

As college campuses across the nation progress into the new century, they are increasingly faced with the issue of a diminishing number of open building sites. At this time when teaching paradigms are shifting, technology is advancing at an ever increasing rate, and research collaborations are becoming the norm, universities must grapple with decisions about what to do with outdated buildings in the face of fewer and fewer parcels to build on.

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Of specific concern are those science research structures built from the 1950s to the 1970s. Marked by a heightening national interest in the sciences, many of these facilities were built quickly and designed for research with a specific focus. Compared with the current interdisciplinary nature of academia and the integration of technology in the laboratory, these environments are rapidly becoming outdated.

Can these buildings continue to be viable with some upgrades? Should they be treated as historic landmarks? Or is a university best served in some cases to demolish and opt for new construction?

Here is a look at how three different universities are meeting this challenge.

Case Study 1

University of Wisconsin-Madison Biochemical Sciences Complex

At the University of Wisconsin, the Biochemistry Department struggled with a site occupied with a diverse mix of aging buildings and no 'extra' space to build.

Since its founding in 1883, the Biochemistry Department has expanded in both size and excellence, gradually adding buildings and wings in its nearly 100-year history. However, the site had become a collection of several structures that varied widely in age, quality, and architectural design that could no longer function cohesively.



Campus
Fit 1 of 3

Henry Mall

2012 Research Tower

Bridges and an underground tunnel create interior connections throughout the complex. The 1985 building, with its refurbished lab spaces, connects to the north side of the tower.

1937 Addition

Murals created by John Steuart Curry depicting the benefits of agriculture and science were restored. The building was reconfigured to hold instructional space.

1912 Building

The original Biochemistry building now houses instructional lab space.

1998 Building

1956 building removed

Restored 1908 Pedestrian Path

The new east-west pathway reestablishes the connections of Henry Mall.





Reestablished
pedestrian path
from original 1908
master plan

After considering both the necessity to keep pace with quickly evolving laboratory technology and a desire to honor the department's strong legacy, a plan emerged – a mix of preserving the department's old historic buildings while adding a new modern research tower.

This two-part strategy of marrying old with new consisted of several components:

Demolition of the existing 1956 and a portion of the 1985 Biochemistry buildings to make room for a new six-story, state-of-the-art research tower.

A complete interior renovation and adaptive reuse of the 1906 Agricultural Journalism building and the 1912 and 1937 biochemistry wings.

Construction of a pedestrian bridge to connect the newly constructed infill portion of the 1912 and 1937 buildings to the new research tower.

The innovative research tower is the main feature of the reconfigured complex. Fit into the dense urban site, it was carefully designed to respect this notable area of campus and maintain a scale and materials palette that fits within the context of the close surrounding historic structures.

Although modern in style, the tower incorporates many aesthetic qualities derived from the adjacent structures. The materials chosen relate to, but do not directly mimic, the historic buildings' design. In particular, the terra cotta rain screen façade and sunshading elements are a gesture to the turn-of-the-century clay tile roofs.



The modern reinterpretation of historic materials on the exterior continued within the tower's public spaces, invoking a sense of comfort and familiarity.

A thoughtful repurpose of the site's historic buildings resulted in the preservation of existing materials in several forms; from reuse of the 1906, 1912, and 1937 structures to incorporation of demolished brick in a number of new façades. Auditoria spaces inserted between the 1912 and 1937 buildings were clad with a gabion wall constructed of rubble brick held in a wire framework.

The placement of the new research tower provides a convenient path of travel between all four buildings linking all of the complex's functions – research, instruction, and support – allowing them to perform as a unified group rather than separate silos.

With a new, modern research tower and four artistically renovated structures, these state-of-the-art facilities provide the necessary space for a long-awaited relocation and collaboration between the departments of Biochemistry and Biomolecular Chemistry.

The Biochemical Sciences Complex embodies the ideals of this alliance. Spaces for almost all functions are shared among the departments. Restorations across the site have preserved its historic significance while creating stronger research associations with neighboring biological science facilities.

The resulting Biochemical Sciences Complex not only succeeds in the advancement of both departments' research and pedagogical goals, it will encourage new interactions and advance the possibilities for collaborative research and teaching efforts – including those that are apparent and others yet to be discovered.

Campus Fit 2 of 3

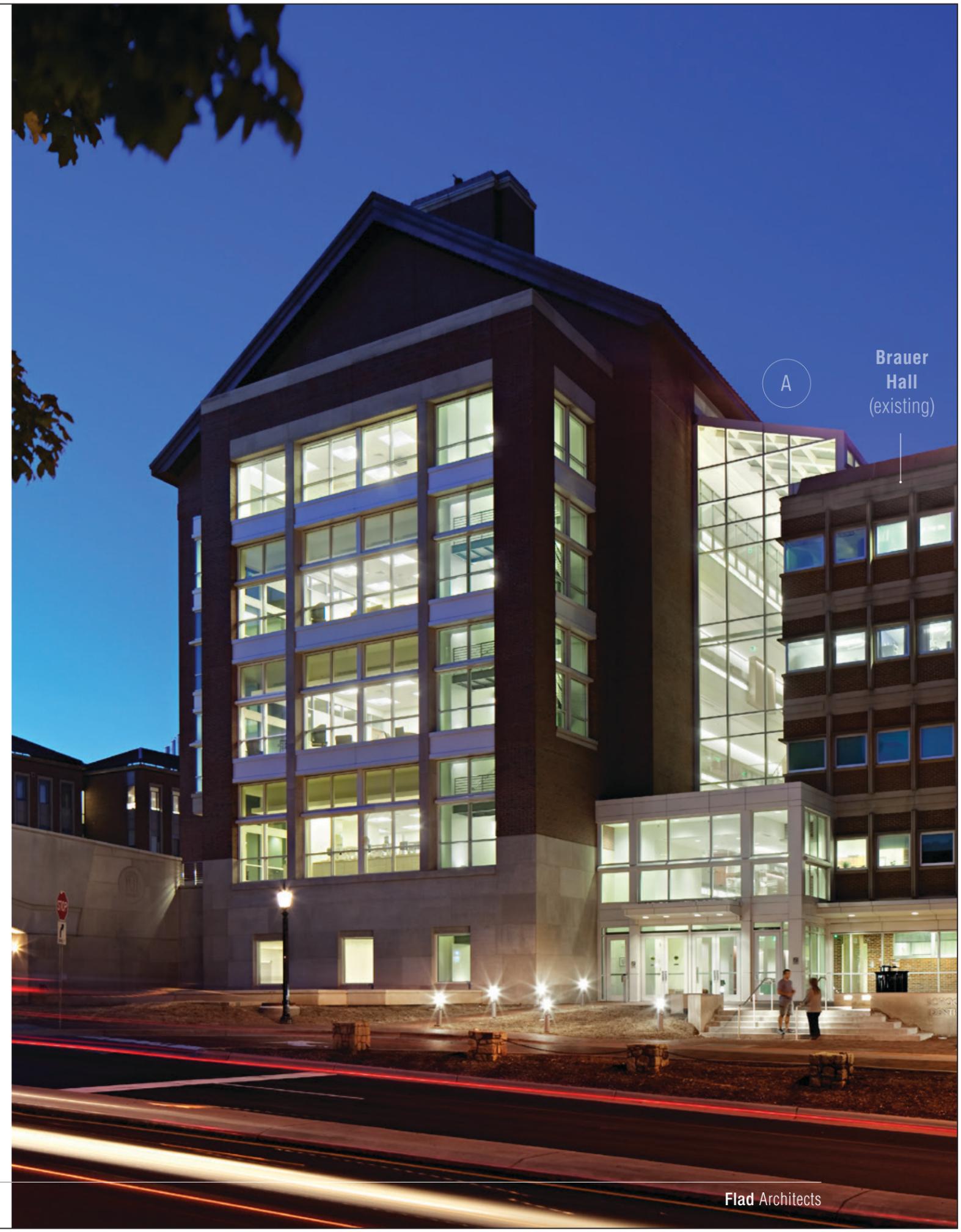
Case Study 2 **University of North Carolina, Koury Oral Health Sciences Building**

Having experienced significant growth since opening in the 1950s, the UNC School of Dentistry emerged over the years as a collection of five interconnected buildings – Brauer Hall, Tarrson Hall, Old Dental Building, Dental Research Center, and the Dental Office Building.

Each one answered the program's specific needs at the time, but after five decades, several renovations, and rapidly advancing technology, a new building was necessary to replace outdated facilities and provide the modern classroom and cutting-edge research laboratories crucial to the school's continued excellence.

However, capacity was limited with fewer than ten building sites remaining to support future growth for the entire campus.

The economical solution was to demolish the existing Dental Research and Dental Office buildings, which were both deemed technologically obsolete, to create a new site area for the construction of the Koury Oral Health Sciences building.





The precise placement of the new five-story, 216,500-square-foot facility among the existing buildings links the old and new construction – unifying the complex and fostering a sense of community.

The Koury Oral Health Sciences building is composed of two wings with clinical, research, and educational spaces; an internal, sky-lit “Main Street;” and a dental commons area. The Dental Commons, a soaring sky-lit atrium on the first floor, serves as the complex’s central social hub, housing a café for mid-day breaks and ample tiered seating to easily accommodate assemblies and events. Where this space was previously an outdoor alleyway, it now warmly welcomes students, researchers, and staff and forms an indoor connection between the new construction and older buildings.

As a literal crossroads between neighboring academic, research, and healthcare buildings, the new building’s orientation integrates several main campus thoroughfares. Clearer, more convenient pedestrian paths are enhanced with porches and arcades, and the landscape design restores green space in the dental quadrangle and alumni garden. Occupying a corner at the south edge of campus, this new building establishes a formal entrance to the university while securing a fresh new identity for the School of Dentistry and increasing its visibility within the national dental community.

The building massing and use of materials is compatible with the history of building on campus, while expressing the modern research activities occurring within through the use of modern materials in specific locations.

Campus Fit 3 of 3

Case Study 3

**University of Saskatchewan
Academic Health Sciences Centre**

For years, the University of Saskatchewan faced a problem familiar to many higher education institutions – one of its facilities was badly outdated, plus architecturally it stood at odds with the rest of the campus.

The facility in question was the Health Sciences complex which had undergone several renovations and additions over past decades.

The original Health Sciences building (A wing) was constructed in 1948 in the Collegiate Gothic style. But during the 1960s and 1970s two additions (B and C wings) were constructed in the Brutalism design common throughout higher education institutions of that era. Unfortunately, this design combined with the complex's close proximity to the Royal University Hospital, led visitors to assume that it was part of the hospital rather than the university.

New attitudes about research and the need for a new building (D wing) that represented the next generation of science created an opportunity for reestablishing the identity of the Health Sciences complex.



The D Wing is a significant addition to the existing Health Sciences Building with a four-story addition on the east side and six-story addition on the north side of the B Wing.

The new addition stretches across the front of the B Wing on two sides, wrapping around the existing building in the shape of an L, effectively hiding the Brutalism of the B and C wings from view, and weaving together a single cohesive complex of buildings.

Each leg of the L is anchored by multi-story atriums that function as the community/interaction space for the Health Sciences and provides the physical connection between new and existing construction. The atriums also permit daylight to penetrate deep into the buildings and supplement the daylight coming from the perimeter of the building.

The new identity for Health Sciences makes reference in scale, material and articulation to the desired architectural aspects of the campus core,

symbolically linking the Health Sciences to the academic campus core. About 18,500 square feet of Tyndall stone and 35,800 square feet of dolomite limestone were used on the D wing, and extra care was taken (right down to the pitching techniques) to match the new stone with the original random ashlar pattern split-faced dolomite limestone on the original 1948 A wing.

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