

**PLEASE NOTE NEXT MEETING WILL BE THURSDAY MARCH 5 AT
9:30 IN THE MORNING IN THE SACO CITY HALL**

**SACO ENERGY COMMITTEE
JAN. 15, 2009 MINUTES**

Committee members present: Maggie Daigle (Ferry Beach Ecology School); Mark Mitchell (Saco Code Enforcement); Ron Rochefort (Saco Police Dept.); Howard Carter (Saco Treatment Plant Director); Travis Peaslee (Saco Treatment Plant Lab. Tech.); Eric Cote (Saco City Councilor); Mike Garrity (Director Maintenance Saco Public Schools); Joan Saxe (Maine Chapter of the Sierra Club); Peter Morelli (Saco Economic Development Director); Tom Schwartz (Woodard and Curran)

Guests: Don Nelson (W.H. Demmons); Marjorie Rosenbaum (interested Scarborough resident); Joanna Hoffman and Nadien DeSilva (both from Saco Spirit); Steve Fennell (Saco Solar Store)

1. TOUR OF SACO TRANSPORTATION CENTER

Peter Morelli, who has been involved for many years in the development of the Center, gave the group a tour of the nearly completed Center. Many environmentally progressive steps have been taken in the construction:

1. Materials. The shingles for the roof, an artificial slate product, have been made largely from recycled soda bottles. A substantial portion of the structural wall system consists of metal studs, which have a high percentage of recycled steel and are recyclable at the end of their life. The trim materials (MiraTEC) is a composite trim board that is made from trees that cannot be used to make dimensional lumber, and wood by-products from a variety of sources along with non-formaldehyde emitting resins. A variety of local products were used to avoid unnecessary energy use thru transport and processing. Local brick out of Lewiston, ME was used, and wood trusses were manufactured in Saco by a local company. The furniture is being made of native maple by Richardson-Allen of Biddeford.

2. Water Usage. Low water consumption plumbing fixtures are provided. A waterless urinal was installed. Motion sensors at the sinks reduce water usage further.

3. Building Orientation and Glazing. The building is oriented along an east-west axis, with generous south facing glazing that provides valuable daylight and winter solar gain. These windows are protected by the 6 foot overhangs, eliminating solar gain

in the summer. The overhangs also help protect the building's skin and provide protected passage for the building's users. Smaller window openings towards the west reduce glare. Offices will be outfitted with window treatments on this side. Low-E Argon filled double glazing with thermally separated frames were used throughout the project.

4. Daylighting. Daylighting is increased with the use of translucent panels at the eastern gable end and at a central skylight. The translucent panel system diffuses the sun's light, blocks infra-red and ultra-violet light, and provides a high R-value to limit heat gain and loss.

5. Lighting. Occupancy sensors are used to save electricity. The exterior lights use a combination of time schedule based control and photocell sensors to save electricity. Exterior lighting consists of fixtures with high cut-offs to reduce light pollution.

6. Interior Air Quality. Low VOC products, including carpet, paints and stains were specified to support a healthy interior environment.

7. Wind Turbine. A 50 kW Entegry Wind EW15 wind turbine will provide some of the electricity for the Center.

8. Geothermal Heating and Cooling System. The Center will be heated and cooled by a geothermal heating and cooling system installed by W.H. Demmons. Don Nelson, of W.H. Demmons, showed the system and answered questions. The system cost approximately \$330,000. An oil fueled heating system would have cost approximately \$250,000. Don said the payback for the geothermal system versus the oil system is 5 to 7 years. In 2009, the most efficient heating and cooling system for a building the size of the Transportation Center is a geothermal system. Originally it was thought that two 1500 foot wells would be necessary to get enough water for the geothermal system. It turned out that only one 1200 foot well was needed, and it almost produces too much water. The Center is on an island in the middle of the Saco River about 4 miles from the ocean. Today the temperature of water coming from the well was 56 degrees. High efficiency fan coil units are used to heat and cool the office space. The Transportation Center's lobby is heated using radiant heat tubes embedded in the insulated concrete slab. Radiant heat stratifies at approximately 7 feet above the finish

floor, making this an efficient method of heating large volumes of space. Vestibules are provided at all main entries, with automatic sliding doors that have winter and summer settings in order to control the amount of air moving through the entries.

9. Insulation. To provide a highly insulated and air tight building shell, rigid insulation is applied to the exterior of the structure, thus eliminating thermal bridging. SIP panels (Structurally Insulated Panels) are used to enclose the roof over the glu-laminated trusses in the lobby. These panels limit thermal bridging and air infiltration. Over the office spaces, blown-in-cellulose insulation, a recycled product, provides a minimum of R-49 insulation.

As far as some non environmental aspects of the project, the Biddeford-Saco Chamber of Commerce will occupy a portion of the building and provide help to the users of the Transportation Center from 5:45 in the morning to 5 in the evening each day of the week. In the Chamber portion is a very nice conference room that will be available without charge for use by the City government and Saco Spirit. The Center will have a ticket machine, and an ATM machine.

2. LED STREETLIGHTING

Saco is presently testing one LED streetlight. It is located on Main Street by the Saco City Hall. The lighting, at this point, appears to be fine. It is very difficult to see any difference between the lighting of the LED and a standard bulb. LED streetlights are claimed to last about 4 times longer than a regular street lights, and use about ½ the electricity. The City has been using LED traffic lights for a number of years, and they have worked fine.

3. NEXT MEETING

The next meeting will be Thursday March 5, at 9:30 in the morning in the Saco City Hall. The agenda at this time includes a general discussion and:

1. Solar air space heating;
2. Micro hydro;
3. Vertical axis wind turbine.