

## Oregon BEST

### Green Building Working Meeting – 2/17/09

#### Building Design & Systems – Barrier Inventory

**What are the key barriers to widespread adoption of green building design and systems that could be addressed through University research?**

- Design process – what works, what doesn't
- Research timeline is often too short to fully develop a research solution to a particular question or need. Short-term results and long-term goals are important. Demand for emerging technologies and energy saving solutions is not there, but needs to be a focus. Availability of systems and materials locally, not imported from Europe, etc.
- Research into limitation on building design in correlation with land use requirements. Further research in high performance homes and ways to achieve them while reducing material demand
- High performance building skins. Identifying strategies to retrofit existing buildings to high performance
- Customer awareness and demand. Actual performance versus modeled. Convincing developers the value of integrated design. Existing buildings
- More systematic approach for large developers
- Many practitioners do not have the knowledge to design these. They may understand the main system, but not the subsidiary/support systems or structural framework required. Research that easily demonstrates how these new products/systems/design ideas can be integrated easily into design would be very useful
- Structural capacity of existing buildings – can they support solar, solar shades, green roofs, etc? Are there inexpensive ways to improve their capacity? Changing building users attitudes – more tolerance for a wider range of thermal comfort and lighting levels. What is acceptable for comfort and productivity?
- Green retrofits / energy upgrades. Evidence based design guidelines and products. Green schools and classrooms
- Development of construction process for efficient energy retrofit/renovation
- “Smart grid” – specifically on site (or larger) renewable energy generations firming and shaping. Intermittent power sources give the utilities fits
- Mostly a change of thinking in the construction industry. Net zero is possible today for many building types. Getting the trades and construction managers thinking about these issues as a matter of course would bring immediate results
- How to integrate the myriad of possibilities for design
- Robust building that directly feeds back energy and material performance/consumption
- There is a poor link between building design and material design, particularly in regard to durability

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- Understanding problems and knowing where to focus research, e.g., green roofs – need insulation – plastics recycling can provide insulation that is not affected by moisture. Meeting of practitioners and modelers
- Time – focus research on longer term learning on complex issues. Short term, industry responsive research on focused, specific problems. Knowledge on the part of firms of research resources available. The BEST efforts are very exciting in this regard
- Lack of understanding of meaning/process of integrated design
- Life cycle assessments are the key to understanding impacts on ecosystems. Industry hides behind “excessive costs” to figure this out and yet, Canada and other countries are already there.
- Complexity of systems. They are beyond the reach of common buildings/small scale commercial. Cost perception
- What University curriculum exists, or is planned, to address skills needed to fill these roles in the design/build process?
- Net zero; living building strategies (i.e. energy sharing among buildings in dense urban environments)
- Scalability: Walmart? Applicability: manufacturing? Economic modeling for sectors other than marketing and government
- Impact of planning and urban design strategies on building performance
- Energy modeling accuracy. Training for operation. Effective commissioning. Staffing of operations. Performance feedback. Design tools
- Building science – materials/systems certification testing. Low cost energy monitoring systems
- Educating the architecture community about issues, solutions and incentives to integrate solutions into their plans