

Nuclear Engineering Laboratory Renovation



Project Description

The project will increase space utilization by creating additional usable floor space within the structure and existing penthouse, resulting in an additional 20 percent increase in the total building square footage to 20,500 gross square feet in this four-story building. This will accommodate the expansion needs of the Department of Nuclear Engineering and Radiological Sciences (NERS) in the College of Engineering. The NERS department has consistently maintained top rankings of graduate nuclear engineering programs and is growing in faculty, students, and research. This project includes a comprehensive renovation of the building, and new space for flexible research laboratories, testing areas, offices, support spaces, and mechanical equipment.

Energy Efficiency Measures

- Reduce energy usage of the primary air handling system below ASHRAE 90.1-2007 standard levels
- High-performance glazing systems to increase thermal performance
- Primary HVAC system consisting of a 100% OA (outside air) central air handling unit to provide ventilation to each space, with an enthalpy energy recovery wheel design to recover energy from the building exhaust
- Individual space fan coil units to provide space cooling, which decouples the space cooling load on a room level, resulting in increased energy efficiency
- Variable frequency drives (VFDs) for mechanical equipment
- Unoccupied ventilation setback modes to reduce ventilation load
- LED lighting fixtures used to reduce the lighting power density
- Task lighting installed at counters and laboratory casework
- Occupancy sensor lighting controls for automatic shutoff when rooms are un-occupied
- Premium efficiency distribution transformers

Other Sustainability Features

- Adaptive reuse of an existing building
- A 20% water consumption savings beyond Michigan Plumbing Code is anticipated; savings will be obtained through the use of low flow bathroom fixtures
- Zoned HVAC control systems provided to improve occupant comfort
- Low VOC paint systems
- Low VOC linoleum and resilient flooring and carpet adhesives
- Rubber tile containing 30% recycled product
- Solid surface counter top containing 83% recycled glass content
- FSC certified wood veneer
- Acoustical ceiling tile is containing 81% recycled content

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- Carpet is 100% recyclable after its life cycle and contains up to 44-67% recycled content
- Motorized window shades provided to control natural daylight
- Bi-level switching installed to provide light level flexibility
- Surface raceways installed to provide flexible power and data for laboratories
- Ceiling service panels installed to provide flexible power and data for laboratories