WAUKEE INNOVATION + LEARNING CENTER

2019 Award Submission – James D. MacConnell

Scope of Work + Budget

Project Name
Waukee Innovation & Learning Center

Location
Waukee, IA

Type of Construction
70,780 gsf

Superintendent
Dr. Brad Buck

Capacity
500

Total Project Budget
Estimated at $20,000,000 (total project breakdown not disclosed by the school district)

Construction Cost
$13,159,455.00

Cost per sf
$186

Executive Summary

While it is still most commonly found in higher education institutions, entrepreneurial education is on the rise within PK-12 education curriculums. With the nation experiencing rising costs in post-secondary education, as well as ever-evolving changes in employment opportunities, there is a growing opportunity to create programs and facilities that introduce entrepreneurial education earlier through PK-12 intuitions.

> **"If we design a school, we've failed."**
>
> David J. Wilkerson, Ph.D.,
> Former Superintendent of the
> Waukee Community School District

The Waukee Community School District saw this opportunity, and created a program and facility that is helping its community prepare for national changes in employment opportunities, as well as the realities of growing post-secondary student debt.

The Waukee Community School District created the Waukee Aspiring Professional Experience (APEX), a program that introduced students to the knowledge, skills and motivational tactics needed to prepare them for collegiate and/or workforce opportunities. Waukee APEX is a collaboration of education, business and community to help students develop into highly skilled and adaptable leaders.

To be successful, the program required a facility that brought real-world application to the high school experience. Enter the Waukee Innovation & Learning Center (WILC): a comprehensive educational experience for students that joins educational curriculum with business acumen, all under one roof.

Challenges facing the future student and workforce include:

47%
of current US middle-class jobs are at risk due to automation over a twenty-year period.[1]

—

85%
of jobs that will exist in 2030 haven't been invented yet due to technological developments.[2]

—

$37,000
was the average student loan debt in 2016. Job earnings are declining while tuition is becoming more expensive, and college debt is increasing.[3]

References:

1. https://knowledgeworks.org/resources/future-learning-redefining-readiness/
2. https://www.delltechnologies.com/content/dam/delltechnologies/assets/perspectives/2030/pdf/SR1940_IFTFforDellTechnologies_Human-Machine_070517_readerhigh-res.pdf
3. https://trends.collegeboard.org/college-pricing

Both the program and facility focus on five key economic sectors in central Iowa:

1. Bioscience + Value-Added Agriculture
2. Financial + Insurance
3. Business, Technology + Communication
4. Engineering
5. Human Services

The WILC facility is the result of a multi-phased, highly interactive design and engagement process that involved the students and staff of the Waukee Community School District, local business partners as well as members of the Waukee community. The process consisted of interviews with the school district and community about the Center for Advanced Professional Studies (CAPS), which helped guide and create the current APEX program. The interviews helped the team better understand the APEX curriculum, as well as inspire design ideas. The design team also observed and toured Waukee High School, spoke with local businesses for an understanding of potential student partnerships (via industry tours), and met with and collected insights from the Waukee APEX Advisory Board. The Advisory Board consists of business leaders in the community, and meets quarterly to support strategic planning, recommend new courses, and prioritize the economic sectors critical to the community and future workforce needs.

"I consider it a model for the school of the future. But the great thing is, it's happening today."

Tim Cook, Apple CEO (quoted in The Des Moines Register)

School + Community Engagement and Educational Visioning

Located in America's heartland, the City of Waukee is one of the fastest-growing cities in Iowa in one of the fastest-growing counties in the United States. The current population is 22,810 residents – a population that has doubled over the past decade.

The city is making a name for itself within commercial development thanks to grant funding and interest from tech giants such as Apple. In fact, in 2016, the state of Iowa was one of 36 states to receive grant funding to increase access to Registered Apprenticeships. (Source: https://www.iowaeconomicdevelopment.com/newsDetail/6412)

The Waukee Community School District serves as a professional learning community, and is committed to fulfilling its mission statement: "Dedicated to optimizing individual learning and potential for success in a global community."

The District currently serves more than 11,200 students from Clive, Urbandale, Waukee and West Des Moines. It has the highest graduation rates in the state at 99.26 percent, with more than 89 percent of students going on to some form of postsecondary education.

Designing a facility for the APEX program began with deeply understanding the Waukee community, and its perceptions, beliefs and needs associated with creating a new educational experience for the students of the Waukee Community School District. The design team used a process composed of three parts: Discovery, Activation and Strategy.

"It should be a center where kids can see first hand why their education matters."

Waukee Community Member

The Stakeholders

The Discovery phase consisted of engaging a wide-range of community constituents in an interview process. These included teachers and administrators, the incoming principal, parents and community members, students and business and industry partners. It was during this phase that the team developed insights and trends unique to community perspectives, resulting in an initial set of design drivers that indicated how the facility can best serve the APEX curriculum.

The Challenges

The Waukee Community School District and the design team faced three primary challenges when considering the development of WILC:

Challenge #1

Create a facility that caters to the needs of the APEX program and fosters entrepreneurial education, despite limited previous examples or precedents.

Challenge #2

Build an environment that provides opportunities for passion-based learning, for authentic projects, and experiences for students, while at the same time adding value to business partners while exploring career possibilities identified by economic trends.

Challenge #3

Simultaneously address curricular needs with regional/state initiatives.

Both Waukee and the design team also challenged themselves to create something new, knowing if they were going to have the opportunity to develop this facility, it needed to be something that would catapult students into the future. This meant breaking with traditional layouts, and leaving the idea of a standard school behind. As a result of the Discovery phase, the team discovered several common themes they knew were crucial to the design, including the need to encourage mentorship and community connections; to place learning on display; to simulate real-world environments; and to foster innovation and entrepreneurship.

The Assets

To help develop and guide the curriculum, the district developed a relationship with the Blue Valley CAPS program in Blue Valley, Kansas. After researching the Blue Valley CAPS program, the district walked students, administrators, board members, community members and lawmakers through the process of creating a similar, but customized program, which was re-named APEX. The program focuses on five core strands: Business and Finance, Engineering, Technology, Health Services, and Biosciences and Added Value Agriculture. Catering these strands, in addition to the support and insights provided by administration, the community and local business owners, all contributed to guiding design ideas for WILC.

The Value of Process + Project to Community

The second phase of the process, Activation, reviewed the trends and perspectives gathered during the Discovery phase, and were tested out with key stakeholders in a workshop format. This included a visual listening activity designed to assess the group's vision of what constituted elements of a successful learning space. The design team also tested the groups' perspectives across a range of beliefs focused on sustainability, entrepreneurial spirit and spatial quality. Finally, groups were engaged in a spatial mapping activity that enabled the team to better understand movements of learners through the Waukee community over the course of a day. This enabled the team to understand where learners anticipated spending their time, their travel through the community, the use of community spaces for learning, and when and where they went to engage business and industry partners. During this phase, the initial set of design drivers were refined to provide a final set that informed the Strategy phase.

Specific Activation Phase Initiatives

Insight Week: Understanding WILC's climate and culture. The design teams held interviews with the Waukee School District and community surrounding The Center for Advanced Professional Studies, also known as CAPS. CAPS would help guide and create the current APEX program. These interviews were crucial to understanding the curriculum and design needs of the new facility.

Industry Tours: Team members also toured and spoke with Waukee-based industry partners to better understand their climates, cultures and overall operations. These tours helped develop the APEX program, and inspire elements of the facility design.

Forming + Engaging the Waukee APEX Advisory Committee

The team met with and collected insights from the Waukee APEX Advisory Board, which guides the development of the APEX program. The Board consists of business leaders in the community, and meets quarterly to support strategic planning, recommend new courses, and prioritize the economic sectors critical to the community and future workforce needs. Advisory board members also provide introductions to business partners, help identify APEX student projects when needed and assist staff in addressing issues that affect the operations of the APEX program.

Immersive Design + Engagement Process

7
tours with industry partners

—

5
student tours

—

3
community engagement workshops

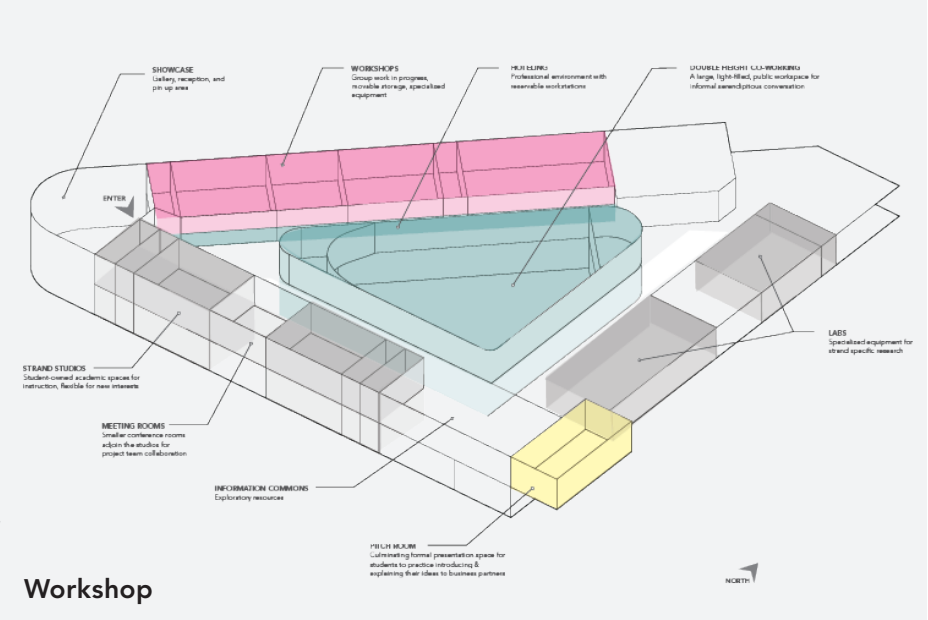
—

6
discovery interviews

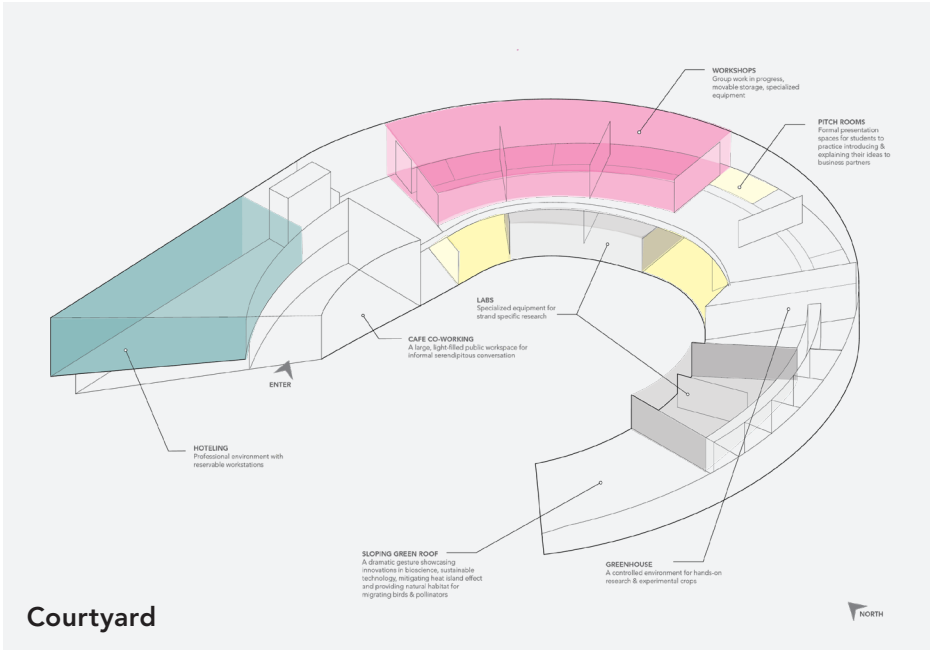
—

50+
informal interactions with students, teachers, administrators, community and school board members

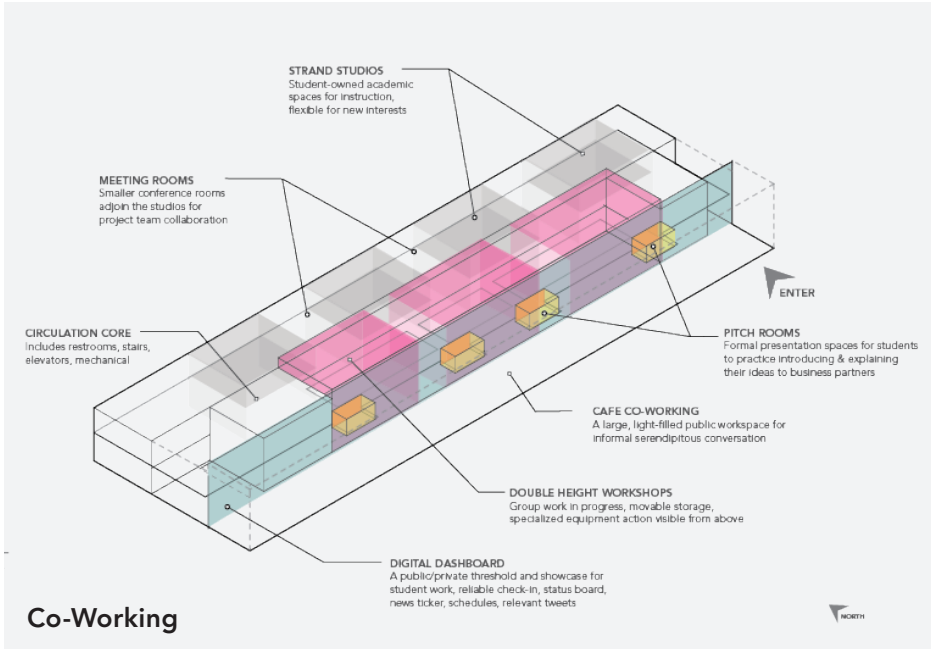
In the Strategy phase, the design team presented an initial set of strategies to Waukee leadership that outlined the design and development of the facility. Once a core strategy was identified, the team developed various layouts that were presented again to key stakeholders for evaluation. Participants were given the opportunity to ask questions and provide written feedback. From this, a strategy was selected and then developed into a single concept design for advancement into schematic design.



Workshop



Courtyard



Co-Working

"The design process was comprehensive, involving our full school community, and requiring participants to stretch their thinking. Everyone was engaged in thinking outside the box to create new and unique learning spaces that represent what our students will experience in the private sector and beyond! I was extremely pleased with the process and end result and am confident our students and communities will benefit for years to come."

David J. Wilkerson, Ph.D., Former Superintendent of the Waukee Community School District

Educational Environment

Supporting the Cirriculum

WILC serves the APEX program, which focuses on passion-based learning, and creating authentic projects and experiences so students add value to business partners while exploring career possibilities identified by economic trends. The facility hosts areas that support the five APEX program tracks.

WILC allows students to take ownership of their learning paths and project development, utilizing entrepreneurial learning to prepare them for opportunities post-graduation. Its student-focused design allows students to research, think and create.

The co-working zone is the heart of WILC and crucial for the APEX program. It joins professionals with students in an inviting, central gathering space focusing on the relationship of social, academic and professional interaction. The co-working space has a range of learning/working modalities including hoteling, working productively alongside business partners, business partner touchdown zones, showcase zones to exhibit projects and pitch zones for students to practice communicating their ideas.

Enclaves can be used as pitch rooms or meeting spaces; workshops used for product development; labs for research; and the open learning space for collaboration.

Overhead doors allow views of projects in process and encourage collaboration. Marker board, pin-up spaces and monitors display student work outside of studio environments. The enclaves and smaller workspaces break up larger environments, and offer a more private learning/working space. Decompression areas allow students to stay on campus and engaged, while taking a moment to escape and recharge. And each APEX program track has its own studio space.

WILC WORK SPACES				
INFORMAL	**FORMAL**			
				
Co–Working Learning Hub Informal space that supports learning in a social construct	**Enclaves** Small group meetings, focusing, check-in getting feedback and different perspectives on progress	**Studios** Discovery, remix and make spaces – A range of spaces that support a variety of dimensions and activities of learners	**Workshop** Generalized maker space for all students and strands	**Conference Rooms** Professional presentation to peers, mentors and the world

Supporting a Variety of Learning + Teaching Styles

21st century learning models are no longer teaching all students in the same way, thus, not all schools and learning environments should be designed in the same way. The team utilized survey results that included the input from key stakeholders to identify what spaces they felt were needed within the building, and then balanced this with creating spaces that support the learning styles and modalities needed to make the APEX program successful.

The facility design incorporates environments that range from smaller enclaves, to labs, to an open learning space. These can be adjusted or repurposed for the users' needs. Students can utilize the spaces to work on projects, faculty can use various rooms for evaluations or meetings, local business can reserve workstations or hold conferences and events, and the community can utilize rooms for presentations or town halls.

What does a 21st Century Education look like?

- Community-based
- Performance-based
- Experience-based
- Competency-based
- Participatory-based
- Inquiry-based

SPACES	COMMUNITY	STUDENTS	EDUCATORS	BUSINESSES
Faculty Offices	Mixed	Desired	Not desired	Not desired
Tinkering Spaces	Desired	Desired	Desired	Mixed
Fabrication Shops	Desired	Desired	Desired	Not enough data
Business Center	Desired	Mixed	Desired	Not enough data
Incubator Space	Desired	Desired	Desired	Not enough data
Cafe	Not desired	Desired	Not desired	Not enough data
Multipurpose	Mixed	Desired	Mixed	Not enough data
Co-Working	Mixed	Desired	Mixed	Not enough data
Studios	Desired	Desired	Desired	Not enough data
Gallery	Desired	Desired	Desired	Mixed
Auditorium	Mixed	Desired	Mixed	Not enough data
Community Center	Mixed	Desired	Mixed	Not desired
Test Kitchen	Desired	Desired	Desired	Not enough data
Test Lab	Desired	Desired	Desired	Not enough data
Simulation Lab	Desired	Desired	Desired	Not enough data

- Not enough data to draw conclusion
- Not desired
- Mixed perceptions of desireability
- Desired

Supporting an Adaptable + Flexible Environment

Like the APEX program, WILC is a flexible and adaptive learning environment that changes to suit student, faculty, professional and community needs. Building shell and systems allow walls to move when room functions change. Electrical, columns and other system components adapt to various use-cases. And key building systems focus on the “what if” instead of the “what is.”

The building’s interconnected design and shape creates fluid, winding and continuous paths throughout studio spaces while remaining adjacent to large, open community collaboration spaces. Pivoting wall panels allow students and faculty to open rooms and change spaces with ease. Overhead doors on the first floor allow the classrooms to open onto the co-working space . Glass walls promote interaction and attract interest in projects from students/ professionals in other areas of work. The entire facility puts student work and building resources on display.

FINAL FLOOR PLAN

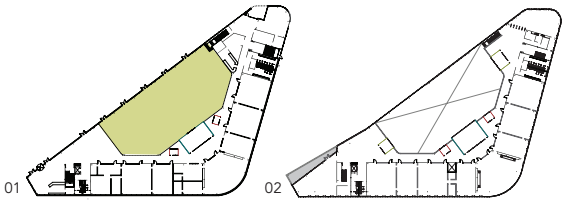
1. Lobby
2. Co-Working
3. Café
4. Studio
5. Workshop
6. Enclave
7. Conference
8. Lab
9. Decompression
10. Accelerator
11. Wellness
12. Balcony
13. Support
14. Bathrooms

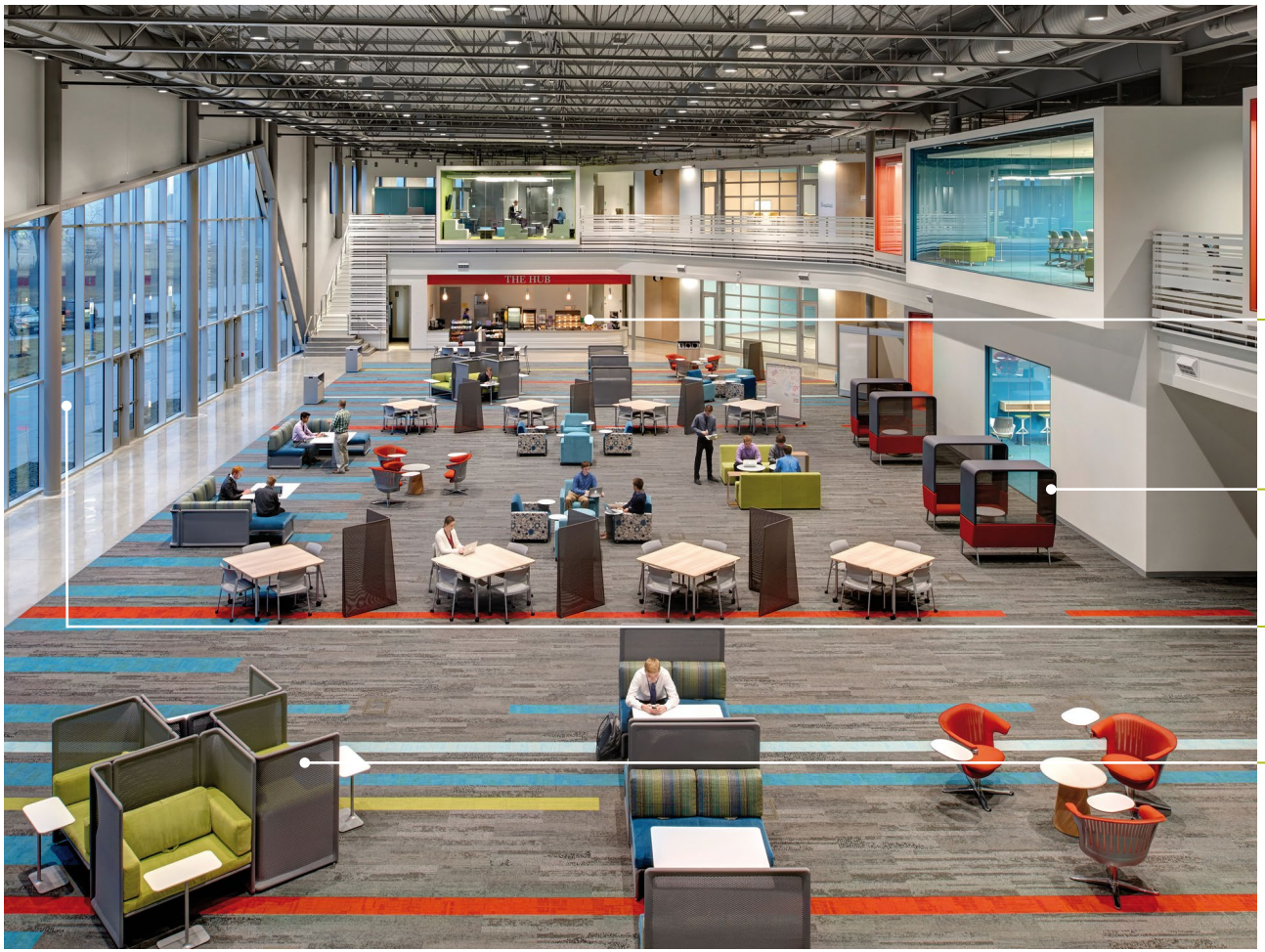
FLOOR 01

FLOOR 02

Co-Working Learning Hub

The co-working zone is the heart of WILC and crucial for the APEX program. It joins professionals with students in an inviting, central gathering space focusing on the relationship of social, academic and professional interaction.





A modern café for refueling snacks and beverages

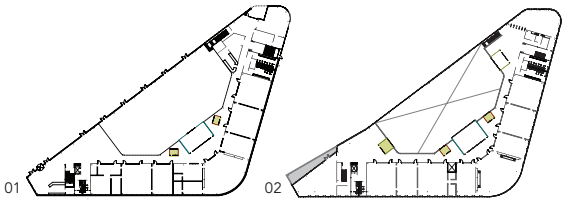
Comfortable collaboration spaces

Windows to encourage transperancy and invite visitors into the space

Individual cubbies

Enclaves

The enclaves can be used for individual focus work or small group meetings. They break up larger environments, and offer a more private space. There are a total of five enclaves – two on the main floor and three on the second floor.



Windows overlooking the Co-Working Learning Hub

Glass doors reduce noise and create privacy while still encouraging transparency

Whiteboard walls for note-taking

Studios

There are a total of 12 studios, five on the main floor and seven on the second floor. Each studio is dedicated to one of the APEX core strands: Business and Finance, Engineering, Technology, Health Services, Biosciences and Added Value Agriculture. Each studio space is customized to fit each strand's needs.

Overhead doors allow views of projects in process and encourage collaboration

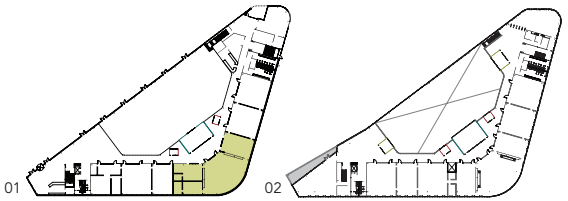
Pin-up space for projects

Large whiteboard walls for note-taking

Moveable desks/chairs to accomodate any group size

Workshops

There are three workshops open to all students for fabrication and testing, full of movable storage and specialized equipment for building and tinkering.



Overhead doors allow views of projects in-process, and encourage collaboration

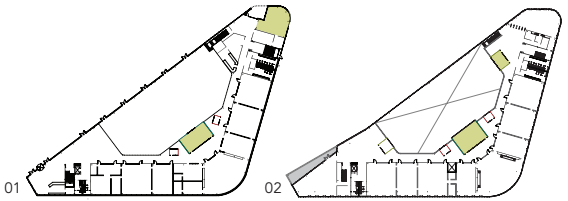
Open windows connect to community

Open table space for larger projects

Specialized equipment

Conference Rooms

There are a total of four conference rooms – two on the main floor and two on the second floor. Each conference room ranges in size to accomodate different group sizes as necessary.



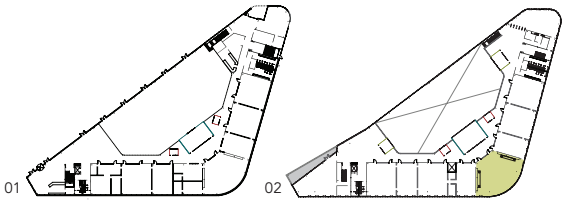
Windows overlooking the Co-Working Learning Hub and rural landscape

Double-sided whiteboards for note-taking

Projector and display screen for formal presentations

Lab

There is one lab full of specialized equipment for strand-specific research.

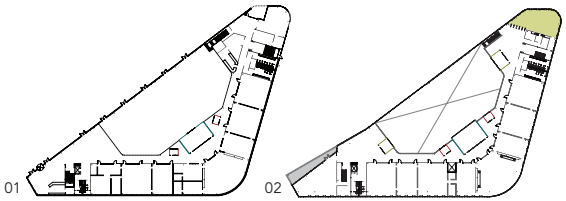


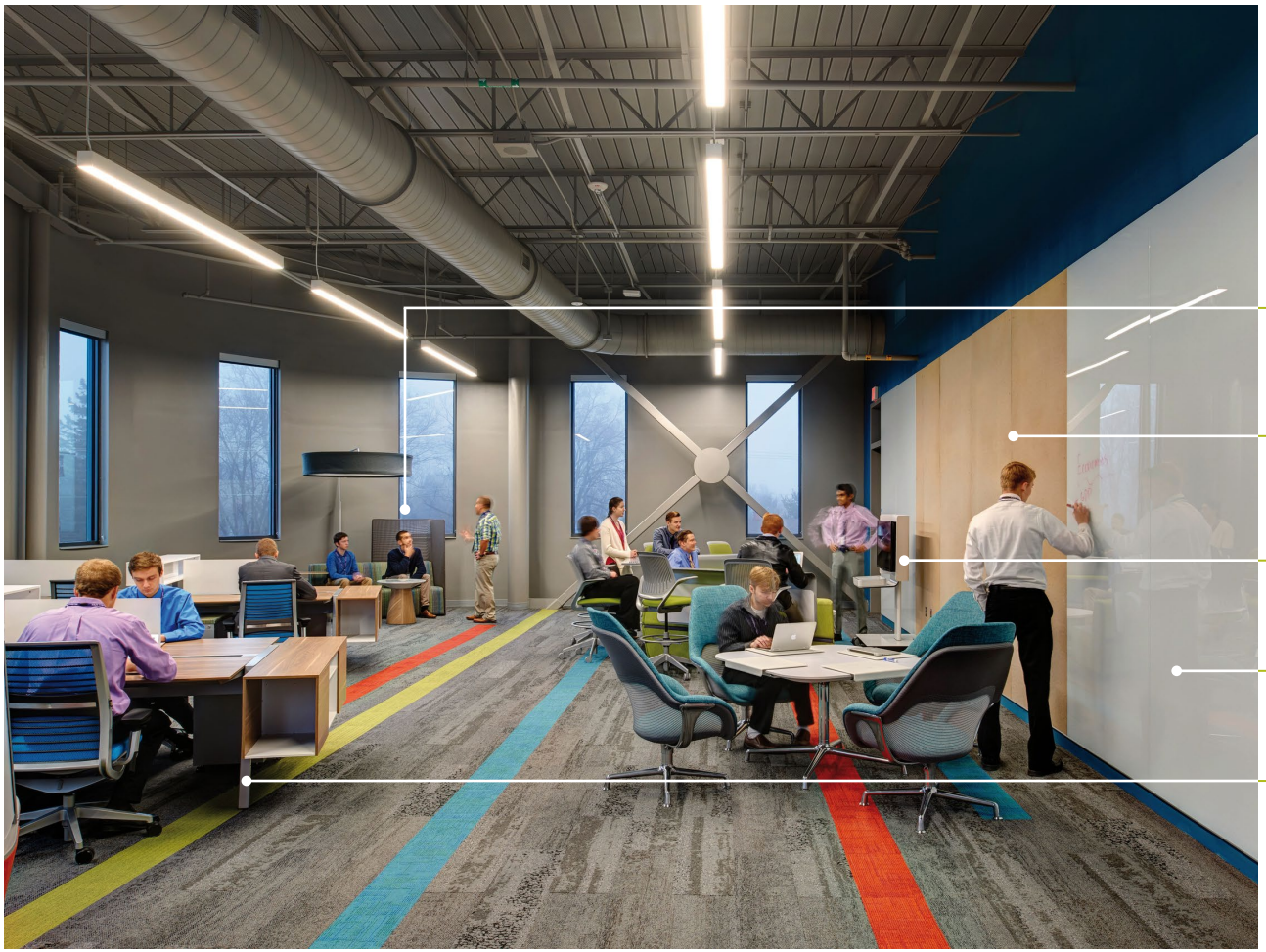
Individual desks with wheels for flexibility

Open table space for research

Accelerator

The accelerator is a dedicated start-up environment for development with business partners. It has an entrepreneurial spirit and is meant to be a space to help ignite ideas.





- Group work space encouraging collaboration
- Pin-up space for projects
- Monitors for presentations
- Whiteboard walls for note-taking
- Cubicle spaces for individual work

Decompression Zone

Decompression areas allow students to stay on campus and engaged, while taking a moment to escape and recharge.

Floor-to-ceiling windows connect students to the outside environment

Balcony seating for outdoor work

Games and activities with casual seating

"It's not a building, it's a culture."

Waukee Community Member

Physical Environment

The Physical Attributes

WILC's offerings include large, light-filled public workspaces with an informal ambiance that encourage collaboration. Meeting and conference zones, individual spaces (such as labs and enclaves), and a learning hub cater to professional, educational and community use. Bright colors line the walls, and moveable furniture fills the floors. The facility also features components found in the modern workplace: a cafe, collaborative spaces, meeting rooms, accelerators, decompression zones and industry-specific studios. A flexible and resilient learning environment focuses on developing soft and hard skills, critical thinking, problem solving and going beyond the task at hand.

For physical attributes, the glass on first floor of WILC showcases the connection between the community and the school district. Student projects are on display, and local businesspeople/the community are invited to view work in progress. Exterior learning spaces also cater to environmental and outdoor projects that further connect students with the facility's physical surrounding environment.

The Community

When considering the placement of the building, the design team had to carefully balance several key site elements. While there was a desire to create a strong visual presence to the community, the team also needed to respect setbacks, contextual adjacencies, accommodate parking requirements and navigate grade.

The site hosts a shared parking lot that is used by both WILC and the Timberline Complex in the adjacent lot. It provides additional community use for those accessing the fields and complex.

Careful consideration was taken to preserve as much of the existing, onsite vegetation as possible. The central portion of the property is densely forested, consisting of mature hardwoods and underlying saplings. As the team studied schemes for parking, they also tried to maintain as much of this natural area as possible.

In regards to the facility as a whole, WILC is part of the school district's strategy for sustainable growth – it hosts a value-add from a curricula standpoint that also helps develop resources for the community at large. And while the APEX program has 250 students, WILC can hold up to 500 people. WILC can help manage the growth of the program, district and community in a space that can adapt and change depending on its need.

WILC is also a model for sustainability, something of paramount importance to the Waukee community. Designed under LEED certification guidelines, the facility is adaptable and flexible to program needs. Material selections followed LEED requirements, and the team left the original site in tact as much as possible. The design team also took a sustainable approach to water retention through the construction of an onsite retention pond, which is used as a learning activity for APEX students. The team worked with the school district so the facility would receive energy rebates back – as a result, the school received $29,100 back for the implementation of energy conservation measures, including its HVAC 1 system.

Exterior Design

The exterior uses site-responsive, innovative design that is respectful of the adjacent rural landscape. It's panelized systems allow for economy of installation and fabrication.

- Corrugated aluminum penthouse
- Geometric windows
- Metal panels
- Second floor balcony
- Outdoor workspace
- Concrete architectural finish
- School/community plaza


TIMBERLINE COMPLEX SOCCER FIELDS
TRAFFIC FROM WAUKEE HIGH SCHOOL
SHARED PARKING FOR 500
SCHOOL/ COMMUNITY PLAZA
MAIN ENTRANCE
RETENTION PONDS
RESIDENTIAL COMMUNITY
TRAFFIC FROM DES MOINES
EXISTING RURAL LANDSCAPE
0 50 100 200 600

Results of the Process + Project

Students and teachers praise WILC for its inclusive design, as well as its ability to help introduce students to real experiences, find areas they are passionate about and develop skills they will need outside of the classroom.

In the years to come, the Waukee Community School District will track the number of students that stay or come back to Waukee after participating in the APEX program/utilizing the facility. In the meantime, students are now engaged with their surrounding business community and are able to see the opportunities it presents.

Business partners have already found value from working with the APEX students:

"Through APEX we have been able to pilot projects that have allowed us to explore what solutions are possible, technical feasibility, and potential cost of a solution. I particularly enjoy working with the advisory team to bring a challenging and rewarding curriculum to the classroom. It never fails to amaze me what high school students are capable of, and I like to push their bounds to see what awesome things they can come up with!"

Andrew Colosky, John Deere

—

"Working with student groups such as APEX encourages our institution to work across department boundaries to address the interests of these eager learners. It is exciting when our community partnerships with many organizations that can also turn into opportunities for APEX students to volunteer with the community and get real world experience as health care ambassadors."

Brianne Sanchez, Des Moines University

—

"Our experience working with students from the Waukee APEX class was e extremely beneficial. Because of them, we were able to complete a project which had been lingering for quite some time. The students were bright and hardworking. When do we get our next group?"

Joanna Gaines, Magnolia Homes

The following statistics represent the success WILC and the APEX program have achieved thus far. The engagement from students and community partners continues to grow year over year, as do opportunities for students to return to Waukee for future employment.

1049

Projects Completed from Fall 2014-Spring 2018

545

Current Active Business Partners

1500

Individual Contacts

50/50

Female to Male Participation

Student Participation (in 10s)

Unintended Results + Achievments

WILC helps enhance student engagement and have them take a stake in their own education. The facility and APEX program help them get beyond common challenges such as social anxiety, public speaking, etc. through providing the tools and spaces they need to succeed.

The facility and program have created such an impact that students have blogged about their experience:

Kane Kesternson

APEX student focused in Business, Technology + Communication

A Day in the Life...

—

How Being in APEX Changed Me Personally and Professionally

APRIL 02, 2018

"I walked through the doors of the WILC in August of 2017, and to be honest, I was pretty nervous to begin the semester. I knew that my internal monologue needed to shift if I was going to be successful. My first semester of APEX I was in DCS class. I designed a banner for the APEX program that will be used at professional conferences and fairs. I also did photography for the City of Waukee and collaborated on lots of other projects. Academically, I surpassed where I was supposed to be, and I also started making friends. Additionally, I discovered that I had a strong interest in technology, but I also began to realize that I liked the design aspect of marketing as well. It was this realization that led me to enroll in my second APEX class Developing Web–Based Technologies with Scott Palmer. I thought that taking Mr. Palmer's class would help me clarify if I preferred working with technology for coding or design purposes. One of the things that I really appreciate about the APEX program is the push to define career paths… Being a part of APEX has changed my outlook both personally and professionally."

Educational Specifications

The Waukee Community School District stated in its Request for Proposals (RFP) the following project goals:

1. To provide excellent learning environments for staff and students.
2. To provide value to the patrons of the Waukee Community School District.
3. To design a unique profession-based environment similar to Blue Valley CAPS in Overland Park, KS.
4. The intended building is not a traditional school structure. The design should be driven by business and industry standards.

WILC satisfies all of these specifications, from the layout of the facility to the amenities it offers. It is a student-focused, professional space that students, teachers, business professionals and community members alike can use to help advance themselves and the city of Waukee, IA.

PROGRAM SPACE	SIZE (SF)	TOTAL (SF)
Learning Studios		25,800
Insurance Studio	1,200	
Business Studio	1,200	
Communication Studios	2,400	
Technology Studio	2,400	
Design Studio	2,400	
Engineering Studio	2,400	
Human Services Studio	1,200	
Laboratory	2,400	
Science/Agriculture Studio	1,200	
Project Rooms	1,000	
Media Space	1,000	
Storage	1,000	
Bio-Science + Future Studios	4,800	
Leadership Team		3,060
Professional Services	2,050	
Office Support	1,010	
Shared Services		11,620
Offices + Support	6,750	
Conference	2,700	
Building Support	2,170	
Total Building nsf		40,480
Circulation		9,800
Building Infrastructure		20,500
Total Building gsf		70,780