



Chemistry + The Commons



Project Overview

The Old Chemistry building has stood the test of time on the University of Arizona campus. For 85 years, it has served as an important cog in the education and growth of countless generations of students. Chemistry was built in 1936 and is on the National Register of Historic Places. It was designed by the legendary architect Roy Place, who served as the university's chief architect from 1924 to 1940. Spearheaded by Dr. Gail Burd, Senior Vice Provost for Academic Affairs, Teaching, and Learning, the university began the initiative to renovate and repurpose the historic Chemistry Building.

The \$42 million project started in September 2019 with the goal of renovating the University of Arizona's historic Chemistry Building and constructing a new building called The Commons. The reimagining of the Chemistry Building and the design of the new teaching facility breathes new life into an important building on campus that will evolve with the changing landscape of education and serve the university well through the 21st century. The combined 78,600-square-foot facilities are now the home of the Chemistry and Biochemistry Department, Collaborative Learning Spaces, and the General Education Office.

Following on the heels of the 2022 completion of the \$81 million Design-Build Project of the Student Success District that integrated five buildings including the Main Library, Bear Down Gym, Albert Weaver Science and Engineering Library, and the new Bartlett Academic Success Center, the Chemistry Building Renovation Project extends student engagement and support in the campus center along the historic mall.

In September 2021, a time capsule was buried beneath the Commons. People at the groundbreaking ceremony were invited to add notes or mementos to the capsule. A plaque will be installed on-site to mark the location of the time capsule.



The campus core

Top from left to right:: Student Success District, Koffler, Chemistry/The Commons.

Bottom from left to right: Administration, Student Union, Old Main.

Design

Collaboration is the major theme underlying the design of both the renovated building and the new building: collaboration in teaching, collaboration in research, and collaboration in student success. Another theme is universal accessibility following on the University of Arizona's commitment to inclusive and welcoming experiences for all students, staff, faculty, and guests. A third theme is flexibility in the design to allow the space to adapt as students and instructors change and innovate for improved learning.



Built in 1936 with subsequent additions to the East and South in 1948 and to the West in 1962, the original laboratories in Chemistry had outlived their usefulness. With the original building on the historic register, the Design-Build Team was able to retain the original building and East addition, converting the interior space to dry labs, office space, and classrooms. Furthermore, the decision was made to

replace the remaining parts of the Chemistry building with a new building, The Commons, to house new collaborative classrooms.

A major aspect of the design/build process was the engagement of the campus stakeholders from start to finish. The architects saved the lovely historical exterior and many interior features of the 1936 building that face the campus mall while updating its interior. The Design-Build Team then took clues from the historical context of the 1936 building, analyzing the rhythm, ornamentation, and horizontal datum lines to inform the major design moves of the Commons addition. The new building is held away from the historic building by large glass “gaskets” that mark entries into the building, and allow for the historic brick to wrap into the interior building, creating a unique experience on campus.



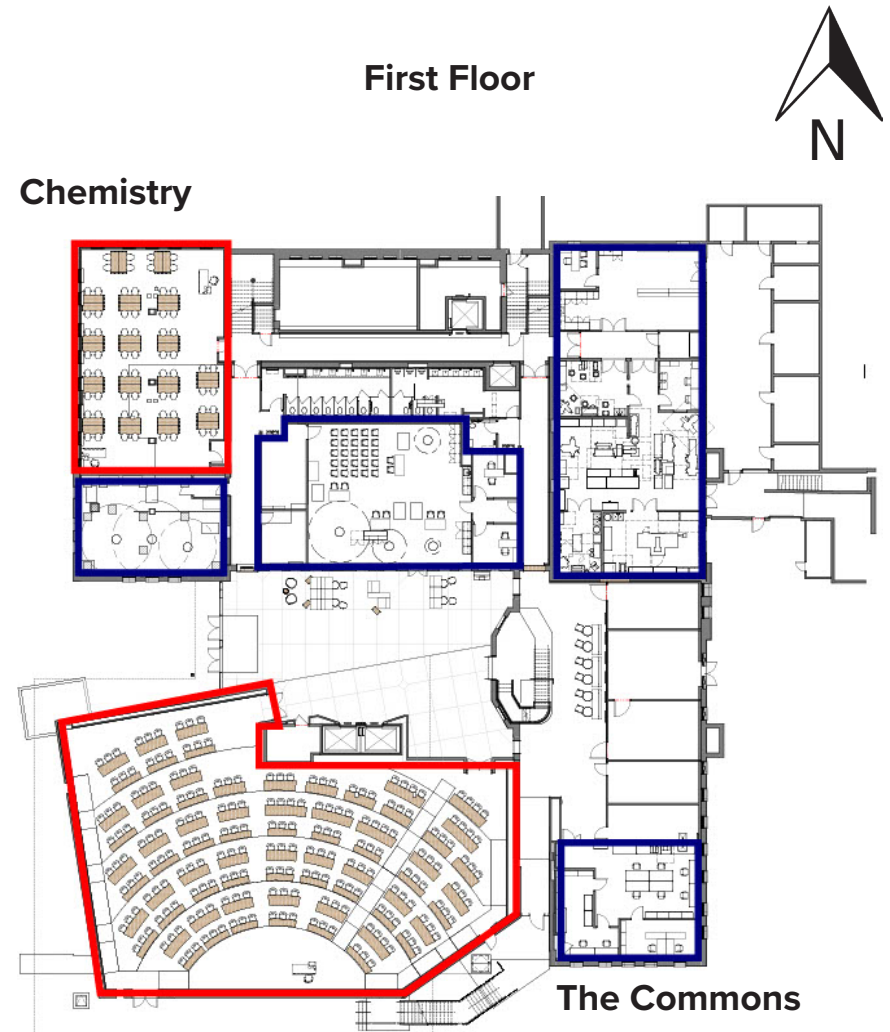
Left Image, bottom: Chemistry (1936 and East 1948 Addition) and top: The Commons.

Just as the original building has stood the test of time, so must the new building. Timelessness can be achieved through the careful interpretation of traditional designs and building methods in Southern Arizona. Deep-set windows cut glare and are energy efficient, while also strategically framing views and allowing light into the space.

Universal Accessibility was a major driving force in the design of the building, leading to the new accessible entry atrium on the north side, a common lobby in the center of the building with new elevators, and accessible restrooms. The classroom layouts are also designed to ensure that users of all abilities can participate in class from virtually anywhere in the rooms.



Building Map



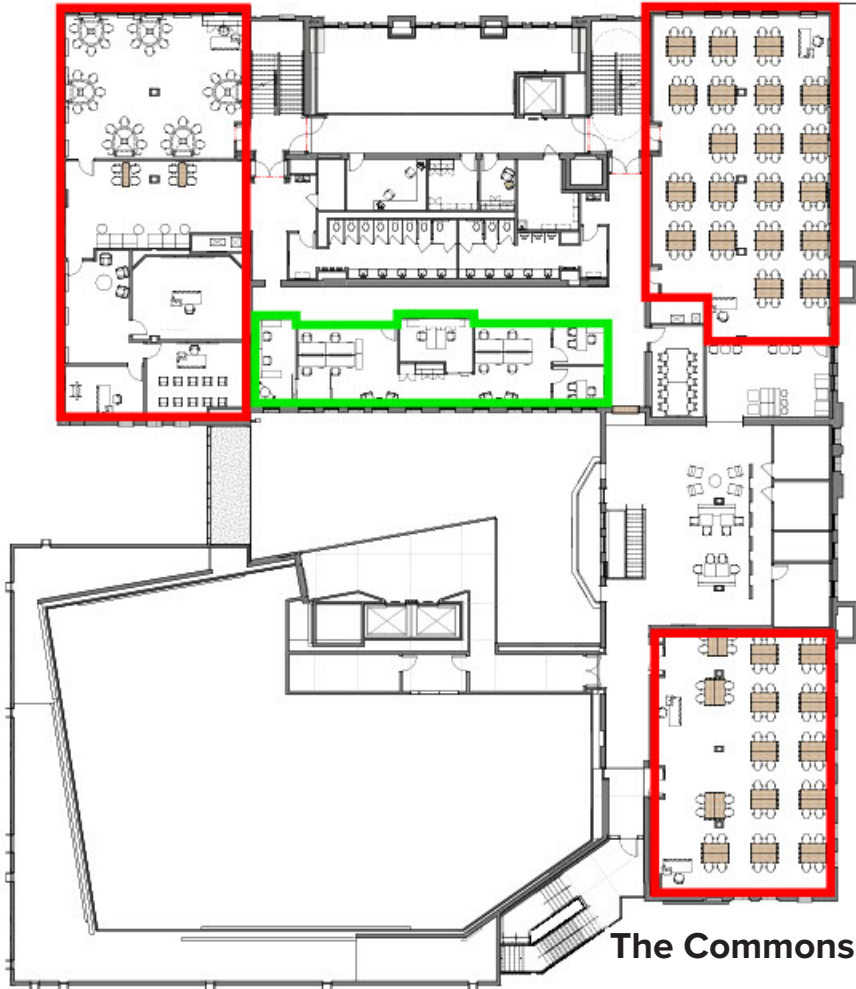
Red outlines indicate Collaborative Learning Classrooms

Blue outlines Chemistry and Biochemistry Spaces

Second Floor



Chemistry



The Commons

Red outlines indicate Collaborative Learning Classrooms

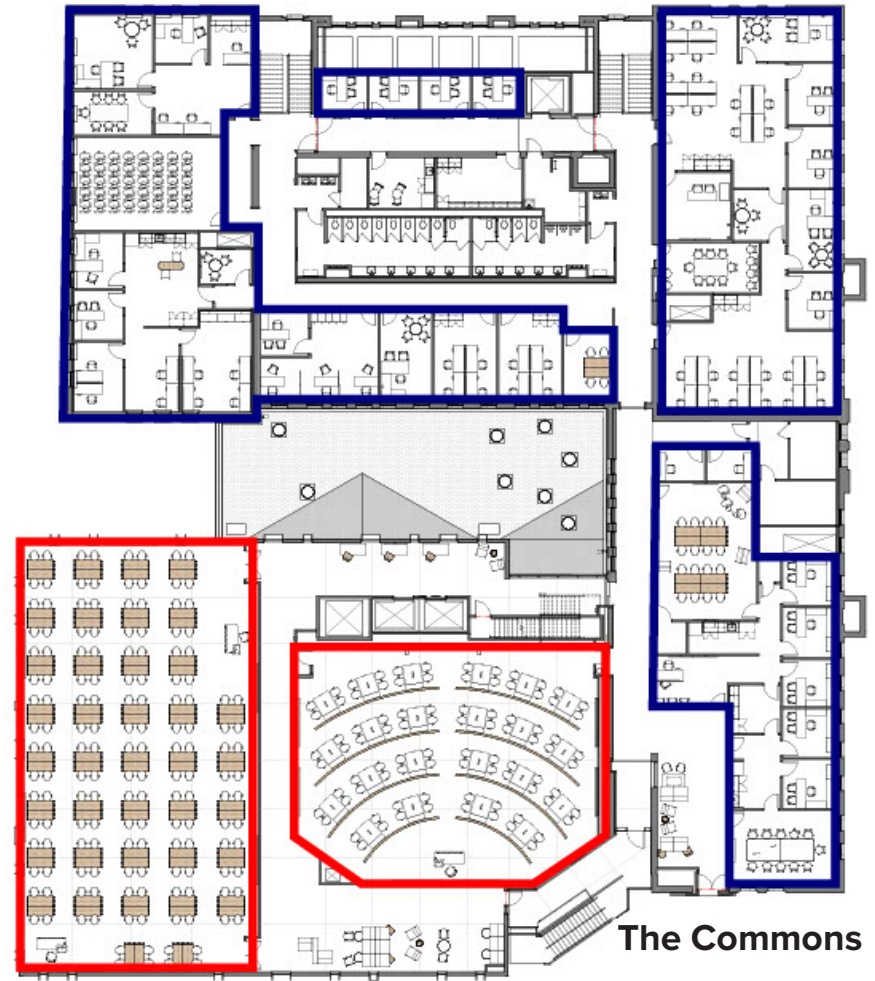
Blue outlines Chemistry and Biochemistry Spaces

Green outlines the General Education Office

Third Floor



Chemistry



The Commons

Red outlines indicate Collaborative Learning Classrooms

Blue outlines Chemistry and Biochemistry Spaces

Collaborative Learning Spaces (CLS)

As illustrated in red on the floor maps, seven collaborative classrooms and three learning studios are placed throughout the two buildings.

The University of Arizona has made a strong commitment to the improvement of teaching quality. Hundreds of studies show that students learn more and fail less when active learning strategies are used. To this end, Collaborative Learning Spaces (CLS) that facilitate collaborative active learning have been created. In these spaces, faculty members are using innovative teaching and learning strategies that promote higher-order thinking that leads to better understanding and improved ability to transfer knowledge to other applications.

These rooms are an important component of the University's commitment to continuous improvement and culture change in teaching and learning.



Collaborative learning space located in the Gittings building.

The 217-seat Turn to Collaborate room on the first floor is the first universally accessible tiered classroom on campus. The gently sloped ramps allow for accessibility at every level in the room, and for the ultimate choice of seat location. The wide aiseways create space for students

and the instructional team to circulate throughout the room comfortably. Large tables with outlets and seats without armrests provide comfort and space for students and all their gear. Acoustic paneling on the walls and ceiling allows for a high level of collaboration with lower noise levels.



There are several of our more traditional collaborative classrooms throughout the buildings. In addition to the classrooms, there are many spaces throughout Chemistry and the Commons for individual or small group discussion and study space. The lobby between the buildings offers an excellent space for formal and informal events.

Three live-stream studios are available for recording lectures or hosting live online or hybrid classes. Two of the studios feature Learning Glass technology, a specialized transparent glass board that illuminates writing and the presenter. This enables a more natural teaching experience for the instructor, thus creating a more personalized and connected experience for the remote student. The hybrid teaching studio facilitates a hyflex modality, allowing for remote and in-person participants to attend class simultaneously. These three studios are located on the West side of the second floor.

Taking collaborative classrooms to a new level, the Multi-Media Collaborative Classrooms have multiple stations with seating for four to five students, each of which includes a display monitor, outlets, and table space for collaborative work. Advanced software allows instructors to share content out to each display, allows students to collaborate on their own work at their station, and allows students and instructors to share the group's work with the whole class. One Multi-Media Collaborative Classroom seats twenty-five students and is located on the Northwest corner of the second floor and another, which seats eighty-eight students, is located on the Southern side of the third floor.

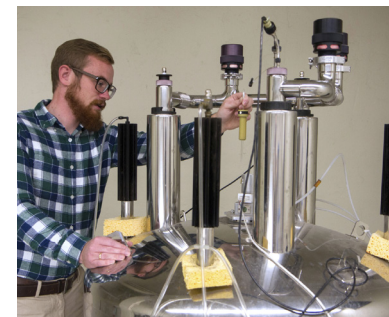


Chemistry and Biochemistry Department (CBC)

The world-class research and education at CBC address important topics in the chemical and biochemical sciences, training students to tackle society's grand challenges! Students and faculty in Chemistry and Biochemistry confront research problems that require the integration of multiple disciplines within the molecular sciences collaboratively across campus and the world. CBC offers degrees in Chemistry and Biochemistry at all levels, from bachelor's degrees to Ph.D.

The state-of-the-art collaborative Research Support Services (RSS) units are located on the first floor of the Chemistry Building, which provides analysis and design services supporting research advancements shaping future scientific discoveries and active learning strategies.

- **Nuclear Magnetic Resonance (NMR) Facility:** an interdisciplinary NMR spectroscopy research facility, which engages organic chemistry students through hands-on experiences. The facility provides sample analysis, demonstrations, and skills training in this essential chemical analysis technique.
- **Electronics Facility:** committed to supporting the research community with troubleshooting, repair, and new designs for electronic instrumentation, equipment, and experiments.



- **Machine Shop:** a full-service precision shop specializing in the design and construction of custom mechanical equipment for scientific research and teaching programs.
- **Chemical Storeroom:** offers a large inventory of chemical and hardware items for sale to the department research community.

The CBC collaborative research groups occupy space on the third floor of the Chemistry building with research programs dedicated to harnessing solar energy, understanding biomolecular mechanisms, and improving student reasoning strategies for meaningful learning. The building design contributes to these student-involved research programs by providing modern research capabilities and unique classroom



spaces to augment student learning. A special “visualization cave” provides an immersive environment for students and faculty to study three-dimensional structure models and chemical reactivity.

The CBC Advising Office, supporting the graduate and undergraduate programs, is located on

the third floor of the Chemistry building, co-locating essential student support adjacent to CBC faculty offices.

General Education Office (GenEd)

There is nothing generic about the University of Arizona’s redefined GenEd program. Guided by decades of research and input, the customizable curriculum better prepares today’s students for the challenges of tomorrow.



The new curriculum is thirty-two units and offers students hundreds of pathways to customize their experience. Attributes provide both flexibility and opportunities for

repeated encounters with content, skill sets, and perspectives.



The GenEd office, which is located on the second floor of the Chemistry Building, is dedicated to making sure that students engage in a variety of memorable, meaningful, and challenging experiences.



This dedication is evident throughout, from an Instructional Support team helping to facilitate best practices in the classroom to partnering with peer units on campus to create new events for student learning, such as Destination Imagination, which celebrates quantitative reasoning.

Bringing a nearly 100-year-old building up to modern-day performance standards is a significant undertaking, especially when the building is listed on the National Register of Historic Places and the character of the building must be maintained. The team approached sustainability in a holistic way, understanding that “green” is more than just energy efficiency, but that it also includes the creation of human-centered spaces and experiences.

With the limitation on altering the character of the historic building, the team approached energy efficiency by essentially building a new building inside the existing envelope. The team framed out new walls, insulation, and new insulated window assemblies inside of historic brick, solving issues with air infiltration and heat gain. Interestingly, the cost of this new building envelope was completely offset by the reduced cost of the mechanical equipment, which was able to be significantly downsized with the increased efficiency.

All plantings around the building are native or desert-adapted plants which are watered via the university purple pipe system, meaning no potable water is used for the landscape.

Good design decisions and construction techniques, along with the university’s commitment to purchasing renewable energy have resulted in a building that has a projected net Energy Use Intensity (EUI) that is nearly 70% better than a baseline building of similar size and type.



Construction Facts

Design Professional: Shepley Bulfinch + Poster Mirto
McDonald

Contractor: Sundt Construction (also built
the original 1936 building!)

GCF: 78,600

Construction Schedule: May 2021 - January 2023

Project Budget: \$42,000,000

The Chemistry and Commons project was designed in two phases so that the Nuclear Magnetic Resonance Machines that are on site could remain on-site through the construction process. The first phase reimagined the originally tiered classroom to become a place for the NMRs to be put on display. The team started construction on the first phase in May 2021 and completed it in January 2022. This allowed the NMRs to relocate and create a new accessible entrance on the north side of the building. The demo and construction continued around the NMRs and were substantially completed in January.

During the construction process, the team had to reface and renovate the south face of the 1936 historic structure where the 1962 structure was added. To accomplish this the team salvaged the existing brick due to its lack of availability and historic nature. Over 220,000 people hours went into the construction of the Chemistry and Commons project. There was an average of seventy people on-site at any given time during the 20-month project duration.

Old Chemistry

