

## Palmer Drive Development



### Project Description

The Palmer Drive Development at the University of Michigan consists of a complex of buildings at the southwest corner of Washtenaw Avenue and Huron Street. The new buildings included in this development are:

- Life Sciences Institute Building
- Palmer Drive Parking Structure
- Commons Building
- Undergraduate Science Building

The **Life Sciences Institute Building (LSI)** consists of six floors and a mechanical penthouse to provide "wet" research laboratory and support spaces, core laboratory areas, principal investigators offices, interaction spaces, administrative offices for the Life Sciences Institute, a combination gallery/lobby space, and a small library. The 235,000 gross square feet building houses 325 to 375 people. The **Palmer Drive Parking Structure** accommodates approximately 1,000 parking spaces. The **Commons Building** provides conference space and dining facilities. A Department of Public Safety neighborhood office is located here, as well as academic offices. The building is 99,000 gross square feet. The **Undergraduate Science Building (USB)** is located on top of the Palmer Drive Parking Structure. The four-story building houses instructional space and laboratories for undergraduates particularly in the sciences. All of these buildings are tied together with a new walkway and plaza. This provides a safe, direct circulation path between Central Campus and the Medical Campus.

### Energy Efficiency Measures

- The LSI Building and USB initiated U-M efforts to deploy energy-saving strategies specifically tailored to laboratory buildings.
- LSI was both a local and regional ASHRAE Technology Award winner and received national Honorable Mention for its design innovations.
- LSI's vivarium animal cages are directly connected to the building HVAC system, with VAV boxes controlling the supply and exhaust air. This system minimizes the quantities of air required in the animal holding spaces, allows for maintenance access from outside the holding areas, maximizes the space utilization within the rooms, and provides for lighter, more movable animal holding racks. It also provides better isolation between room air and the air in the animal cages, which should result in a cleaner, more odor-free environment. It is believed that this is one of the first operational "house air" systems in the country for vivariums.
- A heat recovery system in LSI, significantly reduces the amount of heat loss while also meeting the laboratory safety criterion of passing through the building only once.
- All air handlers are variable air volume units. Also, motors and pumps are operated through variable speed drives.
- LSI has two separately pumped perimeter heat systems which divide the building into north and south zones and control the temperature as appropriate for each exposure.
- Walls and roof are insulated above code requirements.
- Insulated low-E energy efficient glazing is used throughout the buildings.

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- Occupancy sensors are used to turn down lighting during periods when spaces are unoccupied.
- Extremely efficient open plan laboratory design minimizes the amount of circulation space required in the building. The open plan will also accommodate changes in laboratory uses with less construction waste and disruption than traditional closed laboratory spaces.
- Carbon dioxide (CO<sub>2</sub>) monitoring in many areas of the LSI building reduces the amount of outside air when spaces are unoccupied, thus saving the energy to heat and cool the outside air.

## Other Sustainability Features

- Day lighting is well distributed throughout the buildings. The exterior walls contain large windows, and the ceiling heights are tall enough to admit a large amount of daylight. In LSI most workstations are located within the first 10 feet from the exterior wall providing natural daylight for the lab researchers that are in the labs all day.
- Sustainable growth wood is used for much of the project's woodwork, including the extensive wainscoting in virtually all of the public areas.
- This project is located within a rehabilitated brown field site, formerly occupied by an underdeveloped impervious surface parking area.
- A one million gallon storm water detention system, located below the parking garage, alleviates the persistent flooding problems in the area and allows for controlled release of storm water.
- The numerous exhaust fans on the roof were designed to function without increasing perceptible noise to the 4000 occupants of the residence halls located within 500 feet.
- The site, containing both an old glacial lake and a 35-foot elevation change, was one of the last underdeveloped areas on Central Campus because of its challenged topography. The siting and planning of this complex takes advantage of the development density already present in the area rather than promoting remote development that would contribute to traffic congestion, vehicular pollution and less efficient distribution of services and utilities.
- Bike racks are provided throughout the complex and shower rooms were included in LSI.
- LSI and USB utilize a pollution prevention approach to reduce the amount of chemicals being used and disposed of as waste.