Sections 4.1 and 4.2, status of Section 4.4 and the development of a land use subsection, scope of Section 4.5 and related occupant health topics. In particular:

- International reports and recommendations will be included in the Introduction and the Background Sections. Included will be the U.N.

## Environment Programme and the Intergovernmental Panel on Climate Change

- The Introduction and Executive Summary will be finalized once the report major outcomes have solidified
- Section 3 on desired outcomes will include 5 or 6 high-level goals. These goals will be supported by a number of R&D Objectives found in each of the sections that in turn will be comprised of a R&D roadmap of activities.
- The Land subsection will be eliminated in the next draft due to difficulties in identifying research needs, overlap with the Water subsection and complexities related to the broader scope of land issues.
- R&D descriptions contained in Section 4 should include statements that describe the current state, desired end-state outcomes for the R&D, and any barriers that exist to successfully developing the technologies
- Reference to industrial buildings will be noted in the report (Section 4.1 Scope) as having similar challenges as commercial buildings. Industrial equipment will not be addressed though standard building appliances will be included (office equipment, HVAC, etc)
- Durability and Disaster Reduction will be addressed in Section 4.1 as a complementary design objective for the R&D objectives defined in this report and not addressed explicitly.
- A terminology section will be created in the forward section of the report defining various building types and other terms used throughout the report (agenda item for Feb 7, 2008 meeting), e.g., single family, multiple family, commercial, public works.
- Include in the introduction the six objectives to the Whole Building Design Guide: Accessible, Aesthetics, Cost-Effective, Functional / Operational, Historic Preservation, Productive (need help here on context – note sent to J Weber for clarification)
- A table describing similarities and differences in technology R&D for commercial and residential will be included in Section 4.1 using the Building Data Book from DOE.

Section writers then discussed their current submissions. Bobbie Lippiatt (NIST) discussed the integration of Sections 4.1 and 4.2 covering performance tools and metrics in new section titled “Integrated, Performance-Based Design and Operation”. The scope of this section is to include design and retrofit / rehabilitation guidelines development, facility assessment and evaluation tools, pre-standards development. Agency contributions to this section are requested.

Lippiatt also noted that the replacement of existing building stock occurs at roughly 1% a year and the retrofit approaches will be essential in meeting energy reduction goals for all buildings.

Mark Halverson (PNL) discussed progress on section 4.3 covering energy efficient technologies. While most of the technical content of section 4.3 is fine, the formatting of section 4.3 needs some work to make it similar to that of other

sections. Specifically, the long bulleted lists need to be converted to more text-based sentences, with the possibility that some of the detailed material will be taken to a slightly higher level as well. The sample format developed for Section 4.4 (see Action Item below) will be used in this section as well.

Ken Sandler (EPA) discussed the Materials, Land and Water – Section 4.4. The materials section is progressing nicely. The water section needs to be condensed and the R&D objectives refined to a higher level. The Land subsection will be eliminated in the next draft due to difficulties in identifying research needs, overlap with the Water subsection and complexities related to the broader scope of land issues. For the materials section goals include the development of an index of material reuse properties and design concepts that promote reuse and ease of adaptation for existing buildings.

Need to discuss and possibly address the how Leeds interrelate with the material and design criteria.

**Action Item:** Paul Domich will provide a sample page on the desired format to be followed in Section 4.4

Paul Domich provided a brief overview of Section 4.5 on Occupant Health and Indoor Environmental Quality. This section will be modified to a more readable format and will eliminate the current subsections in place of R&D Objective groupings. NIOSH/CDC will be contacted to solicit input on general occupant health R&D goals and objectives to serve as the lead element to this section. The remainder of the section will focus primarily on Indoor Environmental Quality.

Paul Domich and Dana Bres discussed section 4.6 on Overcoming Barriers to Implementation. Changes will be made to this section describing current activities with code groups to enable use of new technologies. Discussion will focus on performance criteria where appropriate.

**Next Steps for the Report Development:** The Subcommittee outlined the structure for the report's high level goals. The draft goals will be circulated to the writers for their changes and comments. The finalized draft goals then will be included in Section 3 Desired Outcomes. State and GSA accepted responsibility to review and comment on Section 3.

**Closure:** Jerry Dion and Shyam Sunder thanked the agency representatives for their participation and contributions.