

## George Granger Brown Memorial Laboratories Mechanical Engineering Addition



### Project Description

The approximately 220,000 gross square foot George Granger Brown Memorial Laboratories (G. G. Brown) was constructed in 1958 and houses the Department of Mechanical Engineering, which has evolved to include emerging research areas such as bio-systems, energy systems, and nano-systems. The College of Engineering proposes an approximately 62,500 gross square foot addition to G. G. Brown. The addition will house research laboratories and faculty and graduate student offices to support these emerging research endeavors, as well as spaces that will enhance the ability to realize ultra-high-resolution measurements at molecular and atomic scales.

### Energy Efficiency Measures

- The building's design and systems include energy efficient features that allow for an estimated 43% energy savings compared with a code energy compliant building as defined in ASHRAE 90.1-2007 Appendix G
- Maximum insulation in foundation walls, exterior walls, under slab, and roof assemblies
- Energy efficient windows/glazing for increased thermal performance
- Hybrid Lab HVAC System Configuration
- Dual Effect Energy Recovery System
- Solar Collectors for Domestic Hot Water Heating and a photovoltaic Solar Array offset over 2% of the addition's total energy costs
- Energy efficient transformers.
- Lab Lighting Power Density Reductions
- High efficiency lighting throughout
- Occupancy sensors to control lighting
- Lighting Control/Space HVAC Setback.
- Use of increased inspections, including infrared scans during construction to identify missing insulation, gaps in the enclosure, and other wall/roof assembly deficiencies

### Other Sustainability Features

- This project is LEED® Gold certified and achieved 65 points under the LEED for New Construction v2009 rating system.
- Sited on public and U-M bus routes, to encourage use of public transit.
- No new parking provided on-site (to reduce pollution and land development impacts)
- Erosion and Sedimentation Control Plan during construction reduced pollution from construction by controlling soil erosion, waterway sedimentation, and airborne dust generation
- Stormwater management implemented such that the post development site runoff is reduced by 33% for the two-year, 24-hour design storm
- Centrally controlled irrigation management system to ensure proper watering through monitoring of flow rates and weather.
- A 30% water consumption savings beyond Michigan Plumbing Code is anticipated; savings will be obtained through the use of low flow bathroom fixtures
- Use of select sustainable materials (e.g., steel structure, terrazzo flooring).
- 15% of materials contain recycled content

**George Granger Brown Memorial Laboratories Mechanical Engineering Addition**

- 15% of materials manufactured and extracted regionally
- 82% of construction waste diverted from landfills
- Use of low-VOC paints, coatings, flooring, adhesives, and sealants
- Learning Center for Energy Consumption- provides a touchscreen public interface for display of building energy consumption and status of sustainability goals.

**Project Data**

- Budget: \$47.6 M
- Schedule: Completion Scheduled for Summer 2014
- Square Feet: 62,500 gross sq. ft.

**Substantially Complete: June 2014**

- Project Status: Substantial Completion
- Design Complete: 100%
- Construction Complete: 100%