Active Learning Classroom (ALC)
University of California, Santa Cruz
Firm: ehdd.
Firm Representative: Rebecca Sharkey, AIA LEED AP BD+C

Learning Spaces Collaboratory Roundtable
Fall 2016: Focusing on the Future of Planning Learning Spaces
California State University Los Angeles

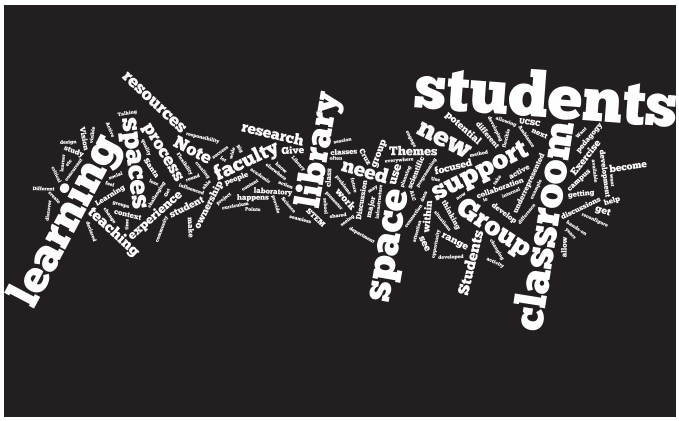
Driving Questions

1. In the context of the full building renovation, what is the new role of the Library on Campus?
2. Where is the best location for the new ALC both physically in terms of its size and synergistically in terms of opportunities that result from new adjacencies?
3. How is the planning & visioning for this project influenced by a shared understanding of how learning happens and about what kind of learning experiences nurture learning that is deep & transferable?
4. How would you describe this project to your department? To naysayers? To potential supporters?
5. The Active Learning Classroom is all about flexibility, but some parameters are needed move ahead. How much flexibility is really needed? Which of the multiple flexibility criteria gets privilege over the others?
6. What resources will be available to support the success of the new pedagogy of this new space?
7. What does the location of the ALC within Library mean for issues like staffing and security?

The UCSC Active Learning Classroom (ALC) is a 3,000sf classroom within the Science & Engineering Library (SEL), a 1991 building originally designed by EHDD and one of two academic libraries on Campus. The SEL traditionally housed UCSC's collections related to the Physical & Biological Sciences, Math, and Engineering, but as technology and research practice within the Sciences has evolved, SEL's physical collections have become a less significant part of the library's usage. The stacks no longer define the library. The library continues to play a significant role as a community hub, student study space, and place to access digital information, especially as the undergraduate population increases overall, while its bigger role in supporting and enhancing academic collaboration and student learning continues to evolve.

The new Active Learning Classroom in the Science & Engineering Library is the first phase of the full renovation of the Library to support this vision. The ALC will facilitate project-based, active learning techniques for up to 95 students, elevating the dialogue around learning and cross-disciplinary opportunities on Campus in general while also supporting the future vision of the Library as the center of knowledge and heart of new teaching modes and technology integration. Finishes, furniture, and technology within the ALC are all designed to maximize opportunities for flexibility, adaptability, and interaction, allowing faculty and students to use the newest and best tools for teaching and learning. Abundant interactive technology and full height marker walls line the room supporting a variety of teaching styles and furniture arrangements, from collaborative clusters of 4-8 students to interactive lectures and traditional exam formats. A bold graphic wall dividing the new ALC from the adjacent library commons announces its presence within the library and allows visibility into the active learning environment through large expanses of glass. Flat panel displays on the same wall will also serve as "billboards" for displaying research happening throughout Science Hill, making the library and ALC a core of dynamic, collaborative engagement of cross-disciplinary conversations.

Exterior view of UCSC Science & Engineering Library where new Active Learning Classroom will be located

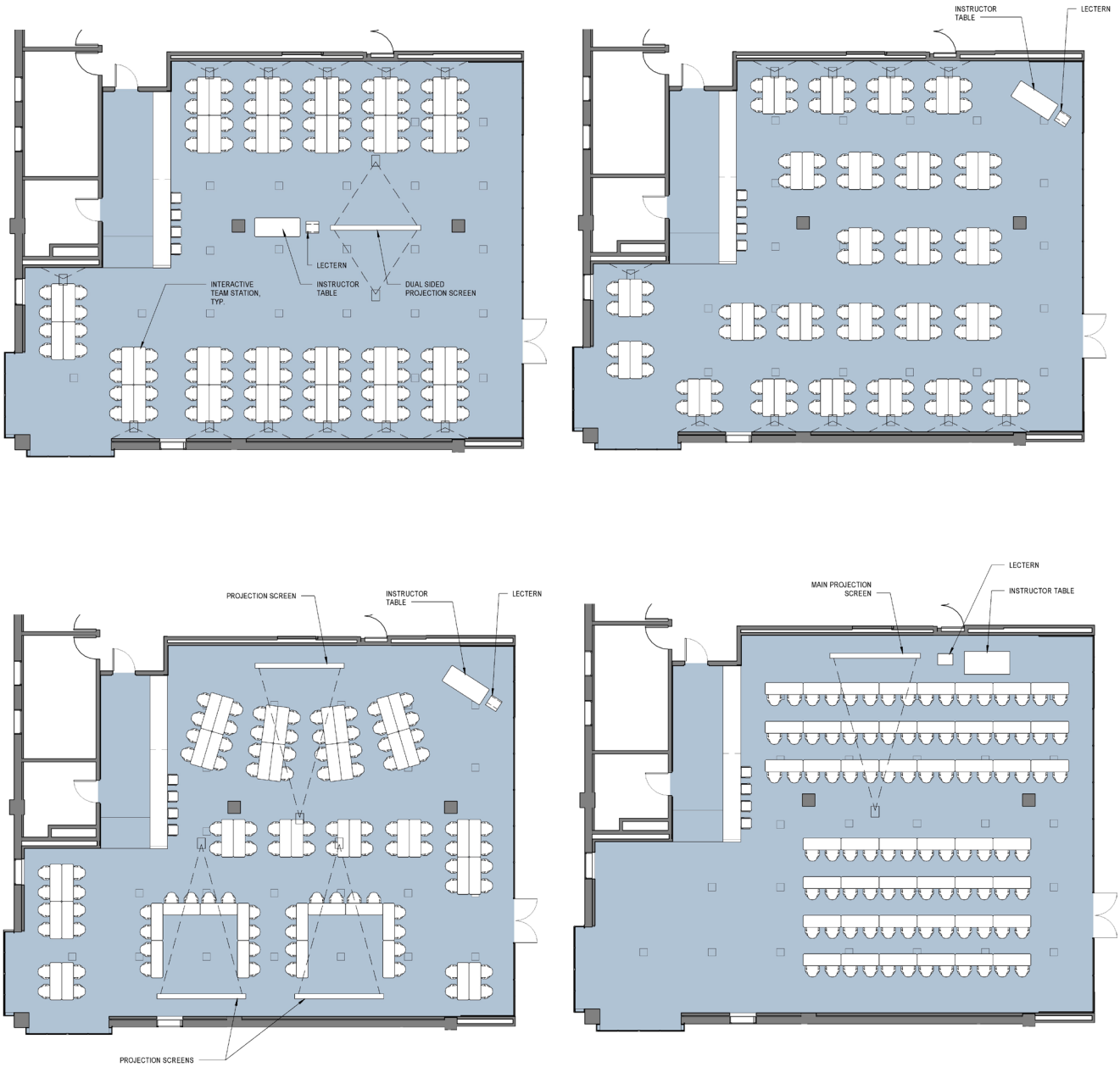


Wordle highlighting themes that emerged from initial project kick-off and visioning session

Main Level floor plan of the UCSC Science & Engineering Library showing the future Phase 2 design for the full masterplan building renovation.

Main Level floor plan of the UCSC Science & Engineering Library showing the initial Phase 1 design for the integration of the Active Learning Classroom within the existing Library.

Interior view of Active Learning Classroom showing flexibility in use and interactive learning scenarios. Perimeter walls are lined with marker wall surfaces and interactive projectors. Movable furniture further supports flexibility and interaction in the classroom.



Active Learning Classroom floor plan and furniture layout options showing flexibility and sample of range of teaching styles that can be accommodated

Corcoran Hall Renovation
The George Washington University
Firm: HOK
Firm Representative: Thomas Fortier, AIA, LEED AP

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Driving Questions

1. How can an historic academic building be respectfully renovated while being transformed into a contemporary STEM learning and research facility?

2. What program distribution model will obtain maximum efficiencies working within the existing historic building's infrastructure and constructs?

3. How can the Department of Physics (or any Department) retain a cohesive identity within the final program distribution while allowing for multidisciplinary learning and collaboration?

4. What minimal modifications to the existing building will achieve the highest and best results in delivering highly utilized and activated collaboration areas in support of a STEM education?

5. Thinking out of the box; is there a fresh approach to a building's organization that would reinforce collaboration and interaction amongst its users?

6. How can the program organization reinforce the desired connection between learning and research?

Project Description: The Corcoran Hall Renovation at George Washington University is a comprehensive historic renovation of the first building on GW's Foggy Bottom campus incorporating STEM learning pedagogies. The approximately 47,500 gsf building will be renovated to accommodate the Department of Physics and general-use classrooms. The goal of the project is to create spaces that are conducive to a collaborative and intellectual environment, meet the users' needs and provide flexibility for growth.

Program Distribution: HOK and GW developed a concept that distributes the program with both efficiency and the specific needs of the Department of Physics in mind. Large generaluse classrooms are located on levels one and two, while a Physics Optics Lab and Advanced Instructional Lab are located in the basement. Physics research spaces are placed on the two upper floors. This distribution offers convenient access to the classrooms for the general student body, while maintaining a level of privacy and cohesion for the Department of Physics.

Research areas are organized in mixed-use clusters to encourage collaboration between all members of the Physics Department, including undergraduate, graduate and post-doctorate students, faculty and administrators. These research communities have been designed to foster innovative thinking and a collegial environment.

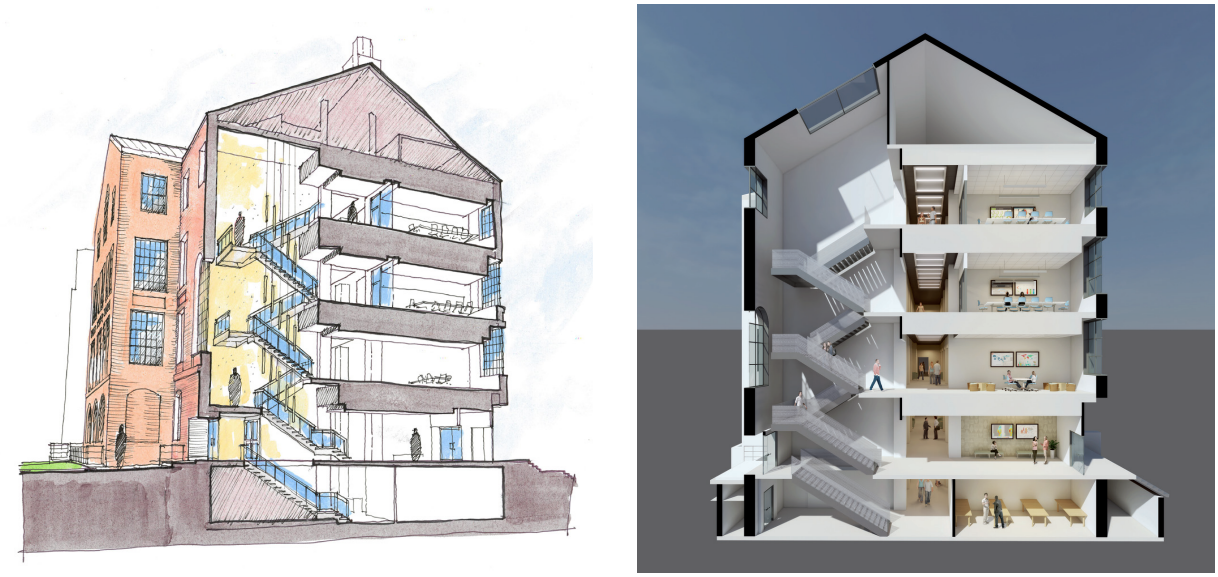
Exterior Improvements: As a historic building, Corcoran Hall must be given special consideration. The most significant exterior improvement will be the replacement of the existing windows with energy efficient systems in the style of the original historic divided lights. Brick masonry repointing and stone trim repair will be completed. Existing historic wood entry doors will be refinished and reinstalled. A new glass canopy will also be installed above an existing exterior egress stair.

Existing Interior: The original Corcoran Hall has a traditional layout of classrooms and labs on each side of a wide double-loaded corridor. Currently, there are no spaces designated for collaboration or informal learning to occur. The existing corridor walls are solid masonry and offer no visibility into the academic spaces or access to borrowed light from perimeter windows. This creates a large central corridor that is poorly lit, underutilized and disconnected from the activities of the building. There are adjacent buildings on each end of the building which further prohibit access to natural light.

New Interior: As a STEM facility, Corcoran Hall should express the qualities of an integrated space. The connection between research and learning should be evident. Activity in the building must be visible, creating a visual link between public spaces and learning environments. The un-programmed “spaces in between” -stairways, corridors, and alcoves- become facilitators of casual meetings and collaboration.

Project completion: Nov 2017. Upon completion, the new Corcoran Hall will be a beautiful and function building that combines the historic character of the original structure with the architecture serving current pedagogies associated with collaborative learning.

SECTIONS



Initial design sketch and 3D model of building section with stair and adjacent collaboration and interaction areas

DESIGN IMPLEMENTATION STRATEGIES

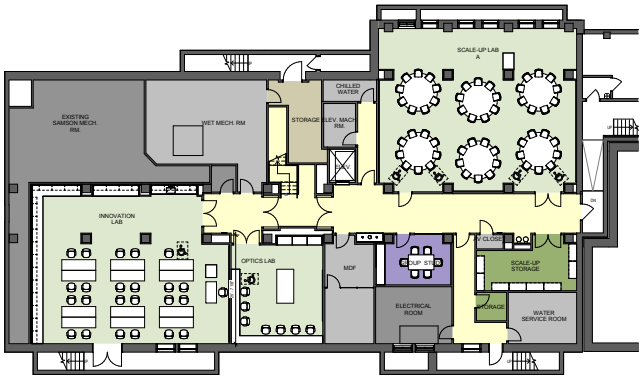
1. Create intentional collaboration spaces. The design distributes a combination of open and enclosed touchdown areas throughout the building. These spaces will be located off the main corridor and will include a combination of tables and chairs, soft seating, technology and glass marker boards.

2. Activate the main corridor. The renovation will visually connect the corridor and instructional/ research spaces with full-height glazing at central meeting spaces and glass lights in doors. Two things result, Science on Display and natural light in the corridor. Alcoves off the corridor include built-in seating, display areas and writable surfaces. This, in conjunction with the collaboration spaces, will strengthen the building core and increase the opportunity for collaboration and other activities.

3. Create an anchor. The existing center stair is already quite open and light filled from the large exterior windows. However, as an egress stair, it is closed off from the main corridor with fire-rated walls and doors. Existing building egress components will be modified such that this center stair will no longer be a required means of egress. In doing so, this center stair will become an open vertical connector stair. The walls and doors between the stair and corridor will be removed, providing a visual anchor at the center of Corcoran Hall and bringing additional natural light into the corridor. The stair will be transformed into a bright and inviting space providing a vertical anchor for the building that is visible from both the interior and exterior.

View of flexible interdisciplinary learning classroom

Existing exterior view of Corcoran Hall- the first academic building on GWU campus



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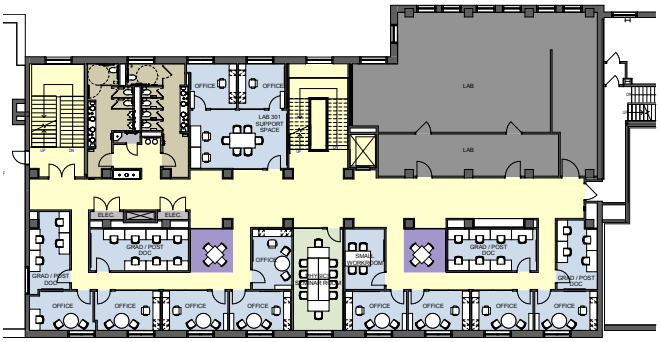

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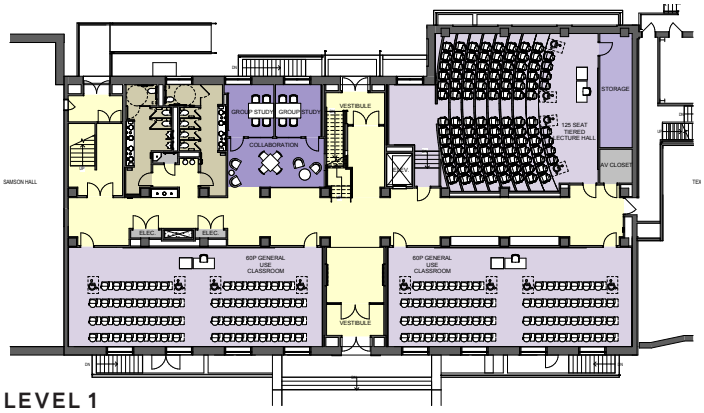

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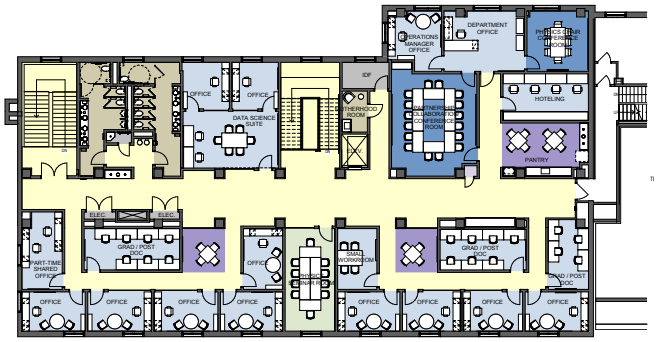

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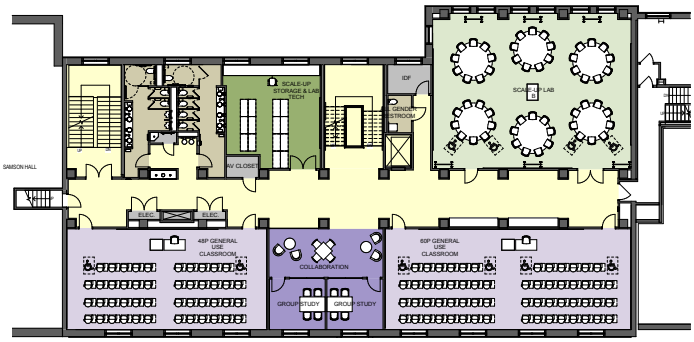

LEVEL 2

ACADEMIC SPACE
ACADEMIC SUPPORT
BUILDING SUPPORT
BUILDING SYSTEMS
CIRCULATION
COLLABORATION / INFORMAL SPACES
DRY LABS
EX. CORE
LAB SUPPORT

School of Education
Winona State University
Firm: LEO A DALY
Firm Representative: Stephen Wright, AIA

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Driving Questions

1. How do we react to, take advantage of the existing building's opportunities and limitations in ways that supports the vision of the College of Education (the tenants for the renovated spaces)?

2. How can the physical environment help open minds? How can it also encourage future teachers to do the same?

3. Given the evolution of educational technologies, how do we arrive a spaces for the College of Education that remain relevant? What aspects of the current social media culture are lasting, promote genuine learning? What opportunities should be provided to capture learning as digital content and then share it? What are the effects of technologies on space?

4. How do create spaces that enable group learning? How do we enable this to happen in formal and informal spaces? When, where and why do groups interact now? How will they interact in the future? What kind of spaces will enable such future interaction?

In 2012 the College of Education at Winona State University began outgrowing its home on the campus. The group of academic departments focuses primarily on teacher education. They also contain a Center of continuing education for teachers. The college needed a single place to co-locate all the college's departments. By doing so the college planned to harness the power of inter-disciplinary cross pollination. The university felt this plan would serve to springboard the College of Education to a leading institution of teacher education.

Also that year, the University acquired a small group of existing buildings that were originally school buildings. The buildings were spread across two city blocks one block from the east edge of campus and are uniquely arrayed in size. Cathedral School, Wabasha Recreation Center, and Wabasha Hall would become the College of Education's new Education Village. LEO A DALY was selected as the architect, and began designing the Education Village in collaboration with the College.

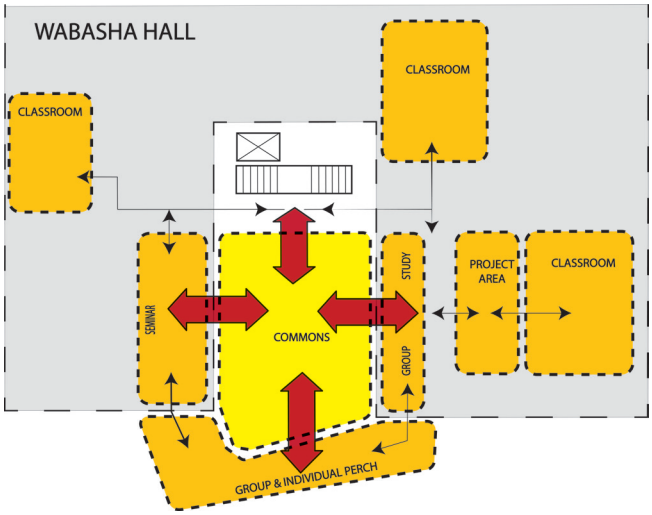
Wabasha Hall serves as the primary core for the Education Village. The existing outdoor courtyard provided an opportunity to create a space where students, professors, and visitors could casually interact. The space is intended to support interaction at many scales. The ground level is piazza-like, multi-use in nature, and is day lit from the south. From this central common space, visitors flow upward to the second floor, where two bridges connect east and west wings: one at the north and one at the south end of the common.

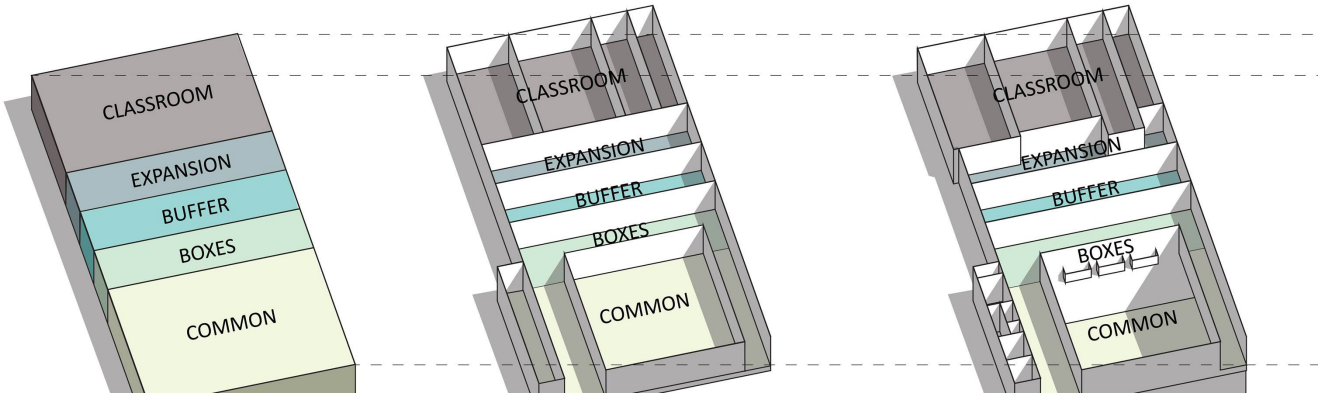
Informal small group study areas double as "theater boxes" looking over the commons. Collaboration zones emanate outward from the common and join classroom spaces. The original double-loaded wings of classrooms are broken down to mingle small groups, classes, and individuals, creating a dynamic environment for planned and opportunistic learning. The commons in Wabasha Hall will be a place where learning is on display - embodied in a powerful and visible example of learning at all scales, and in formats ranging from TEAL to STEM, electronics labs, Special Education learning environments, and seminar rooms.

Cathedral School assumes a strong role promoting continued teacher development. The building houses administrative functions, the Centers for Teacher Success, and two classrooms. Constructed in 1919 as a class room building, its two classrooms will bookend the spectrum of teacher's class room experience at the college. One of its classrooms will retain historic elements such as the blackboard, coat room, and built-in wood casework and be updated with current technology. The other classroom will be more completely "modernized" into a contemporary classroom. In concert with the classrooms in Wabasha Hall, students of the College of Education will be exposed to teaching environments spanning a full range of spaces as they may encounter in practice.

Wabasha Recreation Center will maintain its existing climbing center and be given an addition to create an Outdoor Education and Recreation Center. The structure will house the Physical Education and Sports Sciences departments and contain departmental support functions and one classroom.

All three buildings will receive additions that will provide much needed accessible entries as well as increased programmatic functions. The additions allow the buildings to form three "faces" looking on to the greens and open spaces that are planned to the south. These areas will provide pedestrian paths connecting the Education Village to the main campus. The new additions will also stylistically mediate the three disparate building vocabularies. They will adopt a forward looking aesthetic, while drawing on the unique local geology of bluffs and dramatic hills formed of Winona stone.

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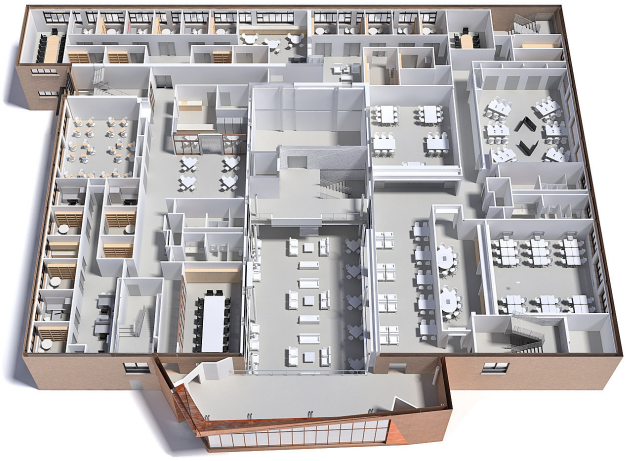

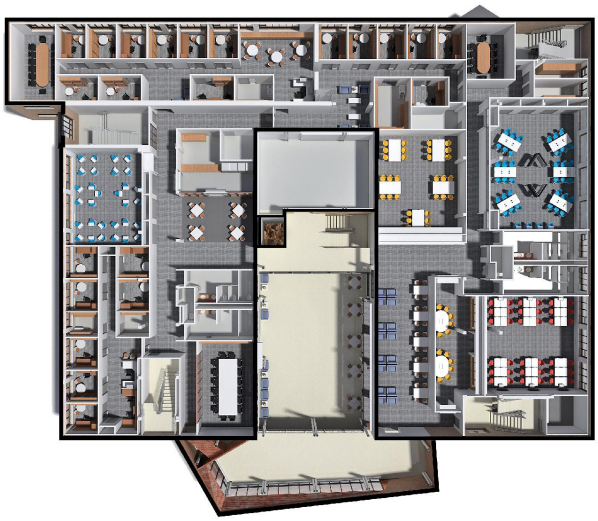

Gehl-Mulva Science Center
St. Norbert College
Firm: Research Facilities Design
Firm Representative: Richard M. Heinz, FAIA

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Driving Questions

1. How can a Sputnik-era science building be transformed into a modern, captivating active learning environment for both science majors and non-majors?
2. What attributes of the existing facility lend themselves to renovation for laboratory vs. nonlaboratory functions?
3. What features can be designed into the renovated facility to support future changes in pedagogy, technology and equipment over the life of the building?
4. How can the planning process facilitate development of a common vision among all disciplines and stakeholders to demonstrate the interconnectivity of the sciences?
5. How will the rejuvenated science facility promote transparency and put 'science on display' to engage occupants and visitors?
6. How can the addition and renovation components be phased to facilitate continuity of existing programs during construction?

St. Norbert faculty attended a PKAL Facilities Workshop in 2003 at Drury University and subsequently held a 'Summer Working Group on Curricular Reform in the Laboratory Sciences and Mathematics' in Summer 2005. This resulted in the preparation of a report outlining the desired learning outcomes for the laboratory sciences and mathematics, and the facility features necessary to achieve the desired learning outcomes. This group also prepared a Vision Statement that addressed dictums for the future of scientific discovery: Infusion and Interaction. Infusion referred to the integration of teaching and research throughout the curriculum. Interaction referred to developing interdisciplinary scientific relationships within the College community.

In the fall of 2005, St. Norbert College retained Research Facilities Design (RFD) to work with the college's faculty, staff and administration to prepare a Detailed Project Program document facility needs for the sciences for the next 25-30 years. RFD led the college participants through a series of interactive, participatory work sessions on campus to build on the work of the Summer Working Group on Curricular Reform in the Laboratory Sciences and Mathematics and on an existing building assessment for the John Minahan Science Building prepared by Peforma, Inc. in 2003. The DPP was completed in March 2007 and addressed space needs for each department/discipline, desired adjacencies, site/campus context, building systems design criteria, and proposed renovation blocking/stacking concept diagrams.

In 2009, the College issued a RFP for the selection of an architectural/engineering design team with Performa, Inc. serving as the local architect, RFD as the laboratory design consultant, and ultimately resulting in the selection of CSNA Architects as the design architect. This team developed concept design alternatives for an addition to, and renovation of, the John Minahan Science Building. Eventually, the college worked with Performa, Inc. to refine the CSNA design and with the Performa/ RFD team to execute the project. The team conducted iterative work sessions in the Schematic Design and Design Development Phases with full science faculty participation and 'sign-off'.

The final project provided building additions at the east and west ends of the existing facility for nonlaboratory functions such as faculty offices, classrooms, and collaboration spaces while the existing building was fully renovated to provide modern spaces for learning and discovery. Construction was phased to allow the science departments to ‘stay in business’ with ongoing coursework and research. The existing building was completely reskinned to modernize the exterior within the campus context and provide much larger windows for increased natural light and views.

Synthetic Chemistry laboratory featuring full view glass fume hoods to facilitate faculty observation of student experiments; ample natural light and views; open islands for instrumentation, write-up, and small group discussion.

Microbiology laboratory with aisle between pairs of benches to facilitate instructor circulation and group work around the 4-person islands. Layout supports active learning and accommodates integration of lab and lecture with A/V and IT support.

Geology laboratory with movable tables to facilitate reconfiguration, fed with power/data from overhead service carriers. Tables have butcher block tops to accommodate the wear and tear of rock specimens. Perimeter of the room provides a teaching wall and large open wall areas for charts and maps, as well as additional bench and specimen storage space.

‘Science on Display’ with viewing window from corridor into research laboratory.

The renovated interior features expanses of glass for ‘science on display’ with views into laboratories and display of scientific artifacts.

Anatomy Laboratory shared by St. Norbert College and the Medical College of Wisconsin featuring movable tables on wheels, open space for cadaver cases, overhead power cord reels, and flat panel monitors for display of specimens.

Reskinned exterior with much larger windows for natural light and views.

Science and Learning Center
Whittier College
Firm: Vantage Technology Consulting Group
Firm Representative: Michael Dannenberg, CTS

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Driving Questions

1. How are emerging technology trends affecting / improving learning spaces? Including:
    a. Interactive displays
    b. Team collaboration stations
    c. Wireless collaboration tools
    d. Virtual & augmented reality
    e. Web collaboration & distance education, cloud-based services
    f. Wireless presentation support
    g. The migration of AV technology to data and software (from physical wiring and hardware boxes)
2. How can an existing space be redesigned to support new emerging technologies and pedagogies (e.g. room flexibility and dynamic/evolving presentation styles)?
3. How can new technology options help overcome infrastructure and space hurdles in the design of a renovated space?
4. What design challenges need to be overcome in coordination for supporting technology within a lab environment (e.g. cooling of equipment, storage, structural, supporting services to stations and waterproofing - both floor and counters)?
5. What is looked for in the design support of the immediate external spaces of an existing building to support new services (security, external wireless networking, outside classroom support and study areas)?

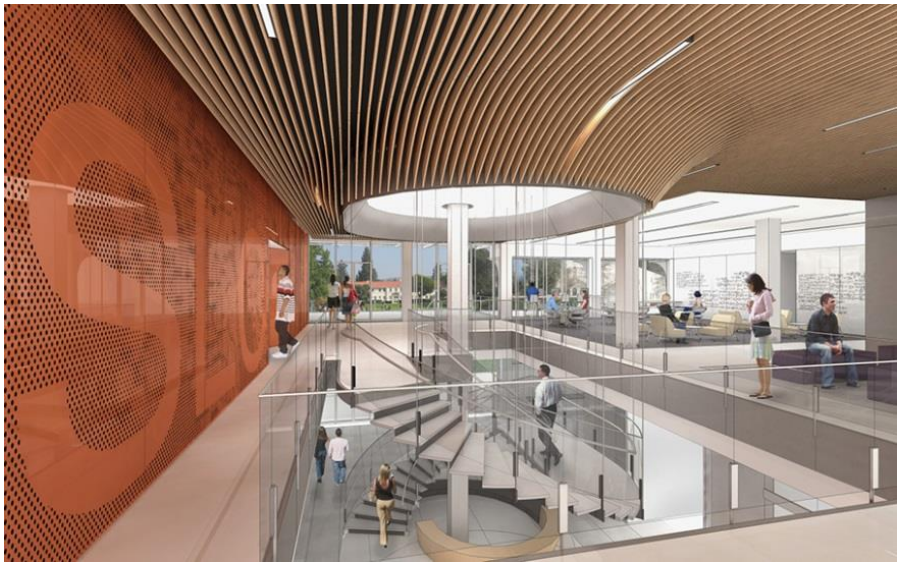
Starting in 2012, Steinberg, Vantage and RFD worked together with Whittier College to renovate and better utilize the original Science Building, rather than build a new expansion. The Science and Learning Center created a new style of learning spaces for the college to explore and evolve their pedagogies into the 21st century by providing new classroom and lab styles, student collaboration areas and the integration of new supporting technologies that foster in hands-on interaction and social collaboration. Residing street-side on the south end of the campus, the renovation will evolve this building into a new campus hub. The building planning incorporated new collaborative learning environments, seismic and accessibility upgrades and new utility infrastructure & equipment. The existing building was modified to create a new central two story building lobby that also supports student collaboration spaces and new building entry points.

The project objectives of achieving interdisciplinary collaboration, sustainability, and connectivity have informed the design process, resulting in a prominent campus building that will itself serve as a teaching tool for “Science on Display”. Completion of the building is occurring for the Fall 2016 academic session with staff moving in for September.

The building’s other main academic features include:

- New faculty and staff offices
- New teaching and research laboratories
- Laboratory support space
- Study spaces and conference rooms
- A green roof and outdoor student observation & team spaces
- Continuous provision of classroom and wireless technology indoors and outdoors.

The original 1966 Stauffer Science Building was 4-stories but the new plan included a 5th floor “penthouse” that supported additional classroom space and a green roof. Additional areas were created to “pop out” of the face of the building that would support additional student study zones.



Open entry lobby and central transition to other floors. The renovation included a new central “sculptural” spiral staircase as well as new study spaces for students for team and social collaboration. Digital information signage displays campus events and information.

Classroom and research labs fluidly integrate technology into the lab stations and space to be truly integrated as part of the room aesthetics.

Reconfigurable active learning classroom with four interactive wall projectors and dry erase paint.

Interactive team lab classroom with station monitors for group collaboration.

The top terrace learning deck combinable interactive classroom accommodates both back-to-back instruction spaces to blend together into one larger group session.

The remodeled façade provides a nice new gateway onto the campus. New external security cameras and high-power wireless network antennas support both safety and student social collaboration around the building and into the quad area north of the building.