New STEM Learning Complex with Re-purposed Power Plant
Michigan State University

Overall Project Area:	**175,000 sf**
New STEM Construction:	120,000 sf
Power Plant Adaptive Reuse:	40,000 sf
New Learning Spacev Addition:	15,000 sf
Completion Date:	**Fall 2020**

ELLENZWEIG — New Construction Design Architect + Lab Planner

iDS — Re-purpose Design Architect + Architect of Record

New STEM Building
Learning Atrium

New STEM Building
Flexible Lab Module

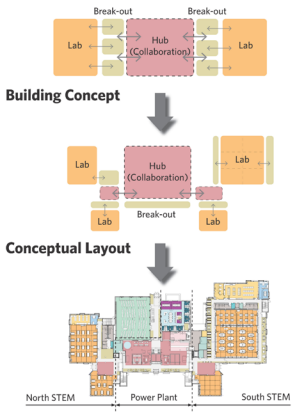
Vision/ Goals

The goal of the project is to create a learning ecosystem - an integrated learning center that brings together several distinct components:

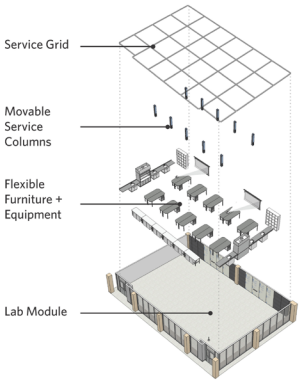
- Highly flexible STEM learning labs to serve a variety of disciplines, including Chemistry, Computer Science, Biology, Materials Science, and Physics
- Open-ended project labs, to support future learning initiatives, student projects, and new interdisciplinary courses
- Student Commons that serves as a gathering space for all students
- Hub for Innovation in Learning and Technology (MSU's Learning Innovation Center)
- Student Help Center
- Student studio space, for student project work

Process

- An MSU core project team was established for the entire project duration
- Faculty meetings were organized with all disciplines attending to encourage collaboration, sharing and interdisciplinary initiatives
- Learning spaces were established using a modular and flexible approach
- The full design team met weekly to maintain open communication
- Interactive, open-ended meetings were held to brainstorm ways to create a "learning ecosystem culture" for the integrated learning center
- 3-D modeling was used extensively for design and coordination purposes
- Mass Timber structure was selected after comparison with conventional framing systems



Final Floor Plan



Flexible Lab Components - Exploded View

Lessons Learned

- Truly flexible lab spaces require an investment in a robust infrastructure system
- Implementing a flexible lab infrastructure requires intensive coordination between project engineers and the infrastructure provider
- Developing agreement on an interdisciplinary mission requires considerable time investment by senior project leadership
- Utilizing Cross Laminated Timber required careful study of framing details

Outcomes

The new STEM learning spaces are designed to facilitate an innovative new curriculum, building on team-based, active-learning initiatives. Each space is equipped with a cutting-edge technology infrastructure to allow the easy reconfiguration of lab tables to reflect varying pedagogies. The spaces can also be re-configured for a variety of disciplines over time.

The Hub for learning innovation creates new ways to collaborate, learn, research, and deliver instruction at MSU. The project integrates these aspirations into the culture of the overall STEM learning complex. Combined with the Student Help Center and Student Project Labs, these components combine with the STEM learning spaces to create a multi-faceted and dynamic center for an ecosystem of learning.

Re-purposed Power Plant
Fourth Floor Student Studio

Re-purposed Power Plant
Second Floor Student Hub

Re-purposed Power Plant
First Floor Student Hub