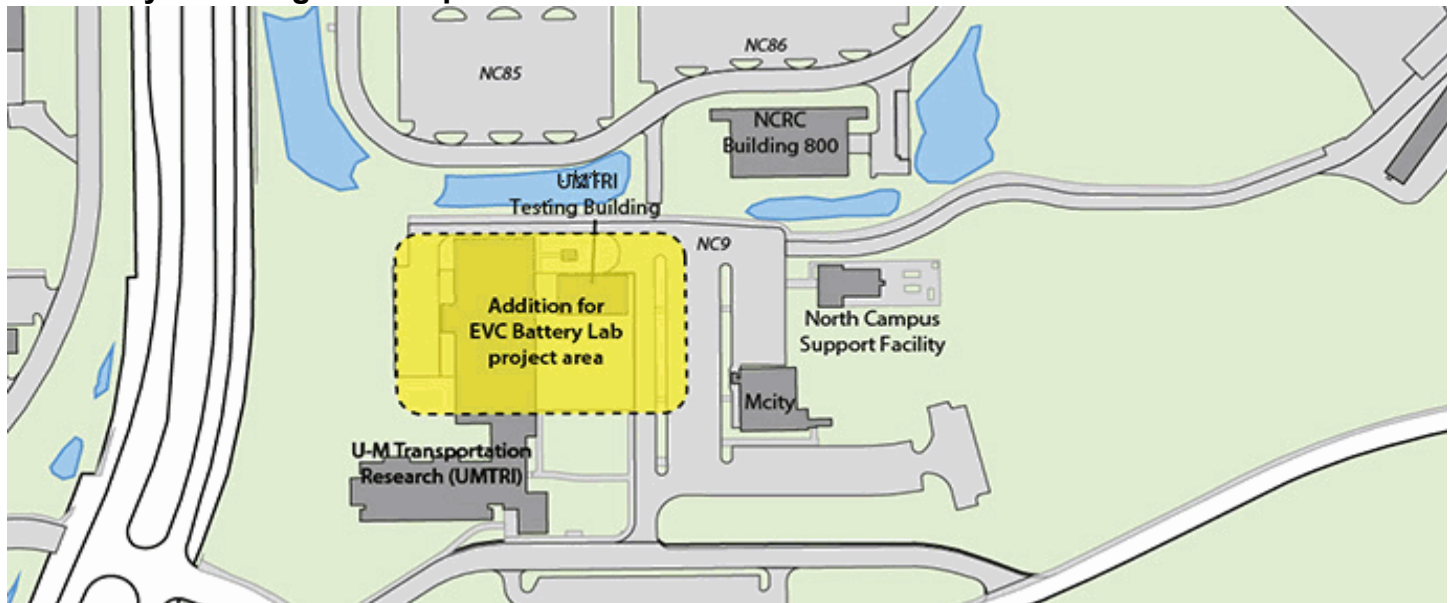


University of Michigan Transportation Research Institute Addition



Project Description

This project proposes establishing an Electric Vehicle Center (EVC) battery laboratory through the construction of an approximately 33,800 gross-square-foot addition to the University of Michigan Transportation Research Institute (UMTRI). The new space will support research and hands-on experience in next-generation battery technologies. The lab will also include dedicated space for welding battery cells into modules, 500 channels of computer-controlled cell cycling, lab user offices, a conference room and a multi-use, reconfigurable lobby. The facility is designed with tours in mind, with windows into the dry room and research areas. The addition will also feature an enclosed penthouse housing dehumidifiers essential to battery laboratory operations. Additionally, there will be minor renovations within UMTRI and a new on-site fire hydrant will improve safety coverage. The scope of this project includes the architectural, electrical, and mechanical work necessary to accomplish these improvements. We estimate additional parking spaces will be needed for this project. These parking needs will be accommodated by pedestrian access to lot NC85.

Energy Efficiency Measures

- The building's design and systems are designed with a stretch goal for energy cost savings of 20% compared with an energy code compliant building as defined in ASHRAE 90.1-2013
- "Run-around" exhaust energy recovery for building heat, minimizing the use of natural gas steam boilers
- Use of water-to-water heat recovery chillers for simultaneous building heat, dehumidifier desiccant wheel regeneration, and building cooling
- Wintertime recirculation of warm dehumidifier regeneration exhaust back into the building energy recovery chiller for additional wintertime heating
- Dry room set back of process exhaust and associated dehumidifier make-up air during unoccupied times
- Occupancy and daylight sensors to control lighting
- Controlled receptacles in offices and collaboration spaces to save energy by automatically turning off power to plugged-in devices when spaces are unoccupied.
- High efficiency transformers, premium efficiency motors and Variable Frequency Drives (VFDs)

Other Sustainability Measures

- In keeping with the University's carbon neutrality goals, the project aims to meet the project specific emissions target of 88 kg CO₂/GSF (derived from a percent reduction of the ASHRAE baseline).
- This project is registered under the LEED® green building certification program with the certification goal of LEED Gold. This project will use the LEED for New Construction v4 rating system.
- Detention basin and underground storage system to manage stormwater



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- Hardy, low-maintenance, drought-tolerant shrubs, perennials, and groundcover
- Low-carbon concrete mixtures for foundations, slabs, and site hardscape to reduce embodied carbon
- Structural steel and cladding system to include a high percentage of recycled content
- Sun shading to reduce glare and solar heat gain
- High albedo roofing included to reduce solar heat gain and heat island effect
- Provisions for a full transition off existing steam boilers and onto a future, carbon-free, plant-scale, geo-exchange system
- Construction Waste Management, goal to divert 75% of the waste generated during construction