



# DELIVERING A COMPETITIVE EDGE

## Four Trends in STEM Building Design that Deliver a Competitive Edge

“Today’s students do not want to sit on the sidelines. They expect to be able to participate in research and experimentation, and institutions are working to meet that demand.”

As STEM drives innovation both inside the classroom and in the workplace, universities are building and renovating facilities curated to the student, professor and researcher experience. The goal is to attract and retain students and top-notch research talent in a highly competitive marketplace. Despite contending with tight budgets, many institutions are getting creative in their approach to interjecting campuses with impactful learning spaces.

Here are four emerging trends in building design as universities and colleges reimagine STEM spaces.

### 1. TAKING A MULTIDISCIPLINARY APPROACH

Combining engineering departments that were previously separated allows for increased innovation with the culture shift towards multidisciplinary teams and better efficiency for the university with shared research support spaces.

Being under one roof has the added benefit of organically exposing students and researchers to complementary areas of study. Organizing research teams around themes such as urban health or climate change solutions requires engaging groups of researchers and thinkers across a range of academic departments.

For example, HED’s design of Wayne State University’s state-of-the-art biomedical research center (IBio) was fully dedicated to creating interdepartmental synergy to solve urban health challenges that impact the local community, primarily diabetes research.

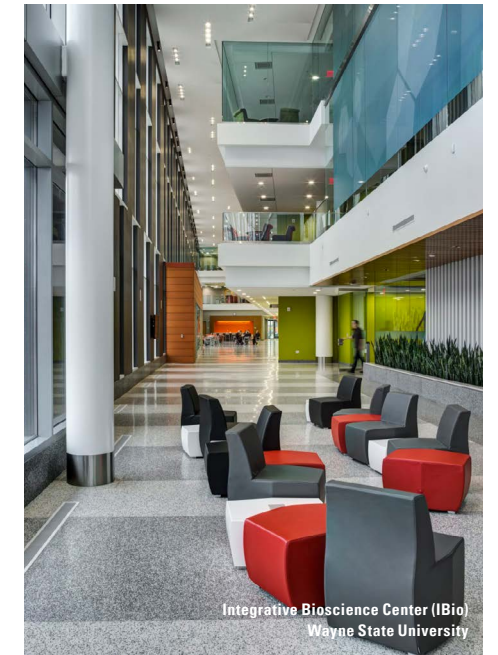
With STEM building costs currently ranging from \$700 to \$1,500 per square foot depending on location, one way to streamline expenses is by taking a multidisciplinary approach. Rather than keeping all departments or colleges in physical silos, some universities are blending disciplines into one collective building to lower costs and drive building efficiencies and increased utilization.

### 2. LEARNING BY DOING

Much like innovative corporate culture, which blends highly creative with technical, universities are embracing the practical side of learning alongside the theoretical. The University of Michigan-Flint and the University of Pittsburgh at Bradford have makerspaces for entrepreneurial projects and product development where students ideate on their own products and potentially partner with researchers to patent them or create businesses.



Engineering & Information Technologies Building  
University of Pittsburgh Bradford



Integrative Bioscience Center (IBio)  
Wayne State University

Supporting entrepreneurial culture is increasingly infused in STEM building design, even in wet labs. These maker spaces give students and researchers the tools and room to conduct hands-on experimentation across disciplines. Open labs, for example, not only incorporate the latest technology but also allow for collaboration.

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### 3. ALIGNING STEM DESIGN WITH WORKPLACE RELEVANCE

Increasingly, the university mimics the workplace and vice versa. The expectation for both is to provide individuals with quality workplaces with amenities, flexibility, and collaborative workspaces.

STEM-centric buildings play a role in empowering students with quality and unique resources while doubling down on an institution’s specific niche. For example, Michigan State University invested in a renowned plant research program building that responded to their need of providing cutting edge science with better technology and quality of life for users. Currently in development, this building has already helped attract new researchers while reinforcing the intellectual horsepower of their institution, and once again became the leader for grants.

Leaning into synergy between institutions and area businesses can also strengthen a university’s place in a specialty area. For example, HED’s design of University of Michigan’s Ford Motor Robotics Building has an entire floor dedicated to Ford Motor Company’s research and development team which is working on automated, robotic, and autonomous vehicle technology. The other three floors are university robotics research. Notably, university facilities also allow the private sector to research without company-specific constraints.

### 4. CREATING A SENSE OF BELONGING

Institutions are recognizing the need to build and design STEM spaces that are welcoming to both seasoned researchers and students who’ve never stepped into a lab before. Open lab concepts are gaining traction as well as an array of environmental and structural elements that create a sense of belonging. This trend goes beyond standard DEI practices and ADA regulations to embracing cultural differences and better accommodating neurodiverse students and researchers. These new or renovated spaces feature everything from height-adjustable furnishings and ample natural light to technology and hands-on elements.

The idea is for everyone to have the same comfortable, creative experience, regardless of background, gender, or ability. With the right design, the focus of the educational experience shifts from intimidating to comfortable.

Every institution needs to stand out. A big institution may want to enhance its research reputation with an impressive new building. A smaller college may want to emphasize and grow its unique STEM programs with a renovated, technology-forward, open lab design. Whether catering to the sophomore exploring a 100-level chemistry course or the next Nobel prize-winning physicist, current STEM building trends underscore the positive impacts of an interdisciplinary approach, hands-on experiences, workplace alignment and a genuine sense of belonging.