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MISSOURI INNOVATION CAMPUS

EXECUTIVE SUMMARY

The Missouri Innovation Campus (MIC) is a one-of-a-kind program offering the most accelerated K-16 degree program in the country. It's the result of a unique partnership between a K-12 school district and a university: Lee's Summit School District R-7 (LSR7) and the University of Central Missouri (UCM). It also involves more than two dozen industry partners throughout the Silicon Prairie region. It's specifically designed to meet the emerging needs of millennial students seeking to enter the workforce quicker—at less cost—with better assurance of job placement as opposed to traditional secondary-to-undergraduate tracks. Maintaining close alignment with workforce needs means programs are constantly evolving; thereby the facility has an unusually high degree of adaptability and flexibility.

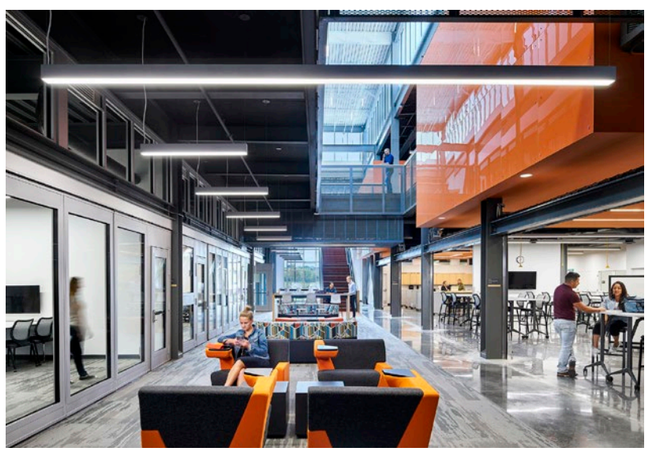
> "I want the entire country to notice the innovation happening here [at Missouri Innovation Campus], and I want other colleges to take a look at what's being done here as well."
>
> - President Barack Obama

Main student entrance

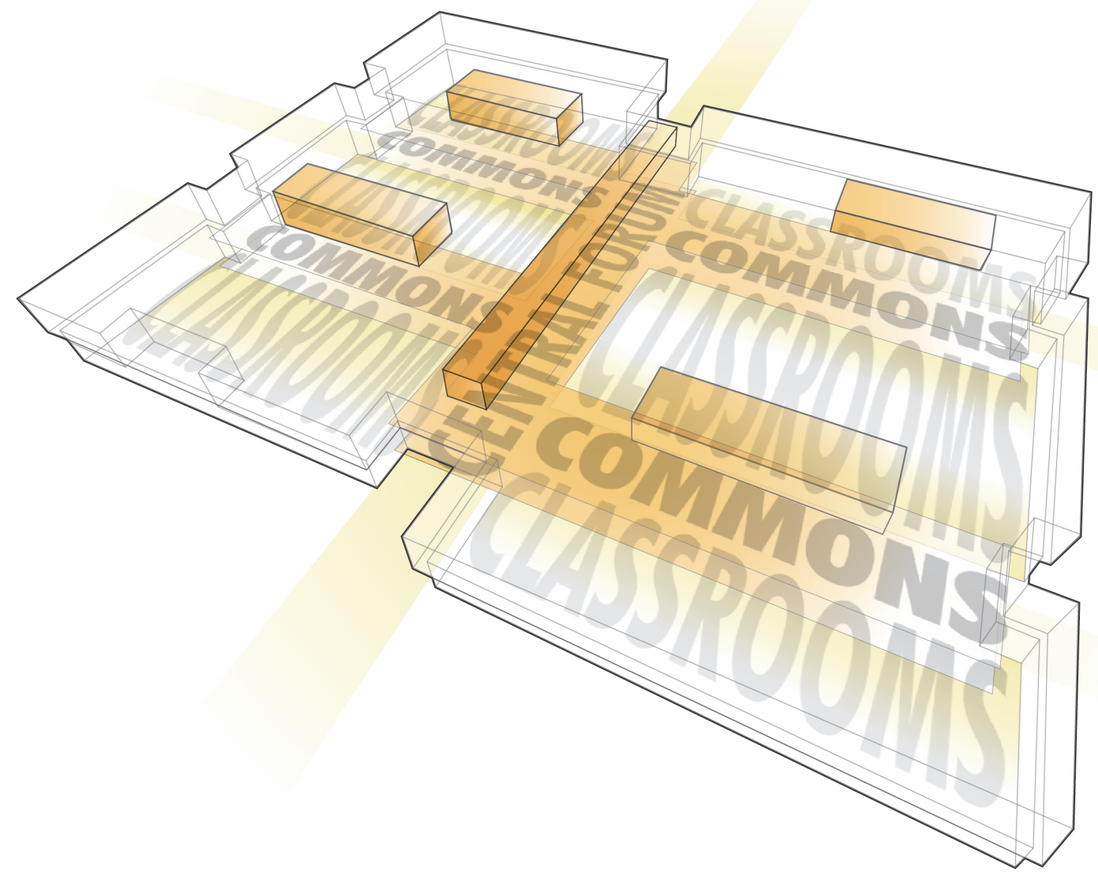
UNIQUE STUDENT COMMUNITY MODEL

The building serves as a "base camp" for students whose study locations include this campus, the workplace, and their home high schools. Cohorts become tightly knit groups of like-minded students and this model changes the dynamics of student life. Consequently, the building is organized in quadrants, each serving an academic department. Circulation space is transformed into "owned community space" (Departmental Ideation Commons)—usable for academic breakout as well as a third place. Students collaborate on projects, socialize, and ideate in this communal space—it's where they call home. The "front porch" to each commons serves as a landing for tours where student ambassadors welcome visitors and take them through the experience of the department.

Classrooms and labs open directly onto the shared communal space via sliding glass walls or simply retractable gates. Movement from one space to another is porous—much like a workplace where a palette of spaces offers variety and specificity for the activity at hand. Self-directed students are free to move from one space to another—it's not the one-size-fits-all flex classroom.



Engineering Wing Learning Studio & Departmental Ideation Commons

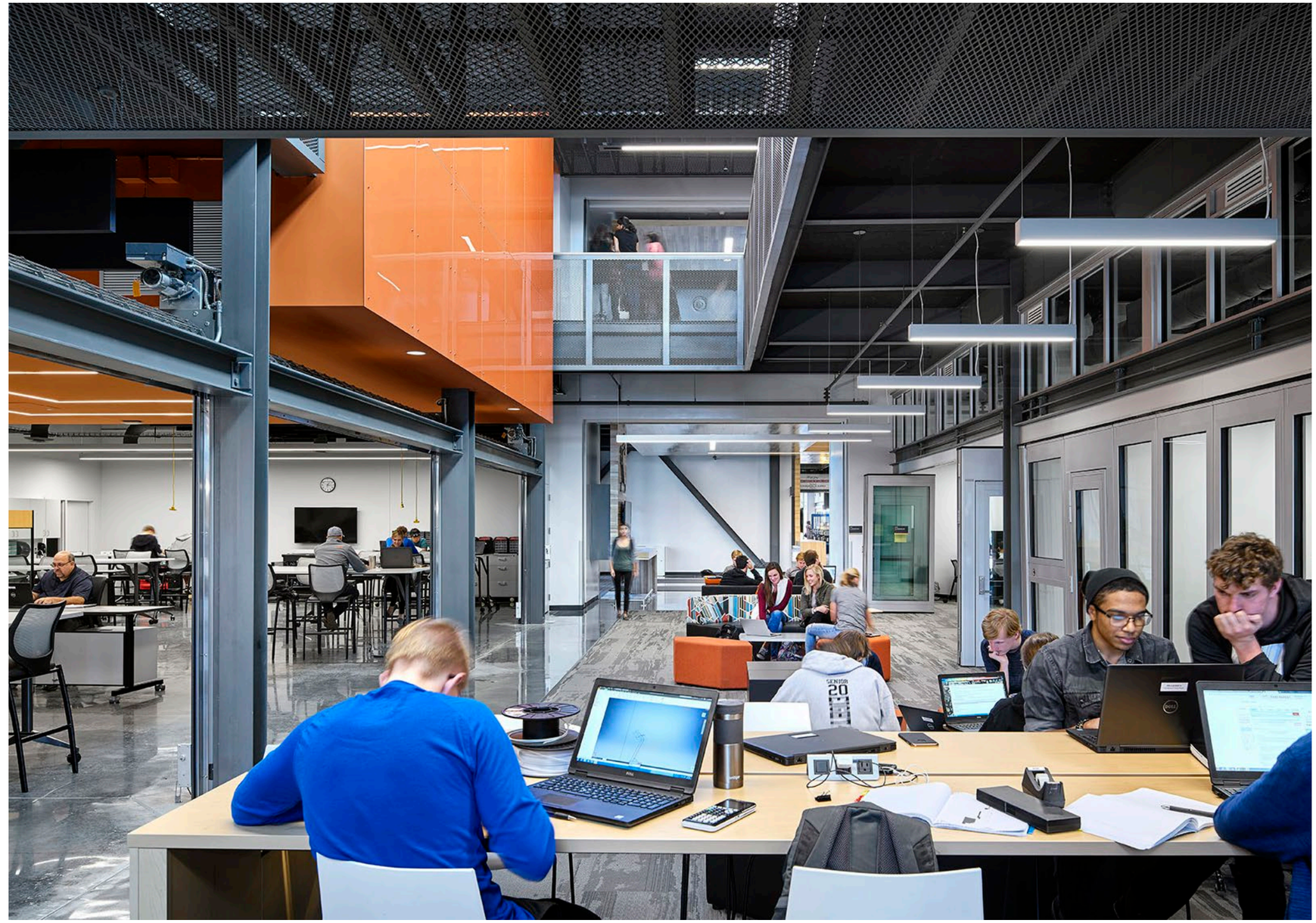


SPACE ORGANIZATION DIAGRAM

LEARNING PALETTE

There is a broad palette of active learning studios that support the departments. This variety allows the building to support progressive teaching models—a pedagogical incubator. Flex studios shift easily from one learning mode to another. Flexible presentation technologies shift with the pedagogical needs. This flexibility serves the multiple users well; while shared between LSR7 and UCM during the day, by evening, UCM takes over more classrooms with further-expanded course offerings.

> "The whole structure of the building is set up to support doing our work the way professionals do their work."
>
> - Alex, MIC Student



Engineering Wing Learning Studio & Departmental Ideation Commons

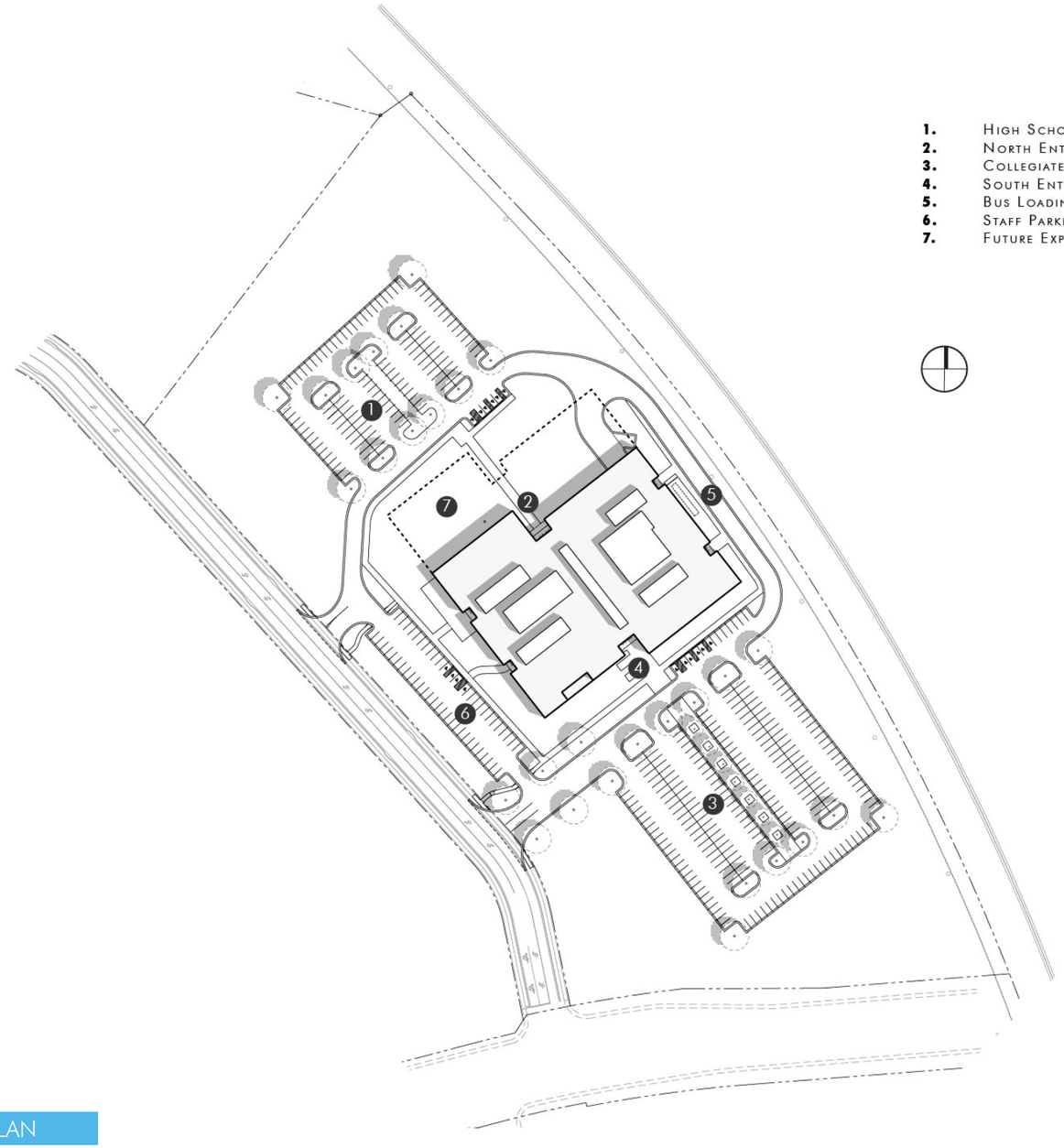
SCOPE OF WORK

The scope of work for MIC included professional services from pre-design/programming through construction and post-occupancy interviews.

- Pre-Design & Programming
- Stakeholder Engagement
- Schematic Design
- Design Development
- Contract Documents & Specifications
- FF&E Specification
- Construction Administration
- On-boarding Workshop
- Post-Occupancy Ethnography & Interviews

BUDGET

- Total Development Cost: $40,000,000
- Construction Cost: $26,800,000



1. High School Student Parking
2. North Entry
3. Collegiate Student and Visitor Parking
4. South Entry
5. Bus Loading and Entries
6. Staff Parking
7. Future Expansion

SITE PLAN

* Refer to pg. 13 for site context

EVERY SQUARE FOOT APPLIED TO LEARNING

Space normally associated with dedicated circulation has been repurposed as shared Ideation Commons for each department, thereby increasing the usable footprint and building efficiency significantly. The "cul-de-sac" organization of circulation eliminates the majority of "through traffic," limiting distractions in this cross-purpose space. Floor openings to the upper level allow more effective collaboration among stacked departments.

These "3rd Spaces" help replicate professional work settings, allowing students a range of choices on where to work, and instilling behaviors to make conscious choices on doing their work in spaces that are more supportive of their specific activities—like professional office environments.

1. Engineering and Design
2. Health Science
3. General-Use / Conference Center
4. Administrative
5. Digital Media
6. Central Commons

LEVEL 1 PLAN

1. Engineering and Design
2. Health Science
3. General-Use / Conference Center
4. Student Services
5. Digital Media
6. Open to Central Commons Below

LEVEL 2 PLAN

SCHOOL & COMMUNITY ENGAGEMENT

The community immediately surrounding MIC is largely developed as industrial and strip retail development. However, MIC draws an impressive array of community engagement from a much larger area. Their partnerships stretch across the entire Kansas City metropolitan area, made up of over 30 business partners, drawing students from 27 regional high schools, drawing an international student body enrolled in courses through the University of Central Missouri, and partnerships with five regional community college campuses.

Visioning Round Table discussions were conducted with a wide range of stakeholders, including:

- Business Partners
- Institution Leaders
- Students
- Faculty
- Alumni

Inspired quotes from students led directly to the organizational design of the learning communities—"Academic Quads"—where students can move from mode to mode at their own pace, and easily partner with fellow students in adjacent programs to assist with projects.

Additional visioning among the leadership led to strong emphasis on facilitating future flexibility and expansion.

Goals expressed by business partners pushed the faculty and administration to incorporate more "real-world" workplace settings into the learning environments.

REGIONAL PARTNERSHIP MAP

WHAT THEY SAID

Collaboration is missing in the student's skill set toolbox. The facility should improve visibility and access to other resources outside the immediate lab.

Full palette of "use modes" in the labs – support the ability to hang out, do homework, and independent unstructured work as well as lab work.

Multidisciplinary mindsets – it's important to understand how all processes and roles are critical to one another—to see this in action via proximity.

Replicating the active workplace – students need to learn how to partner activity with appropriate space—the facility should provide them that palette of spaces.

Communications proficiency – it's important to see how communication works on large, complex teams and how to convey information differently, using different communication media, based on the forum and participants.

Work is high speed. Education is not – MIC needs to prepare students for the fast pace of work.

Extended hours of access – provide the ability for students to work all night if desired/needed.

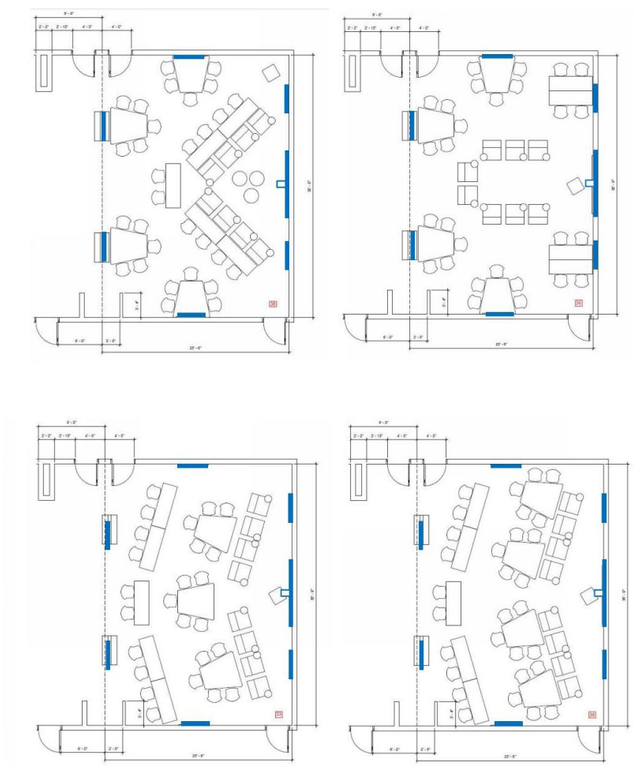
Leadership of teams – students should have experience being responsible for driving the productivity of teams.

FULL-SCALE PILOT LEARNING SPACES

Early in the design process, the first of two pilot learning spaces was mocked up. Over the course of the next year, multiple teachers were able to use the space and provide feedback which informed the final design.

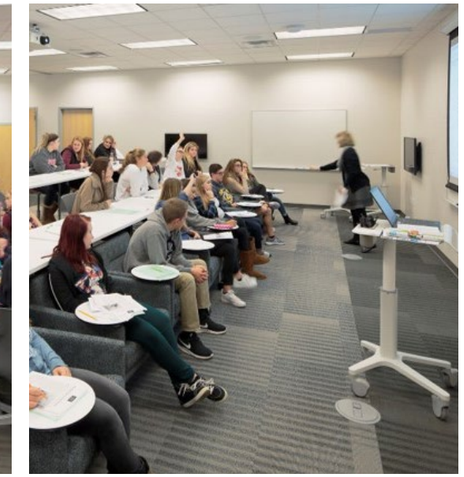
A second pilot learning space was installed to train teachers in flipped classroom methods and advanced pedagogical strategies. This served as an incubator for the new building, as well as other spaces across the UCM campus.

EVOLUTIONARY LEARNING SPACES



Pilot Studio #2 used highly adaptive furniture and A/V systems to shift from formal instruction settings to break-out to informal learning.

Pilot Studio #1, utilized in the Computer Science Department, featured wireless student devices, touch-interactive projectors, highly mobile team tables that shift from lecture mode to team mode, and mobile white boards.



Pilot Studio #2 simulated the future Flex Open Learning Studios that were utilized for flipped classroom methods. Hosting up to 75 students, the learning spaces promote teaching and learning models that more closely approximate workplace behaviors and activities. The intent was to push MIC's pedagogical methods forward with spaces that are difficult to use for traditional lecture-style teaching.

UNDERSTANDING POTENTIAL CHALLENGES

The process of intentionally and thoughtfully engaging faculty, staff, student and business partner stakeholders uncovered a number of challenges unique to a project of this type.

- It is difficult to facilitate meaningful engagement between partner companies and high school students. The more MIC has engaged business partners in developing desired competencies, the more fluid have been the transitions from the education setting to the work setting.
- Businesses move quickly, so the learning experience needs to get students accustomed to fast schedules with ill-defined problems and open-ended outcomes.
- Truly fostering workplace readiness skills requires a complete transformation of the way programs are taught—and likewise the way learning spaces are designed.
- As an institution whose mission is to increase workforce supply for regional businesses, MIC must keep a pulse on evolving new business sectors emerging in the KC metropolitan region. As such, the facility has been designed to optimize adaptability—to change facility conditions and accommodate new programs while elimination obsolete programs.

Flexible lab space was specifically designed to address the challenges of changing instruction models and the need to facilitate flipped pedagogies

EDUCATIONAL ENVIRONMENT

CREATING AN EDUCATIONAL COMMUNITY

MIC creates a learning environment that replicates behaviors and mindsets necessary in the 21st century workplace. Design features include open learning studios and labs, more akin to professional workplace settings where students are engaged on different types of projects and moving at different paces from one activity to the next. The MIC project supports students' abilities to move from space to space to best align learning activity with appropriate space. The spaces, as well as the program, require a flipped learning model where time on campus is spent in teams advancing projects and competencies while developing critical 21st century soft skills. For example, reading and review of on-line lectures happens outside of class hours. The faculty often reflect on how their role is more like that of a supervisor in a corporate setting.

CONNECTING WITH BUSINESS PARTNERS

The range of business partners continues to grow. Each student is paired with a business partner and begins a continuous 3-year professional development internship following their junior year. MIC is extremely committed to economic development within the region and provides companies with resources to extend their effectiveness. MIC adjusts its current programs and develops new programs based on industry demands. Through these relationships, MIC is a direct reflection of current workforce demand, ensuring their graduates relevancy in the workplace and eliminating their college debt.

Flexible lab and classroom space

A BROAD ACADEMIC COMMUNITY

The two institutions credited with innovating this extraordinary program (and the two that invested in the construction of the MIC campus) are Lee's Summit R-7 School District and the University of Central Missouri. In addition, Metropolitan Community Colleges and Johnson County Community College offer credit programs to the high school students to accelerate progress toward their bachelor's degree. The student body itself is made up of students from across the Kansas City metropolitan area, and MIC has received testimonials from numerous families that moved to the area simply for their child's access to this unique program.

> "If this isn't the most exciting K-16 learning environment to optimize teaching and learning experiences, I don't know where you'll find it!"
>
> - UCM Faculty Member

Digital media space

PHYSICAL ENVIRONMENT

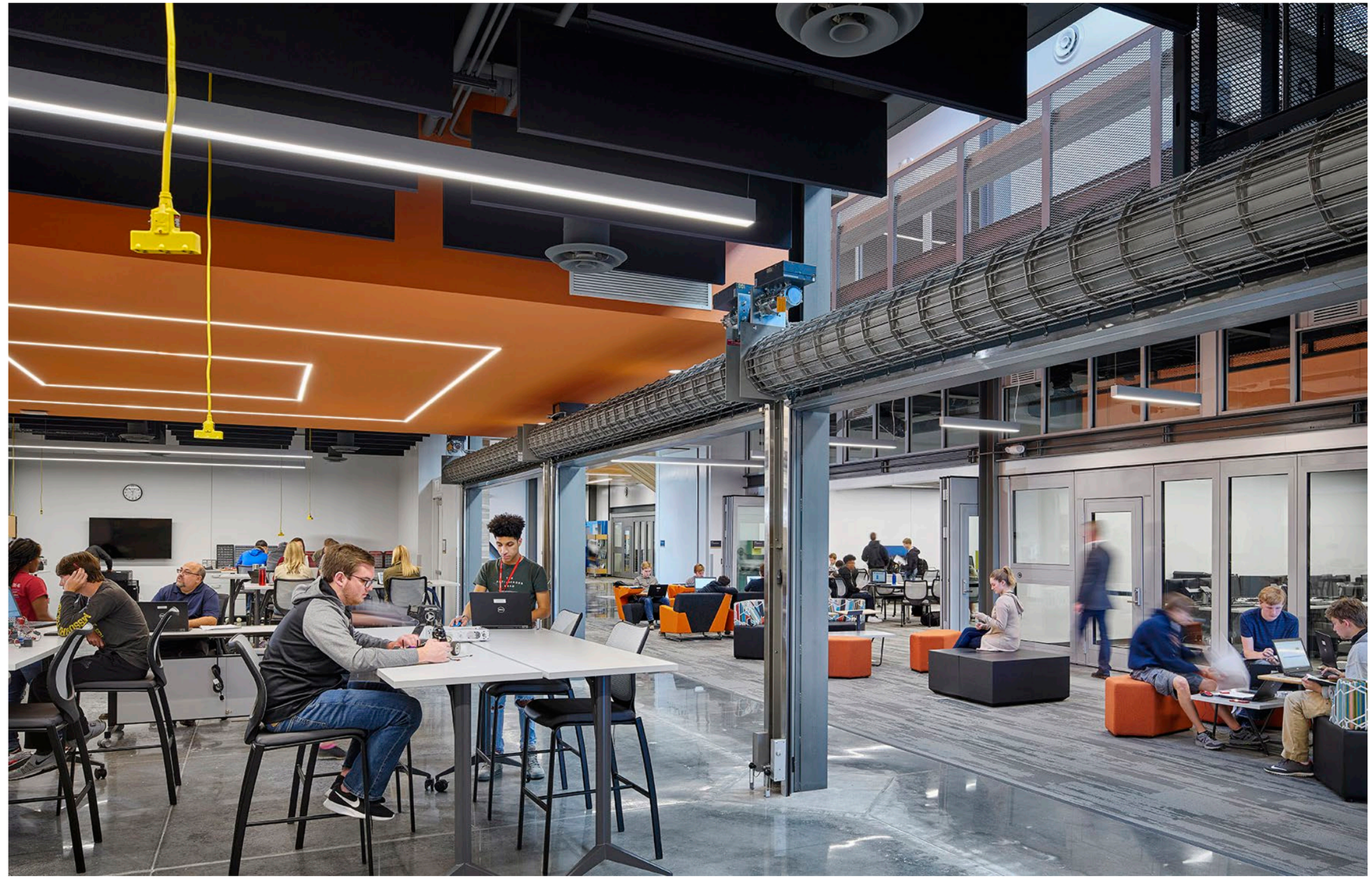
The context of the MIC is a mixture of industrial and retail strip development. The site was scraped flat prior to the project's origins. This "open slate" was used to leverage the complex site requirements to support distinct traffic patterns for high school drivers, college drivers, parents, buses, visitors, and staff (refer to site plan on pg. 5). The site also affords future expansion to the northwest. What limited natural setting did remain, a railroad right-of-way and tree line, is leveraged by the zoning of offices and bookstore/café looking out toward the trees. Overhead, daylight graces the interiors of all the departments via two-story atriums.

Overall exterior view of Missouri Innovation Campus in context

A SHARED LEARNING ENVIRONMENT

The MIC creates a shared facility for collegiate and high school students, occupied by two separate institution entities. Design features used to accommodate this include provisions for shared learning spaces (facilitated by operable walls systems and shared furniture and equipment in these labs), a shared reception office, and joint tenant signage. Safety and security provisions address having minors and adult students sharing the same building concurrently—central control desk, transparency for visual surveillance, and distinct zoning of each tenants' spaces. IT systems and phone systems were combined despite different platforms of each institution. Site circulation zones LSR7 traffic separately from UCM traffic.

> "This place really supports our ability to break off with whatever group size we need and go find the right kind of space for the work we have to do. And the openness of the space allows us to be inspired by what's going on around us."
>
> - Alex, MIC Student



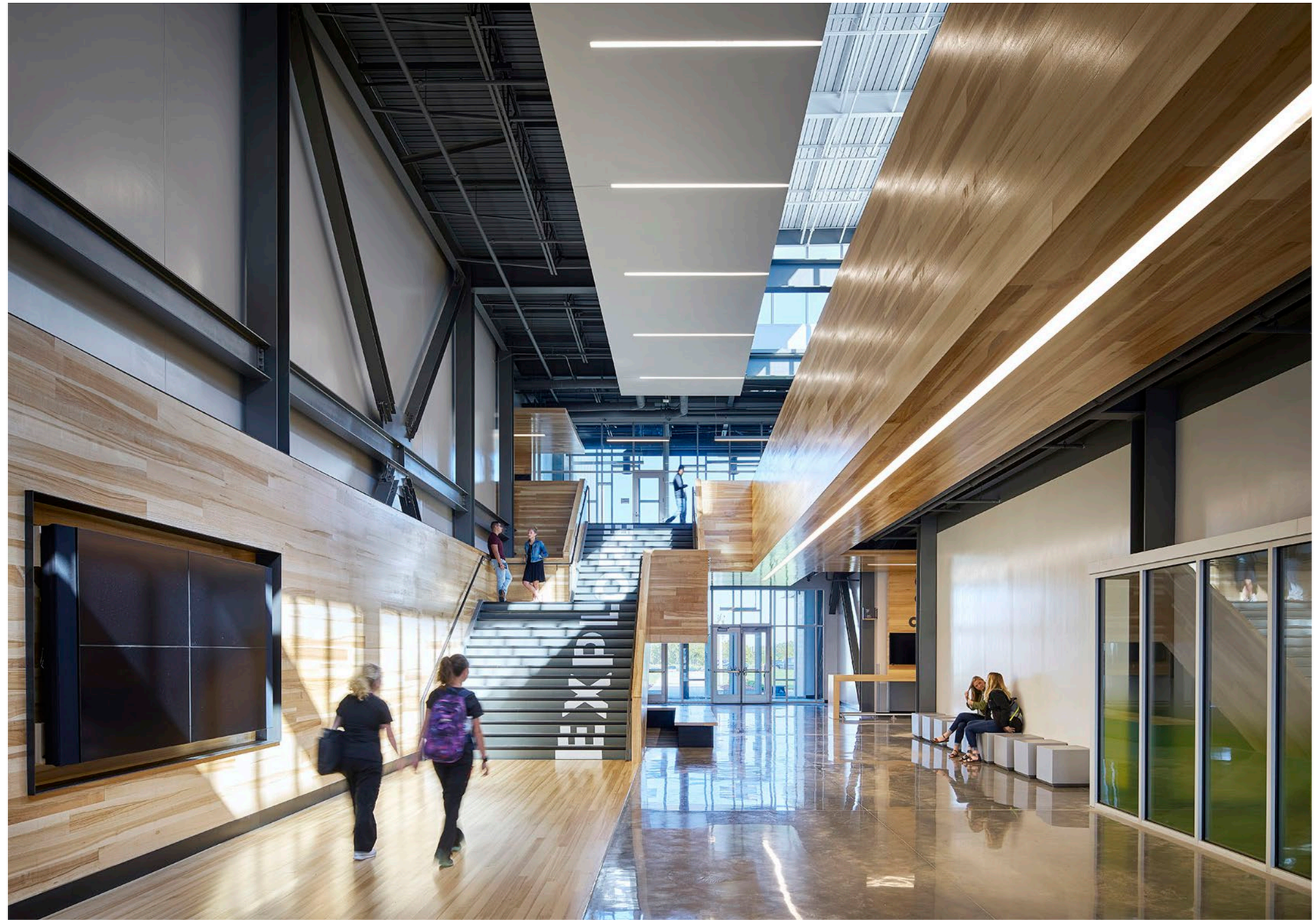
Engineering wing and adjacent Central Commons

> "This building is much more like the open labs of professional engineering environments. It supports doing our work the way professionals do their work."
>
> - Corbin, MIC Student

BUILDING REPRESENTS PROGRAM

Because of the unique nature of the MIC program, the owner team asked that the new facility not look like a school, nor an office building. They wanted it to be symbolic of the advanced technological programs happening within, and they wanted it to be timeless. There is a lack of context in this suburban industrial district, which supports the development of a facility driven by "inside-out" functionality. The folded aluminum panels change character with the varying reflectance of light. Interior woodwork is ash—the same as baseball bats—highly durable yet warm. Stretched metal lath railings, sealed concrete floors, and more contribute to an affordable environment that promotes messy experimentation among students.

Unique aluminum panel facade at main student entrance

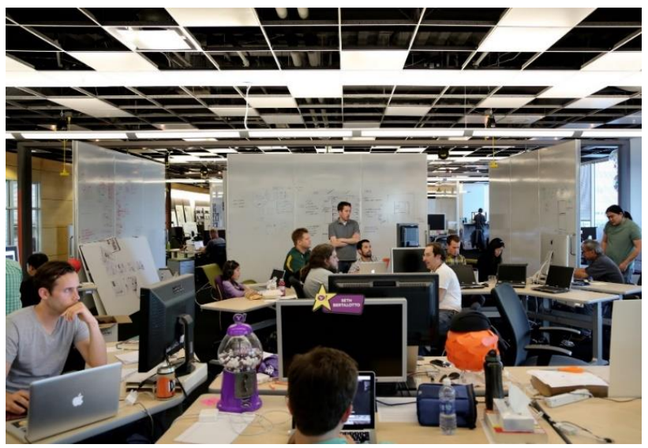


Two-story atrium connecting upper and lower commons spaces

TRANSLATION OF WORKPLACE INTO LEARNING SPACE

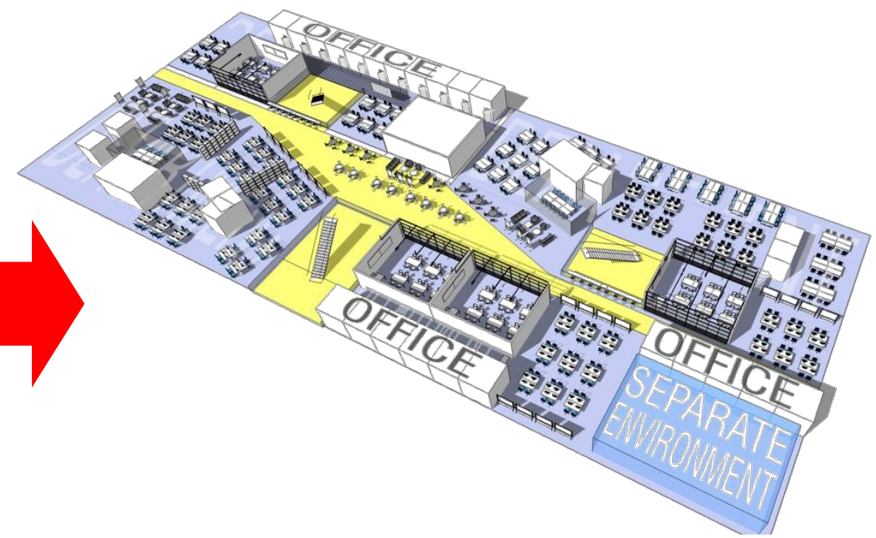
The Missouri Innovation Campus offers the country's most accelerated degree program largely due to the strong focus on competencies-based learning strategies. This is underscored by close business partnerships (including three-year paid internships for each student) and the design strategies inspired by these partners to make the learning experience as much like the workplace as possible.

Design inspiration was driven by the team's experience in the workplace sector—translating these work spaces into hypothetical learning environments—then overlaid with program to inform applied planning concepts.



MODERN WORKPLACE

Various modes of work are organic and fluid



HYPOTHETICAL LEARNING SPACE

How can we host learning in a workplace environment?

APPLIED LEARNING ENVIRONMENT

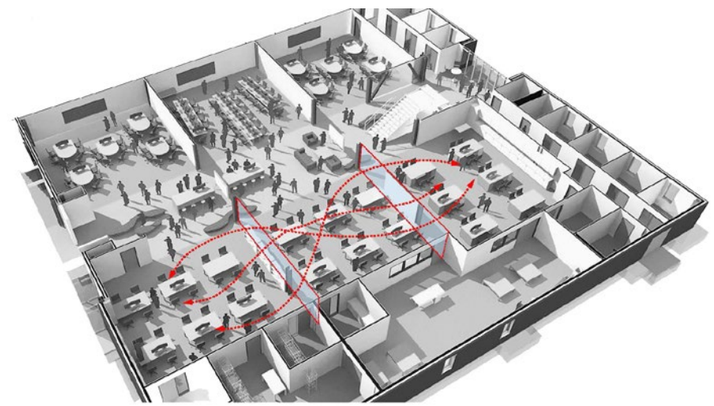
Overlays hypothetical concept with MIC program

OPTIMIZED ADAPTABILITY & FLEXIBILITY

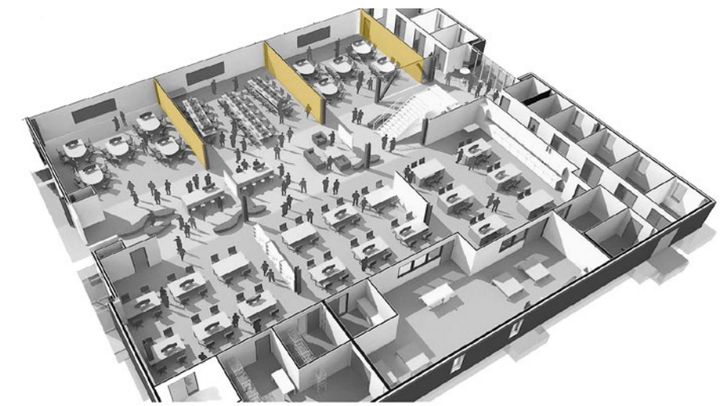
It is important for the facility to adapt to new programs as new industry demands and partners emerge. Design features that are used to accommodate this include deep, flexible floor plates and an exterior skin that allows interchangeabililty of metal panels and windows. Interior walls follow a hierarchical set of flexibility principles:

- Walls are eliminated where not critical for separation of labs
- Operable glass walls are used for flexible division of space
- "Soft walls" (stud and gyp) are easily removed or relocated
- "Hard walls" are used selectively at the perimeter of quadrants

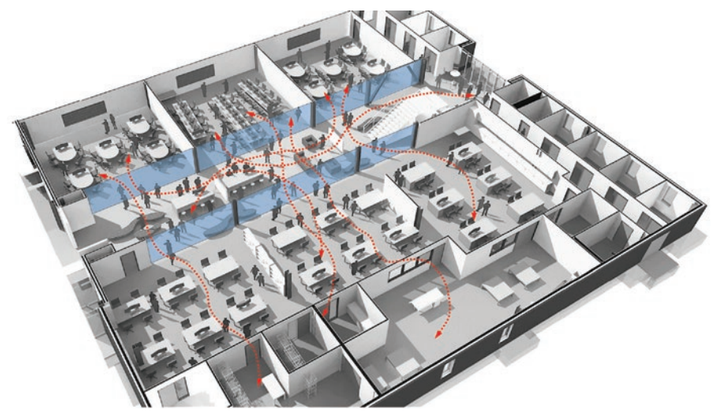
Everyday flexibility includes learning spaces shared between LSR7 and UCM. Roll-down grills and operable glass walls are used to secure non-shared spaces during evenings and vary the collaboration levels between labs.



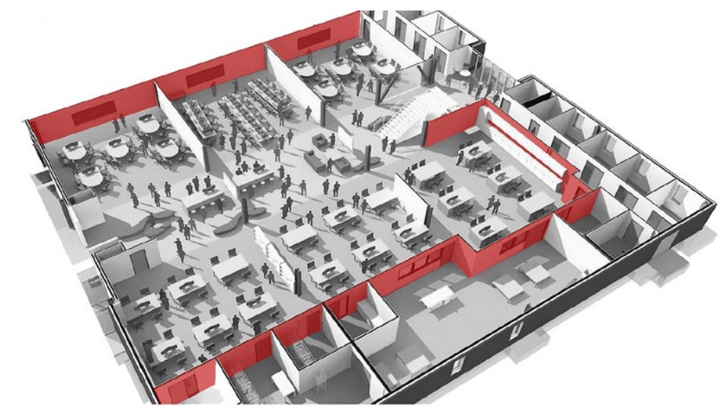
NO WALLS



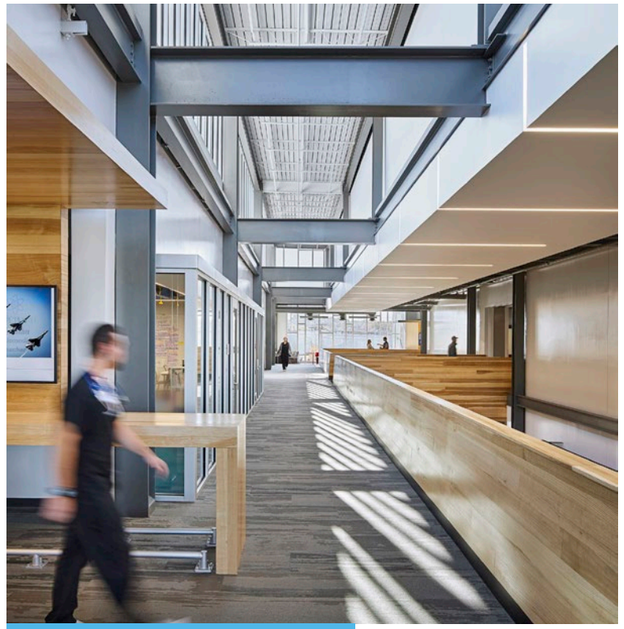
"SOFT WALLS"



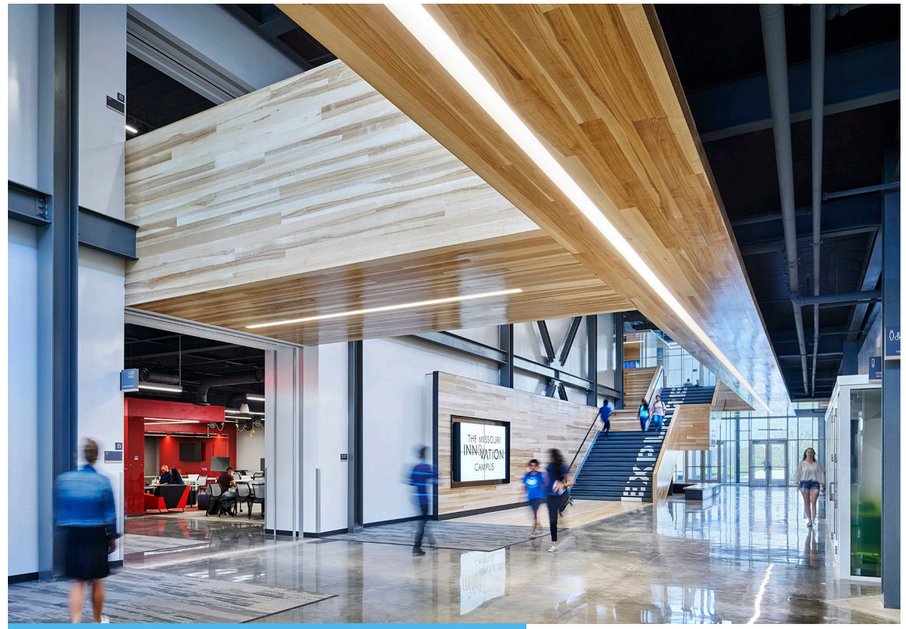
MOVEABLE WALLS



HARD WALLS

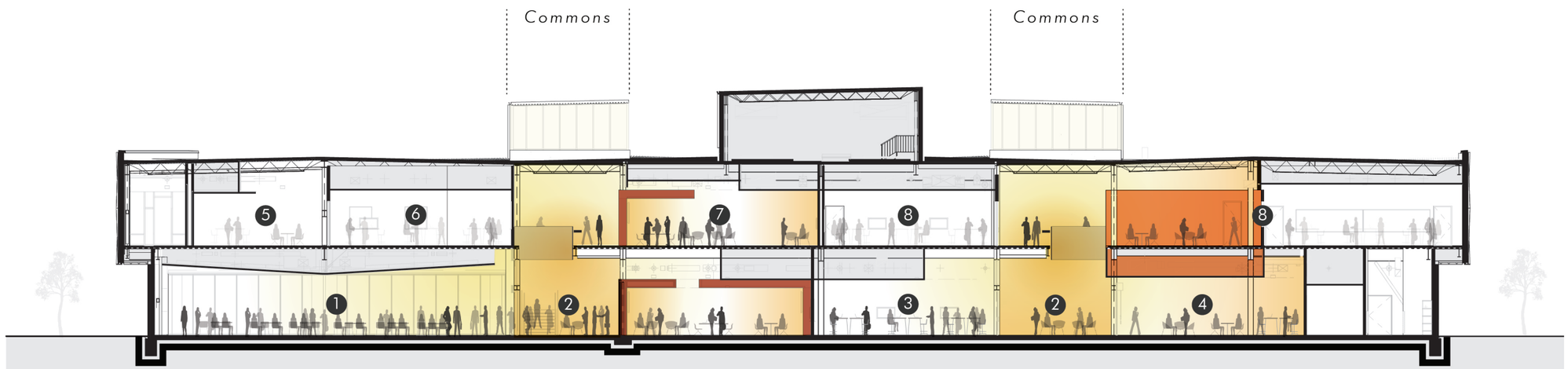


UPPER LOBBY COMMONS



LOWER LOBBY COMMONS & FLEX LAB

LOWER DEPARTMENTAL IDEATION COMMONS & BIOMEDICAL LAB



BUILDING SECTION

1. Conference Center
2. Ideation Commons
3. Flex Digital Lab
4. Digital Electronics Lab
5. Learning Commons and Student Success Center
6. Learning Studio
7. Flex Open Learning Studio
8. Computer Science / Network Lab

RESULTS OF PROJECT AND PROCESS

CLOSE ALIGNMENT WITH WORKFORCE

The design of the MIC facility is intended to instill and reinforce skill set gaps noted by business partners; not only hard skills but soft skills as well. Business partners have mentioned students need to enter the workforce prepared for the speed of business, an ability to collaborate within teams and across departments, development of multidisciplinary mindsets, embodying strong communications proficiencies, and having emerging confidence in the leadership of teams. The openness of the learning environments supports the self-directed learning model, and helps shape many of these soft skills.

Early visioning workshops with business partners resulted in a design model that takes many cues from contemporary workplace environments. Open labs in the engineering wing replicate the studio environments of area businesses while necessitating a flipped learning model where students cover lecture content on-line and spend their time on campus working in teams advancing projects.

Job placement rates for graduates has been 100% and most graduates are out-earning their peers while leading work teams comprised of co-workers several years their senior.

FLEXIBILITY OF SPACE

Students have a range of spaces to choose from to pair different types of work with appropriate space. Large flex studios support competencies-based learning models across a range of subject areas. Departments feature a "cul-de-sac organization" concept, minimizing cross traffic through the learning neighborhood. Ideation commons are shared "third spaces" in the heart of each department. The porosity between spaces supports a lot of movement in the learning process! The MIC project is now serving as a role model for other projects at UCM and LSR7, demonstrating how competencies-based learning translates to space and how it empowers learner agency.

Upper Commons with business partner touchdown space (right side of image)

LESSONS LEARNED

The process of programming, planning, design, and post-occupancy surveys for the Missouri Innovation Campus revealed a number of key lessons for the development of similar facilities in the future—some of which were entirely unexpected.

- The key to success for a facility like MIC is the program personnel—consistent leadership from Innovation Coaches and Internship Coordinators
- Shared Information Management Systems are key to collaborative pedagogies
- It is critical to have an Operations Team in place to support the seamless transition of faculty, staff, and students into a new space like MIC
- Space should not be precious so that students can feel comfortable taking risks and making mistakes

> "Compared to the old building, it's just insane how much more collaborative and innovative this new building is!"
>
> - Logan, MIC Student

Upper Commons in the Software Development wing

PROFESSIONAL QUALITY = WORKPLACE READINESS

The learning environments throughout MIC promote real-world learning, thereby better instilling workplace competencies. Studios and classroom suites feature professional performance-quality spaces and the most advanced systems available to ensure students are preparted for the modern work environment.

Upon opening in the fall of 2017, MIC's open house drew a crowd 5-times larger then the previous year. Enrollment has doubled and is projected to grow further for the 2018-2019 academic year.