Facilities Services Newsletter  
February 2008

The Biomass Project

Seismic Readings and Crack Monitors

The biomass project requires extensive site preparation prior to pouring the concrete foundations for the steel superstructure. Due to the size of the excavation and the limited work area around it, Engelberth Construction is unable to slope the excavation perimeter as they typically would. Instead “sheet piling” (interlocking metal sheet panels) is being driven into the ground to protect underground utilities and existing foundations from undermining, and to support the sides of the excavation so Engelberth can work safely. H.B. Fleming, Inc. will be installing piling for the next 30 days, driving it to average depths of as much as 18 feet in the deepest area of the site.

Prior to this work, structural inspections of the Service Building and Centeno were conducted by H.B Fleming’s insurance carrier. The inspection included seismic measurements of the vibrations caused by the pile driver, and the installation of crack monitoring devices around the perimeter of the Service Building. A crack monitor is a gauge that measures the movement of cracks in brick, concrete, or masonry structures. It consists of two overlapping acrylic plates. One plate is white with a black millimeter grid, while the other is transparent with red crosshairs centered over the grid. The crosshairs shift vertically or horizontally on the grid if movement occurs. Engelberth checks the monitors regularly while sheet piling is being driven. Detection of movement would halt the piling installation until corrective measures to minimize further movement can be taken.

Seismic readings measure the velocity at which vibration travels through the ground in inches per second. Vibrations of 2” per second are capable of cracking sheetrock walls. The highest seismic reading detected thus far at the Service Building has been .59 inch per second. Seismic energy levels decrease rapidly with distance, so any residual vibration beyond 20 feet of the work area will have no adverse structural effect.

Occupants of the Service Building may notice a difference in noise and vibration levels since pile driving first began. The sheeting along the east wall of the Service Building was installed with a diesel hammer to minimize vibrations around the building. As sheeting work moved away from the building, H.B. Fleming changed to a vibratory method that allows for smoother installation with reduced noise. The vibrations we feel now are primarily generated when the vibratory head that drives the sheeting starts and stops. These vibrations will continue to decrease as the sheeting operation moves further from the building.
Middlebury Meets its Annual Waste Diversion Goal for 2007

Middlebury College exceeded its annual waste stream diversion goal by .7%; a steady improvement over the past two years’ rates of 59.1% and 56.4%. We ended 2007 with a diversion rate of 60.7%. Our waste stream in its entirety was composed of:

- 39.3% waste sent to the landfill
- 35.9% recyclable or reusable materials
- 24.8% compostable materials

Other waste facts:
December saw our lowest total volume of waste (divertible and otherwise) for the year at 160,401 lbs. Our highest volume month totaled 403,200 lbs of waste. Which month do you suppose that was, and why? (Yes, it’s the Trivia Question.)

Do you know that 16,391 lbs of our recyclable materials were #1 PETE bottles? Imagine how little a plastic water bottle weighs. Now try to imagine 16,391 lbs worth. And that is just a portion of the total 33,564 lbs of plastics that were diverted last year – just 36 lbs short of 15 tons. Nearly 15 tons of plastics, all hand sorted by our staff at the MRF! Furthermore, if you have not done it for them, our staff must also remove the caps from all of those bottles before they can be run through the baler. Can you say, “Carpal tunnel syndrome?” Please do our folks a favor: twist off those caps before recycling your plastic bottles. Better yet, buy yourself a Nalgene and help reduce our consumption of #1 PETE. They sell them at the College Store.

Bravo Middlebury! Thank for contributing to our recycling effort.

J-Term Accomplishments:

Allen – Two floor drains were repaired in the south wing basement bathroom.

Bread Loaf – The porch on the Burgess Meredith Little Theater was repaired.

282 Chipman Park – Interior painting. Replaced the roof over the sun porch.

Coffrin Annex Lounge – The water damaged ceiling has been replaced.

30 College, Apt. D – Painted the interior. Installed connections to the College data network in each apartment, as well as wireless capability.

FIC, Hamlin – The “Bunker” social space has been completed, with installation of lighting, projection, sound, bar counters, and interior painting.

Materials Recovery Facility – Installation of a mezzanine for scrap tin storage is complete.

McCardell Bicentennial Hall – Rooms 403 and 411 were upgraded with “smart technology.”
**422 South Main St.** – The offices of Alumni and Parent Programs received new office furnishings for the 2nd floor, as well as some lighting upgrades.

**Voter** – Replaced carpet in offices 201-208.

**Wireless Internet Capability** – Now available in Mead Chapel, Gifford Annex Lounge, Sunderland (Dana Auditorium, ILCs 1 & 2, Language School offices), and 30 College Street.

**February Projects & Updates:**

**Axinn Center** – With the project completion about 12 weeks away, all of the finish trades are at work within. On any given day, approximately 75 people are installing flooring and light fixtures, refinishing wood floors, painting, and putting final touches on the interiors of the new office wings. Faculty members who will occupy the building are in the process of reviewing office layouts and needs. Furniture selection for classroom and public spaces is also being finalized. Furniture will be moved in during May and faculty will move in over the summer. The building will be fully “on-line” for fall 2008.

Commissioning of the mechanical and electrical systems is also in progress, and will continue through the summer of 2008. This process of testing and inspection ensures that the mechanical systems function as designed, and that energy efficiency measures perform as expected to realize intended energy savings.

Energy saving sun shades are being installed on the exterior of the Winter Garden (left). These shades are angled to prevent the sun from reaching the glass walls and heating the interior in the summer, while allowing direct sun to reach the glass to provide natural heating in the winter. This measure will reduce the burden on the building HVAC system year round. Sun models were conducted to determine the correct depth and angle for the shades.

**Battell** – Basement sprinkler piping will be replaced during the break between J-term and spring term.

**Bread Loaf** – The septic system at Dragon’s Den is being replaced. Wood rot is being repaired on north side of the main Barn. The foundation at Fritz is being repaired. In the coming months emergency exit doors in large capacity spaces around the campus will be repaired, and foundation repairs will begin at Bridgman.

**Center for the Arts** – Expansion of the ticket booth is expected to be complete by February 8th. Acoustics improvements are planned for 209, 221 and the Concert Hall. The building’s new name, “Mahaney Center for the Arts,” has just been engraved in granite lintel over Route 30 entrance.

FIC, Hamlin – Excavation has begun for the foundation of a vestibule addition for the kosher kitchen. The kitchen will be operational for the opening of the School of Hebrew this summer.

Gifford Annex Basement – The Wonnacott Commons multi-use space is nearly complete. Kitchen construction is in progress and appliances are on order. Installation of carpet and flooring will occur when those products are received. Selection of lounge and work room furniture is underway. Laundry equipment has been installed (two washers, two dryers); the laundry facility will be open for use when remaining construction is complete.

Longwell – Repairs to the flat roof.

51 Main Street – A commercial dishwasher has been installed, and existing refrigeration equipment has been repaired. The raised platform floor has been removed to improve flexible use of the space. The resulting floor finishing work is delayed pending warmer weather for curing and ventilation. An interior designer is working on design concepts to create a hip, unique space with student appeal.

Organic Garden Path – The path from Bicentennial Way to the organic garden is completed. Clean-up of surrounding grounds will occur in the spring.

Ross Dining Hall – New tables will arrive in February, and new chairs in early March. The new furniture is light-weight, stackable and/or collapsible, providing more flexibility for events in this space.

Sheep Farm Storage – Siding has been installed; roofing and second level floor systems are in progress. The facility is expected to be fully enclosed by February 15th with “occupancy” by some of our furniture inventory happening in late March.

468 South Main St. – Beginning construction of a 2nd floor bathroom.

Voter – Improvements to the fire suppression system in the basement computer server rooms begins in early February. Completion is anticipated by April 1st.

**Green Bits:**

Central Heating Plant, Boiler #12 – Our new boiler has achieved better than expected energy saving results from the variable speed drive on its forced draft fan – so much so that Efficiency Vermont will be providing a handsome rebate to the College!

The amount of air flow required for a boiler system’s combustion can be controlled by one of two means. One method uses a fan motor running at a constant speed, with air flow being increased or decreased by a damper. The second involves controlling the speed of the fan’s motor to change air flow; the device that controls the motor’s speed is a variable speed drive. Boiler #12’s variable speed air control system provides required air flow at nearly 60% less power than the alternative constant speed motor with damper control.

The combustion air control system for our new Biomass Plant will also include a variable speed drive system.

**Annual Waste Stream Diversion Goal Met** – Go Midd! See page two for details.
**Trivia***:
No one recognized the panther weather vane that sits atop the Materials Recover Facility (MRF). In fact, there are two of them; one on each cupola. These weather vanes were hand made by the Bread Loaf Corporation superintendent on the MRF construction job at that time. He presented them as a gift to the College.

*Trivia contest winners receive a $5.00 gift certificate to the College Store. Facilities Services staff members are ineligible to participate in the trivia contest.

Questions about the information provided, and trivia submissions may be directed to hoyenski@middlebury.edu.

Read past issues of the Facilities Services newsletter at:
http://www.middlebury.edu/administration/fs/about/newsletters.htm

Conservation and restoration specialists EverGreene Painting Studios, Inc. cleaning and restoring the painted finish on the ceiling medallions in the Reading Room at the Axinn Center. The plaster ceiling was found to be in excellent condition.