Oregon BEST – Green Building Working Meeting – 2/17/09

Building Design and Systems

Summary of Breakout Session Discussion

Commercial Opportunities

- Design tools around natural ventilation, massing, ground heat exchangers
- Operations and Maintenance issues
    - Building system controls are the weakest link –
        - a solution would be a common, open source protocol for building controls
        - Resistance from building operators due to unknown system and training requirements
        - Holistic vs. specific systems
        - Screen saver display that shows the building performance – need 'dashboard' type indicators
    - Benchmarking Buildings
        - Where to put the sensors and controls for benchmarking
        - How to factor in human behavior
        - Occupancy and scheduling issues
- Work on getting California, Washington, and Oregon requirements for buildings to publish their energy performance
- Central HVAC vs. distributed systems
    - Micropower devices in each heater
    - More passive systems are needed
- How soon will advancements in densification of wood appear?

Training and People

- Marketable people
- More training is needed – building engineers are undertrained
- New integrated degree in building sciences is needed
- Universities should collaborate to develop a building sciences degree – PSU, OSU, UO and OIT all have important items to contribute
- Translation of research into products
- Legislature must move to protect builders/Liability Issues
- Universities should be setting high goals for their own projects
- Bring in more people from other disciplines
- Promote marketing of these solutions by the universities
- Develop a proposal to IGERT (Integrative Graduate Education and Research Traineeship (IGERT) program at the National Science Foundation) that will promote sustainability graduate research across all campuses (more information at *http://www.nsf.gov/crssprgm/igert/intro.jsp*

- Use the connections of IBEW (International Brotherhood of Electrical Workers) and similar organizations– they have the people, the projects, and the trained people doing the work
- Operations and Maintenance issues – mandatory certification program with strong community college support. How can the universities start this movement?

What is Oregon's Edge?

- Our retrofitting expertise – including guidelines and training
- Wave energy expertise
- Solar energy expertise
- Wind energy expertise
- Micro and nano technologies expertise, including space conditioning
- Building protocols
- Ability to drive 'green' with support, volunteers, ideas, tax credits, and other government policies
- Develop open source expertise and tools for a variety of systems including: cob, straw bale, passive systems for night ventilation and mass, and alternative design strategies
- Green building materials including concrete, wood, and renewables
- Mix of experts including university faculty, students, and industry
- How many green jobs does the region have?
- Retrofitting, recycling and deconstruction
- Northwest Energy Efficiency Alliance expertise
- Engineering and Technology Management Department at PSU
- Building Science focus within Mechanical Engineering at PSU
- Green building materials expertise at OSU
- Lighting experts at Pacific Northwest National Laboratory and U of O
- Water and wastewater experts within landscape architects, CH2M Hill, and OSU
- Transportation
- Power with hydro, smart grid, and thermo

Research Funding

- Further develop the concept of an anchor for a building laboratory
- Use the IGERT concept
- Promote eco-district development
- Marketing funding as well as research
- Technology transfer as seed capital
- Explore US Department of Energy and National Science Foundation as current funding sources
- Get industry buy-in – there is little US construction company research into innovation
- Focus on the federal Economic Stimulus package and the federal building renovation requirements
- PSU Sustainability Department (Engineering and Technology Management Department)
- Bonneville Power Administration and other utilities
- Pay the real cost of energy – use an energy tax to fund research