MEETING NOTES

Meeting Date	: May 6, 2009	Project	: UO Lewis Integrative Science Building
Author	: Becca Cavell	Job No.	: THA Project 0810
Re	: Schematic Design Sustainability Meeting		

Present:

User Group Members
Lou Moses
Jim Hutchison
George Sprague
Bruce Bowerman
John Conery
Rick Glover

UO Representatives
Emily Eng
Fred Tepfer
Jeff Madsen
Denise Stewart
Don Elting
Frank Vignola

Consultants
Roger Snyder, HDR
Chuck Cassell, HDR
David Gibney, HDR
Kelly Knauss, HDR
Laurie Canup, THA
Steve Simpson, THA
Becca Cavell, THA
Bruce Powers, HDR
Bruce Johnson, HDR
Karl Sutton, HDR
Mark Penrod, BHE
Dave Knighton, BHE
Monica Anderson, BHE
Geoff Larson, BHE

Summary Notes

Goals (generated from the meeting)

- Building Energy Performance 40% Better than 2004 ASHRAE 90.1
- Zero Potable Water for sewage conveyance and irrigation
- Natural Ventilation for offices and appropriate dry lab spaces
- Harmonize building performance with the program it serves
- Maximize Day Lighting to offset power density
- Solar Monitoring as Educational Tool
- Dashboard as Educational Tool
- Alternative Transportation is More Convenient than the Automobile - carefully consider pedestrian experience, bikes, and local public transit
- Building as an Experimental Armature
- Sustainability Dashboard as Artwork
- LEED/BETC - evaluate business decisions associated with LEED vs. LEED Equivalent

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Detailed Notes (for reference)

1. Carbon footprint is the most important goal
2. President's Climate Commitment contains rigorous requirements which are comprehensive and go beyond building design and management.
3. Fred: what is baseline requirement in each given area of sustainable design? Suggested identifying baseline and then strategies to improve upon it.
4. Laurie – contractually HDR / THA must exceed code by 40%
5. Laurie – first look at LEED scorecard, with 40% energy savings, will get building to LEED gold.

6. Water
    - Low flow fixtures: waterless urinals have a mixed history at UO. Denise: maintenance problems – facilities would need convincing. Code will require that water is brought to the wall. Education opportunity for design team to work with facilities. FT: don't assume. Extremely low flush might be better; Bruce J noted that water reclamation might create a significant amount of water that could be used effectively for flushing, etc. Denise: waterless urinals need special drainage to properly convey into collector pipe.
    - Using wastewater for flushing is appealing – Bruce B.
    - Dual flush for women's WC, low-flow for men's WC, with waterless urinals is recommended.
    - Solar powered systems (water faucets) used at UO CoE are working well.
    - Rainwater harvesting; hasn't happened yet for non-potable use. Per DG, won't pencil out. Doesn't seem that this is viable. This doesn't mean the project shouldn't still include it as the right thing to do and as an education tool. Following a better understaning of RO water, the team can re-evaluate.
    - RO water- capture wastewater from RO treatment process.
    - Stormwater treatment: baseline would be to treat stormwater run off per City standards. Options include flow-through swales, filtration planters, reduction of pervious surfaces, offsets with tree-planting. Fred: UO prefers visible methods, affordable and easy maintenance, and focus on vehicle run-off over roof run-off. Paved surfaces are a priority. Collection for irrigation is traditionally not viable in this region due to summer drought conditions. RO water might supplement this. FT: a large underground storage tank is currently located at Heustis, and is not used. UO to investigate size and condition.
    - Denise: filtered manholes not preferred due to maintenance costs for replacing filters. Roger Kerrigan would need to review any suggested products.
    - Fred: Millrace is changing; level will change. Perhaps a treatment structure could be located over there.

7. Energy Use
    - Occupancy sensors will be required. Fred: consider very fine grained controls – every lab bay? Is this viable? Denise: have been retrofitting existing labs. Users are very happy. Chuck: would need a sensor per module; this is current UO practice.

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- Aggressive power densities. FT: don't push so far that people bring in incandescent desk lights. Involve users. Bruce: what is task lighting? Administrative control of local task lights would be required. Chuck: around 75-80 f.c at bench top. Assess based on prototyping if shadowing will occur and require task lighting. Fred: UO will measure f.c rating of existing labs to establish real data. Bruce: this is good Labs 21 approach. LED lighting is becoming more viable.
- Solar pre-heating of lab and domestic hot water. – no UO problems; currently have two installations. Living/Learning Center and CoE. FT: cage wash in animal facility will be a high user of both hot water and steam. Chuck has some ideas about how to be energy efficient. Mark – could use heat recovery from waste water system.
- Thermal storage: Mark – could go both ways. Thermal storage has not had an attractive payback period. But if you want to conserve BTU's, water tanks for recovered heat storage would really help energy savings. Could use undeveloped basement area east of the tunnel; can be symbiotic with other water reclamation strategies.
- Fred: Zebra fish facility also puts out hot water – another good year-round water source. Could be irrigations water.
- Use of radiant systems for floors and chilled beams – radiant floors are not a fast change-over system and are uncomfortable for several days a year (extreme temp swings). Mark – sensors in floor help. Fred: remember UO pokes holes in its buildings. Mark: would want system in a topping slab, perhaps with a thermal barrier, to retain thermal mass for fly-wheel, if building is concrete. A steel building would also have a similar approach. David: fin tube radiators also an option.
- Embodied energy study by Corey Griffin's students is showing that concrete performs at a much better level than steel. A concrete building is also lower and, with flat slabs, would be better suited to bench lab area. Chuck: can get to vibration criteria with steel if necessary. CMGC will be a big player in this decision.
- Energy recovery from exhaust systems: required by ASHRAE.
- Heat recovery from waste heat in the tunnels. Could be used to pre-heat water and other systems. Fred: larger campus-scale savings might be possible. Heat pumps with refrigeration cycle in tunnel is most likely approach. Direct use of heat unlikely due to air quality.
- Roof and wall insulation: team will review payback – what timeline should be used?
- High performance glazing systems based on orientation, with carefully designed shading.
- Provide lab ventilation based on safety, not plug loads. Measured data underway
- Automatic sash systems for fume hoods in wet labs.
- Animal facility areas; reduce flows in support spaces based on code requirements. Chuck: team to calculate actual loads in holding rooms. Ventilated cage racks may result in savings. What NIH criteria apply?
- Variable flow for pumps.
- Light colored roof material
- Integration of occupancy sensors. Air flow setbacks, etc. David asked if whole lab could shut down based on OS feedback? Bruce P: min rate of purge venting required to minimize contaminants into the space and limiting fume hood corrosion.

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- Aircuity-type system not viable in general labs, but animal facility could be a contender.
- Natural ventilation: primarily in office functions. Laurie: what are the set points? Rick: can lab hoods be filtered? Fred: more cost effective to send up high. Wind tunnel study is pending to determine best strategies.
- Atrium space as unconditioned space. Relief air could be moved through the atrium – this would bring some heat and cooling to the space. Need to consider code issues – smoke evac, building separation etc – together. Air transfer at concentrated equipment spaces could be allowed; new State-mandated set points will be reviewed.
- Low pressure ductwork design to minimize fan energy – larger ducts / larger fans. Also offers operating contingency.
- Solar collectors –hard to get this to pencil out based on shear volume of air / available surfaces. Team will review before recommending
- Demand based ventilation – C02 monitoring.
- Combined radiant heating and cooling with individual room controls.

8. Other issues:
    - Fred: do more with less: e.g. Lokey Labs have polished concrete floors.
    - Group– polished concrete floors work in some places but not in wet lab spaces. Also fatigue from standing on concrete is difficult. Welded seams, rubber floor is preferred.
    - Modular design is based on brick dimensions.
    - Monica asked about specifications for pipe products. PVC is cheaper that ductile iron pipe. Jim – what are we trying to prevent? PVC is a much maligned product but is one of the very best building materials – it has so many attributes. A PVC expert will be speaking at UO in July – Jim to send out info. 3 leading non-UO green chemists also coming.
    - Denise also referred to campus standards. Hopes to have 2nd edition out by end of May.
    - Gibney will send Fred an Owner Project Requirements document to complete for LEED.
    - HDR-THA will monitor LEED issues to ensure nothing time-sensitive is missed, in case UO decides they do want to pursue LEED certification.

9. Sustainable Goals
    - 40% above code Energy Performance is required by contract – BHE asked which code would design team be held do. Does design team need to take any procedural actions to lock in to a certain code? Dave Knighton proposed breaking building down into components for Energy Modeling. 2004 ASHRAE 90.1 is reference standard.
    - David suggested zero potable water for sewage conveyance and irrigation
    - Natural ventilation – offices AND dry labs.
    - Jeff Madsen reminded team that the building MUST function for its occupants. Jim asked that these goals and building performance be harmonized with the building program.
    - Daylighting in atrium – need to set target. Could target % reduction in lighting loads.

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- Education element – solar monitoring, building dashboard, and area dashboarding, drill down to dashboard areas of the building
- Transportation - make alternative means of transportation more convenient that conventional means. (Fred). Bike connections, pedestrian experience to local transportation elements
- Building as armature for experimental purposes such as wind turbines that in turn feed into education process.
- Artwork – 1% for art as an artistic dashboard – a reward / change-based system.
- LEED vs DAS LEED. Current system is being reevaluated by the State. Jeff Madsen talked about the Alumni Center and Arena approach. Discussion will continue.

END OF NOTES

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