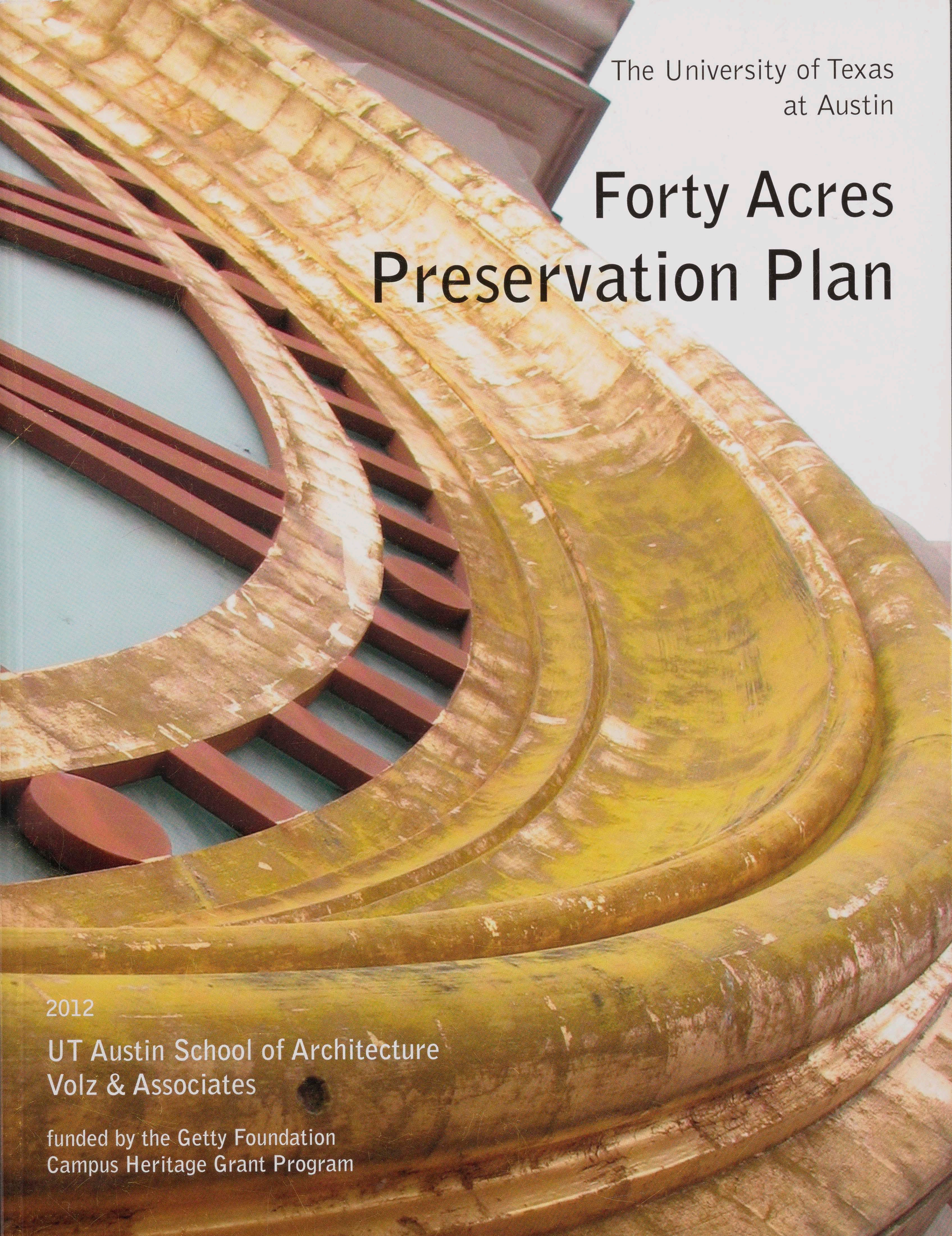
The University of Texas
at Austin

Forty Acres Preservation Plan



2012

UT Austin School of Architecture
Volz & Associates

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Campus Heritage Grant Program

The University of Texas
at Austin

Forty Acres Preservation Plan

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Gale
O'Connell

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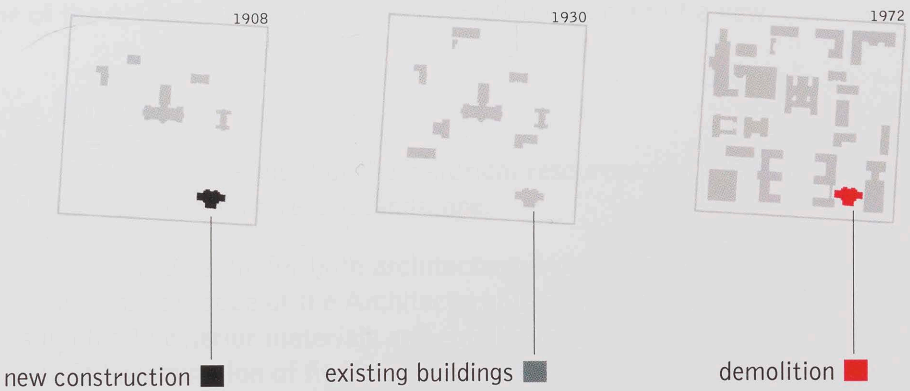


The Forty Acres is 3.57° from true North

1

1.1. Scope and purpose

> The quality of this institution is embodied in the quality of its campus, which can never be forgotten.
>
> Robert M. Berdahl, former president of The University of Texas at Austin

UT Austin's current campus plan was prepared by Cesar Pelli & Associates and Balmori Associates, Landscape Architects, between 1994 and 1996. It was published in 1999 as two volumes, the Master Plan and the Master Plan Architectural and Landscape Design Guidelines.

The document you are reading was conceived as a plug-in, expanding on treatment of historic building and landscape fabric – either a third volume of the old campus plan, or a preliminary component of a new plan.

Its scope includes:

- **a history and assessment** of the historical resources of the Forty Acres, both architecture and landscape;
- **a conservation plan,** for both architecture and landscape resources. The scope of the Architectural Conservation plan is limited to exterior materials and conditions. It is based on detailed examination of five case study buildings, and includes an illustrated glossary of conditions;
- **summary recommendations** for campus preservation, on the Forty Acres and beyond.

Our fundamental purpose is to identify features of the campus that are of value to the university, and explore the best ways of maintaining that value. The assessment of historic resources uses the criteria of the National Register of Historic Places, which are widely-understood standards for preservation professionals throughout the United States. National Register standards are reflected in some review procedures to which UT may be subject, and also some incentives for which it may be eligible. But the plan should not be viewed through a lens of compliance: its core purpose is for the University of Texas to assess what in its heritage is important to preserve, and what in its historic resources adds value to the university.

1881

The Preservation Plan is not an overall design or facilities plan – the 1999 Master Plan did that, and redoing it is beyond the scope of this project. We do review the design components of the 1999 Plan that bear upon historic resources of the Forty Acres, and in some cases suggest amendments.

This project was funded by the Getty Foundation in its last round of Campus Heritage Grants. Work began late in 2007 and has been carried out over the four years since.

1.2. Study area

The Forty Acres and the full extent of the current campus

The Forty Acres is the original extent of the University of Texas. From 1881 to 1918 it was the whole of the campus. It remains a management unit for campus planning and wayfinding (it is also the eponymous area whose name is sometimes used to refer to the whole of the campus, or even to the university itself; this report uses the term Forty Acres only in the specific sense of the area from Guadalupe Street to Speedway, 21st to 24th Street).

The Forty Acres served as the prototype for most buildings and much landscape on the rest of the campus. The materials palette throughout the campus follows the vocabulary established on the Forty Acres. This Preservation Plan sets out to provide prototypical solutions, specifically addressing conditions on the Forty Acres, and applicable beyond.

1.3. Campus plan and guidelines

The 1999 campus plan by Cesar Pelli & Associates is the successor to Paul Cret's 1934 plan, under which much of the UT campus was developed. The core concept of the Pelli plan is to re-embrace the principles in Cret's plan, from which the campus had strayed in recent decades.

The Forty Acres itself is treated as a conservation area, to be maintained substantially as is, with changes intended only to complete unrealized portions of Cret's plan, correct departures from it, or solve problems that have arisen since Cret's day, consistent with the intentions of his plan. In particular, the Pelli plan calls for:

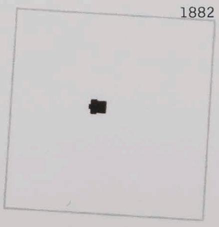
- articulation of a North Mall. Most of this mall is outside the Forty Acres; the portions on the Forty Acres include an addition to the Main Building creating a public north entrance (and appropriate terminus for the mall), and a Tower Court, unifying the present miscellaneous spaces north of the Tower;
- pedestrianization of the whole Forty Acres, eliminating most parking and vehicular access;
- pedestrianization also of Speedway and part of 24th Street, the eastern and northern boundaries of the Forty Acres.

The plan includes many smaller and more specific recommendations, which are noted below in the body of this report.

Since the adoption of the Pelli Plan, the following additional plan components (each relevant to the Forty Acres) have advanced:

The Speedway Mall (together with revisions to East Mall), called for in the Pelli Plan, has been designed by Peter Walker & Associates;

1882



- The "Landmarks" Public Art Plan for the UT campus has been launched;
- A Tree Master Plan has been drafted;
- The Sustainable Facilities Committee, convened jointly by UT Austin and the UT System, has developed guidelines for campus design and operations;
- Preservation planning is underway for Battle Hall, the Texas Union, and the Tower;
- Work has begun on a new campus plan, including for the first time a preservation component.

2

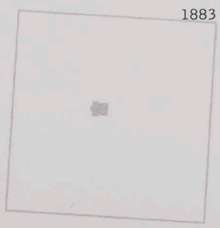
The Forty Acres is the historic core and original campus area of The University of Texas at Austin, one of the largest and most comprehensive universities in the United States (and the world), and among the most elite of American public universities. Texas is a populous state and one where the great majority of higher education is provided by public institutions, with UT Austin at their pinnacle.

One purpose of this history is to provide the background for evaluating the buildings and landscape of the Forty Acres for their eligibility for listing on the National Register of Historic Places. National Register eligibility is evaluated with respect to historical context. The important contexts for understanding the Forty Acres are: higher education in Texas and the United States; American campus design; the history and urban design of Austin, and Texas growth and urbanization.

2.1. Historic context: Austin, Texas, and higher education

Austin was laid out in 1839 as capital of the Republic of Texas, then a nation that had won its independence from Mexico three years earlier, and would join the United States in 1845 as the State of Texas. Austin became the state capital, but was not confirmed as a permanent capital until 1872. Austin was still a small city, with a still somewhat frontier character. The first railroad did not arrive until 1871. Austin was capital of a state whose population was primarily rural and its economy primarily agricultural, including vast stretches of the almost-empty Great Plains. By 1880, Austin held 11,000 inhabitants.

As in other American states, higher education in Texas began with private colleges, most of them founded with a particular religious affiliation. Baylor University (Baptist) was chartered by the Republic of Texas in 1845; scores of other colleges were founded before the Civil War, though few survived. Early Texans valued public education – among the complaints in the Texas Declaration of Independence



was that the Mexican government had "failed to establish any public system of education." The Congress of the Republic of Texas, in the Act establishing Austin as its capital city, also specified that a site be set aside there for a university, and the same Congress set aside public lands for the support of higher education. The Legislature took the matter up again in 1858, but the Civil War interrupted before any state university was established.

During the War the U.S. Congress in 1862 passed the Morrill Act, offering public lands for the support of a public university in each state, helping to democratize American higher education and to expand its scale. Unlike exclusive private colleges, whose role included socializing an elite, these new public institutions would educate students of modest means, preparing many for newly-expanding practical professions. For the most ambitious of these new institutions, the German university provided another model, bringing its own brand of elite emphasis on graduate education and research.

After Texas rejoined the Union, the Legislature accepted the Morrill Act and applied its funding to an Agricultural and Mechanical College of Texas (now Texas A&M University), founded in 1871 and opened in 1876. In the same year, the state opened Alta Vista Agricultural College (now Prairie View A&M University) "for the benefit of colored youth."[1] Also in 1876, a new state Constitution called for the establishment of a "university of the first class," to be called The University of Texas, its location to be selected by a statewide referendum. In 1881 the Legislature chartered Regents for The University of Texas, and on September 6, 1881, Texans voted to locate the new university in Austin, with a Medical Branch in the state's largest city, Galveston. In contrast to A&M and its military-themed education, The University of Texas from its inception was co-educational.

Austin's economy and identity now centered on government and education. The city grew steadily but lagged behind other commercial and industrial centers, falling from fourth largest city in the state in 1880 to eleventh by 1920. Texas as a whole was growing rapidly, climbing the ranks of American states. In 1881 the old Texas capitol burned, and Texans demonstrated their ambition in the extraordinary new capitol building, completed in 1888. With the Spindletop oil strike of 1901, and many subsequent discoveries around Texas, oil became a driver of the state's economy. Texas industrialized, urbanized, and grew. For Austin, this meant that the city served as a stage for the larger-than-life drama of Texas politics. For The University of Texas, it meant that the scale of its opportunities would be great.

[1] "Higher Education," Handbook of Texas Online, tshaonline.org/handbook/online/articles/UU/kcu9.html.

In the 1930s, the New Deal brought new opportunities for Texas, Austin and the university. Programs such as rural electrification alleviated the depression for the state's still-agricultural population. Public works included the beginning of the Highland Lakes, serving both Austin and agricultural users. Texas's Congressional delegation, with its disproportionate share of committee chairs, had a great hand in shaping these programs. Austin's new Congressman, Lyndon Baines Johnson, proved adept at bringing home the bacon. The University of Texas reportedly had more New Deal construction projects than any other university in the U.S. The city of Austin started growing rapidly in the 1930s, and never stopped.

A distinguishing aspect of higher education in Texas is its finance. The Congress of the Republic of Texas in 1839 set aside an endowment of public lands for the future public university. The legislature in 1858 established an endowment of both land and funds, but the Civil War interrupted work to establish a university, and diverted the funds that had been set aside. The endowment was not fully restored until UT was founded, and was supplemented with additional land in 1883, the year UT opened. On May 28, 1923, the Santa Rita No. 1 well brought in oil in the Permian Basin lands that belonged to the university, and university development in Texas was soon funded much better than it had been. In 1931, the legislature set a permanent allocation of the Permanent University Fund – 2/3 for UT, 1/3 for A&M. The New Deal temporarily eclipsed this source of funding, but over the long term the PUF created a reliable basis for campus planning and development.[2]

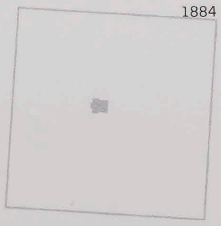
Courtesy of Dolph Briscoe Center for American History

Santa Rita No. 1

Public higher education in Texas, as in other large states, has grown continually through the addition of new institutions serving a variety of needs in a number of locations: normal schools (teachers' colleges) beginning in 1879, state colleges (including upgrades of many of the normal schools), community colleges. Since the middle of the twentieth century these schools have been organized into multiple higher education systems, with branch campuses distributed throughout the state. The University of Texas system is the largest of these. Clearly the university was conceived from the beginning as a system, with a Medical Branch established at the same time as the main campus, and the addition in 1913 of a School of Mines (now UT El Paso) and in 1941 the addition of what is now the M. D. Anderson Cancer Center in Houston. In 1950 the Regents created the position of Chancellor to lead the system. In a series of incremental changes, mainly during the 1960s with its great expansion in enrollments, the modern UT System took shape with UT Austin as its flagship.

[2] "University of Texas at Austin," Handbook of Texas Online. W. J. Battle, "A Concise History of The University of Texas, 1883-1950," The Southwestern Historical Quarterly 54:4 (April 1951), 391-93.

1884



2.2. Historic context: campus design in the U.S.

The campus is a design type of American origin that emerged gradually as a set of precedents and expectations for the physical form of colleges, and by the mid-twentieth century took on a broader expression as the apotheosis of large-scale site design in the U.S., applied to sets of offices, laboratories, hospitals or other large-scale multi-building facilities. Its roots include European universities and religious institutions, parks, American rural institutions, and exposition grounds.

Paul V. Turner traces the earliest American campus designs from British university quadrangles, themselves based in part on the prototypes of European cloistered monasteries. In America's more extensive and less urban setting, quadrangles took shape as groupings of freestanding buildings; these buildings often departed from the geometric logic of enclosure and gave rise to the "Yale row" as an early formal tradition. Thomas Jefferson laid out the University of Virginia's "academical village," incorporating architectural diversity and small domestic scale, unified within a grand mall composition. Jefferson's plan was literally open-ended, for growth both through linear extension as well as through the addition of parallel ranks of buildings.[3]

By the mid-nineteenth century, most American campuses followed informal Romantic plans, modeled on American park design. Leading park designer Frederick Law Olmsted prepared the first campus plan for the University of California at Berkeley. This aesthetic well fit the conception of the college as a rural institution, at a contemplative distance from the distractions of city life, and it fit the early realities of institutions that started out with more land than money for buildings. Many of these campuses began as a single-structure "Old Main" on the top of a hill. At its lowest common denominator, Romantic campus planning incorporated informality – an absence of strong geometry – usually with some regard for topography, and a curvilinear expression.

Formal planning re-emerged in the late nineteenth century, drawing now from the traditions of the Ecole des Beaux-Arts in Paris, greatly popularized by the Chicago World's Columbian Exposition in 1893, along with neo-Classical styles in reaction to Victorian eclecticism. The "City Beautiful" grew as a popular movement incorporating these forms with parks and parkways, rooted on one side in Progressive reform and on the other in new American imperial self-consciousness after the Spanish-American War.

In campus design, Beaux-Arts formality appeared prominently in Olmsted's design for Stanford University, begun in 1888, which also incorporated closed quadrangles. Geometrical formality characterized the University of Chicago campus, constructed from 1890 to 1893

[3] Paul V. Turner, Campus: An American Planning Tradition (MIT, 1984).

while the Columbian Exposition was taking shape next door. In New York, Columbia University's uptown move to its present Morningside Heights campus, c. 1894, was another opportunity for Beaux-Arts geometry in an urban setting. The common characteristics of these examples suggest that Beaux-Arts planning was best suited to campuses designed from scratch, where resources and circumstances would allow the whole composition to be completed in a relatively brief period. The University of California at Berkeley became an exception of sorts when it sponsored an international competition in 1899 to replan its existing campus. The winning designs each imposed formal geometries onto the free-form layout; the campus as developed over the next decades followed Beaux-Arts principles but in an open plan.

Re-planning of existing campuses increasingly became a subject of attention, with the change in architectural fashion, the growth of existing institutions, and a new focus on long-term planning. "Lately," wrote architect Alfred M. Githens in 1912, "the colleges have sickened of their haphazard buildings and trustees have come to architectural advisors, 'landscape' and otherwise, and each received something in the nature of a comprehensive plan, ingeniously contrived so that by moving a building here, tearing down a building there, building a new yonder, taking up the old meandering drives and paths and setting out straight ones, and so forth, their predecessors' sins might no longer be in evidence."[4]

2.3. History of the Forty Acres

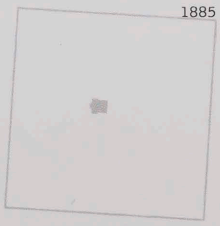
2.3.1. before UT

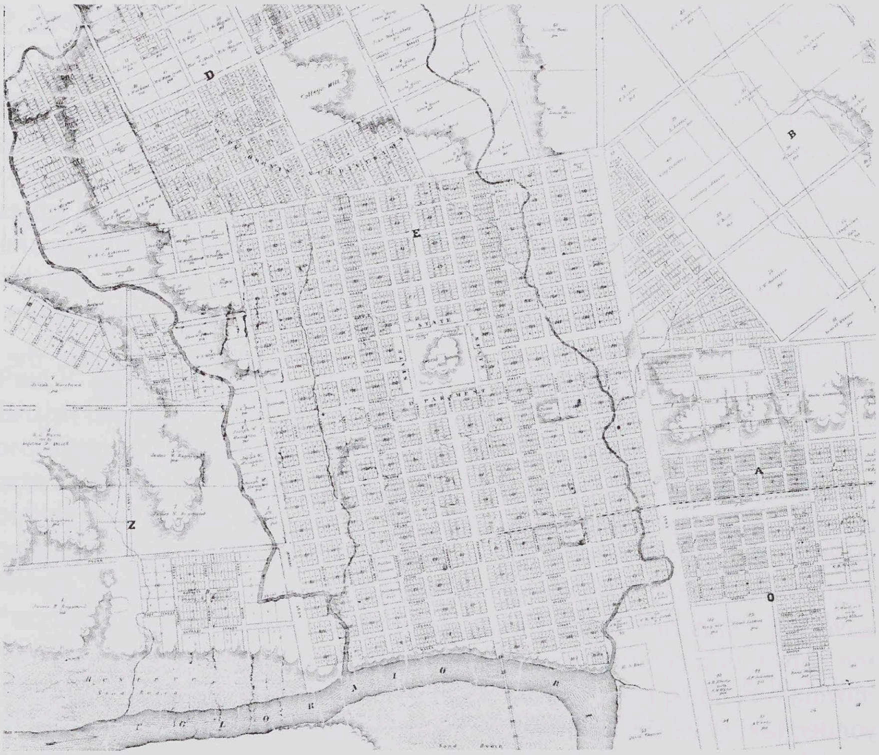
From Austin's inception in 1839, land was reserved for a future university.[5] The plan of the city's "outlots" – large parcels beyond the urban grid – set aside the next hill north of the Capitol, labeled "College Grove." The land's protection was not flawless. During the Civil War, General John B. Magruder reportedly cut down most of the "grove" to erect fortifications. After the war, Whitis Avenue was extended through the tract. Nonetheless the land remained in Austin's

[4] Alfred Morton Githens, "Recent American Group Plans, Part III, Colleges and Universities: Development of Existing Plans," The Brickbuilder, Dec. 1912, 313, quoted in Turner, Campus, 204, n. 78.

[5] In fact two separate parcels were set aside, perhaps because of competition between two surveyors working at different times. The original plat of Austin, for the Republic of Texas, reserved a block of land bounded by 11th, 12th and Rio Grande Streets and West Avenue. The Forty Acres site was the less official one, reserved by the City of Austin.

1885




1876 plan of Austin

civic consciousness through every new discussion about a university. Upon the state's vote in 1881 to locate the university in Austin, the City deeded the land to the State, which gave title to the Regents of the University of Texas.[6]

2.3.2. 1881 – 1910

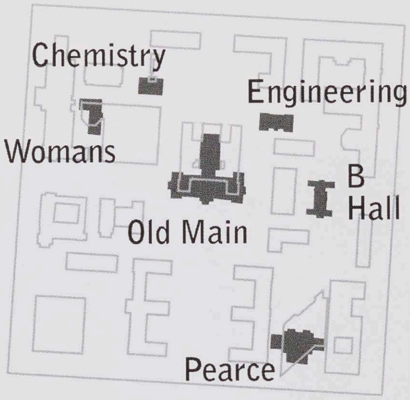
The Regents held a design competition for the Main (and only) Building. Frederik Ernst Ruffini, an active local architect, won. Ruffini chose the new building's site, though there was probably no doubt that it would go on the high point near the center of the tract. The cornerstone was laid November 17, 1882. It was to be the last construction project for Abner Cooke, Austin's leading builder since the city's birth. The University of Texas opened on September 15, 1883, in borrowed quarters at the temporary State Capitol. The first, West wing of the Main Building opened before the end of 1883, and classes moved there in January, 1884. The middle third of the building, with the main entrance and tower, was completed in 1889. The final, eastern third was not completed until 1899.[7]

[6] Cesar Pelli & Associates, Campus Master Plan: The University of Texas at Austin (1999), 11.

[7] For the 1889 middle portion, the architect was Burt McDonald, and the builder his father, John McDonald. The final, East, wing was supervised by architect J. L. O'Connor and contractor D. Mahoney. These subsequent architects substantially kept to Ruffini's exterior design.

Six more buildings were built in the 25 years after Old Main first opened:

- First Power Plant, 1889
- Brackenridge or "B" Hall (officially "University Hall"), donated by George W. Brackenridge, completed 1890 as a plain rectangular building; an 1899 addition made it into an H-plan ornate Coney Island Gothic. B Hall was a dormitory for young men of modest means, mostly rural and small-town students who could not afford to join fraternities.
- Chemistry Building (1891, Burt McDonald), after many complaints about smells from the labs permeating Old Main.[8]
- Woman's Building (1903, Coughlin & Ayres), a dormitory.
- Engineering Building (1904, Coughlin & Ayres).
- Law School (1908, Atlee Ayres), later Pearce Hall.



Early buildings on the Forty Acres

Of all these early buildings, including Old Main, only the 1904 Engineering Building (now Dorothy Gebauer Hall) survives.

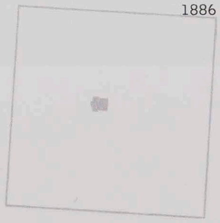
The first buildings were not so much arranged as distributed to empty spots on the campus.[9] B Hall sat east of the projected east end of Main. The Woman's Building was sort of opposite on the other side ofcampus, but not in any symmetrical relationship. Most buildings occupied the high ground on the north half of the site; the Law School was the exception, built on Twenty-first Street at the southeast corner of the Forty Acres.

Architects Charles A. Coughlin and Atlee B. Ayres, of San Antonio, prepared the first master plan for the campus in 1903. Their plan showed buildings creating monumental gateways at the two southern corners of the Forty Acres, and a row of pavilions between them. The plan had little overall order or vision, and it had little effect on the development of the campus, even though Coughlin and Ayres designed the next three buildings.

[8] lib.utexas.edu/chem/history/notes.html, quoting "Exhibit K, Chemical Laboratory," Report of the Regents, 4th, 1890, 44-47. According to Battle: "The story goes that when a committee of legislators came up to investigate the need of a separate chemistry building, the boys in the laboratory turned loose some Suphur Dioxide (otherwise known as Rotten Egg Gas). At all events the committee approved the request." Quoted in W. M. W. Splawn, The University of Texas: Its Origin and Growth to 1928 (University of Texas, 1928), 143.

[9] Battle: new buildings "were located at a convenient distance from the Main building but not according to any plan of development"; Battle papers (Dolph Briscoe Center for American History), box 4Q526, folder 3: Early Building Problems, cont'd, 2.

1886



The Capitol axis

View from Main Building to the Capitol

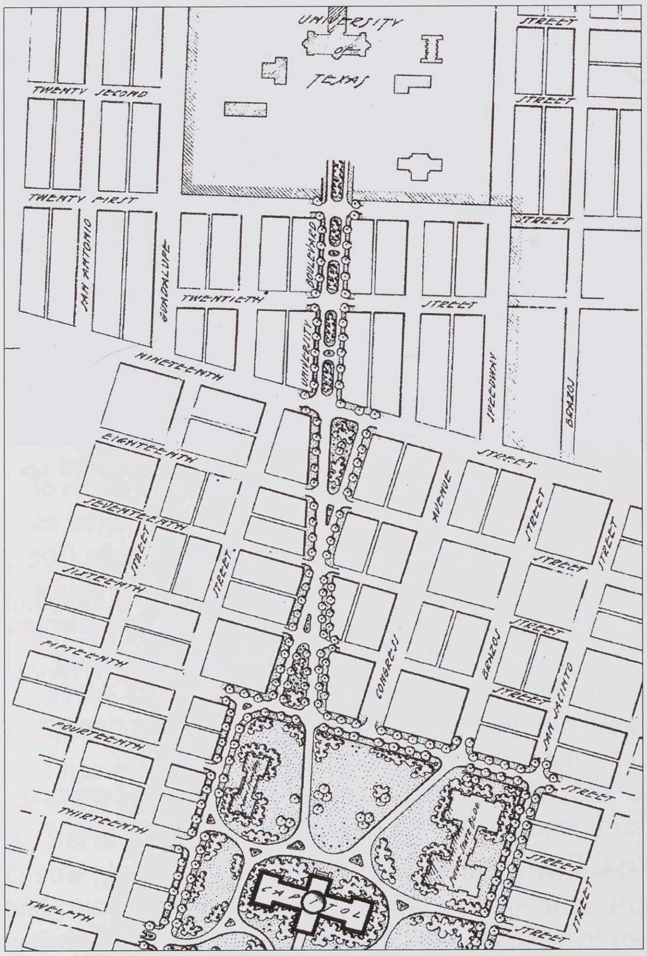
The choice of sites for the capitol and the university, on the first and second hills north from the river, created a latent axis. The simple grid of the 1839 city plat did not acknowledge it. University Avenue was laid out just south of the Forty Acres, as an axial (though very short) boulevard. It got off to a slow start, with the capitol dome rising to the south, not quite on center, and Ruffini's design for Old Main providing a fit but at first hypothetical monument to the north.

Cass Gilbert's plan extended the axis within the campus itself as a geometrically-defined South Mall. He sketched multiple versions of a new main building to cap the hill and terminate the axis, including a neoclassical Acropolis (before he arrived in Austin and saw the modest scale of the hill), and later a tower. When James M. White later proposed a new main library on the South Mall, Battle wrote to him: "I don't think we can expect to give up the N-S axis as one of the main axes. ... The University has been facing Austin and the Capitol so long that it would not be easy to abandon."[1] Austin's first city planners evidently agreed: consultants Koch and Fowler in 1928 proposed that University Avenue be extended southward across the city grid to bring the South Mall axis all the way to the Capitol.[2]

[1] Battle to J.M. White, Oct. 17, 1924, President's Office Records, CAH.

[2] See comments in Cret, Report, 14. Cass Gilbert evidently considered a similar scheme c. 1910, based on sketches on Austin street maps in his office. Christen dissertation, 362 and fig. 66 (573).

When the university planned the present Main Building and Tower, a principal concern was to provide "a satisfactory termination to the natural major axis of the University, that north to south, and give a fine balance to the Capitol at the other end."[3]



1928 Austin plan byKoch & Fowler, plate 7 (detail)

Later in the twentieth century, as tall office and residential buildings began to threaten the domination (and even the visibility) of the Capitol Dome on the skyline, the Legislature and the City of Austin enacted building restrictions to protect specific vistas of the dome. Capitol View Corridor Number One protects the view of the dome from UT's South Mall.[4]

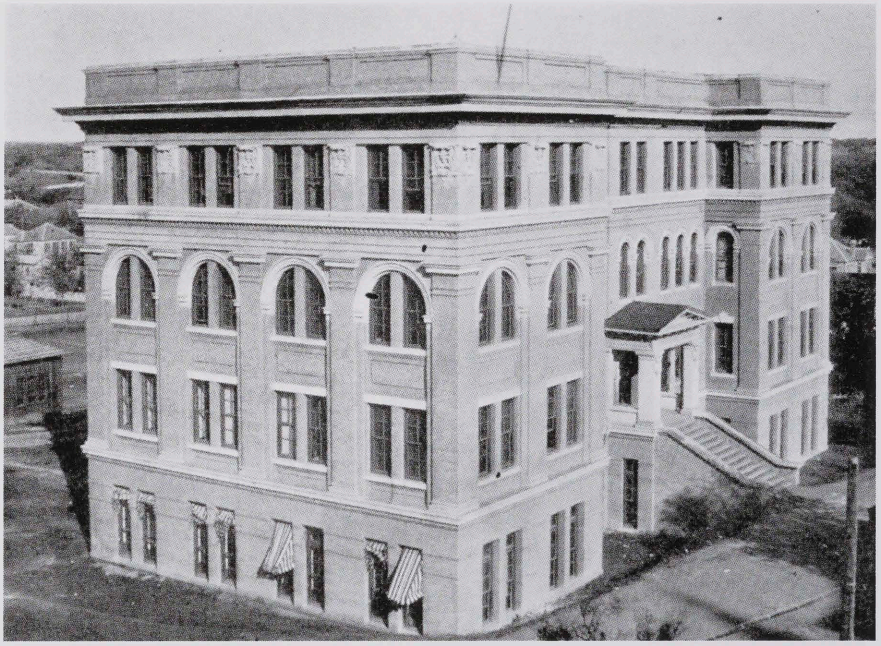
The axis has sometimes been one of opposition, as in the governorships of O. B. Colquitt and Pa Ferguson, during the teens, two governors in a row who attempted to intervene in the university's hiring decisions and threatened to cut off all state funding.[5] More often the axis has expressed the two great public institutions around which much of Austin life orbits.

Capitol View Corridors (City of Austin)

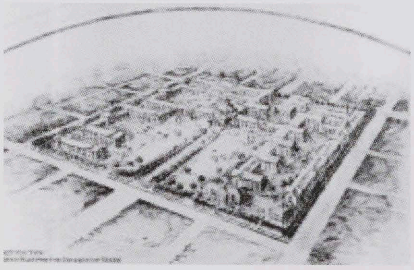
[3] "Arguments for and Against the More Important Sites Proposed for the New Library Building," 2 (CAH)

[4] Austin Downtown Commission, "Downtown Development and Capitol View Corridors," March 29, 2007, Public Comment Draft, 2.

[5] Holland, The Texas Book, 95-97.



Engineering Building (1904, now Gebauer Hall), photo 1913



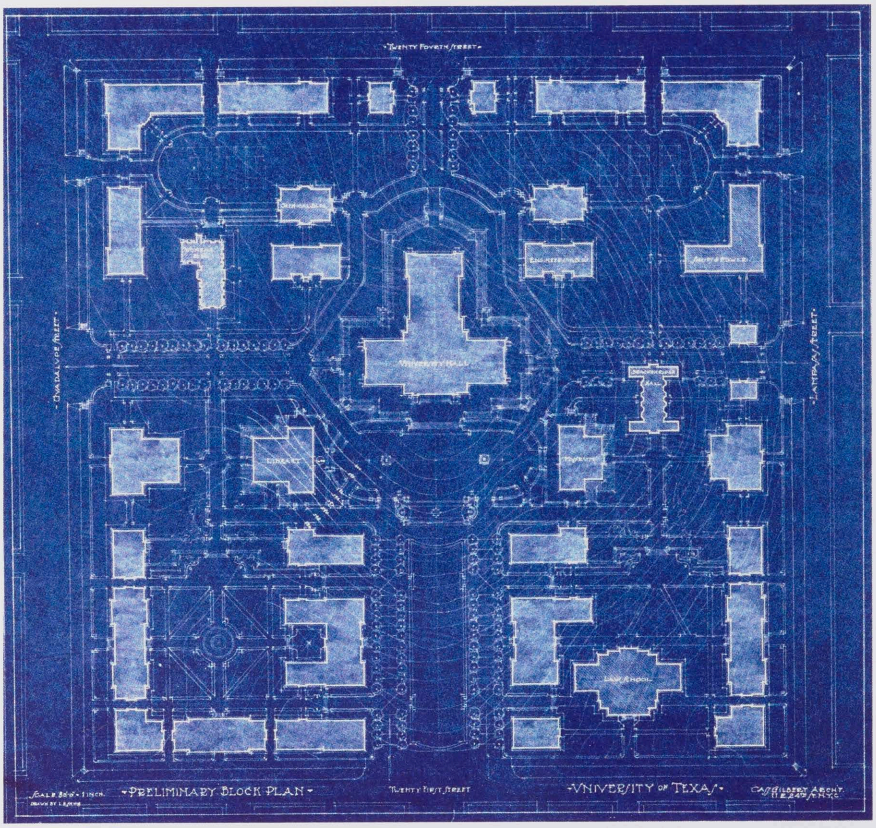
Frederic Mann Plan, 1909

By 1909, UT President David Houston and Regent George W. Brackenridge sought assistance from outside of Texas. Frederic Mann, chair of architecture at Washington University, St. Louis, had just designed University Methodist Church in Austin, immediately north of the Forty Acres at Guadalupe and 24th. This church has been cited as the prototype for UT's Spanish Mediterranean architectural style (the first UT building to incorporate a red tile roof was Mann's new power plant of 1910, demolished in 1977).[10] Mann recommended demolishing Old Main and most of the rest of the existing campus, starting anew with tightly quadrangular buildings covering most of the Forty Acres except for an open lawn and mall extending south from a new domed main building. Mann brought a Beaux-Arts approach to the UT campus, but even starting from scratch, he did not manage to convey a convincing architectural identity, and the Regents quickly turned to a truly national architect, Cass Gilbert.

2.3.3. The Cass Gilbert years: 1910 - 1922

Cass Gilbert (1859-1934) was president of the American Institute of Architects, architect (after winning design competitions) of the Minnesota State Capitol and the U.S. Customs House in New York City, and had recently begun a campus plan for the University of Minnesota.

[10] Margaret Catherine Berry, Brick by Golden Brick: A History of Campus Buildings at The University of Texas at Austin, 1883-1993 (1993), 10.



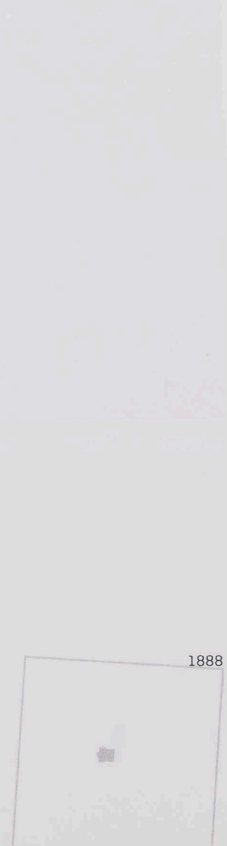
Cass Gilbert plan, 1910

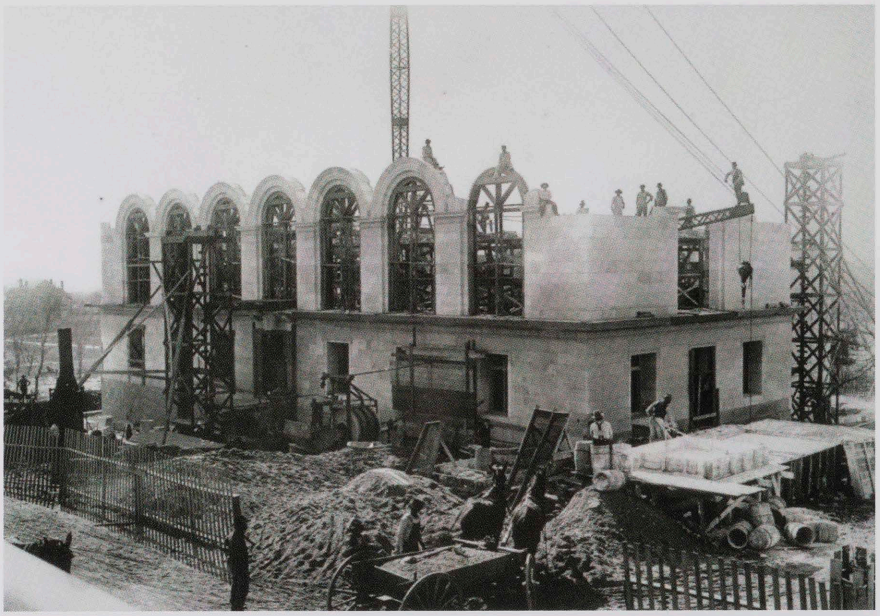
He would soon design the Woolworth Building in New York, tallest building in the world from 1913 to 1931, and later the U.S. Supreme Court Building in Washington, D.C. UT engaged him as its first University Architect.[11]

Gilbert's 1910 plan laid out important elements of the UT campus that has evolved in the century since. Four strong axes converged at a central (new) Main Building. The Main Building was offset toward the north so that the south axis remained the most prominent, a double allee of trees and walks bounded by symmetrical buildings and courtyards. Immediately in front of the Main Building this axis widened into a formal forecourt. The perimeter of the Forty Acres would be built out with rows of buildings, and the remainder of the four quadrants filled out as quadrangles. Gilbert skillfully absorbed most of UT's existing buildings into this plan, even though the Law School and Woman's Building had been sited as if to defeat quadrangles, and B Hall stood athwart the East-West centerline of the square campus.

[11] The relationship with Gilbert was initiated by President Mezes' brother-in-law, Col. Edward M. House, a former gubernatorial candidate and future member of Woodrow Wilson's cabinet. House's own home was one of the most architecturally distinguished in Austin, designed by New York Architect Frank Freeman; Carol McMichael Reese, Paul Cret at Texas: Architectural Drawing and the Image of the University in the 1930s (University of Texas. 1983), 30.

1888

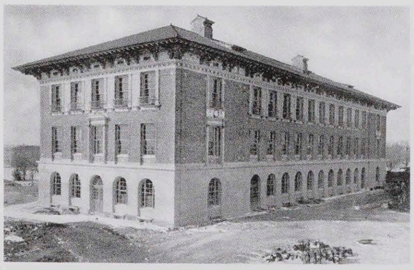




Battle Hall under construction, 1910

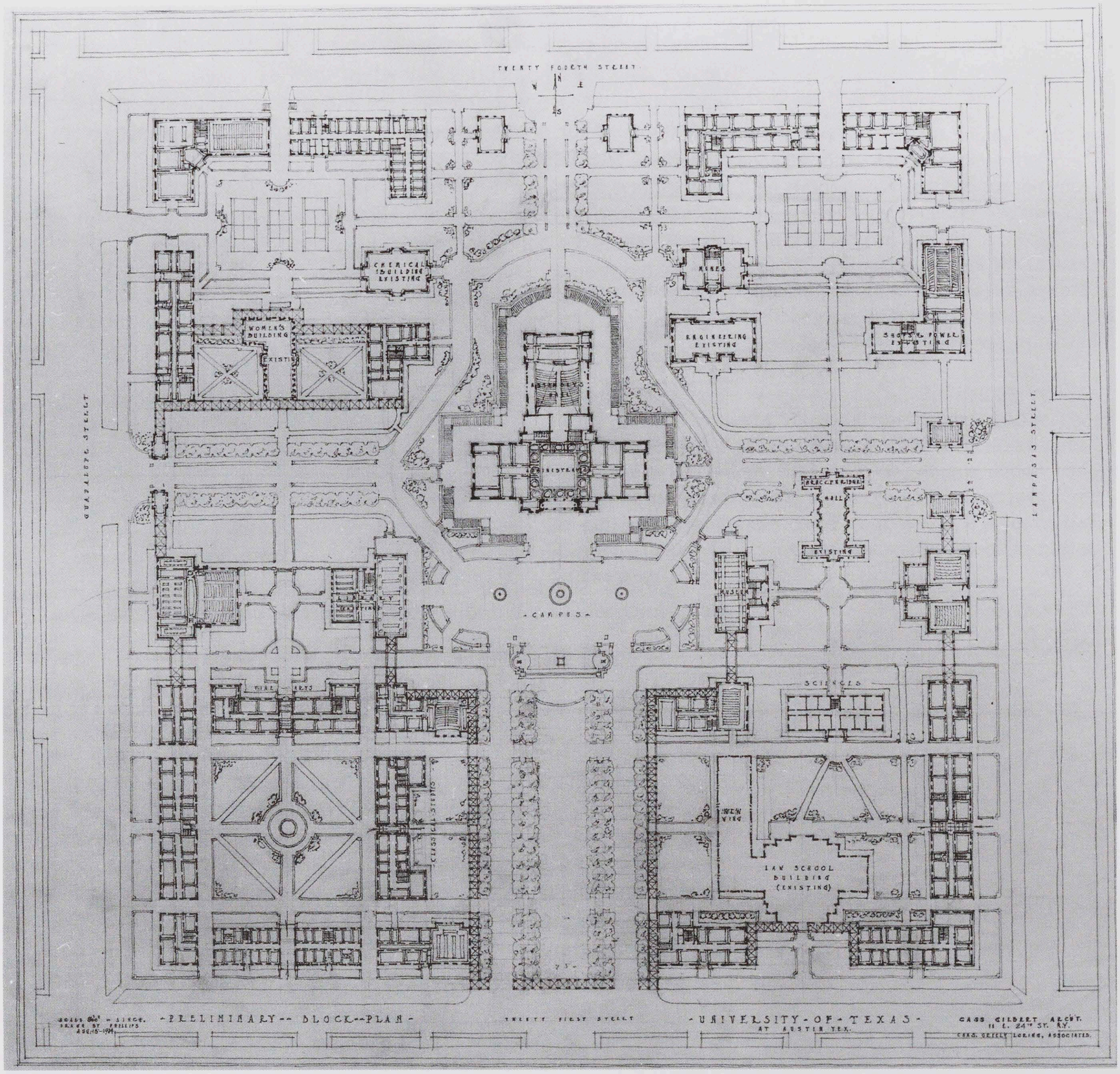
At the same time that Gilbert was preparing his master plan, he also designed the university's new Main Library (now Battle Hall). The new library took pride of place directly in front of Old Main, beginning to define the forecourt that was to be the central space of the campus. The renaissance facade served as an architectural challenge to the now unfashionably Gothic main building. Its bright creamy white facade, its elegantly simple geometry, made a visible call for higher aspirations.

Gilbert prepared a revised plan in 1914, and he designed a second building, Education (completed 1918, now Sutton Hall). But Gilbert had the misfortune to exercise his architecturally sure hand at a time when the development of the campus was thrown in doubt from several directions. First, building funds were not in hand – the Santa Rita oil strike was years in the future, and the university did not yet have the ability to bond against future income. Gilbert advised on university funding practices in other states, but his advice bore no fruit while he worked for UT.[12] Second, high-profile fights with two successive Governors distracted Regents and administrators for years, and further increased uncertainty about funding. Most importantly, as Gilbert was beginning his work, G. W. Brackenridge, longtime Regent and the



Education Building (now Sutton Hall), 1917

[12] University of Texas, President's Office Records. Architects. Center for American History, The University of Texas at Austin.

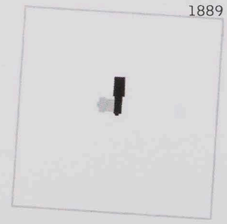


Cass Gilbert plan, 1914

university's main benefactor, concluded that the forty-acre campus was fatally undersized for a great university. In 1910, Brackenridge gave the university 500 acres on the Colorado River just west of Austin, intended as the site for a new campus.[13]

[13] Richard A. Holland, "George W. Brackenridge, George W. Littlefield, and the Shadow of the Past," in Holland, ed., The Texas Book : Profiles, History, and Reminiscences of the University (University of Texas, 2006), 92. Gilbert favored the move to the Brackenridge Tract; Barbara Snowden Christen, Cass Gilbert and the Ideal of the City Beautiful: City and Campus Plans, 1900–1916 (CUNY dissertation, 1997), 409.

1889



Brackenridge's proposal seems to have awakened an interest in the university on the part of George Washington Littlefield, an Austin banker who lived immediately north of the Forty Acres. Littlefield was appointed a regent in 1911. He and Brackenridge shared a deep-seated dislike for one another, at least part of which stemmed from Littlefield's dedication to the former Confederacy and Breckenridge's role as a northern-born Texan who had opposed secession, became a Union officer, and made his fortune smuggling during the war. Shortly after Littlefield's appointment, Brackenridge resigned after 25 years as a regent, but continued lobbying for his new campus, making a strong convert of President Robert Vinson. In the military mobilization during the First World War, and academic expansion afterward, temporary buildings quickly filled the open ground on the campus, for the first time making the Forty Acres feel small.

Littlefield died on November 10, 1920. He left $1 million to The University of Texas, most of it on the condition of keeping the campus in its current location. He donated his own land north of the Forty Acres, together with funds to build a women's dormitory there. Hours before his death he added a gift of his own home, subject to a life estate for his wife.[14] One part of his bequest was intended for a triumphal arch, which would eventually take a different form as the Littlefield Fountain.

Brackenridge died just a few weeks later, on December 28. Despite expectations, his diminished fortune did not allow him to leave a bequest to offset Littlefield's. President Vinson pursued anyway the vision of relocating the university to the river tract, and the regents voted in favor of the plan. But in the Texas Legislature the idea of moving from the Forty Acres mutated into proposals to remove the university from Austin. Austin residents, many of whom had supported the riverfront move, quickly closed ranks to support staying at the Forty Acres. In the end the Legislature appropriated $1,350,000 to expand the existing campus, and the university began to purchase land east and north of the Forty Acres. Gilbert's 1914 plan was the last in which the Forty Acres was the whole of the campus.

According to William J. Battle, head of the Faculty Building Committee and former president of the university, "Changes in the Board of Regents brought a feeling that The University of Texas should have a Texas architect." UT did not renew Gilbert's contract in 1922. Gilbert had built just two buildings, yet his influence through those two buildings was profound. Battle again: "In the end his design for the library ... fixed the style of the buildings in general and his campus development plan has in essence been accepted by all the university's

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[14] Holland, in The Texas Book, 98.

Temporary and permanent

Photo: Austin History Center

"Shackitecture" along Speedway, B Hall and present Gebauer Hall in the background

The Forty Acres spent much of its history covered with temporary buildings. They came in two varieties: the "shacks" that were intended to be temporary, and the early buildings that later planners did not intend to keep.

The first "Age of Shacks" (William J. Battle's term) lasted from 1911 to 1935, beginning with a temporary structure for Domestic Economy (precursor to Home Economics). The advent of World War I brought additional temporary structures for military training, and still more came in the 1920s before the Santa Rita oil strike, when UT was expanding faster than its funding. Battle explained their place on the campus: "President Mezes declared he wanted the shacks usable, indeed, but so crude and unsightly that Texas would speedily become ashamed of them and ... find money to replace them with something better."[1]

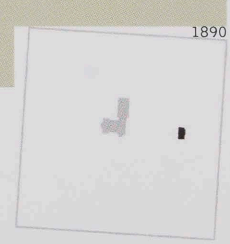
At the same time that UT began building its temporary "shackitecture," there were question marks hanging over almost every piece of architecture, with the exception of Gilbert's new library, distinguished as the first building that the university has consistently viewed as permanent. Gilbert had to work around these other nearly new but inconvenient buildings, but by 1933 Cret could say that "some of the more permanent buildings could also be considered as temporary, either on account of their obsolescence, or their fire risk."[2] The most conspicuous example was Old Main, especially once the new library loomed behind it. The attitude can be seen in the alignment of Inner Campus Drive at B Hall, which was deemed temporary and therefore left to project beyond the curb into the travel lane – an alignment that persisted for nearly twenty years before the building was removed.

After the Second World War, the GI Bill and the return of veterans swelled UT's enrollment from 7,000 in 1945 to 17,000 in 1946. This brought another generation of temporary buildings, fifteen for classrooms, and more than three hundred for residences. Most were two stories tall, and many came from the same place as their inhabitants: military camps that were demobilized after the war.[3]

[1] Battle papers, box 4Q526, folder 3: Temporary Buildings, 1.

[2] Cret, Report, 11. Splawn, University of Texas, 39: "Law, Engineering and the Woman's Buildings ... are still considered as temporary."

[3] Battle papers, box 4Q526, folder 3: Temporary Buildings, 2-3. Battle, "A Concise History," 398.



pg 18

subsequent architects."[15] Gilbert's Education Building created a second prototype, illustrating a broad vocabulary ranging from the high-style formality of the limestone Library, to the more rustic and colorful brick Education Building.[16]

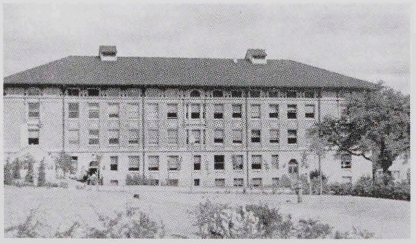
Lawrence Speck summarizes Cass Gilbert's significance for The University of Texas, even beyond architecture: "Gilbert helped the university administration and regents make the leap from seeing their institution as a small-town college to envisioning it as a sophisticated institution 'of the first class.'"[17]

2.3.4. The Herbert M. Greene years: 1922 - 1930

The regents appointed as the second University Architect Herbert M. Greene (1871-1932) of Dallas. Greene was a graduate of the University of Illinois, was considered the "dean of architects" in Texas, and was the first Texan to be named a Fellow of the American Institute of Architects. The university gave him a ten-year contract. He soon took on a partner, Bruce La Roche, and in 1928 a second partner, George L. Dahl.

The campus design team grew more complex still, as the university created the additional position of Supervising Architect, naming Robert Leon White, of the UT Architecture faculty. A second new position was created for James M. White (no relation), Professor of Architecture at the University of Illinois, who was named Consulting Architect with the expectation that his role would mainly involve the plan of the newly-expanded campus.

On the university side as well the team grew more complicated. The regents in 1919 established the Faculty Building Committee. In 1920, William J. Battle joined the committee, and in 1922 became its chairman, a position he would hold until 1948. In 1924, the regents significantly expanded the Committee's role, changing it from advisory to the principal liaison with the university's architects.[18]



Biological Laboratories, 1925 (photo 1935)

Greene's first building was the Biological Laboratories, authorized by the regents in 1922 and completed in 1925. Greene followed Gilbert's lead in two important respects. First, he sited the building along the north edge of the Forty Acres. He would have placed the building exactly according to Gilbert's plan, but William J. Battle led a campaign to move it eastward in order to preserve the three mature live oaks that have since been called the Battle Oaks. Still the building

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[15] Battle papers, box 4Q526, folder 3: Early Building Problems, cont'd, 2.
[16] The choice of brick for the Education was at the insistence of William J. Battle, over Gilbert's objection. Christen dissertation, 405-07.
[17] Lawrence Speck, "Campus Architecture: The Historic Decades," in Holland, ed., The Texas Book, 128.
[18] Reese, Paul Cret at Texas, 34.

Regionalism

The design of the Forty Acres expresses regional character both through its architectural style and through adaptations to climate.

The architecture of the Forty Acres is often described as "Spanish Mediterranean." President Sidney Mezes in 1909 asked Frederick Mann for a "style in general similar to that you have employed in the University Methodist church. I have never known the proper name for that style, and have myself thought of it vaguely in terms of its places of origin along the shores of the Mediter[r]anean."[1] Mezes soon urged the same model to Cass Gilbert.[2] Gilbert saw his work in the context of the region; he expected his UT buildings to "have a most important influence on the architecture of the Southwest."[3] He called Battle Hall's style "modified Spanish Renaissance."[4] It was "naturally induced by the Spanish influence in Texas," he said, "and, since it was originally developed in a country whose climate and atmosphere is similar to that of Texas it is altogether suitable to the local condition."[5] Most important as climate adaptation was the broad tile hipped roof with its broad overhangs for shade. The choice of local limestone rooted the campus literally in Central Texas, and the bright warm colors and polychrome ornament suited the sunny climate.

Herbert M. Greene, and especially Paul Cret, expanded the architectural vocabulary of the Forty Acres, but they maintained continuity with the regionally-appropriate style set by Gilbert. Mark Lemmon maintained continuity with Cret.

Climate-appropriate design, responding to heat, was a deeper regional theme of the pre-air-conditioning campus. In addition to commonplace energy adaptations of the time – operable windows, transoms for ventilation and daylighting, wooden blinds, especially to block the western sun – UT's campus also incorporates adaptations at a larger scale. Buildings were oriented East-West to avoid blocking prevailing breezes (the Texas Union was an exception, oriented to carry those breezes through the dining hall).[6] For the same reason, the campus included no enclosed quadrangles. "In Austin," wrote Cret, "the free circulation of the breeze seems to be possibly of greater value than the shelter."[7]

The climate was reflected in wonderful relationships between inside and outside. "In those days of no air-conditioning," recalled William J. Battle, "the only way to make the heat of Austin tolerable was to have high ceilings and plenty of large windows."[8] People old enough to have known Battle Hall before air conditioning universally remember the experience of the Reading Room with its great windows open. The Texas Union, in addition to its cross-ventilating windows, had two floors of open galleries facing its courtyard, shaded from the afternoon sun. They overlooked a pool, which provided evaporative cooling. Goldsmith's courtyard likewise includes a pool and faces east for afternoon shade, and its narrow studio wings feature broad windows for light and breezes. The front section of the Main Building, in its original design as a library, included two open shaded reading terraces. Air conditioning, and the sealing of spaces that it made possible and sometimes required, has added comfort especially in extremely hot weather, but it also keeps us from experiencing today the extent to which the Forty Acres environment was already well-tempered.[9]

Cret (like Gilbert before him) rendered not only the buildings but the landscape too in a Mediterranean style: terraces, palm trees, columnar cypress trees. The terraces were built, but in plant materials, Battle and Calhoun stepped in decisively in favor of a different

[1] President S. E. Mezes to Frederick M. Mann, Feb. 15, 1909, CAH, Presidents Records 1908 - , "Campus Architects."

[2] Christen dissertation, 390, 392.

[3] CG to SEM, second letter of April 27, 1910. CGC. CGP-LB 2/09-5/10 (N-YHS); as cited in Christen dissertation.

[4] University Record, quoted in Lawrence Speck, "The University of Texas: Vision and Ambition," in Cass Gilbert, Life and Work, ed. Barbara S. Christen and Steven Flanders (W. W. Norton, 2001), 55. Jay C. Henry, Architecture in Texas, 1895-1945 (University of Texas, 1993), 158: "the tile roof, eave bracketing, glazed tile and ironwork allude to Spanish sources, but have none of the obvious mannerisms of the Mission Revival."

[5] University Record, quoted in Speck, in Cass Gilbert, Life and Work, 55.

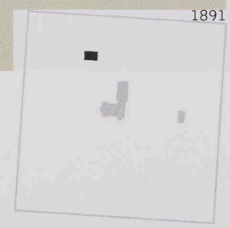
[6] Battle to Cret, Nov. 16, 1931, Battle Papers, Box 2K244, Folder "Paul Cret Correspondence, 1931"; Cret, Report, 6.

[7] Cret, Report, 6.

[8] Battle papers, box 4Q526, folder 3: Early Building Problems, 1.

[9] Air conditioning: FBAC in 1952 gave first priority to the Main Library. In "Others Needed Badly": Hogg Auditorium (Alcalde, Dec. 1952, 82). Small libraries already air conditioned – Music and Mezes – were overcrowded in the summer (Alcalde, Jan. 1953, 114). Hogg Auditorium air conditioning was scheduled for January 1955 (Alcalde, Nov. 1954, 59). Main library air conditioning was moved to 1955-56 (not including the tower), with Main Building offices 1956-57 (Alcalde, Nov. 1954, 58). Air conditioning was designed by Zumwalt & Vinter, mechanical & refrigeration engineers, Dallas (Alcalde, Nov. 1954, 59).

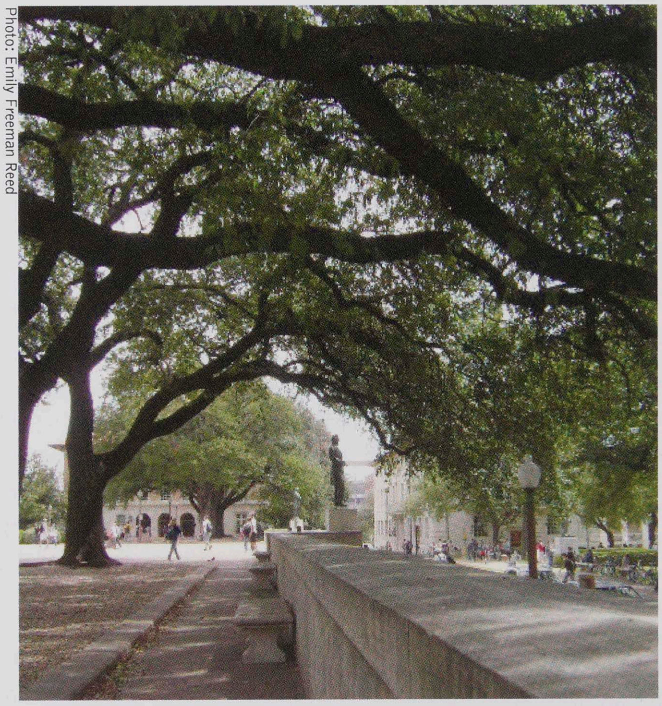
1891



regional tradition, Quercus virginiana. Live oaks were an icon of the American South, and with the Spanish-themed architecture they helped make the campus both South and Southwest. They would also, when mature, be a welcome adaptation to the climate, extending shade far beyond the sheltering soffits of buildings. Cret argued against planting live oaks in front of the Main Building lest they interfere with the central architectural effect of the campus. Calhoun, with the support of landscape architect S. Herbert Hare, insisted: "I am much in favor of good architecture, and you have given us a lot of it, but between looking at a good piece of architecture and suffering day in and day out with heat, I will be compelled to vote perhaps in favor of less architecture and more comfort."[10] In the end, Cret submitted: "The climatic conditions of Austin dictate certain features which might not be sought for their design merit alone[.]"[11]

The regionalism of design on the Forty Acres did not end with the Modern era. Limestone Modernism provides continuity, in Flawn and in the landscape walls of the Perip and West Mall. Flawn's original design was also a model of climate-informed Modernism, with its deep overhangs top and bottom, and masonry screen to regulate direct sun.

Photo: Emily Freeman Reed



Live Oaks on the Main Plaza

[10] Calhoun to Cret, Nov. 1937, Battle Papers.
[11] Cret to Calhoun, Nov. 22, 1937, UT President's Office Records, 1907-1968.

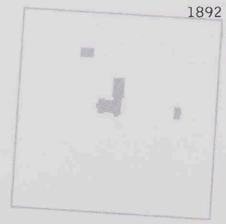
Greene Laroche and Dahl buildings

pg 20

began a linear row framing the north edge of the campus, as Gilbert proposed. Second, Greene adapted the architectural vocabulary of Gilbert's Education Building, executing it on a more restricted budget with lighter, more uniform brick and less ornament, and (thanks to Battle) on a more difficult sloping site. The effect of both siting and architectural design was to ensure continuity in the development of the campus, despite the change in architects.

James M. White prepared a plan in 1923 that was the first to include the expanded area of the campus, and located the stadium and Gregory Gym. The most important question in planning the Forty Acres was how and where to accommodate an expanded library. White first proposed a large addition to the west of Gilbert's library. Battle wanted the library to have pride of place at the center of the campus, replacing Old Main. In 1926, White drew a revised plan for the Forty Acres, departing from the consensus before and since: the Library would move south, eliminating the South Mall. There would be no building at the center of the campus, but instead a large quadrangle with a campanile tower at its center. This was not the right plan to satisfy Battle. Planning beyond the Forty Acres began to define the historic area of the campus as a core area for academic uses (and White defined allocation of specific uses within the Forty Acres, such as the science row along the north

1892



edge). White also proposed an East Mall wider than the West Mall, setting it up as the main axis in light of the eastward expansion of the campus. This geometry is reflected in the footprint of Garrison Hall, which does not symmetrically face Battle Hall but instead turns the corner toward this intended wider East Mall.

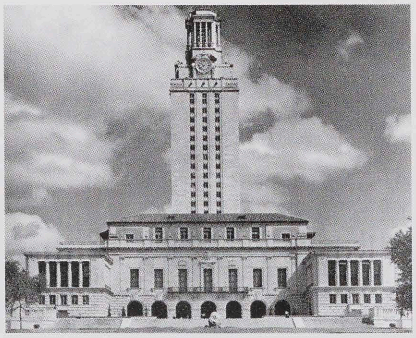
Garrison was Greene's second building, and the first to be planned after the beginning of West Texas oil royalties that provided the financial basis for expansion of the campus. On Biology, Greene began a motif of decorative elements invoking Texas history and culture. Garrison, built for the Departments of History and Social Sciences, continued this motif with medallions of Texas cattle brands.

Off the Forty Acres, Greene LaRoche and Dahl designed Memorial Stadium (1926), Littlefield Dormitory (1927), Gregory Gym (1930), and Anna Hiss Gym (1931). The Chemistry Building (1931, now Welch Hall) continued the sciences row along Twenty-fourth Street, establishing the northeast corner of the Forty Acres with a long bar of a building, longer even than Old Main. The College of Business Administration (1932, now Waggener Hall) began the row that was to frame the eastern edge of the Forty Acres.

H. M. Greene took ill in 1930 and died early in 1932. His partners completed the last year of the firm's contract. By this time Greene's successor was already at hand.

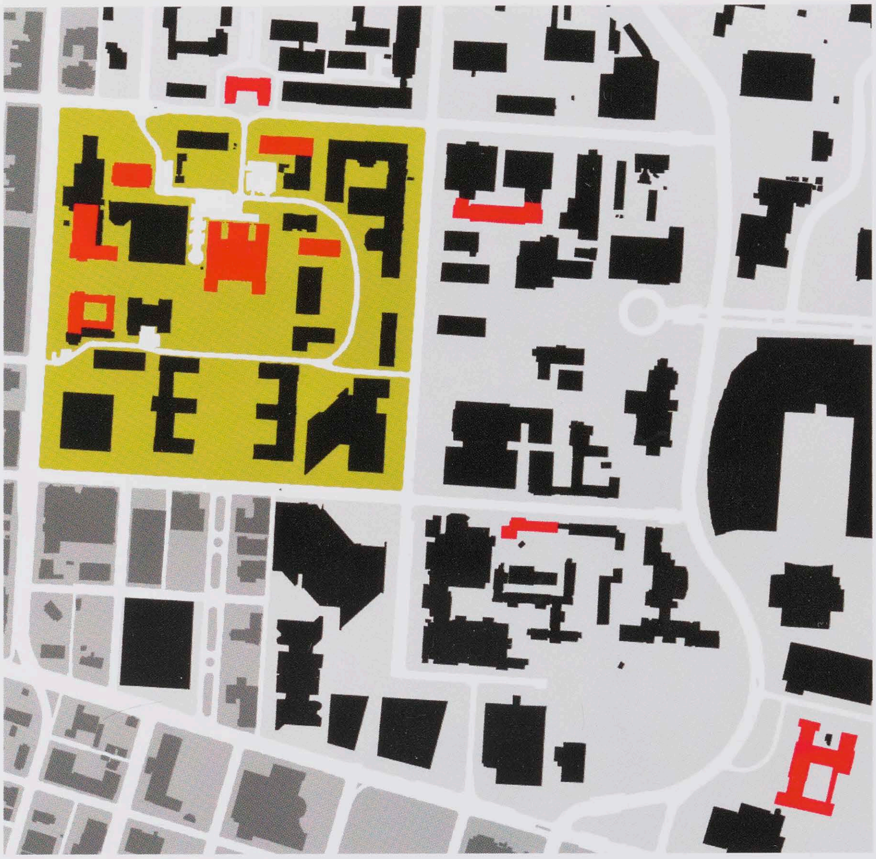
2.3.5. The Paul Cret years: 1930 – 1942

UT engaged Paul Cret (1876-1945) as Consulting Architect in 1930, primarily to prepare a new campus plan. Cret was French-born and educated at the Ecole des Beaux-Arts in Lyons, professor of architecture at the University of Pennsylvania, and a nationally-known architect in the U.S. In 1931, the Texas Legislature finally allowed the university to borrow against future income. Lest the legislators change their minds, the regents borrowed $4 million for ten buildings, and contracted with Cret to design all ten. This was an extraordinary commission for a single architect. It permitted an unusual comprehensiveness of designing spaces by designing groups of buildings, and Cret took full advantage of the opportunity. It also allowed him to define a full range of architectural vocabulary.



Main Building in 1939

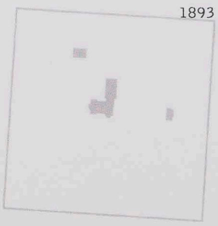
Cret's first and most important design was for a new main library, today the Main Building. He produced his first drawings for this building even before he was commissioned to design it; they were studies as part of his campus plan. Cret solved the puzzle of how to create a vast library as a new centerpiece for the campus, while living within funding constraints and avoiding the controversy of demolishing

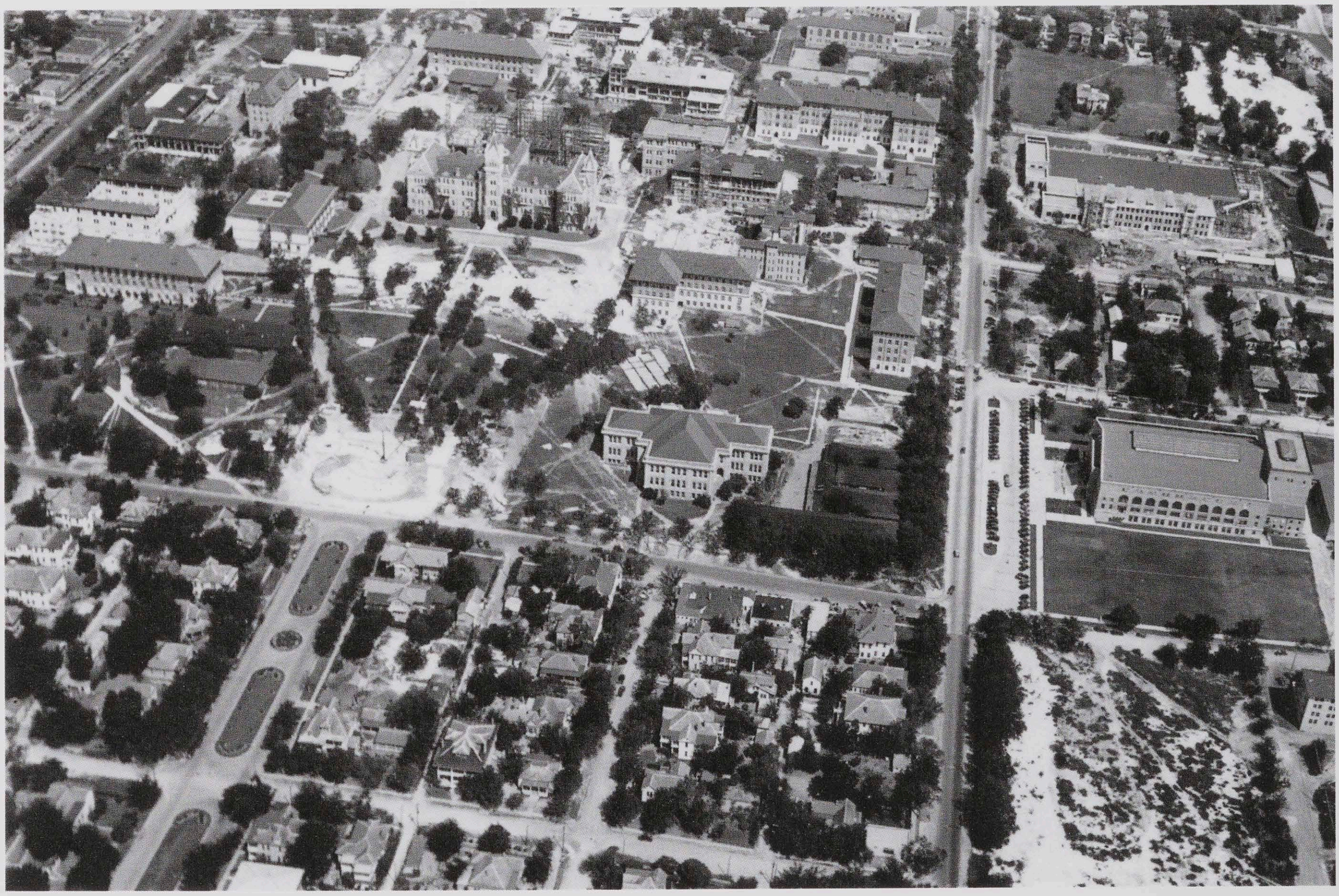


Paul Cret's ten buildings commissioned in 1931

Old Main: the library would be built in three phases. The first would be built not on the site of Old Main, but north of it, demolishing only the auditorium that had stood vacant and unused since 1915. A new front would replace Old Main at some unspecified date in the future. An extension farther to the north would increase shelving capacity when that became necessary. Among Cret's alternatives were some with library stacks arranged in a tower of up to eleven levels. The regents seized upon this scheme as the centerpiece that the campus needed, and the design grew to 28 stories.

The library core was completed in 1933, behind Old Main. With the advent of the New Deal, additional funds became available far sooner than expected and the second phase of the building, demolishing Old Main and constructing the tower, could begin almost immediately. At the same time, the regents and administration sought to house themselves in the new building, and diverted much of the program from library uses. The whole structure was completed in 1937, with the Main Building establishing a center in the plan of the campus, Forty Acres and beyond, and the tower becoming a citywide icon.





The new main library, Main Plaza, and South Mall begin to take shape around Old Main c. 1933

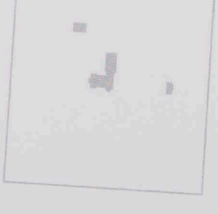
Cret started with the style that Greene adapted from Gilbert, and put his own stamp on it. He returned to Gilbert's two-tiered hierarchy, of brick in combination with stone for ordinary buildings, and stone for more prominent structures. He added a third level, which he called the "New Classicism," for the most monumental buildings, using simplified classical details in symmetrical Beaux-Arts compositions. Cret's building masses were more complex, his facade compositions less regular, conveying grandness yet informality. He created two-dimensional compositions within the planes of stone façades by alternating Cordova Cream and Cordova Shell Limestone. The cream could be worked as fine ornament or used as smooth frames; the shell limestone was used in random ashlar planes that appear darker because of the stone's texture. Along with these innovations he continued elements of the earlier vocabulary, including low hipped roofs of red tile, decorative overhanging eaves with brackets and painted soffits, and wrought-iron balconies and grille work.

Photo: Austin History Center

Hogg Memorial Auditorium, Women's Building in background

Cret organized the Architecture Building (1933, now Goldsmith Hall) with two skinny wings of sunlit studios, and a loggia completing the enclosure of a courtyard, introducing a new massing appropriate to the Mediterranean vocabulary of the campus. Similarly, the Home Economics Building (1933, now Mary C. Gearing Hall), directly north of the Forty Acres on the axis of the North Mall, also framed a little courtyard, creating a new, intimate level in the hierarchy of spaces that made up the campus.

The Texas Union building, a dining and social center for students, was constructed at the same time as the Architecture Building, immediately north of it. In plan it was L-shaped, aligning with Architecture to establish the western front of the campus facing Guadalupe. The shorter wings of the two buildings established the dimensions of West Mall, and the placement of both main entrances on the mall reinforced its animated character, already established by its role as the



main streetcar entrance to the campus, facing its main commercial district. At the street end of West Mall, a tower at the corner of the Architecture Building faced a tower on the Union, not symmetrical but exquisitely balanced, creating an architectural gateway. Larry Speck writes that "together they created a totally new architectural character very different from Cass Gilbert's seminal landmarks nearby. The simple stereometric volumes, palazzo compositional format, and materials treatments of Battle Hall and Sutton Hall were rejected in favor of a fresh but compatible new expression. These were looser, more dynamic buildings than their predecessors."[19]

West Mall c. 1940

Next north of the Union, and part of the same building program, was the Auditorium (1933, now Hogg Auditorium). It was oriented east-west, intended to frame a quadrangle with the Union Building. But the quad was still occupied by the Woman's Building of 1904, one of those early structures treated as temporary; its L-shaped mass stood closer to the Union than Cret intended for an eventual replacement, creating not a quadrangle but more of an intimate courtyard. The effect was heightened by an ornamental pool and by the open galleries on two floors of the Union, offering a breeze and a social overflow to the dining hall and the ballroom above.

At the north end of the Forty Acres, the Physics Building (1933, now Painter Hall) completed the row of science buildings between Biology and Chemistry. A tower at its western end matched the height of Greene's Biology Labs, creating a northern axial gateway. East of the new Library, Cret's Geology Building (1933, now Will C. Hogg Hall) faced Greene's Garrison Hall and marked the beginning of the East Mall (the mall was immediately truncated, for the time being, by Brackenridge Hall).

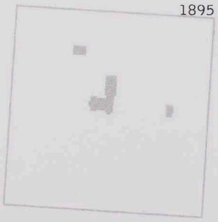
Cret began work in 1930 with the campus plan as his main task; starting the next year he developed the plan implicitly through his designs for the simultaneous construction of ten buildings. At the same time, UT hired its first landscape architects, Hare & Hare of Kansas City, to work with Cret designing the grading, paving and planting of the spaces he was creating. William Calhoun, the university's comptroller and thus master of its buildings and grounds, had already begun in 1925 to plant live oaks, the most important landscape decision for the future campus. In 1933, as Cret's initial wave of buildings were nearing completion, he returned to the task of completing an explicit statement of his plan. He submitted a large, rendered site plan and aerial rendering, together with an explanatory report.

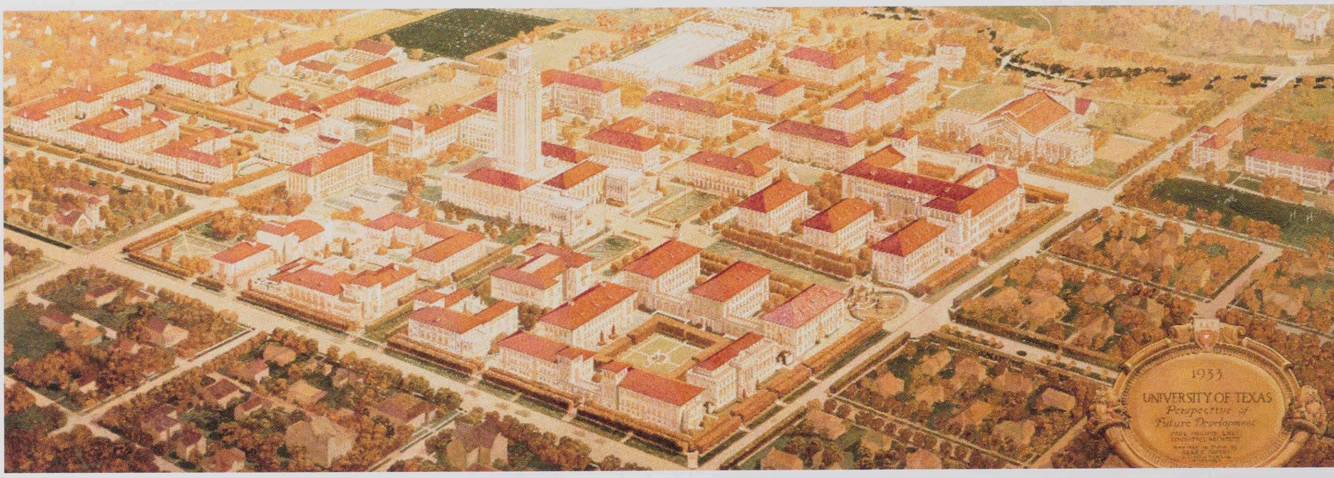
Cret accepted the skeleton proposed by Gilbert and fleshed out by Greene. But he adjusted everywhere, with a more subtle understanding of the definition of space by buildings, and the nuances of slope. His most important work of large-scale design was to re-shape the as-yet-

[19] Speck, Texas Book, 136.

Paul Cret plan

1895





Courtesy of Dolph Briscoe Center for American History

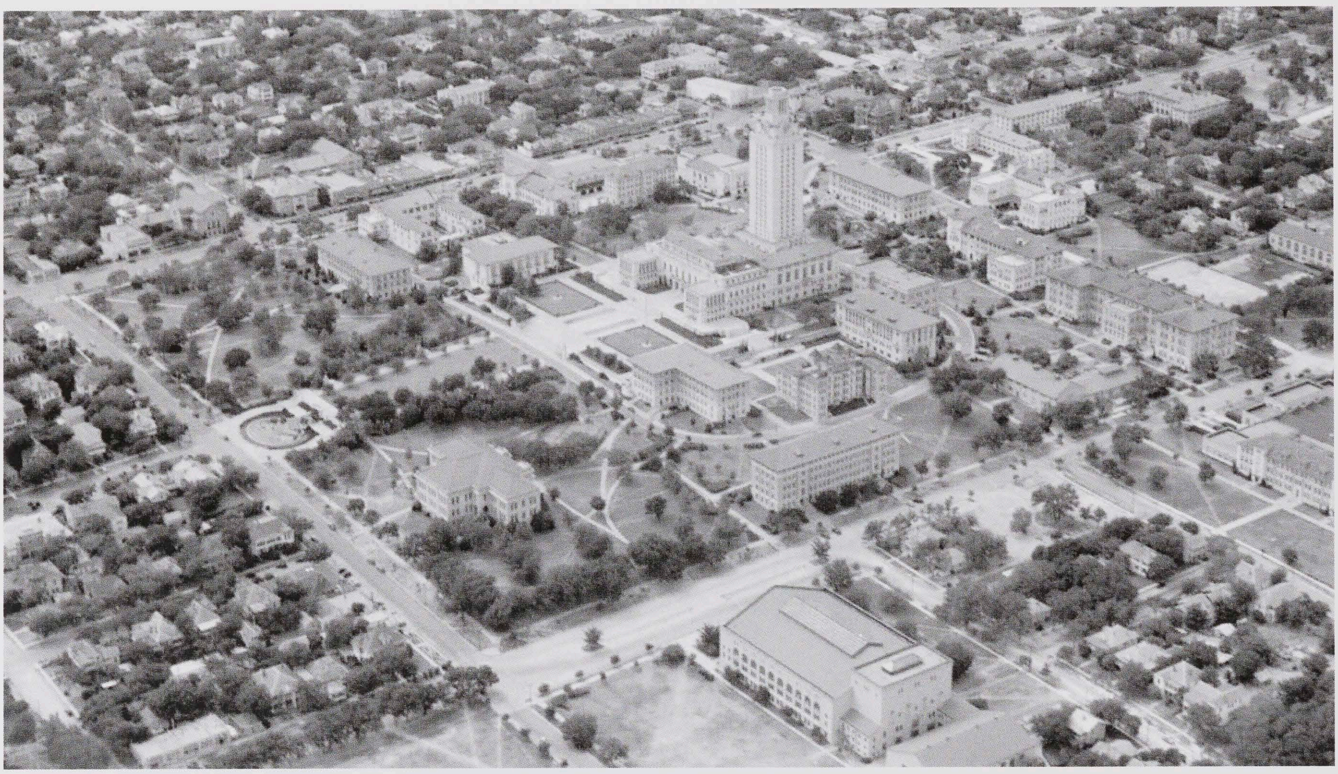
Paul Cret rendering

unbuilt South Mall. Gilbert's placement of Battle Hall delineated a 460-foot wide plaza in front of the Main Building, realized with the construction of Garrison Hall. Green LaRoche and Dahl planned to continue that width south to Twenty-first Street, "far too wide for the length of the mall to be of any architectural value," wrote Cret.[20] And the slope of the ground would have made awkward the north-south buildings that Greene proposed for enclosing the mall, or the arcades that Gilbert had drawn in the same position. Cret narrowed the width to 225 feet. He bounded the space with two rows of three buildings each, aligned perpendicular to the mall, their narrow ends facing one another as pavilions stepping up the hill.

And then, like Pope Sixtus laying out the lines of Baroque Rome with simple obelisks, Cret made the South Mall real without building a single building, by a careful redistribution of statuary. George W. Littlefield had proposed to donate, as a gateway to the campus, a triumphal arch. During Littlefield's lifetime he was persuaded that a monument to martial victory, facing the state capitol, might be misinterpreted. Pompeo Coppini, sculptor of the Confederate Monument on the grounds of the capitol, proposed instead an elaborate allegorical fountain celebrating American victory in the First World War, surrounded by historical figures of Texas, Confederate, and U.S. history, intended as a tableau of national reconciliation. Cret moved the sculptures so that instead of making a single composition at the southern gateway to the campus, they would define the space of a new, narrower South Mall.

Cret's campus plan emphasized the predictably unpredictable demands that would arise from differential growth and needs of various departments. He therefore called for an adaptable plan that would seek not rigid symmetry but balance, and would work equally well as a loose composition when the first buildings were built, and later as they grew

[20] Paul Cret, Report Accompanying the General Plan of Development (Jan. 1933), CAH, 9.

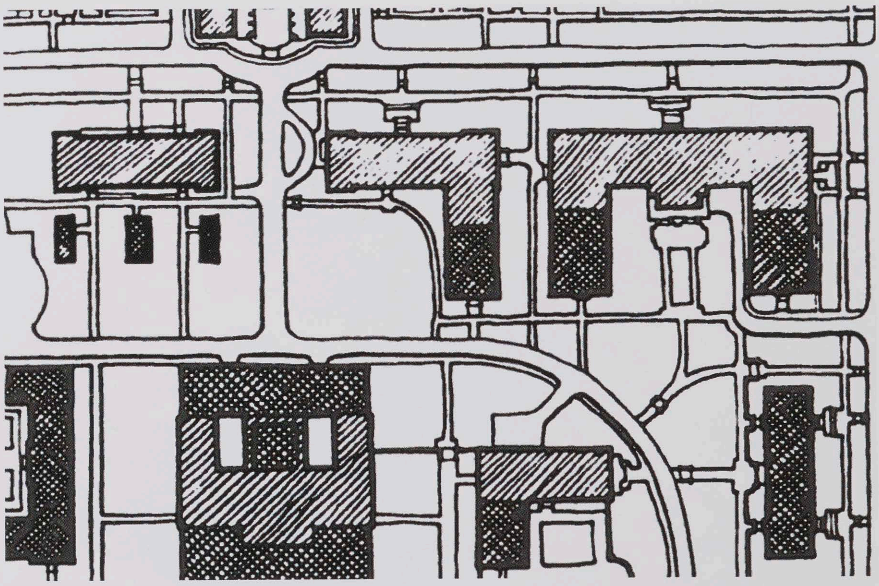


Aerial photo, c. 1940. The South Mall is laid out, as yet without any of the six-pack buildings

through additions, tightening the definition of spaces. His drawings indicate the potential for future additions, such as the wings that were in fact built on Painter and Welch from 1959 to 1976. In this sense Cret's plan governed the growth of the Forty Acres for decades beyond his work here.

The expanding campus became one of the most important factors in planning the still modest-sized city around it. San Jacinto Street, originally called "Waller Creek Boulevard," was extended north from the downtown grid so that Speedway could be closed to through traffic, uniting the Forty Acres with the growing eastern extension of the campus.

Cret was diagnosed with cancer and underwent surgery in 1939. He died in 1945. One of his last UT projects was the Music Building (1942, now Homer Rainey Hall), the first of the "Primary Group" (in Cret's words – more familiarly the "six-pack"). The Music Building created one side of the architectural frame for the Littlefield Fountain, beginning to complete the South Mall.



Cret's diagram of flexible future growth of the sciences row

2.3.6. The Post-War years

After the Second World War, returning GIs swelled enrollments, and in 1947 they were accommodated by a new wave of fifteen temporary buildings – including two-story dormitories called "Hutments."[21] The following year, UT issued $10 million in bonds for construction. The Regents turned again to a Texan, Mark Lemmon of Dallas, as Consulting Architect.[22] On the Forty Acres, Lemmon designed the eastern side of the six-pack: Batts, Mezes and Benedict Halls, completed in 1952. These buildings brought a protest from the Architecture students, who felt the time had arrived for a modernist campus, but Lemmon understood his charge as executing Cret's plan, and he faithfully followed the lead of the Music Building. Parlin, at the northwest corner of the group, was completed in 1956, the end of Lemmon's term as consulting architect. By this time the architectural expression of the core of the campus was largely complete.

Rainey Hall, 1942

A new campus plan was prepared in the late 1950s by Austin architectural firms Jessen, Jessen, Milhouse and Greeven, and Page Southerland Page. This plan dealt mainly with the major expansion of the campus to the east, and not so much with the Forty Acres.

In the 1960s, the demographic tsunami of Baby Boomers arrived on American campuses. UT Austin's enrollment doubled from 19,500 in the fall of 1960 to 39,000 ten years later. In 1963, Gov. John Connolly appointed Frank C. Erwin to the Board of Regents, where

[21] Battle papers, box 4Q526, "Support of the University," 10-11.

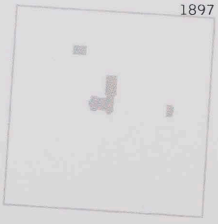
[22] Richard R. Brettell & Willis Cecil Winters, Crafting traditions : the architecture of Mark Lemmon (SMU Press, 2005), 74. Battle papers, box 4Q526, folder 3: Early Building Problems, cont'd.

All of Paul Cret's UT Austin buildings

he served until 1975, chairing the board from 1966 to 1971. Erwin centralized power in himself, and exercised it to remove faculty and administrators, and to suppress student dissent. He took a personal interest in building projects, at a time when the university did more of them than ever before. Erwin's projects were characterized by bigness – the Special Events Center (now the Erwin Center), with 20,000 seats, was announced at a time when the largest hall on campus was the Hogg Auditorium, seating 1275. Almost all of the Erwin-era projects were east, or north or south of the Forty Acres. The exception is the Humanities Research Center (1972, now Harry Ransom Center).

Harry Huntt Ransom, as Provost in the 1950s and then as President and Chancellor, built UT's special collections to create a great research library "from near scratch," in the words of one biographer.[23] "Texas," observed the London Observer in 1965, "has become the world's greatest repository of source material in twentieth-century British and

[23] Harold Billings, "The Woman Who Ran Ransom's University," in The Texas Book, 24.



American literature."[24] Ransom's work resulted in two of the biggest buildings on the Forty Acres: one was the massive HRC, completed in 1972 to hold those special collections; in Ransom's own description it aspired to be "the Bibliothèque Nationale of the only state in the union that started out as an independent nation."[25] The other, earlier building was the Undergraduate Library of 1963 (now Flawn Academic Center), one of the first university libraries designed with open stacks to support what Ransom called "'do-it-yourself' education which gets students acquainted with books firsthand."[26]

The Undergraduate Library completed the fifty-year architectural articulation of West Mall. The HRC did not so clearly follow Cret's plan, but did in its way enclose a Southwest Quadrangle. At the Southeast side of the Forty Acres, the Business School filled out the western side of Speedway in 1962. Its two large connected buildings generally followed Cret's plan, in a style that can be seen as a modern reinterpretation of the Gilbert-Greene-Cret standard: regular punched windows in orange-buff brick walls, red tile invoking the historic roofs, and terra cotta ornamental panels that reflected the soffits and ornaments of nearby Waggener and Garrison Halls. The 1976 addition of the Graduate School of Business made the most radical departure from plan anywhere on the Forty Acres, introducing a great parallelogram of forty-five-degree angles.

The rest of the changes of the past half-century were largely infill within the outlines laid out by Paul Cret. Calhoun Hall completed the six-pack. Similarly, the nearby West Mall Building directly implemented Cret's plan and continued his architectural style in a simplified way. The Computation Center was conceived as an expansion of the Main Terrace to give the East Mall a terminus, though its effect was to compromise the space between Garrison and Will C. Hogg. The largest additions were to Painter and Welch, expanding the sciences row generally as Cret himself had sketched in plan. The first Welch addition in 1961 ("Welch B") was skillfully detailed to take its materials and lines from the 1931 original while adding lively modern motifs. By the time of the Goldsmith addition in 1983, the university returned to a sympathetic architectural vocabulary, not as a perfunctory obligation but a celebration of Cret's earlier work.

All this infill exhausted the undeveloped sites on the Forty Acres and moved on to demolition of many of the earlier structures that preceded the Gilbert and Cret master plans. B Hall was razed in 1952. The Woman's Building suffered a fire in 1959, and was demolished to

[24] Lee Minoff, The London Observer, Feb. 14, 1965, quoted in Billings, The Texas Book, 28.
[25] Texas Quarterly, Winter 1958, quoted in Alcalde, Sept-Oct. 2003, 30.
[26] Alcalde, Oct. 1959, 13.

create the site for the Undergraduate Library. Pearce Hall, the old Law School, fell in 1972 to clear room for the Graduate School of Business. Of the pre-Gilbert buildings, only the 1904 Engineering Building (now Gebauer Hall) remains.

While new construction filled in the building footprint of the Forty Acres, it made smaller, more enclosed exterior spaces at the same time that it intensified their use. The West Mall, redesigned in 1969 as a paved pedestrian boulevard with limestone benches, is one of the most intensely used urban spaces in a now-large city. Throughout the campus, outdoor rooms increasingly have hardscape floors. They also have green ceilings, in the mature canopy of live oaks and other trees.

Larry Speck describes the significance of the campus to the university:

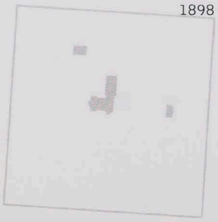
> The power, prestige, and dignity embodied in UT buildings when the institution was still fledgling predicted its future. The campus felt big and strong before it actually was. The environment of the university set a benchmark that the institution grew to achieve over time. Generations of prospective students have looked up the South Mall toward the Main Building and have sensed an ambition and aspiration that matched their own.[27]

2.4. Preservation in Texas and at UT

Texans have always valued Texas heritage, and have long taken steps to maintain the state's built heritage. The 1876 state constitution that directed creation of The University of Texas also empowered the Legislature to "make appropriations for preserving and perpetuating memorials of the history of Texas."[28] The successful campaign to preserve the Alamo, beginning soon afterward, was among the earliest and most significant such efforts in the U.S. As elsewhere, women led the early preservation movement in Texas, through the Daughters of the Republic of Texas, among others. The San Antonio Conservation Society and the Galveston Historical Foundation were two of the earliest local preservation NGOs in the U.S., and they remain among the largest and strongest. The State of Texas in 1917 preserved the antebellum Texas Land Office as a museum. The Texas Centennial Commission in 1936 began a statewide preservation program, and in 1953 the precursor of the Texas Historical Commission was founded. Texans continue working to preserve the state's modern heritage, for example in ongoing efforts to catalog and care for the Johnson Space Center.

[27] Speck, in The Texas Book, 138.
[28] Charles Hall Page & Associates, Austin Historic Preservation Plan (1981), 19.

1898



Locally in Austin, Clara Driscoll ("the Savior of the Alamo"), helped preserve sculptor Elisabet Ney's studio after her death in 1907. The Austin Woman's Club in 1929 began the project of preserving the North-Evans Chateau. UT Architecture Professor Samuel Gideon aided in successful efforts to preserve the French Legation and the O. Henry House. In 1953 the Austin Heritage Society was founded.[29]

By contrast, The University of Texas spent much of the twentieth century in an anti-preservationist posture, in its drive to remake the Forty Acres. In effect there was a consensus that the university's first buildings constituted not an architectural heritage but a false start. The heritage lay instead in the vision of Gilbert and Cret, the growing set of buildings that expressed it, and the growing live oaks planted by Calhoun.

There were some preservationist stirrings, especially with respect to Old Main. William Battle hesitated to adopt Cret's proposal for replacing the building, which he feared might "outrage public sentiment."[30] Public sentiment was indeed aroused, both when the plan was proposed and then again when the demolition was imminent.[31] Some ex-students tried to organize the reconstruction of Old Main's tower on another site; in the end its bricks and stones were incorporated into a number of new buildings.[32] B Hall also produced great sentimental attachments, but they were expressed more strongly when it was closed as a dorm in 1926, rather than at its demolition in 1952.[33]

Much preservation activism at UT, as elsewhere in Austin, has focused not on buildings but trees. The successful fight to save the Battle Oaks was a milestone: the first time a beloved feature of the campus was definitively marked for preservation. Shortly afterward, Austin residents began a successful campaign to preserve the Treaty Oak west of downtown. Decades later, the October, 1969, "Battle of Waller Creek," one of Frank Erwin's most conspicuous conflicts, was over the destruction of mature pecans and elms along San Jacinto Street in order to expand the stadium. The students who sat in the trees trying to preserve them lost that fight, but it helped bring to an end Erwin's reign. More recently, UT has added the position of Campus Urban Forester to care for its live oak legacy (as well as its hackberry heritage).

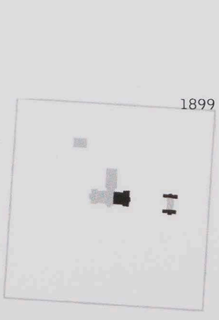
In recent decades, UT has established a record of stewardship and preservation for buildings as well as trees. The Heritage Society of Austin gave the university an award for restoration of the Littlefield Home in 1966, and another in 1986 for restoration of the Little

[29] Page, Austin Historic Preservation Plan, 19-23.
[30] Letter April 22, 1930, Battle Papers (2k244), 1.
[31] Dallas News editorial, Dec. 1, 1931 (CAH); Reese, Paul Cret at Texas, 54; Jeffrey Kerr, Austin, Texas Then and Now (Austin, 2004), 221.
[32] Kerr, Austin Then and Now, 221.
[33] David Dettmer, "When the Poor Boys Ruled the Campus: A Requiem for B. Hall," in The Texas Book, 126.

Campus. On the Forty Acres, the 1983 wing of Goldsmith Hall was a model of respectful addition (and won awards from the Texas Society of Architects and the American Institute of Architects Dallas chpater, as well as the Heritage Society). The decision to rehabilitate rather than demolish the old Engineering Building – now Gebauer Hall – saved the one remaining building on the Forty Acres that preceded Cass Gilbert. That project earned another Heritage Society award in 2001, and the most recent, in 2008, was for the restoration of Garrison Hall, including reconditioning its original wooden window sashes.

With these recent projects, UT is moving to the forefront of best practices in preservation. Planning is now under way for restoration of Battle Hall, one of the architectural masterpieces of the university and the nation. Over the previous century UT showed how to make a great campus; over the next it will show how to keep it.

1899



Historic Resources 3

This chapter evaluates the historic resources of the Forty Acres according to their eligibility for the National Register of Historic Places.

Battle Hall is the only building on the Forty Acres that is currently listed on the National Register.[1] The Main Building has been officially determined eligible for the National Register.

The first section of this chapter evaluates the Forty Acres as a whole as a district. The next section discusses subdistricts. These subdistricts are informally defined and overlap one another; the purpose is to describe the evolution of major spaces and building groups at a scale small enough for specificity. The third section lists major contributing features of the Forty Acres district, mainly buildings but also including landscape features such as the Battle Oaks, Littlefield Fountain and the Biology Ponds. The final section discusses landscape systems, which are composed of repetitive features too numerous to be exhaustively listed (such as trees or lighting).

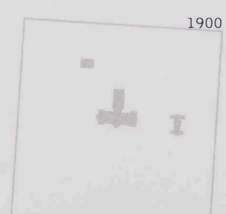
3.1. The Forty Acres district

3.1.1. Significance criteria

√ A. That are associated with events that have made a significant contribution to the broad patterns of our history;

The University of Texas at Austin is of national and international significance in higher education, as a preeminent modern public research university. The Forty Acres was its original campus, the entire campus for the first four decades of its history. Within the state of

[1] No. 70000763, listed August 25, 1970.



Texas, the significance of both the university and the Forty Acres are even more fundamental: from the days of the Republic, Texans sought an eminent institution of higher education, expressed in the state constitution even before UT was established, as "a university of the first class, to be ... styled 'The University of Texas.'" The Forty Acres site was set aside for the future university from the city's beginnings, and its presence helped establish the university in Austin.

__ **B. That are associated with the lives of persons significant in our past;**

We have not called out significance for association with historic persons, not because there are no such associations but because there are so many. It is in the nature of the educational significance of the campus (under criterion A) that it is associated with hundreds of important faculty, administrators and others, and that it has played an important role in the lives of many thousands of former students, among whom are many of the significant historical figures of Texas and the world.

A short list would include William James Battle, Frank Erwin, Gov. Oran M. Roberts, regents G. W. Brackenridge and G. W. Littlefield, Harry Huntt Ransom, Walter Prescott Webb, J. Frank Dobie, Vartan Gregorian, Roger Shattuck and John Silber. Dr. Herman Mueller won a Nobel Prize in 1946 for work that he carried out in a basement lab in the Biology building. To list just one ex-student, Walter Cronkite began his broadcasting career in a studio in Gebauer.

At the scale of the whole campus or the Forty Acres, each of these individuals was a tributary to the overall significance of the institution. If buildings are evaluated individually there may be cases where a significant individual does help define the significance of the building, and the association of that individual with individual spaces may be important.

√ **C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction;**

The University of Texas Forty Acres is a nationally-significant example of Beaux-Arts campus planning, one of the largest, most coherent and most distinctive in the country. The plan of the campus is primarily the work of Cass Gilbert and Paul Cret. Landscape architects Sidney J. Hare and S. Herbert Hare (respectively father and son), architect Herbert M. Green and sculptor Pompeo Coppini each contributed works of high artistic value. The value of the campus design comes not merely from the individual contributions of these masters, but from the fact that they each joined in a collaboration that spanned many decades.

__ D. That have yielded, or may be likely to yield, information important in prehistory or history.

The Forty Acres is not known to include significant prehistoric sites. Archaeological materials from the historic period likely do not add significantly to the archival record.

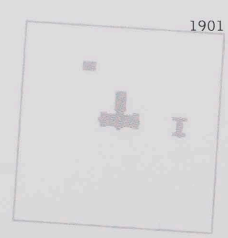
3.1.2. Period of significance: 1898 – 1962

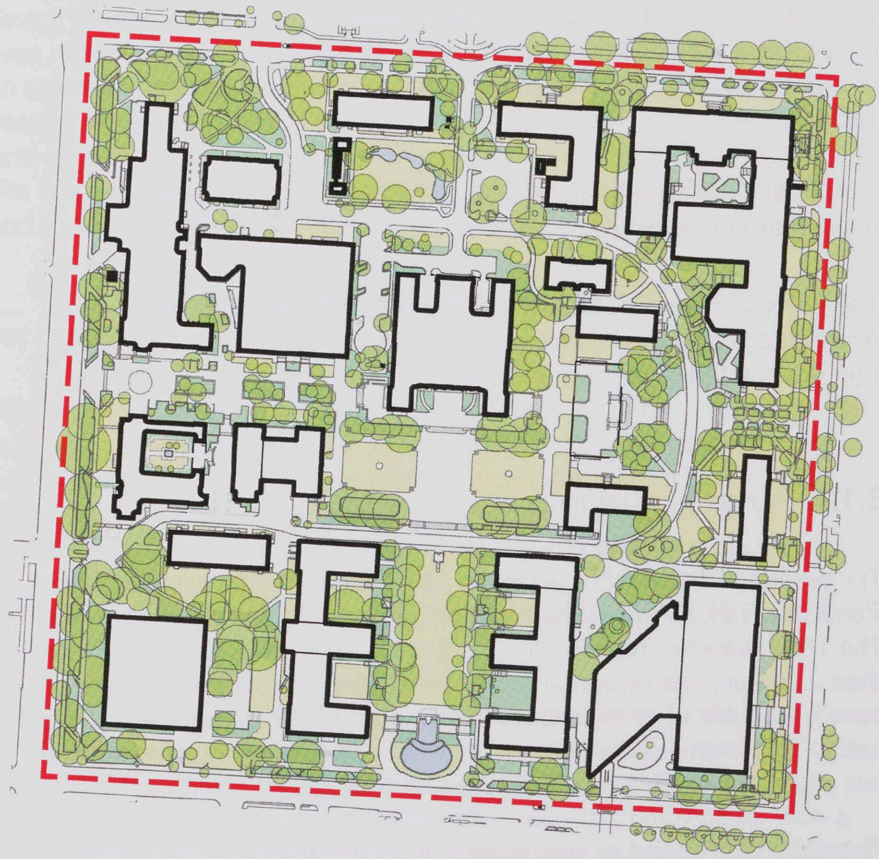
The period of significance begins in 1898, based on the origin of the Peripatos walk as the oldest remaining significant landscape feature. The 1898 walks remain in alignment only, but their evolution for more than a century has been marked by continuity. Earthen walks were paved, a double allee of hackberries planted and then replaced by live oaks. These changes did not take place in any sudden transformation but gradually, one piece at a time.[2]

The end of the period of significance is set arbitrarily at 1962, fifty years ago. The University of Texas Forty Acres is in continuing use and its significance continues to the present, so the end of its period of significance will always be based on administrative rather than historical considerations.

The period of significance does not create an arbitrary cut-off of 1962. Buildings and features contribute if they completed ensembles conceived and begun during the period of significance (as Calhoun Hall in 1966 completed the "six-pack" group). Modern structures less than 50 years old may contribute without being held to the criterion of "exceptional significance" that would apply for eligibility as an individual property.

[2] No. 70000763, listed August 25, 1970.





Forty Acres boundary

3.1.3. Boundary

For the purpose of this report, the boundary of the eligible district encompasses the complete square of the Forty Acres. The Forty Acres is the original extent of the UT campus.[3] Its geographical and architectural clarity and consistency make it an identifiable unit. The Forty Acres is a management area of the campus, designated under the current Master Plan as a conservation area. It was the study area for the Campus Preservation Plan funded by the Getty Foundation.

A more comprehensive consideration of the historic UT campus would (and should) include its extension to the east and north beginning in the 1920s and the University Avenue area, extending south and associated with it as urban design (though it is not clear whether an expanded campus district should still be called the Forty Acres). Meanwhile, the original Forty Acres is an identifiable and logical starting point.

[3] Recognition by authorities: Paul V. Turner, Campus: An American Planning Tradition (MIT, 1984).

The boundary includes the complete Forty Acres, curb to curb from 21st to 24th streets and Guadalupe to Speedway. The northeast corner is occupied by a contributing building, the 1931 Chemistry Building (now Welch Hall). The northwest corner is a grove of live oaks, a contributing landscape feature centered on the Battle Oaks. The southeast and southwest corners are each occupied by buildings less than 50 years old. At the south edges, the argument for the full Forty Acre square is primarily a landscape argument – the "Peripatos" perimeter walks are a significant landscape feature that retain integrity (some places better than others, but on the whole yes). Thus the new additions such as the Harry Ransom Center and the College of Business Administration are contained within a frame of historic landscape.

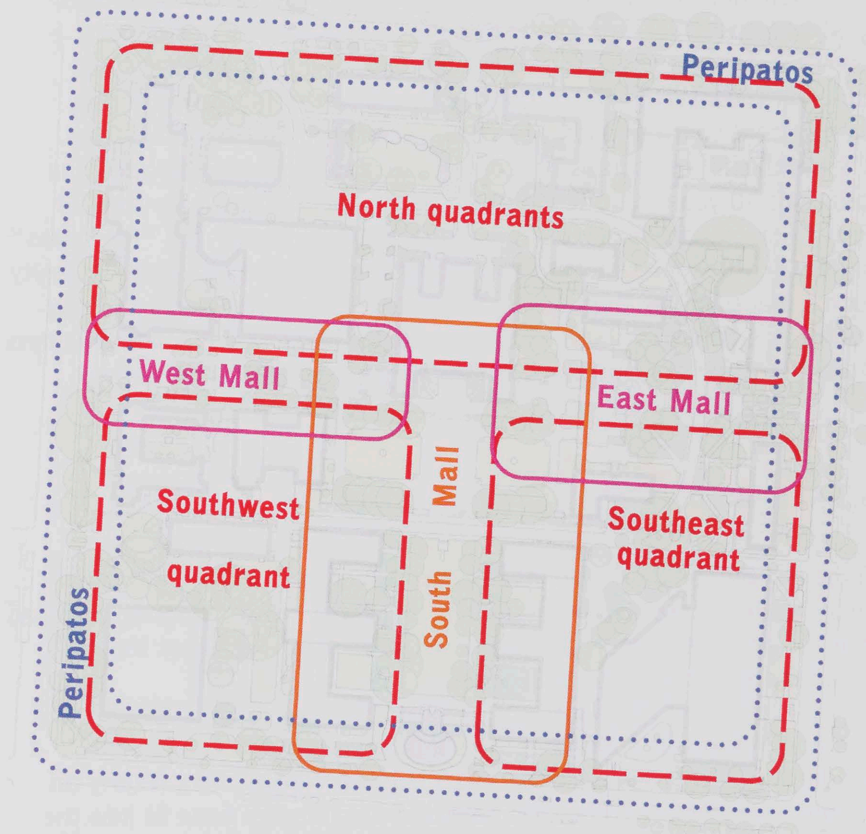
3.1.4. Integrity

To be eligible for the National Register of Historic Places, a district must not only possess significance, it also must retain integrity, meaning that the physical resources must be in a condition such that their significance continues to be legible.

The Forty Acres as a whole retains a high degree of integrity. All buildings constructed since the 1910 Gilbert Plan remain. Nearly all buildings constructed since the period of significance have fit into the general outlines of the Cret Plan, sometimes very faithfully (completion of the South Mall six-pack, West Mall Building), sometimes with a degree of elasticity (Flawn), sometimes stretching the envelope (Harry Ransom Center, Graduate School of Business Building). Some existing buildings and spaces have been adapted to new UT uses. Cret explicitly intended that his plan be elastic, to accommodate the ebb and flow of university uses, unpredictable over the long term.

Landscape changes for the most part have been sympathetic and evolutionary.

1902



Subdistricts of the Forty Acres

3.2. Subdistrict descriptions

3.2.1. South Mall (including Main Building plaza)

The South Mall is the core of the design of UT's campus. In Paul Cret's plan, this was the "primary group" of the campus: it would be "the image carried in our memory when we think of the place."[4] It was the only part of the campus that he articulated with rigorous symmetry. South Mall is bounded and defined by the "six-pack": Rainey, Calhoun and Parlin on the West, facing Benedict, Mezes and Batts on the East. The Mall itself, and its paired Live Oak allees, was laid out and planted years before the first of the six-pack buildings. The Mall, plaza, Main Building entrance, and Tower complete the axis that connects the campus with the State Capitol.

[4] The beginning of the period of significance is a somewhat artificial question, since expanded district boundaries would include the Littlefield House, setting a firm early date of 1893.

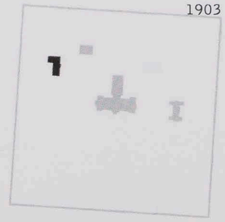
Photo: Volz & Associates

Main Building Plaza

The Main Building Plaza is the central space to which the South Mall serves as an approach. This formal court was generated over time, beginning with the position and style of Cass Gilbert's Library (now Battle Hall). Garrison Hall was the second piece (not symmetrical because it reflected James M. White's proposal for a wider East Mall). With Old Main, these three suggested a space, but in the 1920s it was still the head of a broad sloping lawn. The Main Plaza was completed with the construction of its terrace and stairs, at the same time as the front section of the new Main Building. Twenty years later, Batts and Parlin Halls completed the definition of the space.

The six-pack is Cret's resolution of the site's slope within the most formal and symmetrical part of the campus design. Three pairs of façades face one another, defining two pairs of courtyards; the courtyards allow the change of grade to be taken up gracefully. All four courtyards are lower than the grade of South Mall, contributing both to their own intimacy and to the formality of the mall. Constructing the six main buildings took from 1942 (Homer Rainey Hall) to 1967 (Calhoun Hall, next door). The last of the hyphens currently joining the six, between Benedict and Mezes, was completed in 2004. The whole ensemble, constructed over more than 60 years, maintained a consistent vocabulary of form, material and detail, while permitting variety of interpretations and adaptations to various uses. The mature oak allees define the core space of the mall, and as they matured, made it an exquisite balance of built and natural form.

1903



South Mall

BEN-MEZ hyphen under construction in 2004

Littlefield Fountain is one of the "principal aspects" of the plan, in Cret's words. Some sort of monumental entry feature was in the works at least from 1918, originating in G. W. Littlefield's proposed arch. Pompeo Coppini convinced him to substitute a fountain, with a World War I memorial as well as statues of American historical figures, meant to signify the reconciliation between Littlefield's revered Confederacy and the twentieth-century nation. The sculptures were well underway by 1930, but Paul Cret still had the opportunity to determine how they would alight in the landscape: in his words,

> a fundamental revision of the proposed Littlefield Memorial which instead of a small composition, overcrowded with features and designed without regard for its surroundings, was expanded so as to form an entrance to the campus. The portrait statuary was separated from the allegorical figures, as the juxtaposition of these two types was objectionable on account of the

> difference in scale, and the contrast of the classicism of certain figures with the realism of the other. The portrait statues selected by the donor gain in prominence when provided with an individual setting instead of being used as accessories to a fountain design.[5]

Cret compressed Coppini's long pool into a more compact landscape vestibule, and deployed the smaller statues to define his narrower South Mall space, in advance of any buildings or trees. The balustraded plinths, on which sit Rainey and Benedict Halls, were constructed before the buildings – they are features of the mall rather than appurtenances of the buildings.

Buildings adjacent to the South Mall:
Main Building and Tower (MAI)
Battle Hall (BTL)
Garrison Hall (GAR)
Parlin Hall (PAR)
Calhoun Hall (CAL)
Homer Rainey Hall (HRH)
Batts Hall (BAT)
Mezes Hall (MEZ)
Benedict Hall (BEN)
Littlefield Fountain

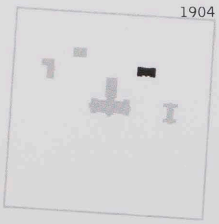
3.2.2. West Mall

West Mall West Mall has always been the informal, familiar entrance to the campus, dating from the beginning of the university, when the streetcar from downtown Austin stopped at the Guadalupe Street side of the Forty Acres. During the first few years, when only the first third of Old Main was completed, the building's main entrance was its western entrance, facing Guadalupe.

The geometry of the West Mall was suggested by the siting of Gilbert's Library, but not fully defined until Architecture and the Union rose across from one another. These two buildings created an architectural gateway, and also reinforced the active character of the space, by orienting each of their entrances toward West Mall.

Through the 1960s, it was still literally a "mall" in the original sense of that word, a linear lawn. It opened to a broad lawn on the north, between Main and the Woman's Building, and a landscaped space to the south between Battle and Goldsmith. The West Mall Building and the Undergraduate Library, in 1962 and 1963, completed its architectural enclosure. The sidewalks were widened in 1969. Its

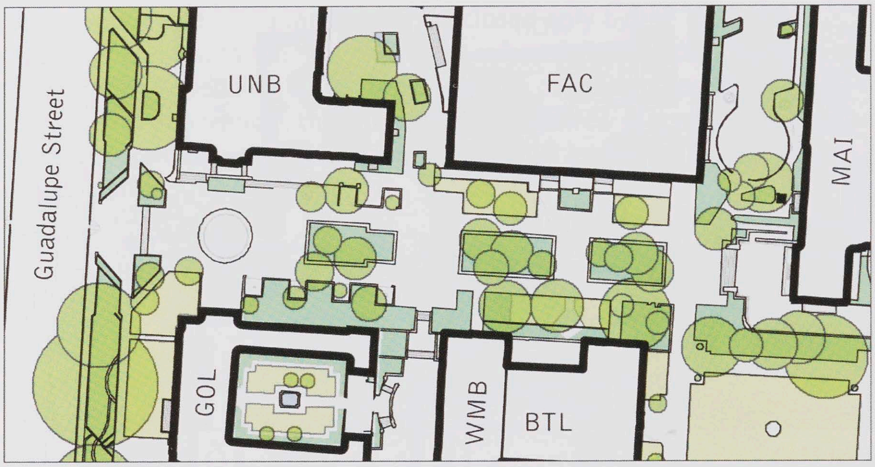
[5] Reserved in the Austin plan of 1839, and (more relevant) the extent of the original Cass Gilbert plan of 1910, and of all subsequent campus development under Gilbert.



West Mall, 1943

present physical form dates from 1975, when planters replaced the lawn. This was perceived as an effort to deny a venue for student protests, and the design was itself protested as the "Erwin Highway." But it was also part of the formalization of the campus design as UT grew to 50,000 students and an intensity of use that required more hard surfaces.

West Mall has long been a student activity center of the campus – rallies, speeches and performances, student political and social organizing happen here. Its character is one of density and intensity. Addition of the Cesar Chavez statue in 2008 reinforces the West Mall's identity as a locus of political activism.



West Mall

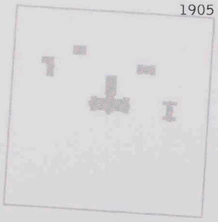
Buildings adjacent to the West Mall:
Texas Union Building (UNB)
Flawn Academic Center (FAC)
Main Building and Tower (MAI)
West Mall Office Building (WMB)
Battle Hall (BTL)
Goldsmith Hall (GOL)

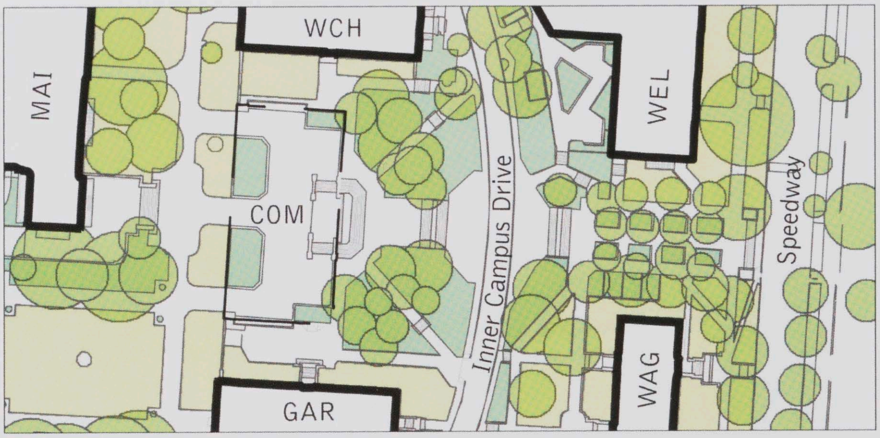
3.2.3. East Mall

The East Mall has been described as the new main axis of the campus, ever since UT's eastward expansion beginning in the 1920s, and especially since the 1970s when the LBJ Library and LBJ School provided an eastern terminus. The East Mall links the Forty Acres hill of the Main Building and Tower with the eastern hill of the LBJ Library. Garrison Hall's L-plan, and the position of its north face, are remnants of J. M. White's plan to reorient the campus to an east-west axis and design this space to its new larger scale.

The East Mall of Gilbert's plan, and White's and Cret's, remained mainly an unrealized intention until the 1950s, because B Hall blocked it. B Hall's demolition in 1952 opened the long axis to view, but the Forty Acres end of it was quickly compromised by the Computation Center – intended as an East Mall equivalent of the South Mall's Main plaza, but not so successful. The careful relationship of Garrison and Geology had been created in anticipation of B Hall's removal; unfortunately B Hall's presence kept the relationship from being appreciated enough for it to be maintained.

1905





East Mall

Buildings adjacent to the East Mall:
Main Building and Tower (MAI)
Geology (Will C. Hogg) (WCH)
Welch Hall (WEL)
Waggoner Hall (WAG)
Garrison Hall (GAR)
Computation Center (COM)

3.2.4. Southwest quadrant

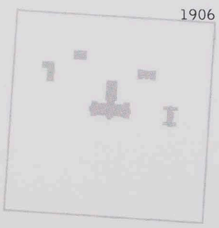
Gilbert planned a broad enclosed quadrangle here. His renderings of the Education Building (now Sutton Hall) include pergolas linking it to future neighbors. For decades this remained a raw space – Sutton faced first an open field, then a field bounded on the east by first one, then two and three of the six-pack. Temporary buildings remained into the 1950s. A free-form parking lot in the 1960s took advantage of the unclaimed space.

Harry Ransom Center was an opportunistic resolution – lots of space was available, and this use needed lots of space. HRC is all out of scale to the quadrangle, but it does provide enclosure. HRC transforms the intentions – its terrace is not in the spirit of a quadrangle, but instead leaves the eastern edge of the space as a sloping walk related to the sloping three buildings of the six-pack; it appropriates most of the space as a level plinth, allowing HRC to define its own topography. Nonetheless the terrace is a significant modernist landscape, and it is successful – an outdoor room at the new scale of the building, both capacious and intimate because of its live oak canopy.

On its south side, the quadrangle is enclosed only by the Peripatos walk and walls, and the heterogeneous urban fabric across Twenty-first Street. Depending on one's assessment of the success of the HRC terrace and quadrangle, this may be one of the few places on the Forty Acres where the century-old campus plan still leaves a possible new building site.

Southwest Quadrant

Buildings in the Southwest quadrant:
Goldsmith Hall (GOL)
West Mall Office Building (WMB)
Battle Hall (BTL)
Sutton Hall (SUT)
Parlin Hall (PAR)
Calhoun Hall (CAL)
Homer Rainey Hall (HRH)
Harry Ransom Center (HRC)



Harry Ransom Center terrace, Southwest quadrant

3.2.5. Southeast quadrant

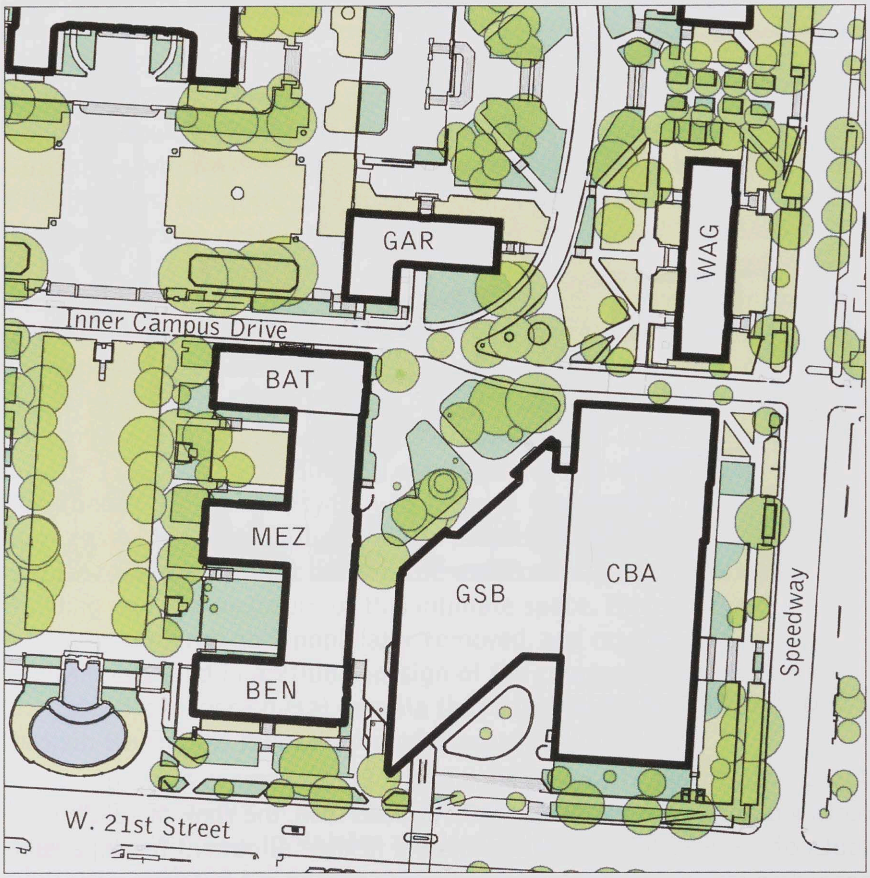
This quadrant was dominated for many years by Pearce Hall, the original 1908 Law School building, facing Twenty-first Street at the southeast corner of the Forty Acres. It was set back farther from the street than the later uniform building wall of the campus; treated as temporary but remained for decades, with other development arranged around it (the reason there was originally no hyphen between Benedict and Mezes).

In 1932, Waggener Hall started the street wall along Speedway. Its northern face conformed to the broad East Mall defined by Garrison Hall.

With the Law School's move to its new location in 1953, this quadrant was available for development as a Business School district. Completed in 1962, the College of Business Administration (CBA) brought a new level of density, previously seen only in the Main Building: seven stories tall, it included UT's first escalator.

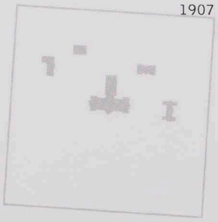
The comparatively steep slope of this corner of campus persistently suggested to designers the idea of an amphitheatre, which was in fact realized in a provisional way during the 'teens and 'twenties. The slope is expressed in the great elevation difference between front and back of Garrison Hall, in the landscaped moat western entrance to the Graduate School of Business (GSB), and even in the unfortunate innovation of a pedestrian bridge crossing Twenty-first Street from here.

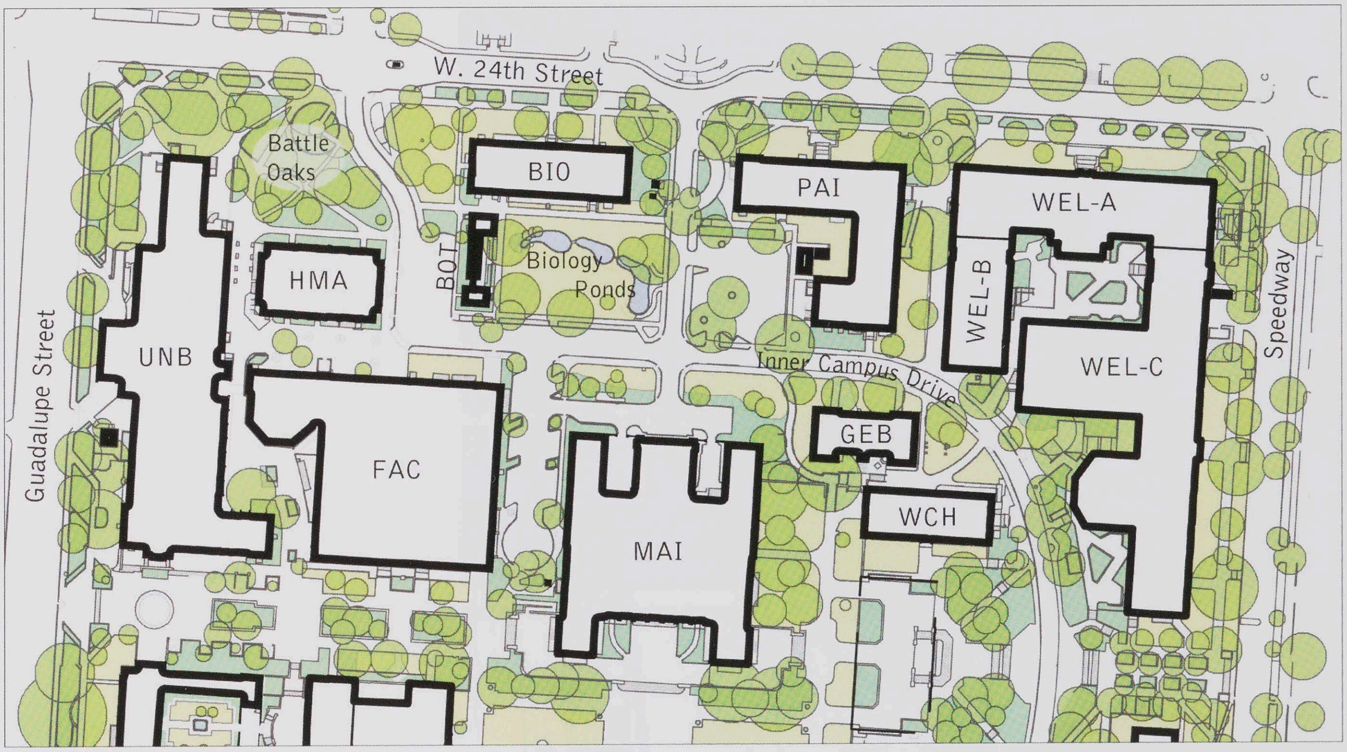
Twenty-second Street from Speedway to Inner Campus Drive is a later addition to the circulation system, dating to the early 1960s.



Southeast Quadrant

Buildings in the Southeast quadrant:
Garrison Hall (GAR)
Waggener Hall (WAG)
College of Business Administration (CBA)
Graduate School of Business (GSB)
Benedict Hall (BEN)
Mezes Hall (MEZ)
Batts Hall (BAT)

1907




North Quadrants

3.2.6. North quadrants

Along 24th Street, the north edge of the Forty Acres is a row of rectangular science buildings. As Cret described, the rank of space south of these buildings was meant as a flexible allotment for expansion according to varying departmental needs, and so it has been, with additions to Painter in 1959, and to Welch in 1961 and 1978.

The open northwest corner of the campus is a product of the battle for the Battle Oaks, when the Biology Labs were first proposed for this site. Once the Battle Oaks were saved and the land no longer available for buildings, there were a series of landscape schemes to articulate this territory as ornamental or botanical garden. The present simple treatment is an acknowledgement, decades later, of the sanctity of the trees themselves, and of the now-mature additional live oaks that create an extensive grove around the Battle Oaks. In 2009, the addition of the Barbara Jordan statue further reinforced the pride of place of the Battle Oaks grove.

The north-south axis north of the Tower is the least articulated of the four cardinal axes. Mary Gearing Hall (originally Home Economics), north of Twenty-fourth Street just off the Forty Acres, is a strong, symmetrical visual terminus (and functional gateway) facing the Tower. Cret's initial schemes for the new main library included a third phase that would have added book storage in a footprint filling most of the area between Main and Biology and Physics. In the absence of that addition, or any alternative, the Tower does not include a north entrance on axis, and the Main Building in general is oriented away from the north side. The axis between Main and Mary Gearing exists merely as a driveway. On one side it passes the Biology Ponds, which have taken on cultural significance of their own, but do little to define an axis spatially, especially facing a parking lot. Cret designed the Physics Building (now Painter Hall) with a tower to frame this axis, as at the Guadalupe entrance to West Mall. It matched the height of the extant Biology Labs, which faced it from higher ground, but other than height, Biology offers no gesture to reciprocate.

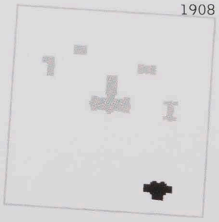
South of the Battle Oaks, Hogg Auditorium opens eastward onto a drive that was originally articulated as a minor plaza, but has bled into parking and service access drives. Farther south is the Union courtyard, one of the most delightful spaces on campus. This exterior room may be a happy accident. Both Gilbert and Cret planned a larger space here, but the 1903 Woman's Building occupied the center of their intended quadrangle, and the courtyard was laid out for the time being in this more restricted space. Flawn and its projecting lecture hall almost exactly re-create the footprint of the western wing of the Woman's Building and the enclosure of this intimate space. The courtyard originally centered on a pool, later removed, and now echoed in a fountain installed in a 2008 redesign of the courtyard. That redesign also added a modern metal pergola that accommodates pedestrian through traffic; the fountain provides acoustic buffering.

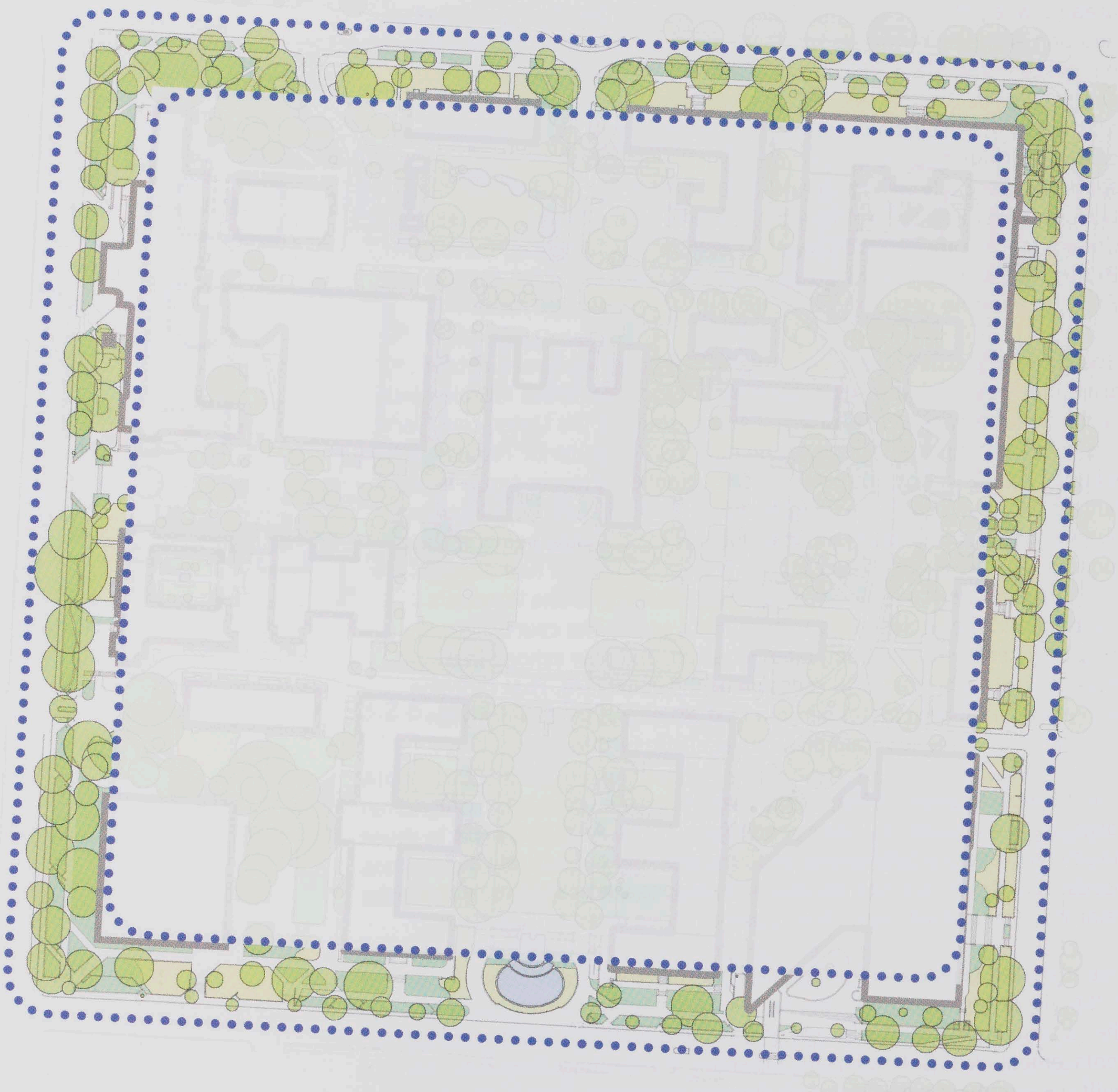
The northeast corner of the Forty Acres is largely occupied by the large-scale additions to Painter and Welch Halls. At Welch these additions created a fully-enclosed courtyard, laid out entirely as hardscape. It also created an informal modern landscape resolving the relatively steep slope from Inner Campus Drive down to Speedway.

Gebauer Hall (originally the Engineering Building), just east of Main, is the oldest remaining building on the Forty Acres. During much of the twentieth century it was one of the ghost buildings designated for replacement. Will C. Hogg Hall (originally the Geology Building) was built on alignment with James M. White's expansive East Mall, in an uncomfortable relationship with Gebauer, both as to proximity and grade. With the preservation of Gebauer, this has become a permanent site condition, a puzzle not yet solved.

Buildings in the North quadrants: Battle Oaks, Biological Laboratories (BIO), Botany Greenhouse (BOT), Biology Ponds, Painter Hall (PAI), Welch Hall (WEL), Geology (Will C. Hogg), Gebauer Hall (GEB), Flawn Academic Center (FAC), Hogg Memorial Auditorium (HMA), Texas Union (UNB)

1908





Peripatos Map

3.2.7. Peripatos

The original Peripatos was the colonnade of the Lyceum at Athens, where Aristotle walked as he taught. Thomas Fitz-Hugh, Professor of Latin, gave the name Peripatos to the perimeter walks that he proposed along all four sides of the Forty Acres.[6] Major George W.

[6] Paul Cret, Report Accompanying the General Plan of Development (Jan. 1933), 18.

The Peripatos c. 1900

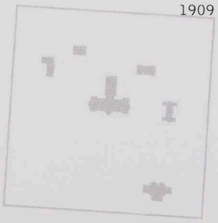
Littlefield paid to grade and pave them in 1898, and they were planted with hackberry trees. With the new walks, the Forty Acres was "most beautifully and most usefully unified" according to newspaper coverage, and the "privacy and calm of the grounds [would] be no more invaded by the streets surrounding the campus."[7] The Peripatos is the oldest surviving built feature of the Forty Acres, pre-dating every extant building. The Peripatos along "The Drag" – the commercial stretch of Guadalupe adjacent to campus – is the only boundary of UT that has remained at its original location since 1839.

Cret rendered the walks as a defining edge on all four sides of the Forty Acres (with no counterpart elsewhere). He reached back to his native France to show them as pollarded allees – that is, double rows of geometrically-pruned trees not at all like the hackberries, and even less like live oaks. "The formal planting of trees as a cloister walk," he wrote, "would by shutting off the outer world, make a pleasing contrast with other parts of the campus which rely, on the contrary, on extended views toward either the capitol or the eastern range of hills."[8] The Peripatos walks were mostly replanted during the 1930s with live oaks, though some hackberries remained at least until the 1970s.

Changes over the past 50 years have created different characters in different segments of the perimeter walks, yet these changes almost always have adapted rather than eliminated the walks, and thus maintained continuity. The biggest alteration was the addition of walls and planters along Guadalupe and Twenty-first Streets in 1971, in a Modernist vocabulary of flat planes and 45-degree angles executed in

[7] Cret, Report, 18.
[8] Battle Papers, box 4Q526: Growth of the Campus, folder 3, pp. 3-4.

1909



The Peripatos today

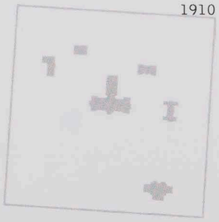
Cordova Shell Limestone. These walls were designed by architect John C. Robinson, Jr. They reflect an impulse of fortification, but significantly they contain no gates; the campus remained open if a little less open than before. And inside the wall next to the HRC is still one of the places where one can best experience the original walk, still under its double row of live oaks.

The only interruption of the Peripatos walk is along Guadalupe where the service entrance in the Union addition forces pedestrians onto the regular street sidewalk. The bridge over Twenty-first at GSB interrupts the spatial experience there, but the walk remains in place. The walks remain along Twenty-fourth Street and Speedway, in close to their original character. The surviving Peripatos along Speedway enables the Pelli plan's intention and Peter Walker's design for the Speedway Mall: a mature allee of Live Oaks, and the outward orientation of Forty Acres buildings to Speedway as a linear public space.

Buildings/features along Peripatos:
Battle Oaks
Biological Laboratories (BIO)
Painter Hall (PAI)
Welch Hall (WEL)
Waggener Hall (WAG)
College of Business Administration (CBA)
Graduate School of Business (GSB)

Bendict Hall (BEN)
Littlefield Fountain
Homer Rainey Hall (HRH)
Harry Ransom Center (HRC)
Goldsmith Hall (GOL)
Texas Union (UNB)

1910



H-1

H-2

N-H

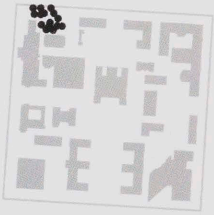
Buildings and major features map

3.3. Buildings and major features

Buildings and major landscape features are listed in this section with the National Register categories of Contributing or Non-contributing to the potential Forty Acres district. They are also listed with the three-tier preservation zones that this report proposes as a management tool (see 5.2.1).

H-1: Primary Historic resources
H-2: Secondary Historic resources
N-H: Non-historic resources

For each building we provide a list of character-defining features: these lists are not intended to be exhaustive.



Battle Oaks

Battle Oaks Grove

(contributing, H-1)

Description

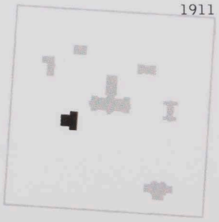
The Battle Oaks are three ancient live oaks, thought to be 200-300 years old, now surrounded by a number of other mature live oaks planted between 1931 and 1934.

History

The three Battle Oaks are the oldest of the 4,817 trees on campus and the oldest of the historic features of the Forty Acres, predating the establishment of the University, and the city of Austin. They survived the 1863 order of Confederate General John Magruder that trees be cleared from College Grove in order to build fortifications protecting the Capitol, said to have been saved as a shady encampment for Magruder's troops.[9]

With the growth of the university, the oaks were again threatened. Gilbert's campus plan called for a row of science buildings along the north edge of the Forty Acres, and in 1922 the Regents authorized the first of them, a Biology Building, on the site of the oaks. Prof. J. M. Battle, head of the Faculty Building Committee, received a telegram from Judge (and later Regent) Robert Lynn Batts in Pittsburgh that stated, "Protect the trees at all costs. I'm more than willing to sit

[9] "The Campus Fund. An Important Meeting of Those Interested Therein" (1898) Newspaper clipping, Grounds, AF U380 (General to 1970). Austin History Center.



1911

beneath them with a shotgun, if it comes down to it." The story has come down to us in the more colorful version that Battle himself actually took up arms in the trees' defense; in fact the weapon he chose was a resolution of the General Faculty:

> Whereas the group of three live oaks on the Campus northwest and east of the [old] Chemistry Building are trees of such extraordinary beauty and strength, and are endeared to the University by the association of so many years, that their destruction would be a grievous loss;
>
> Be it so resolved that the Board of Regents be petitioned so to the plan and placement of the proposed Biology building and any other to be subsequently erected as to save those trees and give them ample room for growth.[10]

Saved from the chopping block in 1923, the trees were again threatened in 1932 when Hogg Auditorium at first was planned ten yards north of its present location. Battle again took up the cause and kept the Auditorium from interfering with the oaks.

One other tree in the grove is worth mentioning for its individual significance: just east of the Battle Oaks is a tree grown from a seed of Louisiana's largest live oak, donated in 1933 by the Louisiana Live Oak Society.[11]

Integrity

The integrity of the Battle Oaks is high. It consists most importantly of the health of the three Battle Oaks, and in addition the health of each of the other oaks in the grove. The rest of the grove is now historic on its own, and the Barbara Jordan memorial is a recent compatible addition.

Character-defining features include:

- Mature live oaks
- Open under-story landscape with a contemplative character.

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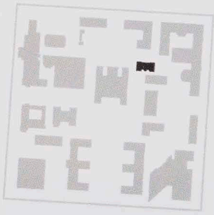
[10] Cret, Report, 25.

[11] Calhoun was skeptical that any significant number of oaks were cleared from the Forty Acres, because of the absence of sprouts that would have become substantial trees by the time the university was founded.



[GEB]

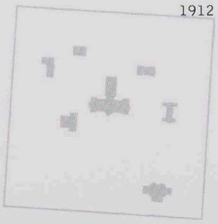
Gebauer, 1904

(contributing, H-1)

Description

The four-story Neo-classical Gebauer Building is dressed in light yellow brick, and modestly adorned with classical brickwork details and limestone ornamentation. The south façade serves as the primary face of the H plan building, dominated by a central portico entrance with an ornamented pediment. An exterior granite staircase rises to the first floor to an arched doorway under the portico. Divided into seven symmetrical bays, the floors are clearly articulated by the fenestration pattern with pairs of double-hung windows wrapping around the building along the ground floor. On the two extended ends of the south façade, the bay are separated by monumental Tuscan pilasters, wrapping around to the east and west façades. Third-floor window pairs form arches with limestone trim.

The portico is flanked by double-hung windows with limestone keystones, and three bays of double-hung windows with limestone arches can be found on the third floor. A limestone belt course with dentils separates the third and fourth floors. On the fourth floor, stone carvings above the Tuscan pilasters separate pairs of windows; center bay windows at the south façade are unadorned. Limestone dentils and an egg-and-dart frieze ornament the entablature as it meets the building's flat roof. The north façade mimics the south, but in place of a central entryway are two doorways located at each end. The center bay of windows aligns between floors to light a central rear stair. East of the building is a large, detached steel fire stair.

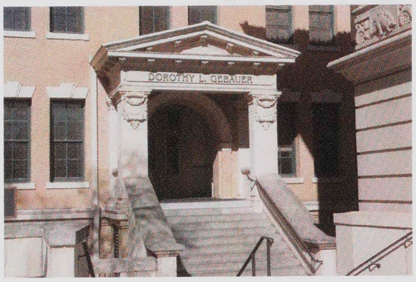


History

In 1895 the university established an engineering department and quickly discovered that a new building would be needed to accommodate its growth. The San Antonio firm of Coughlin and Ayres designed the Engineering Building, completed in 1904. It housed the civil, electrical, mechanical, mining and architectural engineering programs with laboratories, drawing rooms, classrooms and offices. The department continued to grow throughout the early twentieth century, establishing degrees in architectural engineering in 1905 and mechanical engineering in 1914. Engineering relocated in 1932 and Paul Cret proposed the building for removal.

The Department of Journalism became the first of several to re-use the building. During the next twenty years, notable students Walter Cronkite, Liz Smith and Liz Carpenter took classes and worked here. In 1952, it became the Speech Building, and in 1977 Student Services took it over. In 1984 the building was renamed after longtime Dean of Women Dorothy L. Gebauer.

In 1991, while work was underway to install an elevator, problems were discovered with the building's structural slabs, and in January, 1992, occupants were relocated. Professor Dan Leary of the School of Architecture led a campaign to save the building, and the Regents in 1993 approved a renovation. The Austin architectural firm Cotera, Kolar and Negrete were hired in 1997 to complete the renovation work, adding a new elevator, making structurally sound the foundation and floors, and adding the freestanding fire stair. The building reopened in 2000 as administrative offices for the College of Liberal Arts. Gebauer is the oldest building within the original Forty Acres, and the oldest building on campus built for UT.



Portico

Integrity

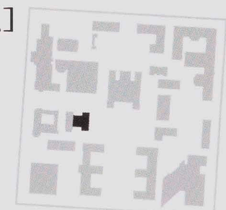
With the exception of the added fire stairs, Gebauer's exterior has seen little alteration. The original material palette and detailing remain intact. While the interior plan has been altered to suit the building's various functions over the years, the fourth floor retains the original plan with large open rooms at the ends of the central hallway.

Character-defining features include:

- Light yellow colored brick
- Portico
- Carved stone ornamentation

- Limestone window details
- Double-hung windows with wooden sashes
- Limestone arches
- Brickwork panels
- Interior cast-iron stairs and original ornamental railings
- Interior trim and columns
- Interior longleaf-pine floors

[BTL]



Battle Hall, 1911

(contributing, H-1)

Description

Battle Hall's plan is a "T," a front wing oriented north-south, and an east-west rear wing. The front wing has a palazzo form with a large reading room on the second-floor piano nobile, and the west wing holds seven levels of book storage in library stacks. The building is clad in cream-colored limestone panels, with a base course of light gray granite.

The front façade is symmetrical, with seven monumental arched windows opening onto balconies with decorative wrought iron railings. The deep-set arched windows have polychrome terra cotta archivolts with fruit and flowers in relief. Terra cotta medallions with zodiac signs are on the spandrels between the arches. The letters U and T for University of Texas are woven into the design of the iron railings. The wide projecting eaves feature polychrome coffers and pendants and carved acanthus brackets. The first floor features a central wood-paneled double front door with a wide architrave carved in low relief with plants and urns. The door is flanked by two massive, ornate wrought-iron lanterns derived from Spanish Renaissance prototypes. The three first-floor bays on either side are deep-set windows with iron railings.[12]

[12] President's Office Records, 1907-1968.

In the north façade, a central doorway provides a prominent secondary entrance, a deep-set double wooden door with glass panels sheathed by decorative ironwork and a single transom window above. Two recessed window openings with decorative iron grills flank the doorway and a single double-height arched window sits in the upper façade. On each side of the monumental window is a zodiac-themed terra cotta medallion.

The fenestration of the east wing, viewed from the north, is a single bay including a monumental arched window above a smaller recessed first-floor window. In the north face of the west wing, two bays continue this arrangement more simply, with large rectangular windows in the upper floor over asymmetrical deep-set windows below. All of these are simple punched openings without trim. Just below the eaves are two small rectangular openings with iron grilles. The westernmost section of this wing, enclosing the library stacks, is windowless.

The south façade of the east wing is similar to the north, one story taller because the basement level is exposed here, with a centered entrance through a recessed solid wood arched double door. The first floor is elevated above ground level, with a recessed solid wood double door opening to a small balcony with decorative ironwork. This door is flanked by two smaller window openings with decorative iron railings. In the upper façade is a double-height arched window with a zodiac-themed terra cotta medallion on each side.

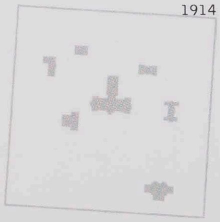
As on the north, the fenestration wraps around to the west side of the main wing with a single bay at each level, continuing on the south side of the west wing with two bays of similar but simpler fenestration. The south façade of the west wing is symmetrical. Double openings on the basement level feature sidelights and transom windows, the eastern opening including wooden doors.

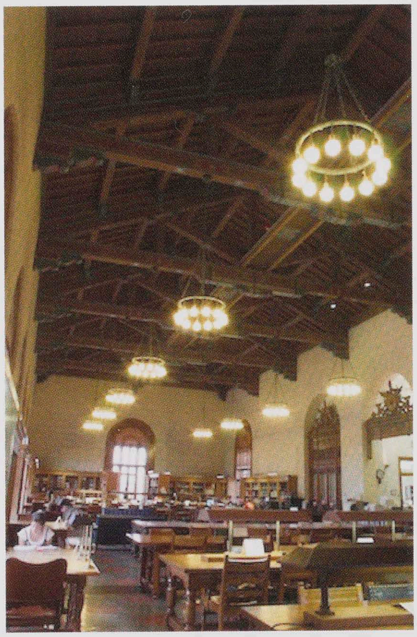
The east wing has a hipped roof with copper gutters while the west wing has a truncated clay tile roof on the north and south sides. Roof tiles are in a uniform shade of red.

A barrel-vaulted entry hall through the main east entry is lined with a high wainscot of Alabama cream white marble.[13] Two secondary hallways make a cruciform plan, leading to offices and classrooms. The main corridor leads to a grand marble staircase in a U-shaped well with ornamental iron balustrades. The staircase curves upward clockwise to the second floor. From the first-floor landing, another staircase curves downward counter-clockwise to the basement lobby below, off which opens the Alexander Architectural Archives. Lavatories, with original fixtures, are located just west of the landing.

[13] texasexes.org/archive/hookup/hookup200611.htm. "The University is to send the Society a report on the tree's health when it turns 100 years old."

1914




Battle Hall Reading Room

At the top of the stairs on the upper floor is a domed rotunda encircled with decorative plaster-formed flowers in light green and white and crowned by a leaded glass skylight with amber hues. A double-height archway leads east into the Reading Room. The entry archway is flanked by double-height archways on each side with a full-size wooden screen carved in the same motif as the middle entry screen.

The Battle Hall Reading Room is a magnificent space occupying the entire piano nobile of the building's front wing. Its ceiling is an open-timber vaulted roof of large wooden trusses, elaborately carved and painted in rich blue, red, green and cream. Twelve light fixtures hang from the trusses, each a brass ring from which hangs twelve glass domes. Abundant natural light streams through the seven double-height windows to the east, opposing two identical windows at either side of the west wall, and one each centered in the north and south walls. The entire room is lined with oak bookcases that sit upon dark green marble pedestals. Long, rectangular tables with reading lights fill the floor space. The walls of the Reading Room are cream-colored limestone panels.

Interior floor finishes in the east wing include ceramic tile in the main entry corridor to hardwood and carpet in administrative offices. The west wing includes seven book stack levels of structural steel, supporting marble floor panels. The building was constructed with a single original passenger elevator, which serves the stacks.

History

Designed by Cass Gilbert and completed in 1911, Battle Hall served as the University Library until the Main Building opened in 1933. Determining the exact site of the library was Gilbert's first critical decision in planning the campus.[14] Gilbert's design is a Spanish–Mediterranean Renaissance Revival style, influenced by the 1898 Boston Public Library designed by McKim Meade and White, where Gilbert had worked. The Merchants' Exchange in Saragossa, Spain, also may have informed the design of the upper floors. The Library was intended to serve as a newly-ambitious architectural model for the campus, and it succeeded.

University architect Herbert M. Greene proposed an addition to the library in 1929, but it was never built. In 1933, the library moved to the new Main Building. The University Post Office was installed in the basement, opening to the south. From 1937 to 1947, the Old Library served as classroom and administrative space for the Fine Arts Department. The magnificent Reading Room was used as a drawing

[14] Roxanne Williamson, National Register nomination, 1970.

and sculpture studio. In the late 1940s, the Regents approved a motion to renovate the building for use as a repository for Texas memorabilia, and in 1950, it was dedicated as the Eugene C. Barker Texas History Center.

In 1973, the Texas Collection was relocated to Sid Richardson Hall and the building was named for Dr. William James Battle. From 1973 to 1980, Battle Hall housed administrative offices for the College of Fine Arts and the library comprised the collections for Music, Library Science, Education, Psychology, and Architecture. By 1979, Architecture was the main occupant. A major restoration in 1981 was cancelled, but the building underwent a small-scale exterior restoration in 1993.

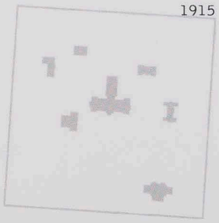
Today, Battle Hall is the home of the Architecture and Planning Library, the Alexander Architectural Archive, and the Center for American Architecture and Design.

Gilbert's library has attracted durable national recognition. In 1912, Architecture, the American Institute of Architects (AIA) national journal, published several pages of elevations, plans, detailed drawings and photos of the building.[15] In 1934, Gilbert's obituary in the New York Times cited UT's library as one of his greatest buildings.[16] In 2007, when the AIA celebrated its 150th anniversary by polling professionals and the public to find the 150 most beloved works of architecture in the United States, Battle Hall was among them.[17]

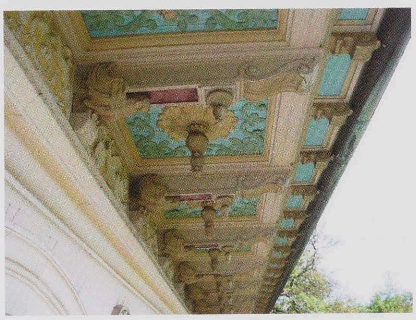
Integrity

Battle Hall has retained integrity with no significant exterior alterations. The addition of the West Mall Office Building in 1962 obscured the west façade, though it remains undisturbed and encapsulated. There are no interior connections between the two buildings. Small interior modifications have occurred over the years, including the installation of dropped ceilings in the hallway, classrooms and offices of the first floor and the installation of modern interior lighting. An incompatible partition has been installed at the head of the main stairway. The circulation desk and entrance to the Reading Room were reconfigured to accommodate open stacks. While relatively light restoration of the building was undertaken in 1993, a large-scale restoration of the building is now in the planning stages.

[15] University of Texas Buildings Collection, Alexander Architectural Archive, Box rUT D262-12.
[16] Barbara Snowden Christen, Cass Gilbert and the Ideal of the City Beautiful: City and Campus Plans, 1900–1916 (CUNY dissertation, 1997), 383. Cass Gilbert to George H. Wells, Feb. 11, 1910, CGC, UT–LB 1/10–6/11 (N–YHS) (as cited in Christen).
[17] Architecture (New York), Dec. 1912, 26:110-113.



Ornamental terra cotta zodiac signs in the spandrels between window arches



Carved and painted brackets and soffits with pendants

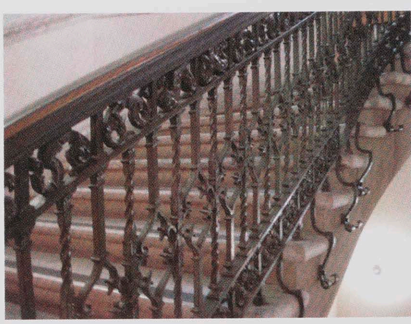
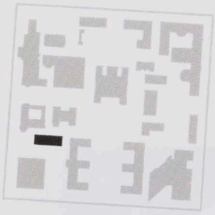


Photo: Emily Freeman Reed

Main stair, with ornamental railings and marble wainscot

Character-defining features include:

- Cordova Cream Limestone walls
- Wrought- and cast-iron balcony railings, and ornate lanterns
- Massive solid wood doors with hand forged nail details and wrought iron grilles
- Large, arched second story windows with polychrome terra cotta surrounds
- Ornamental terra cotta zodiac signs in the spandrels between the window arches
- Ornate limestone carvings surrounding main entrance
- Wide projecting eaves with red tile roof
- Carved and painted brackets and soffits with pendants
- Wooden sashes, windows throughout originally operable
- Main Reading Room with beams and trusses decoratively painted by Elmer Garnsey
- Stained-glass domed skylight.
- Main stair, with ornamental railings and marble wainscot
- Elaborately-carved wooden screens by Paul Schleich
- Arched hallways
- Structural stacks with original ornamental hardware and marble floor panels.
- Original Otis stack elevator



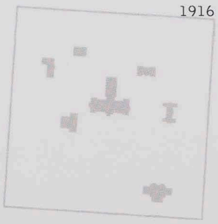
[SUT]

Education (Sutton Hall) (1918)

(contributing, H-1)

Description

Built in the Spanish Renaissance style, the three-story rectangular Sutton Hall is adorned with colorful Plateresque ornamentation. Pearl Gray Granite wraps around the base of the building before giving way to a creamy Lueders limestone on the main floor. Entrances, arch-fan-lighted wooden doors, are located on all façades and accented with ornate Renaissance-style wrought iron lanterns. The two central entrances, north and south, sit within three-arched loggias, with the south loggia boasting a Gothic vault with blue and gold ornamental terra cotta tiles. The second and third floors, composed of buff-to-orange-to-brown mixed-hued brick are accented with decorative terra cotta window surrounds, panels, roundels and third-floor wrought-iron balconies. Five east and west bays and thirteen north and south bays of wooden-sash windows align with the recessed arched windows on the first floor. The brightly colored frieze and cornice give way to the painted soffit with wooden supporting brackets. Sutton Hall is capped with an overhanging hipped roof of red tiles with three south-facing dormer windows and one north-facing clerestory window. Two staircases located in the northeast and northwest corners provide access to each floor's central corridor. Located off the main hallway are offices, studios and classrooms.



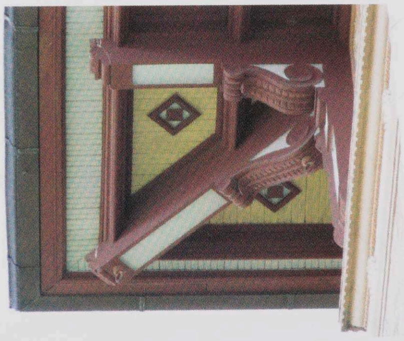
History

Eight years after the University Regents called for the construction of a building for the Department of Education, 1918 saw the completion of Cass Gilbert's Education Building. Renamed Sutton Hall in 1930 after President and longtime Dean of Education William Seneca Sutton, the building originally housed the School of Education but would later house several foreign languages and architecture in addition to education. By the late 1970s the School of Architecture exclusively occupied the building. To connect it to Architecture's two other buildings, a new entry loggia was cut into the north façade to mirror the south loggia in 1977. In 1981, the School of Architecture renovated Sutton. The attic was converted into usable studio space and the original north-facing dormers were replaced with one long clerestory window; otherwise no major alterations were undertaken to the exterior or interior. An exterior restoration was completed in 1998.[18]

Ornamental terra cotta throughout, interior and exterior

Integrity

Sutton Hall retains a high level of integrity. It continues in its original function as a classroom building, and most of its interior and exterior architectural elements remain. With the exceptions of the addition of a central elevator and the attic space converted into studio space, little has changed to the plan and materials inside Sutton Hall. The exterior has seen two significant alterations since its construction; the loggia on the north façade and the replacement of the three northern facing dormers with a clerestory window.



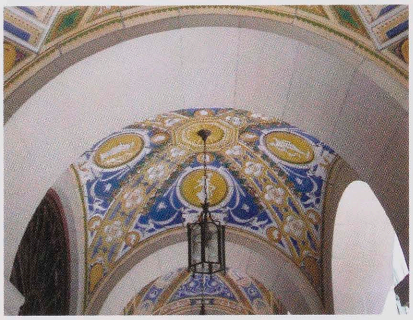
Decorative wood brackets and eave

Character-defining features include:

- Ornamental terra cotta throughout, interior and exterior
- Interior wooden doors, glazed partitions and operable transoms
- Decorative wood brackets and eave
- Arched ironwork above doors
- Arched first-floor windows
- Wrought-iron balconies
- Original red tile roof
- Central corridors
- Ground floor corridor with buff brick walls and vaulted ceiling

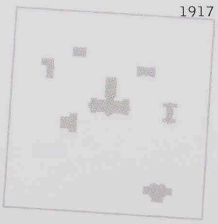
[18] New York Times, May 18, 1934.

- Wrought iron lanterns at entrances
- South loggia Gothic vault
- Stairwells with ornamental metal railings
- Terra cotta floor tiles in corridors and stairs
- Parquet wooden floors in offices and classrooms

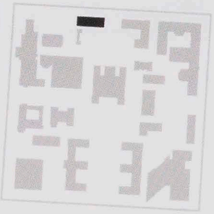


South loggia Gothic vault

1917



[BIO]



Biological Laboratories, 1925

(contributing, H-1)

Description

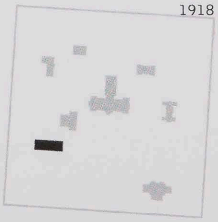
Situated on a slightly sloped site, the rectangular Spanish Renaissance Biological Laboratories building has a partially exposed basement and first floor, faced in Lueders limestone and second and third floors faced in buff brick. A red tile hipped roof tops the building. The long north and south façades, divided into fifteen bays, are nearly symmetrical as are the five-bay east and west façades. A granite staircase rises to the entrance in the center of the principal (north) façade. Additional doors are located in the center of the west façade and both ends of the south façade. Set within a limestone entryway, colorful glazed decorative terra cotta tiles form an arched surround for double wooden doors. Flanking the stair and entryway are basement level windows set within the batted limestone and first floor windows with heavy limestone brackets set within the ashlar limestone. Directly above the entryway is a second-floor three-way window with a terra cotta crown and pilasters supporting the wrought-iron balconette of the smaller terra cotta surrounded third-floor window. The central windows of the north and south, though slightly different in size and decoration, are the most ornate on the building. The exterior is adorned with colorful terra cotta ornamentation representing both student life and biological life in Texas. Orange terra cotta panels with a blue center tile sit below the remaining second-floor windows and terra cotta panels with relief sculptures separate the second and third-floor windows. The third floor windows are unadorned, except for the end windows on the north and south façades that mimic the central ones. A stringcourse decorated with a shell motif sits below the condensed fourth floor composed of sash windows with terra cotta surrounds and separated by pairs of painted brown brackets. The corners of the fourth floor each have terra cotta panels with the university seal flanking the end windows. The overhanging eave is slightly slanted with a painted brown soffit with brackets. A central hallway with offices, labs and classrooms running along its sides is accessible by two southern stairwells. Larger spaces, which have been divided over the years, sit at the ends of the central hallway.

History

In order to provide a state of the art facility for advanced biological studies, the Board of Regents decided in October 1922 that the next building constructed on campus be for biology. Originally proposed for the northwest corner of campus, following Cass Gilbert's campus plan, the site was moved eastward in order to spare the Battle Oaks. The new site was steeper and entailed additional costs. The building was the first on campus by newly-hired Dallas architect Herbert M. Greene, and was completed and dedicated in 1925. Housing anatomy, zoology, physiology, embryology, bacteriology and botany, the laboratory facilities were cutting edge for their time. Laboratories here were the first air-conditioned spaces on campus, in order to maintain constant temperatures for experiments. Boasting also an incinerator, a vault, refrigerators, electrically-controlled shutters, an animal room, dark rooms and even a trolley, the building was one of the first labs in the country to provide its faculty and students with the opportunities such a facility allowed. Dr. Herman Mueller, a geneticist and professor (1920-1932) used a basement lab to research gene mutations and radiation and in 1946 won a Nobel Prize for his work.

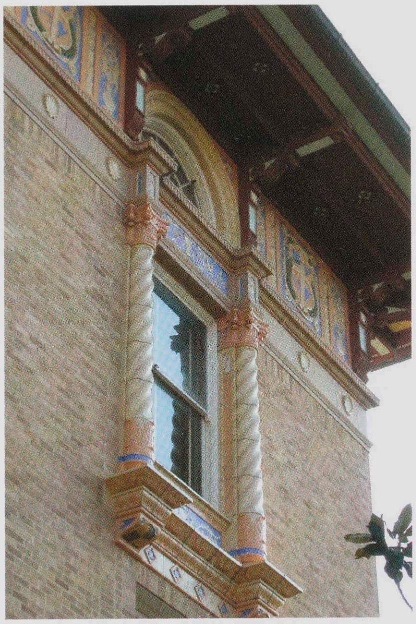
The building has remained in its original use as biological laboratories and teaching spaces. The constantly changing field of biology requires flexibility and upgrading of equipment, so the building has seen multiple moves and conversions of labs, classrooms, and offices. The building saw its first changes in 1931, and again in 1936 and 1952. The 1960s saw the first major changes to the interior of the building when it was equipped with an HVAC system for which dropped ceilings were installed, covering transoms. At this time the western entrance was added, the original wooden doors on the south façade were replaced with metal ones and ramps were added around the building. A fire in 1975 damaged much of a second floor lab and led to another renovation in 1981. Most recently, the museum space on the fourth floor was converted into offices with many of the museum specimens placed into cases along the corridor.

1918



Integrity

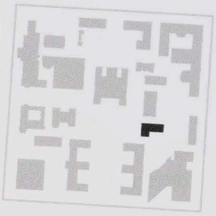
While the exterior has remained relatively unchanged, the interior has seen a number of alterations and changes. Throughout all the renovations, Biological Laboratories has kept its original function, and the alterations give evidence of the changing nature of study in the field of biology. Some original doors with transoms are still found in the building as well as some of the original paneling in the old herbarium on the second floor. Original crown moldings remain above dropped ceilings. The trolley tracks used in the basement are still embedded in the floor. Despite the many changes, there is still plenty of evidence of what the building looked like in 1925.



Decorative terra cotta features on exterior and decorative overhanging eave with brackets

Character-defining features include:

- Decorative terra cotta features on exterior
- Decorative overhanging eave with brackets
- Original wooden doors at north entrance
- Paneling in second-floor herbarium
- Trolley tracks in basement
- Original interior doors and transoms
- Black and white and green and white floors
- Wrought iron balconette and fan lights
- Lanterns at north doors
- Copper and iron gutters
- Interior wood door surround at main entrance
- Interior wood moldings at main entrance
- Museum specimen cases in fourth-floor corridor



[GAR]

Garrison Hall, 1926

(contributing, H-1)

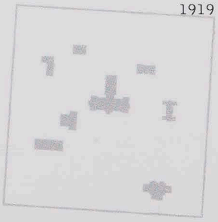
Description

Garrison Hall occupies a sloping site, its three-story west façade fronting the raised Main Plaza while the building is a full story taller on the south and east façades and half of the north. The building is L-shaped in plan, with its historic main façade looking north, and the west façade as a secondary front.

The raised basement and main floor are faced in limestone and the top two floors in mixed buff-to-red brick, capped with a hipped roof in mixed-hue red tiles. Garrison is adorned with Texas-themed ornamentation, including terra cotta medallions displaying historic Texas cattle brands, Texas-themed relief sculptures, and plaques bearing names prominent in Texas history.

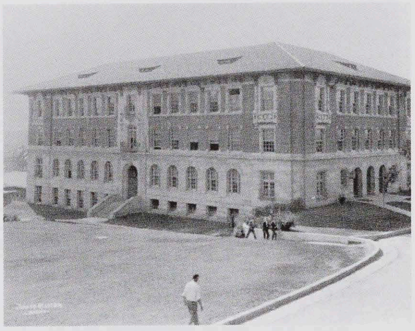
The main (north) façade is divided into thirteen bays with a central entrance on the first floor reached by a granite staircase. The recessed door is located under a barrel-vaulted entryway. The entry arch, keystone and surround are ornamented with relief sculptures. Main-floor windows are arched and surrounded by voussoirs, with the exception of the end windows, which are rectangular. The other three floors have twelve-over-twelve rectangular sash windows. Window surrounds vary by floor, with simple punched openings in the rusticated limestone coursing at the basement, simple brick surrounds with terra cotta corners at the third floor, and ornamental terra cotta surrounds at the top floor. The central bay is an ornamental terra cotta composition

1919



with relief sculptures glazed burnt orange, blue and green, and wrought-iron balconies at both the third and fourth floor windows. The top floor corner windows are topped by the terra cotta plaques bearing names famous in Texas history, flanked by twisted pink and green jambs. A double-level soffit is supported by wooden brackets and rafter tails, and includes medallions, all decoratively painted. The window and soffit arrangements and materials repeat on all other façades with slight differences.

The secondary (west) front has seven bays, with a center three-bay arched loggia as an entryway (now the main entrance). "Garrison Hall" is inscribed in a limestone panel above the loggia. Two wrought-iron lanterns flank the loggia as do two four-over-four sash windows covered with wrought iron grilles. All floors are accessible by two interior staircases with ornamental wrought-iron railings. Glazed green terra cotta tiles line the main floor corridor walls and floor.



Garrison Hall before construction of the Computation Center

History

After the Santa Rita oil strike, the University embarked on an era of campus growth, and Garrison Hall was the first new building authorized. Designed by Herbert M. Greene, and constructed in 1926, Garrison was configured to frame James M. White's proposed broad East Mall. It housed classrooms, lecture halls, labs and office space for the Department of History and Social Sciences, and was named for longtime history professor George Pierce Garrison.

Since its construction Garrison has seen little change to its exterior or interior. In 2006-2007 the building was rehabilitated; the work reconditioned the wooden window sashes and installed low-E glass, extended the elevator to the attic and added handrails to the interior staircases. A few brackets at the soffit were replaced due to rot. Though some original interior green terra cotta tiles remain, many have cracked and subsequently been replaced by near-matching tiles.

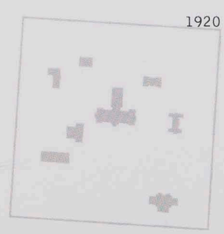
Integrity

With little alteration to its exterior or interior, Garrison retains a high level of integrity. It still houses the Department of History. The original layout remains, though some rooms have been divided to create more offices. Dropped ceilings have been installed throughout the building. Many of the original doors with dark wood paneling surrounds and transom lights remain, as do some original blackboards.

Character-defining features include:

- Terra cotta ornamentation, including medallions
- Historic name plaques
- Relief sculptures
- Decorative overhanging eave with brackets, rafter tails and medallions
- Original red-tile hipped roof
- Wrought-iron balconies, lanterns, and window grilles
- Exposed beams inside loggia
- Green-glazed interior tile walls and floors
- Original interior doors with divided lights, dark wood paneling surrounds and transom lights
- Original blackboards
- Original metal stairs with decorative metal and wood railings

Terra cotta ornamentation and decorative soffit



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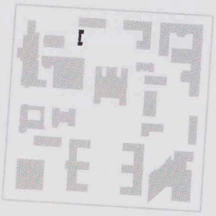


Botany Greenhouse, 1929[19]

(contributing, H-2)

Description

The headhouse is a simple gable, stucco-façade building oriented North-South, with basement level partly exposed toward the east. Its entrance is on the West face. A long greenhouse wing extends south, to another greenhouse wing oriented East-West.

History

The Botany greenhouse was prefabricated, ordered from Lord & Burnham, a leading manufacturer of greenhouses founded in England in the nineteenth century, with branches in the United States. The greenhouse has two additions, the first an extension continuing to the south, the second at right angles. The first extension was designed in 1939 but not constructed at the time. Along with the second extension, it was completed in 1951. The greenhouse has served primarily as a teaching facility. Its location immediately adjacent to Botany classrooms gives students regular hands-on access to their subject.

[19] favoritearchitecture.org/afa150.php

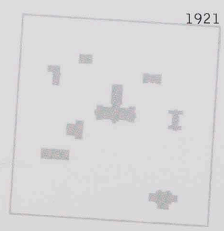
Integrity

The greenhouse retains good integrity. Much of its glazing was broken in a severe hailstorm in May, 2008; the glazing was replaced and other repairs completed later that year.

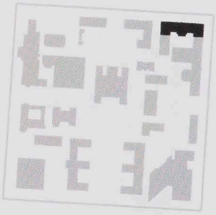
Character-defining features include:

- Glass greenhouse
- Plants

1921



[WEL]



Welch Hall, 1931
(contributing, H-1)

(In keeping with UT's campus management practice, we treat Welch as three buildings, the original 1931 Chemistry Building and its two additions, together considerably larger than the original. The original building contributes to the Forty Acres district; the two additions are non-contributing and are discussed later in this chapter.)[20]

Description

Physics and Chemistry Buildings

The Chemistry Building is a four-story renaissance palazzo mass, originally with a shallow E plan, the projecting wings to the south (away from the main façade). The main (north) façade is a long, symmetrical composition of 27 bays. The ground floor, partly below grade at the west end, is faced in rusticated Cordova Cream Limestone. The three floors above are of mixed buff-to-orange brick, capped by a red tile hipped roof with dormer and clerestory vents. Fenestration is a regular pattern of rectangular openings, each a steel-sash window composed of a pair of eight-light casements topped by a four-light fixed transom.

The four-story central entrance bay is an elaborate limestone and brick Spanish Colonial retablo. The entire portal structure projects forward from the brick building façade in four separate, shallow reveals, each one narrower than the last: the first is of brick on all four stories, and the other three are of limestone on the first three stories and brick on the fourth. Windows are positioned vertically between floors. The top

[20] National Register practice, strictly speaking, will treat the whole as a single contributing building, incuding two incompatible additions.

opening, a louvered vent set within ornamental brickwork, lines up with fourth-floor windows. The entrance is a limestone arch framing wooden double doors. Steps of granite and brick approach between limestone cheek walls. The entrance is topped by an inscription reading "Chemistry," flanked by medallions with reliefs of lab equipment, and by ornamental wrought-iron lanterns.

East and west façades are each symmetrical with seven bays. The central entrance bays are two-story limestone compositions less elaborate but similar to the main entrance. The eastern entrance is a full story above Speedway, with a tall stair. The western entrance is nearly at grade, with a simple stair. The south façade remains visible except for the ends of the east and west wings, where additions join the original building. The east and west wings continue the full height of the building, with hipped roofs. The center wing is one story shorter, topped with a balustrade and terrace.

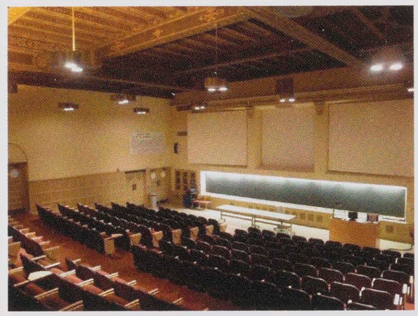
A center hall runs the length of the building, with stub hallways in the east and west wings. The central wing holds a lecture hall with theatre seating, occupying the height of both ground and first floors, and above that a library. Both rooms have ceilings of coffered concrete, ornamentally painted. In the lecture room, rails in the floor and a turntable originally allowed heavy lab demonstrations to be moved from an adjacent prep room. The lecture room also includes historic paneling.

History

The Chemistry Department had the first separate departmental building on the UT campus, completed in 1892 in order to remove foul-smelling laboratories from the basement of Old Main to a properly-ventilated facility. That chemistry building burned on October 16, 1926, and the department was displaced to temporary quarters.[21] The Santa Rita oil funds made possible an ambitious replacement.

The Chemistry Building was designed by Herbert Greene, with Paul Cret as Supervising Architect. Department Chair William A. Felsing travelled widely to examine other laboratories while planning the new building. Lab utilities and ventilation were state-of-the-art. The library was named for UT's first professor of chemistry, John William Mallett. At the time of its completion, it was the second largest building on campus, after Old Main.

Rooftop terrace on south side of Welch

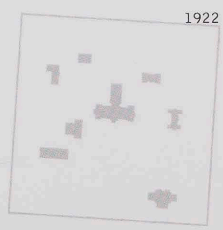


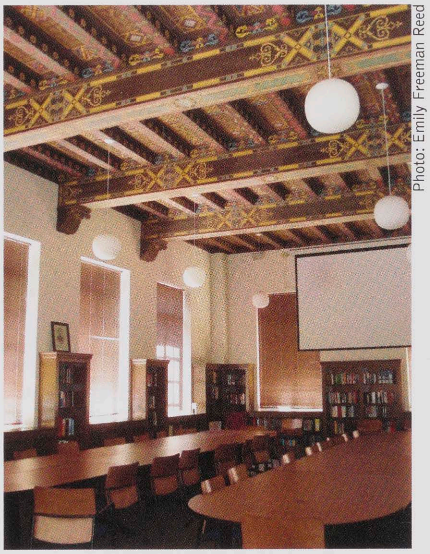
Main lecture hall (WEL 2.122) with painted ceiling with symbols of alchemy and Texas, and doors with inset glass panels

Photo: Emily Freeman Reed

Main lecture hall (WEL 2.122), detail of painted ceiling

[21] Lawrence Speck, "The University of Texas: Vision and Ambition," in Barbara S. Christen and Steven Flanders,eds., Cass Gilbert, Life and Work (W. W. Norton, 2001), 200.





Chemistry Library (WEL 4.132), with doors including stained-glass panels

Chemistry Library (WEL 4.132), detail of door with stained-glass panel

The West Wing ("Welch B"), the first addition, was constructed in 1960-61 to the southwest. The whole Chemistry complex was named in 1974 for Robert A. Welch, a Houston philanthropist whose foundation supports chemistry research and education. "Welch C" was constructed in 1978, extending along Speedway from the southeast end of the original building, then east to meet Welch B, and also below the grade of the resulting enclosed courtyard. Welch C includes a new library that supplanted the 1931 Mallett Chemistry Library, now used as a conference room.

After Welch C was completed, extensive renovations were undertaken in the original building during 1980-81. These included restoration of the Mallett Library ceiling painting (previously damaged by the installation of flourescent lights), by UT Interior Design Professor Buie Harwood. Further work was undertaken in 1986-88 to meet modern laboratory standards.[22]

Integrity

Welch Hall retains integrity. On the exterior, all north, east and west façades of the original building are unaltered. Most of the south façade is also visible, within an enclosed courtyard formed by the additions. Only the southwestern and southeastern ends of the south façade are hidden behind new construction; Cret's original plan anticipated that these façades would be obscured by additions.

The interior has been changed a great deal as the requirements of science research and teaching have evolved over eight decades.

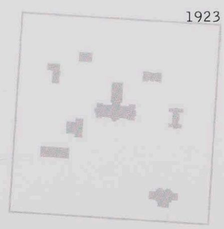
Character-defining features include:

- Original red-tiled hipped roof
- Operable steel casement windows
- Main lecture hall (WEL 2.122) with painted ceiling with symbols of alchemy and Texas, and doors with inset glass panels
- Interior stairs with ornamental wrought-iron and wood railings
- Ornamental lanterns at entrances
- Ornamental wrought-iron grilles
- Limestone relief sculptures at entrances
- Terra cotta plaques with names and dates of famous chemists

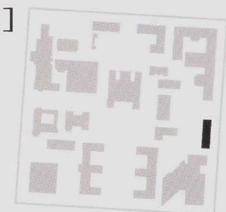
[22] Carl Eckhardt papers, chronological list of buildings gives a date of 1926. The 1929 date comes from the Biology website, biosci.utexas.edu/greenhouse/facilities.aspx#BOT, and represents the oral tradition of the department.

- Decorative polychrome soffit and painted concrete brackets
- Arched corridor ceilings on all floors.
- Chemistry Library (WEL 4.132), with doors including stained-glass panels

1923



[WAG]

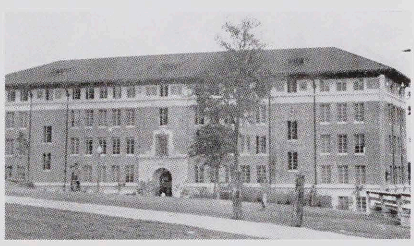


Waggener Hall, 1932

(contributing, H-1)

Description

Waggener Hall has a rectangular plan and five full floors in a palazzo mass capped by a red tile roof with dormers. The symmetrical façades are composed primarily of Leuders limestone and brick with some wrought iron detailing and unique terra cotta panels, which depict exports of Texas. The front is the west, uphill façade, which is horizontally divided into three sections by its building materials: the ground floor has limestone finish, the first through third floors are faced with a tan-colored brick, and the fourth (top) floor is limestone. The façade is also vertically divided into seven sections by three projecting bays that are distributed evenly across the length of the building. The overhanging eave of the roof is punctuated across the façade by prominent brackets, and both the soffit and brackets are painted orange and green. Windows are steel sash casements. Each floor plan consists of a center hall running the length of the building, flanked by classrooms and offices on either side. The building's site, a hill of fairly steep grade, features several concrete retaining walls.



Waggener Hall, 1935

History

Waggener Hall was designed by Greene, La Roche, and Dahl, their last commission on campus before Paul Cret took the lead as Consulting Architect. It was constructed in 1930-31. The building originally housed the offices and classrooms of the College of Business Administration, though it has housed various departments concurrently in its eighty-year history. The building currently houses the Departments of Classics and Philosophy, as well as the Classics Library.

First called "the New Classroom Building," when the building was conceived, its purpose was not yet defined. Its construction required the demolition of several temporary shacks that held the College of Business Administration, giving it first priority in the new building. Three other departments also took up residence when the building opened in 1931: English, Mathematics, and Public Speaking. In addition to these departments, a large part of the fifth floor was devoted to an anthropology museum where Professor James E. Pearce, chairman of the Department of Anthropology, housed his collection of Indian artifacts, which became part of the collection of the Texas Memorial Museum.[23] Just before its completion in 1931, the building was named in honor of Leslie Waggener, the first chairman of the faculty.

The Anthropology Museum was renovated in 1954 to create offices and classrooms for the College of Business Administration. Classrooms were renovated in 1975, and additional renovations undertaken during the 1980s.[24]

Integrity

Waggener Hall maintains a high level of integrity as it has had no additions and few changes to its exterior. Exterior modifications include the addition of a wheelchair ramp from the northeast corner to the east entry, and the replacement of original paneled entry doors, wrought iron door grilles, and hardware with flat steel doors, simple bronze latch hardware, and exterior doorstops. The interior has been adapted but retains many of its original features; the greatest changes were made to the fifth floor.

Character-defining features include:

- Solid rolled steel windows with forged steel hinged arms
- Iron grills over windows with a UT seal

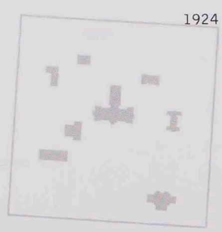
[23] W. M. W. Splawn, The University of Texas: Its Origin and Growth to 1928 (University of Texas, 1928), 144.
[24] Margaret Catherine Berry, Brick by Golden Brick: A History of Campus Buildings at the University of Texas at Austin, 1883-1993 (1993), 37.


Solid "Browne" rolled steel windows with forged steel hinged arms


Terra cotta panel depicting Texas exports

Photo: Volz & Associates


Exterior light fixtures in bronze



Wooden lockers in hallways

Bronze mailbox

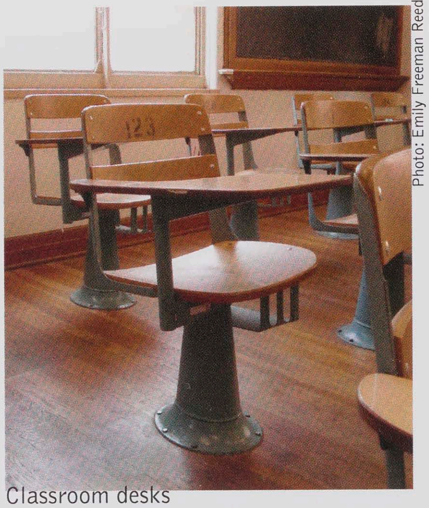
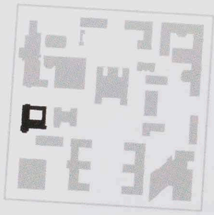


Photo: Emily Freeman Reed

Classroom desks

- Red-tile hipped roof
- Decorative radiator covers throughout
- Exterior light fixtures in bronze
- Polychromatic terra cotta panels depicting Texas exports
- Stone detailing at main entrance
- Bronze mailbox and directory in first floor lobby of eastern entrance
- Wooden lockers in hallways
- Decorative concrete brackets at eave and painted soffit
- Brick quoins on the first through third floors



[GOL]

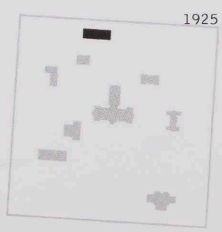
Goldsmith Hall, 1933

(contributing, H-1)

Description

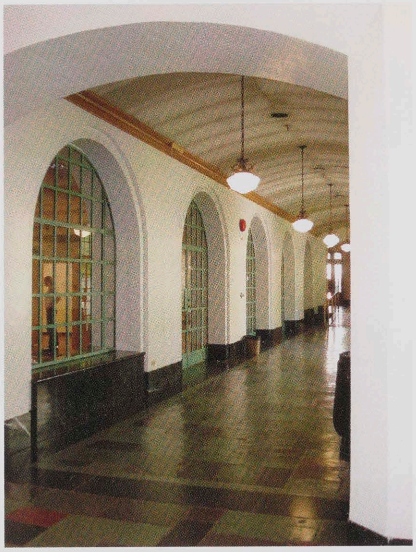
Goldsmith Hall is C-shaped in plan, enclosing a courtyard that faces east. On the fourth side of the courtyard, a roofed loggia between two small projections completes its enclosure. All three wings are three stories tall, capped in hipped roofs of red clay tiles. The main, west wing parallels Guadalupe Street rising to four stories at its north end where its tower massing addresses the tower of the Texas Union Building across the West Mall. The north and south wings were originally symmetrical in plan and appearance, but an addition in 1983 to the south side of the south wing doubled its width and changed its exterior appearance to the south. The courtyard is a primary feature of the building. A rectangular fountain at its center is surrounded by four palm trees, the first ones on campus.

Building materials include smooth Cordova Cream Limestone at the first story, with Cordova Shell Limestone at the upper stories. Quoins made of large stone ashlars define each corner of the building, and Pearl Gray Granite appears at the base, steps, and door sills. Ornamental iron adorns the windows, doors, and balconies. The addition uses the same finish materials but in simpler, more geometric motifs. A number of pedagogical decorative elements appear on the building: small carved stone Ionic and Doric column capitals on the tower



façade, glazed terra cotta cartouches with images of an arch and a post and lintel above the entry doors in the courtyard, and stone panels beneath the windows on the west façade, carved with the names of architects recognized as forefathers of the profession.

The principal entrance is at the base of the tower, through a double door recessed within a limestone surround ornamented as a Moorish alfiz. The inscription "Architecture" appears above the entry, denoting the building's historical and current use. At the third story, two windows frame a balcony door articulated by a Doric surround. A loggia created by simple piers provides an opening on the fourth floor of the tower. Four symmetrically placed carved stone shell motif roundels sit in a horizontal band beneath the tower's painted concrete soffit and hipped roof. The north façade is bracketed at the eastern end by an arched niche with an elaborate carved stone surround.


Mebane hallway

At the east, a Palladian stair leads from the plaza shared with the West Mall Building to the courtyard. A single-story loggia with a decorative iron grille connects two-story projections from the north and south wings. A terrace atop the loggia is defined by cast-stone balustrades and large decorative urns at the corners of the projecting wings. Paired doors at the courtyard's west façade provide a secondary entrance to the building. The three-story courtyard façades include extensive fenestration, with a mix of paired double-hung wood and both rectangular and arched steel casement windows, varying by orientation and interior function. Wide pilasters separate windows at the top story. A similar fenestration pattern is repeated along the north façade and along the western façade facing Guadalupe Street, where small square roundel windows articulate the stairwells and an elaborate carved stone Doric surround and iron balcony mark the central second-story window. The short ends of the 1983 addition appear at both the east and west façades.

The south façade is differentiated as an addition by subtle adjustments, such as the inversion of Cordova Cream versus Cordova Shell limestone and inclusion of a green-black granite band running along the entire addition. The fenestration pattern also varies from the original building, with fixed windows at the first story, small paired casement windows at the second, and a loggia at the third. A large south-projecting entry bay at the west end is surrounded by a raised terrace. Much of the south façade of the original building was retained and is visible within the interior corridor.

The building houses the School of Architecture, with spaces dedicated primarily to design studios, classrooms, and faculty and administrative offices. On each floor, a long north-south corridor serves major spaces to the west and faces directly to the courtyard on the east. Branch corridors provide access to the wings surrounding the court. A large exhibition gallery is adjacent to the main corridor at the first floor, with an arcade that echoes the arched windows along opposite wall facing the courtyard. The ceilings in the exhibition gallery and the former library space above are painted with quotes and images executed by former students; this motif continues in the south lobby of the addition. Interior finishes include Cordova Cream and Cordova Shell Limestone, slate, terrazzo, wood, and painted plaster.

History

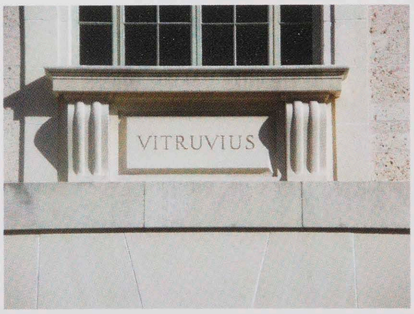
Goldsmith Hall, originally called the Architecture Building, was designed under guidance of Paul Cret by Dallas architects Greene, LaRoche and Dahl and local Supervising Architect Robert Leon White. It was completed in 1933. It was named in 1978 after Goldwin Goldsmith, who was head of the School of Architecture when the building was erected. By 1980, growing enrollment in the School of Architecture instigated the addition to Goldsmith Hall, which added 28,500 square feet for offices, classrooms and studio space and included some renovation of the original building. Completed in 1983, the project was designed by Thomas, Booziotis & Associates with Chartier Newtown as Associated Architects. It continues in use for the School of Architecture.

Integrity

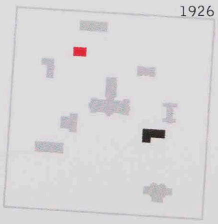
Goldsmith Hall retains a high level of integrity. The building's function has remained unchanged since it was constructed, and few changes have been made to the building other than the 1983 renovation and addition. The addition is compatible with the original 1933 building and does not affect its integrity.

Character-defining features include:

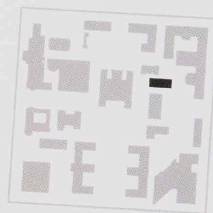
- Central courtyard
- Open terraces at different level
- Steel frame casement, roundel, and wooden double-hung windows
- Arched window openings on west façade and the courtyard east façade
- Carved stone roundels and painted concrete soffits at tower
- Red clay tile roof
- Large stone ashlar quoins at building corners
- Carved stone surround with inscription at principal entrance



Stone panels inscribed with architects' names



- Balconies and niche with carved stone surrounds
- Stone panels inscribed with architects' names, small carved stone Ionic and Doric column capitals and glazed terra cotta cartouches.



[WCH]

Geology (Will C. Hogg), 1933

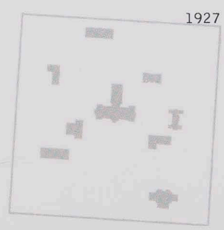
(contributing, H-1)

Description

Capped with a red tile hipped roof with dormers and a deep overhanging eave with brackets and painted wood soffit, the four-story, rectangular Spanish Renaissance Will C. Hogg Building sits atop a granite base aligned along an east-west axis. Its first two floors, dressed in Cordova Cream Limestone and adorned with heavy horizontal corner quoins, are separated from the light yellow brick clad third and fourth floors by a decorative, geology-themed terra cotta frieze.

The ground level main entry, centrally located on the south façade, is a pair of painted wooden doors, recessed within a limestone arch. The limestone center bay extends upward to a limestone cornice, with a small window above the doorway, a third floor door with cast iron balcony and a fourth floor window. On the first and second levels, pairs of double-hung windows of different sizes flank the main entry. On the third and fourth floors, rows of identical casement windows with transoms flank the entrance bay. The windows are separated vertically by slate spandrels and horizontally by two-story brick pilasters topped with terra cotta Ionic capitals that continue around the entire building, becoming a prominent feature of all four sides. Third-floor double doors with balconies embellish the end bays. Except for door placement, the north façade mirrors the south. The east and west façades are narrower, balcony-free versions of the north and south façades.

1927



History

When the School of Geology was established in 1888 its focus was on teaching, but when oil was discovered on University land in the 1920s, the Department of Geology, established in 1912, shifted toward research and training geologists for service in the industry. The discovery of oil also yielded new revenue, making campus construction possible. In 1931, in part because of this revenue, a new building for the Department of Geology was planned.

Paul Cret, together with the firm of Greene, LaRoche and Dahl, designed the building with help from Fred Bullard, chairman of the Geology Department. Bullard had visited a number of university geology facilities and contributed greatly to room design and furnishings, and the geology-themed exterior ornamentation. Completed in 1933, the Geology Building housed classrooms, labs and research space, a library, lecture hall, offices and a grinding room for cutting and shaping stones and minerals. The first petroleum geology course was offered in the building and spawned the Department of Petroleum Engineering. By 1967, as many as one-tenth of all North American geologists had received all or part of their training in the Geology Building, but the department had outgrown it.

At the time of its June 1968 dedication as the Will C. Hogg Building, renamed after the UT alumnus and supporter, it had been remodeled to accommodate new occupants – the Hogg Foundation for Mental Health, the Department of Zoology, and computer space for the Computation Center. During that remodel, the third-floor corridor ceiling was reconfigured and the library reading room converted into office space. In 2001, the first floor was remodeled to provide central meeting and advising space, a new lobby and kitchen. Restrooms were also renovated at this time.

Today the building houses the Department of Asian Studies, the Center for East Asian Studies, the South Asia Institute, the Plan II Honors Program, and offices for the College of Natural Sciences.

Integrity

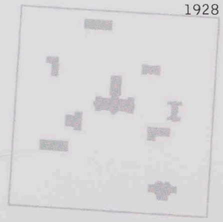
The exterior of Will C. Hogg has remained nearly unaltered since its completion in 1933. Doors on the east and west façades have been replaced. A plaque on the west façade frieze, that once read "Geology," has been plastered over and is seen only as a ghost. The interior of the building has been remodeled over the years, with most alterations to third and first floors. The fourth floor remains pretty much intact and even retains the same corridor display cases once used for exhibition of fossils, rocks, and minerals.

Character-defining features include:

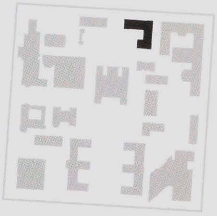
- Terra cotta frieze depicting fossils, extinct animals, plants, sea animals, insects and crystals
- Cast-iron mullions on first floor windows shaped as columns with acanthus leaves
- Slate spandrels
- Brick pilasters topped with stone Ionic capitals and egg and dart molding
- Limestone cornice
- Overhanging eave with brackets and painted wood soffit
- Balconies
- Half-circle above main entry, carved with geology motifs
- Lanterns at doorways
- Circular window on east façade
- Saber-tooth tiger carvings on south façade at main entry
- Tennyson poem excerpt carved in central bay on south façade
- Fourth-floor display cases
- Wall clocks in corridors
- Tile flooring on fourth floor
- Casement windows
- Bridge across north stairwell on 3rd floor
- Transoms along corridors
- Original doors on fourth floor

Terra cotta fossils

1928



[PAI]



Painter Hall, 1933

(contributing, H-1)

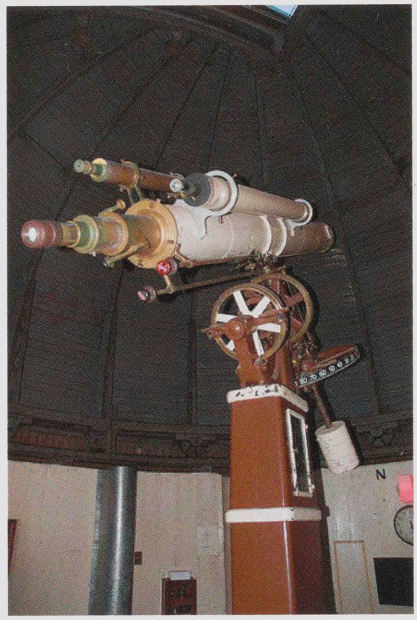
Description

Five-story Painter Hall exhibits a particularly complex massing, reflected in its roofline. The core volume is a four-story rectangle topped with a red tile hipped roof. At the west end, a sizable tower thrusts upward, disrupting the roofline and volume, and on the east end, a two-story flat-roofed wing projects to the south. Further complicating the composition, a centrally located, twenty-foot-tall copper clad observatory dome rests atop the hipped roof. Cordova Cream Limestone is found along the base of the building, at corners, at doors and some windows and along the top of the flat-roofed portion while the remainder of the façade is composed primarily of orange-hued brick. A fifth floor at the west end of the building creates a tower, the full width of the building, with an extended limestone base, third-floor arched windows with wrought-iron balconies, and glazed terra cotta university seals. The main entrance is located in the center of the symmetrical north façade and is adorned with wrought iron lanterns. Limestone surrounds distinguish the windows directly above the entrance, as does the third floor window balcony supported by heavy limestone brackets. Entrances on the south and east façades mimic the main entrance in a less decorative fashion. Double-hung sash windows vary slightly in size throughout the exterior.

History

Built in 1932-33 as the Physics Building, this classroom and laboratory building was considered one of the top research facilities in the country. Green, LaRoche and Dahl, with consulting architect Paul Cret and supervising architect Robert Leon White, designed an L-shaped building with the needs of the Physics Department in mind. Housing X-ray, pyrometer, crystal structure, heat, optics, mechanical, electrical wave and high-frequency laboratories, as well as a spectroscopy room and exposer room, Painter contained some of the most up-to-date scientific equipment.

The observatory was fitted with a nine-inch telescope, the tube and mount built by the Warner & Swasey Company of Cleveland, using a lens ground in the 1890s by the John A. Brashear Company, one of the finest lensmakers of the time. In the 1960s, famous French astronomer and UT professor Gerard de Vaucouleurs used the observatory to reanalyze the Hubble and Sandage's galaxy atlas. The observatory with its original telescope is still in use today.



Brashear telescope

In 1959, a need for additional space led to the addition of an L-shaped annex to the southern façade of the building. Austin firm Page, Southerland and Page, along with the Austin firm of Fehr and Grange and Dallas architect Mark Lemmon, designed the annex which featured elementary and advanced labs, study halls, and an elevator. Double doors on each floor provide access between the annex and the original building. During this expansion, the original third floor promenade on the south façade was lost. The addition conforms closely with the architectural vocabulary of the original building on its exterior, but on the interior distinguishes itself as a work of its own time.

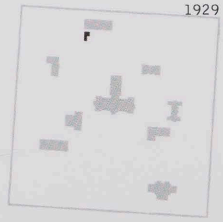
South entrance to Painter Hall addition

In 1972 the first floor was remodeled to house the Lundell Herbarium, which was later relocated to the Main Building in 1987. The largest alteration occurred in 1973-74 when the Physics Department moved to a new building and other departments moved in. With the change in function, many of the laboratories original to the building had to be converted into classrooms and offices. With this change came the renaming of the building to T.S. Painter Hall, after the late university president and geneticist T.S. Painter.

Integrity

Despite interior alterations over the years, Painter Hall retains a good level of integrity. The exterior has remained largely intact, except for the loss of the original south façade. The interior includes original materials and details. The Physics Library has lost integrity.

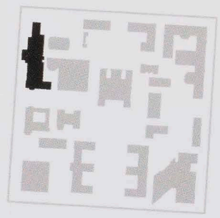
1929



Painter Hall tower

Character-defining features include:

- Observatory dome and telescope
- Western tower
- Overhanging eave with decorative soffit
- Decorative limestone grilles at third-floor western façade windows
- Limestone columns at doors
- Eastern façade entrance with red tile awning, monumental timber brackets and grate over window
- Wrought-iron balconies
- Marble medallions at main entrance
- Grille over transom at main entrance
- Original interior wood doors
- Lecture hall, including wood detailing at chalkboard
- Light pink tiles in hallways



[UNB]

Texas Union, 1933

(contributing, H-1)

Description

Situated in the northwest corner of the West Mall, the massive asymmetric L-shaped Texas Union Building forms a semi-enclosed court with the neighboring Flawn Academic Center to the east. The southern short end of the L-plan fronts the West Mall, with a long extension – including a large linear 1960s addition – to the north. Composed predominantly of Cordova Cream and Shell limestone, the Union is a two- and three-story building with a four-story tower, which together with Goldsmith Hall's tower to the south marks entry onto the campus from Guadalupe Street. Windows and doors vary in style and material throughout the building, and many in the original southern portion are embellished with Spanish Baroque inspired limestone elements. The building's complex massing is topped with a combination of flat and red clay tile hipped roofs.

The formal south façade facing onto West Mall is divided into three sections, with a small two-story wing with roof terrace to the west of the tower and a larger three-story wing to the east of the tower. Both are set back from the Mall by a set of wide steps and a terrace. Windows in these wings are principally wood casement and wood double-hung configurations, and entrances are marked with square carved-stone surrounds. Reached by a stairway situated parallel to the Mall, the tower entry is set deep in a large arched portal framed by classical columns and an ornamented balcony ensemble above. Four windows deeply set between simple piers at the fourth level give the

1930

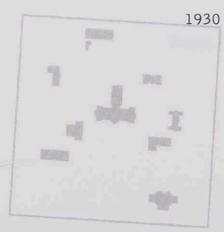



Photo: Emily Freeman Reed

Union Ballroom


Photo: Emily Freeman Reed

Presidential atrium

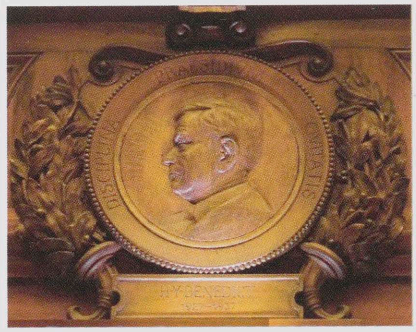
appearance of a loggia just beneath the painted soffits and brackets of a hipped roof. Decorative terra cotta roundels and cast-stone panels above windows and entry doors on east and west wings represent various areas of academic study and activities that happen within the Union.

Prior to renovations of the 1960s and 1970s, the east façade of the original building featured a two-story open-air loggia, designed to invoke a Spanish colonial style. Both levels were enclosed with glass and a third level was added with the later renovations. The 1960s addition extends to the north with large expanses of blank limestone wall. Window openings in the addition are often functionally rather than formally placed and are infilled with glass block, steel casement sash, or red terra cotta screens. At the southern end of the west façade, a set of large arched windows over French doors and a wrought iron balcony mark the location of the building's large ballroom. A small uniquely shaped window on the west façade of the tower carries forth the Spanish colonial theme.

The interior of the Union features many richly decorated spaces. At the top of a staircase accessed through the arched portal on the West Mall, a double-height atrium is finished as a Spanish cortile with a large skylight and a quarry tile floor. The wood balconies feature medallions, carved by Peter Mansbendel, that depict past university presidents. Immediately north of the atrium through glass doors with turned wood screens is the grand ballroom. A short corridor to the west leads to formal meeting rooms featuring wood paneling and cast plaster ceiling trim. A single-loaded corridor to the north, formerly the open-air loggias, leads to the long double-loaded corridor of the 1960s addition. The main staircase is finished in various colors of terrazzo and features a wrought iron balustrade. The lower floor of the Union is dedicated to dining areas and food service, with a theater and bowling alley at the north end. Some original decoration such as painted ceiling beams and stained glass remains on the lower level of the southern portion of the building. Finishes in the northern addition complement the original finishes but are of lower quality.

History

Fundraising initiatives in 1907 and 1922 to construct a social center on campus failed to raise adequate funds, but a follow-up campaign in 1926, led by the Ex-Students' Association, succeeded. Supervising architect Robert Leon White prepared the first drawings for the building in 1930, but Paul Cret subsequently changed the design, location, and orientation of the Union in 1931. Since its completion in 1933, the Texas Union has played a central role in the social and recreational life of University students and faculty. Constructed to accommodate a student body of only 6,600, the Union expanded and changed as the university grew. A major expansion project was completed in the 1960s, designed by Consulting Architect Mark Lemmon and architects Fehr and Granger. The project included the north addition with offices and facilities for student organizations, the enclosure of the east-facing loggia, and the creation of three new entryways to the first floor commons from the West Mall. In 1977, the interior was remodeled to create spaces for a bowling alley, a movie theater, and the Cactus Café. Between 1989 and 1993 the building systems were renovated and fast food restaurants were added.



Presidential medallion carved by Peter Mansbendel

Integrity

The Union retains integrity. Despite its additions and alterations; its function and most exterior and interior elements have remained intact. The building suffered a loss when the eastern loggias were enclosed in the 1960s, but some original materials and features at this location are still present. New entrances at the West Mall façade are compatible alterations.

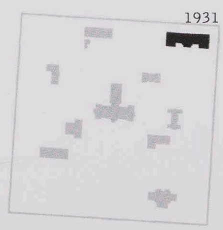
Character-defining features include:

- Wood casement and wood double hung windows
- Wood French doors with arched windows above
- Spanish Baroque influenced limestone door and window surrounds
- Spanish colonial inspired window on tower west elevation
- Terra cotta roundels and cast stone panels
- Wrought-iron balconies
- Tower configuration with arched portal, column and balcony ensemble, deeply set windows, and overhanging eaves with decorative soffits and brackets
- Spanish cortile atrium including quarry tile, wood balconies with carvings, and skylight
- Wood paneling, cast plaster ceiling trim, and other decorative elements in south wing formal meeting rooms
- Painted ceiling beams and stained glass in first floor dining areas
- Terrazzo and wrought-iron balustrade in main stairwell

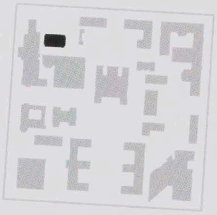
Photo: Emily Freeman Reed

South wing meeting room

1931



[HMA]

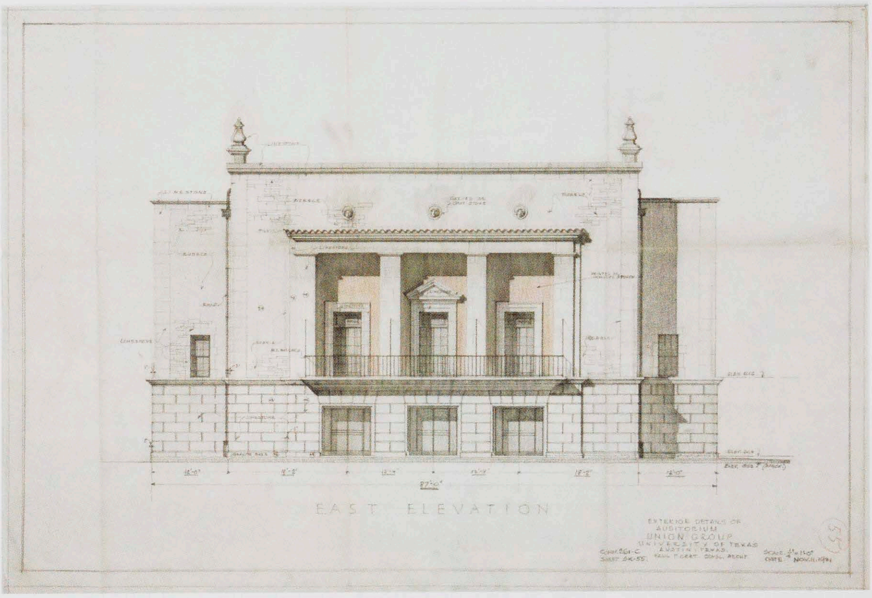


Hogg Memorial Auditorium, 1933

(contributing, H-1)

Description

The 1933 Hogg Auditorium, the first theater on campus, was designed in a classicized Spanish Renaissance style. Dressed in Cordova Shell and Cordova Cream Limestone, like many other buildings on campus, the auditorium features a highly symmetrical façade, with two articulated stories – the entrance and gallery levels. Three bays set between deep pilasters that project from the façade, forming the gallery, articulate a center section that is flanked by narrow, unadorned side sections. This gallery is topped with a cornice and red tile roof and enclosed by a delicate wrought iron rail. The building is rectangular in plan. The main or east façade has a flat roof, adorned with corner rooftop terra cotta urns at each end of the center section. But the middle and rear building sections have red tile hipped roofs. The interior of the building is mainly devoted to the auditorium, with supplementary spaces including a lobby, box office, and dressing rooms.



Paul Cret sketch of Hogg Auditorium

History

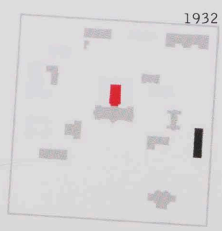
Initial plans for a "Union Group" included an auditorium-gymnasium, which was only partly realized in the 1930 construction of Gregory Gymnasium. Hogg Memorial Auditorium, seating 1,200, was constructed in 1932-1933 to serve more intimate and formal events, accommodating a need articulated by both the university and the Austin community. It was funded largely by the efforts of the Ex-Students' Association and was designed by Robert Leon White with Paul Cret as consulting architect. It was named after James Stephen Hogg, the first native governor of Texas.

Hogg Auditorium opened in 1933 with an inaugural lecture by poet Robert Frost. When Austin's Palmer Theater opened in 1958, Hogg began to compete with the newer venue, a trend that would continue. The subsequent opening of the theaters and performance spaces in the new UT Fine Arts Complex in 1980 essentially closed Hogg to performing arts for almost twenty years. During its dormant phase in the 1980s and 1990s, the venue was used for lectures, exams, and film screenings. After a facelift in 1996, Hogg reopened as a performing arts venue in September 1997. Hogg Auditorium is scheduled to undergo refurbishment.

Photo: Emily Freeman Reed


Lobby, box office, and directory

1932



Original light fixture

Integrity

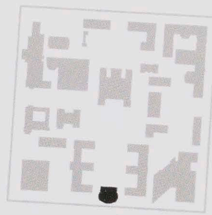
Hogg Auditorium retains a high degree of architectural integrity. The auditorium was reconditioned in 1950, and air conditioning was added in 1955. Renovations and improvements were made in 1965, 1980, and 1996, but there have been no significant additions or alternations to the building, and it still functions as a theater. The auditorium features its original seats, flooring, windows, doors, signs, and decorations, including the original directory in the vestibule.

Character-defining features include:

- Cast stone theater masks on the front façade, representing comedy, tragedy, and music
- Delicate wrought iron balcony and brackets
- Classical elements, such as the pediment, architrave, and pilasters
- Original directory and box office
- Original metal and glass light fixtures
- Exposed wooden beams inside lobby
- Green vinyl-upholstered chairs, each with two metal interlocking "UT" symbols on the sides
- Detailed plaster carvings, painted metallic gold and featuring Moorish designs on walls and ceiling of mezzanine
- Polychrome plaster carvings framing the stage and grills screening the organ pipes

View of stage

Gold-painted plaster carvings



Littlefield Fountain

Littlefield Fountain (1933)

(contributing, H-1)

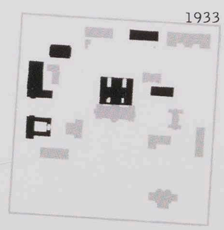
Description

A monumental bronze sculptural group is set within a set of sculptural pools, facing south at the base of the South Mall and the head of University Avenue. The fountain is set in a small plaza, flanked by symmetrical steps to a balustraded terrace.

The sculpture, by Pompeo Coppini, is a winged allegorical figure of America, with male figures representing the Army and Navy, at the prow of a ship pulled by three charging horses, all representing American assistance across the Atlantic in the First World War. On a wall behind the fountain (serving as the pump house), a bronze bas-relief memorial plaque lists names of UT students and alumni lost in the war. The symmetrical pools, enclosed by low granite walls, are at three slightly-different levels, cascading toward the south.

History

The Littlefield Memorial is the design of both Pompeo Coppini and Paul Cret, in a sort of involuntary collaboration. It originated in G. W. Littlefield's proposal for an arch at the entrance to the campus. Coppini, who had done the 1903 Memorial to Confederate Dead on the Texas Capitol grounds, convinced Littlefield to rethink as a fountain and sculptural group. Coppini's design combined the central allegorical group with a sculptural gallery of historical figures, from both the



United States and the Confederacy, surrounding it. It was intended as a World War I memorial and at the same time a monument to national reconciliation: the nation, torn asunder, reunited and crossing the waters to save civilization. This message required quite a lot of sculpture, which was in production by the time Cret arrived in Austin in 1930.

Cret redistributed the sculptural elements, an artistic improvement to the Littlefield Memorial as well as the whole South Mall, though at some expense to the clarity of the symbolism. He reduced the scale of the pool, originally drawn as 100 feet long, and simplified the architectural elements to create a functional pedestrian entrance to the campus.[25] By relocating the historical statues to frame the South Mall, Cret made the Littlefield Fountain a memorial for the First World War alone. The fountain was first turned on March 26, 1933.

Through much of its history the Littlefield Fountain pool has been home to giant water lilies. The sculpture and fountain were restored in 2008, through a gift by Steve and Rita Millwee.[26]

Character-defining features include:

- Sculpture
- Pools, with operating fountains, including the sound of water
- Balustraded terrace and stairs
- Bronze bas-relief memorial plaque

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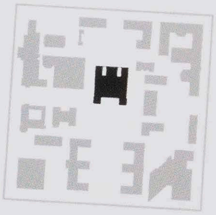
[25] Daily Texan, "New Building Houses Math, Public Speaking, English, B.A. Offices," sec. 1, Sept. 1931.

[26] Berry, Brick by Golden Brick, 38.



[MAI]

Main Building and Tower, 1937

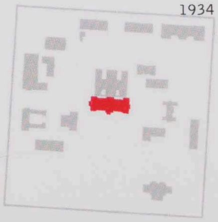
(contributing, H-1)

Description

The Main Building, with its distinctive tower, is located at the center of the Forty Acres, atop a small hill that puts it in a commanding position in relation to surrounding buildings. The building and its associated pedestrian plaza are primarily orientated to the South Mall, where it is framed by the "six-pack" buildings and positioned in a clear axial relationship to the Texas State Capitol building. It also serves as a focal point for both the East and West Malls.

The Main Building is in a style its designer, Paul Cret, called "New Classicism." It draws from the Spanish Renaissance vocabulary of the rest of the campus, from a general Beaux-Arts classicism, and from the Art Deco influence toward simple lines and geometrical ornamentation. The building's complex-irregular plan and massing are partially a result of its being planned and built in two phases. The first phase consisted of the E-shaped northern half of the current building, including the first ten stories of the Tower, as an addition to the 1883 "Old Main" building. The second phase subsequently demolished Old Main and replaced it with the U-shaped southern half of the building and added the upper section of the Tower atop the northern half.

1934



The building gains richness from the variety of flat and hipped red clay tile roofs and mixture of exterior materials. While the majority of the building envelope is faced in Bedford Indiana Limestone, other exterior materials include Edwards Limestone, Cordova Cream Limestone, Cordova Shell Limestone, Pearl Gray Granite, Black Tennessee Marble, Earley-process decorative concrete, slate, terra cotta, stained glass, bronze, steel, wrought iron, cast iron, copper, wood, and stucco. The Main Building plaza and terrace feature Edwards Limestone, Crab Orchard Limestone, Pearl Gray Granite, and Cordova Shell Limestone.

The south façade has a broad three-story central block, with the Tower rising on center behind it, and two three-story wings projecting south to enclose a raised terrace reached by broad steps from the Main Plaza. The central block is seven bays wide, containing a two-story loggia of seven arches composed of rusticated limestone blocks, each arch topped with a large keystone. Above each arch is a monumental nine-lite rectangular window set smooth limestone, with bays divided by pilasters with Ionic capitals. The central three arches of the loggia serve as the main entrance, with a broad stairway in the central arch and an ornate bronze balcony above. Above the central window is an ogee pediment and ornate oval medallion, and the two flanking windows have square medallions inscribed "1836" and "1936." A frieze inscription reads "Ye Shall Know the Truth and the Truth Shall Make You Free." The fourth floor penthouse sits behind an ornate balustrade, and its façade includes gold and red decorative stucco panels between stained glass windows.


North facade

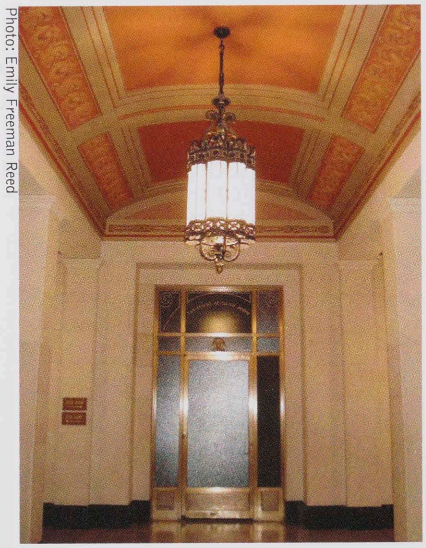
The east and west façades are symmetrical. Their massing is in three parts: the flat-roofed wings projecting to south, the five-story main mass of the south section, and the hip-roofed, four-story north section, above which rises the Tower. The ground floor and second floor are the same across the entire façade: limestone blocks with evenly spaced rectangular windows on the ground floor and paired casement windows above. All three sections include a piano nobile third floor, with fenestration varying. Under the windows in the northern section are limestone panels etched with the names of men President Battle chose for their contribution to Western civilization, including Aristotle, Shakespeare, and Mark Twain. Under the cornice are colored terra cotta coats of arms of institutions of higher learning, including Oxford and Cambridge, Harvard and Vassar, the University of Virginia and the University of Mexico.

The north façade is the back of the building. The Tower can be seen here in its entirety from the ground. Open courts enclosed by wrought-iron gates separate the tower from northeast and northwest wings. With the exception of the south façade, on all of the Tower's spandrel panels are applied gold-leafed letters from the Egyptian, Phoenician, Hebrew, Greek, and Roman alphabets. At the top of the Tower block is an observation gallery, above which is another block set back several feet containing on each of its four sides a gilded twelve-foot diameter clock set in an elaborate broken pediment. The Tower terminates in a temple-like carillon with a parapet roof.

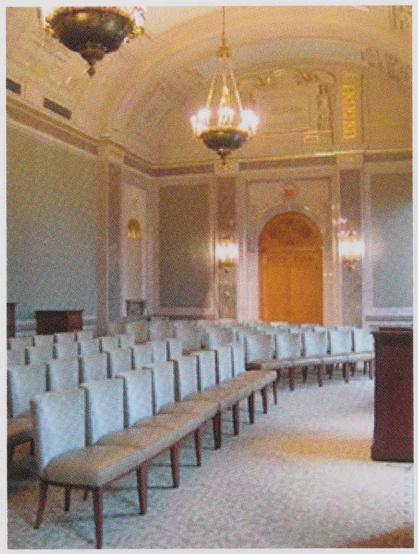
The primary entrance to the Main Building and Tower is through the loggia at the south side. One of the most striking characteristics of the loggia is the colorful panels of red and yellow quartz aggregate inlaid into six of the arched niches which mirror the loggia's seven exterior arches. The floor is covered in slabs of dark and light Crab Orchard Limestone, slate, and Edwards Limestone in a complex geometrical pattern. Thick, painted cypress beams compose the ceiling, from which hang three ornate wrought-iron lanterns. Three entrances open off this loggia: the central entrance to the main building and the entrances on the left and right to the east and west wings. At the east end of the loggia is the cornerstone of Old Main, with a bronze interpretive plaque. The flight of stairs up from the central arch of the loggia leads to a small exterior foyer. Entry through a set of dark wood double doors leads to a small elevator lobby finished in shell limestone, beyond which is a grand marble staircase with ornate iron and bronze railings. North of the grand stairway is the main corridor running east-west through the building at the seam between the two phases of construction. Branch corridors running north-south off the main corridor lead to various administrative offices in both the north and south sections of the building. Two small light courts occupy the area just south of the main corridor to the east and west of the grand stairway.

On the second floor to the north of the grand staircase is the library main entrance, accentuated by a dark marble door surround with a carved medallion of the university's emblem. When the library opened in the 1930s, it was as a closed-stack system. Patrons requested library materials at the main circulation desk, and library staff retrieved them from the stacks in the Tower. Thus, the first double-height public space of the library was called the "Delivery Room," where library materials were delivered. Two single-height alcoves with skylights on the south side of the room contained the large card catalog; that space has since been converted to enclosed seminar and study rooms. The larger room was designated the "Hall of the Six Coats of Arms," finely finished in a variety of marbles, and adorned with bronze light fixtures and carved walnut grilles. On the walls are large medallions depicting the coats of arms of the six nations that at different points in history held sovereignty in Texas: Spain, France, Mexico, the Republic of Texas, the Confederate States of America, and the United States. Small vestibules at the ends of the room lead to large reading rooms, which span the entire width and length of the north wings. The western reading room is named the "Hall of Texas"; its painted ceiling depicts periods of Texan

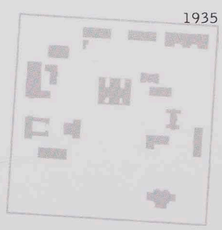
Photo: Emily Freeman Reed



Second floor elevator lobby



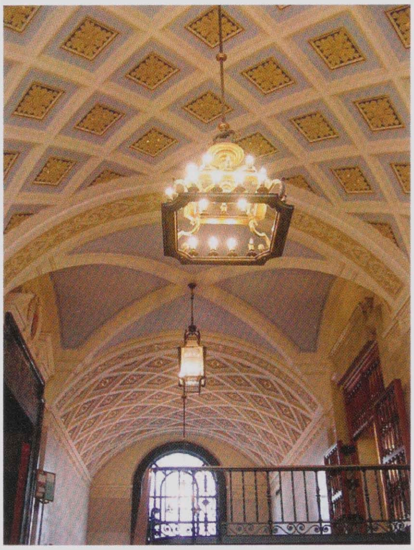
Lee Hage Jamail Academic Room




Stark Library

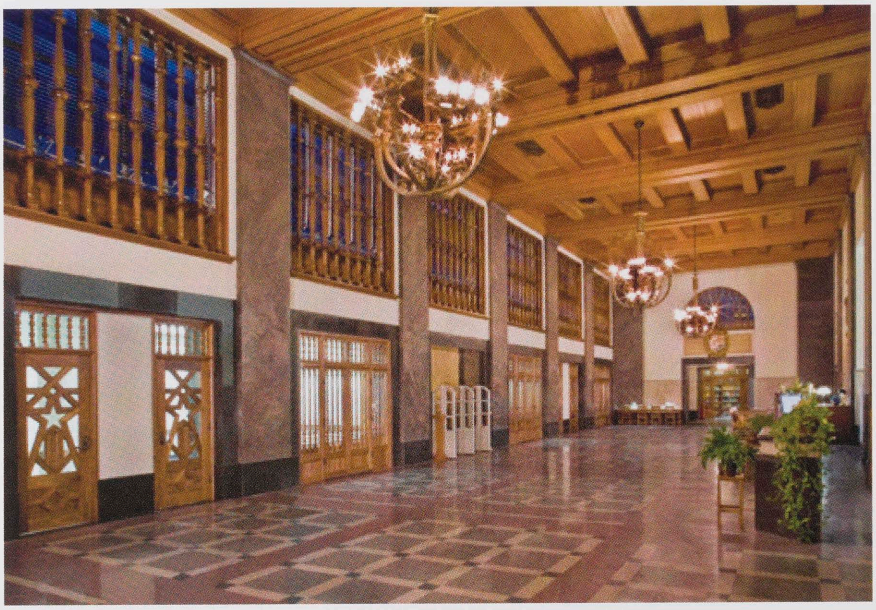
history and symbols of the various ethnic groups found in Texas in 1937. The eastern reading room is the "Hall of Noble Words"; its painted ceiling shows early printers' marks and quotes chosen by William Battle.

On the second floor, south of the grand staircase, the elevator lobby is decorated more richly than the one below, with limestone walls, black marble base trim, and an ornate ceiling. Just south of the elevator lobby is the "Portrait Corridor," with eight portraits of figures important to the university's growth. Adjacent to the elevator lobby is a large set of bronze and glass doors with a Phantasia Rose marble door surround, marking the entrance to the Lee Hage Jamail Academic Room. This room was initially called the Regents' Room, as it was originally the meeting room for the Board of Regents. This double-height space has a barrel vaulted ceiling and runs almost the entire length of the south façade. It is ornately finished with gold leaf door surrounds, silk damask wall panels, two large bronze and glass chandeliers, large medallions depicting knowledge and education, and trim composed of a variety of decorative Tennessee marbles. Adjacent to the Academic Room are two rooms originally intended as separate reading rooms for women and men; today they are used as conference space and offices. The south-projecting East and West Wings, originally intended as colonnaded open-air reading rooms, were finished as enclosed offices and classrooms.


Ceiling of grand stair

The third floor of the north section historically housed the Library School and special collections. The northwest wing housed a special collection for Latin-American studies, designed in a Spanish style with cork flooring, blue and while tiling, and ornate walnut woodwork carved by Peter Mansbendel. The northeast wing housed the Library School, decorated in Elizabethan style as tribute to its collection of English books. The south section of the third floor contained a classical sculpture gallery and classroom spaces. Visible from the stairwell between the third and fourth floors is a stained glass window salvaged from Old Main, installed in the east façade of the east light court.

The fourth floor of the south section historically housed an Exhibition room, a study room, the Wrenn Library (the rare book library), and the Stark Library, off of which was a balcony garden. The walls of the former Exhibition Room are finished with various green and gray marbles from Tennessee and Vermont and topped with a plaster vaulted ceiling decorated in relief with classical motifs. To the west of the Exhibition Room was the Wrenn Library, currently used as the Office of the University President. It is finished in oak wood panels with carving above the door by Peter Mansbendel. The ceiling is painted with three designs that depict the history of printing, the history of dress, and arms of famous universities. The stained glass windows in the room depict the arms of English colleges from Cambridge and Oxford. Female figures in the main lites depict History, Lyric Poetry, Comedy,



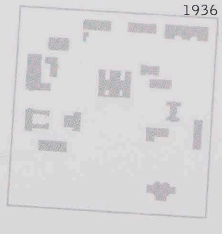
The "Delivery Room," former location of card catalogs on left

Controversy, Tragedy, Fiction, Epic Poetry, and Fable. To the east of the Exhibition Room is the Stark Library, finished with ornate walnut bookshelves. It is currently used as the president's conference room, and offers access to the east side of the balcony garden.

The Tower rises a total of twenty-eight stories, which are half height in comparison to most other spaces in the building. It was designed for a variety of functions including book storage (floors 2-14), seminar rooms (floors 15-17) and offices (floors 18-26). Finishes in the tower spaces still used as book stacks are utilitarian, typically rubber tile and painted steel partitions.

Typical floor finishes in the rest of the building include terrazzo in most stairways and public corridors and rubber tile in varying designs in offices and classrooms and some public corridors. Wall finishes in public corridors walls are flat plaster or ceramic tile. Vaulted plaster ceilings appear in some public corridors; others are flat plaster or acoustical tile. Marble drinking fountains throughout are original.

1936



History

Preliminary plans for the Main Building originated in Cret's first master plan for the university. Proposed to supplant "Old Main" as the centerpiece of the campus, the Main Building was intended to functionally replace the "Old Library" (now Battle Hall), which the university had outgrown. In response to funding constraints and a desire to avoid controversy over demolition of Old Main, Cret designed the new main library in three sections, to be built in three phases.

The first phase began in 1932 with the demolition of only the auditorium wing of Old Main, which had been vacant since 1915. The current E-shaped north section of the library was constructed behind the bulk of Old Main and connected to it by only a small bridging element at the second level. At the completion of the first phase in 1933, the Regents anticipated that the second phase of the project would be delayed for a number of years, and Old Main would remain in use for that time. However, with the beginning of the New Deal, a loan from the federal Public Works Administration enabled the construction of the next phase sooner than expected. Demolition of the remainder of Old Main began in 1934, and the U-shaped southern section was completed in 1937.

As originally designed by Cret, the southern section was intended to house only library functions, primarily grand reading rooms with some outdoor reading terraces. During design development, however, the Regents decided to move administrative functions into the southern section, and Cret re-programmed the interior space to accommodate these new uses. The design and planned use of the Tower also changed during this time. Cret's original proposals show low towers or no tower, but the Regents chose the final scheme with a tower more than three times higher than the original sketches. Cret proposed that the Tower would be used exclusively for library book stacks, but again the Regents directed the inclusion of classrooms and office spaces.

Courtesy of Dolph Briscoe Center for American History

Students in front of Main Building, 1958

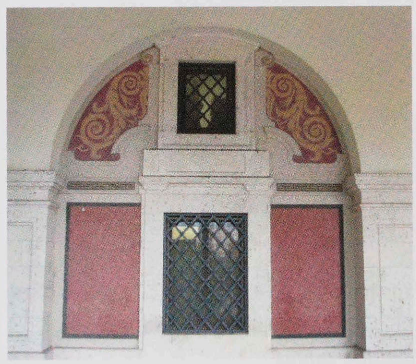
The third phase of the Main Building would have been an addition to the north of the E-shaped section to provide additional library shelving capacity when that became necessary. This addition was never built.

Portions of the Main Building and Tower served as the main campus library until 1977, when the Perry-Castaneda Library opened. Some special collections were moved to the Humanities Research Center when it was completed in 1971. Today, the building mostly houses administrative offices for the University, although some library functions remain as the Life Science Library. Main Building was the site of student protests in the 1960s, and evidence of these events remain in the form of large wooden gates at the second floor stairwell, installed to control access to the Office of the President. A tragic event occurred at the Tower in 1966, when a disturbed UT student shot and killed fourteen people and wounded thirty-one others from the Tower Observation Gallery.

The balance of uses in Main Building and Tower have shifted over time from library functions to administrative functions, but it remains the symbolic center of the campus and an emblem of the university to the surrounding community. It is lighted every evening as an architectural icon, and on special occasions with special lighting as a celebration or commemoration.

Integrity

Main retains a high level of integrity. It has had no major exterior alterations since its construction. Although there have been many changes in use among the interior spaces, exterior restoration work and interior renovation work over the years, most of the interior and exterior remains intact. Minor modifications include the removal of a balustrade at the tenth floor of the Tower and the replacement of a window opening with a door on the west side at this level; removal of gold leaf work on the limestone ornamentation surrounding the Tower clock faces; installation of a safety fence in the Observation Gallery in 1998; and coating of windows on the west elevation A hailstorm in May 2008 led to some glass replacement, including restoration of the stained glass window from Old Main.



Decorative concrete panels at doorway friezes

Character-defining features include:

Exterior

- Rusticated limestone base
- Ashlar horizontal coursed limestone at second floor
- Monolithic limestone Doric columns and Ionic pilasters
- Exterior stone ornamentation, including projecting scuppers, cartouches, shields, finials, balustrades, and dentil bands
- Ground floor loggia, including archways, decorative concrete panels at doorway friezes, decoratively painted cypress rafters, and geometric pattern stone floor
- Decorative concrete panels on fourth-floor penthouse exterior
- Raised panel cast iron spandrel panels, some with gold-leafed letters at Tower

Clock faces trimmed in gold leaf at Tower

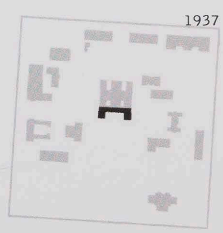


Photo: Emily Freeman Reed

Ornamental iron and bronze stair railings at main stairway

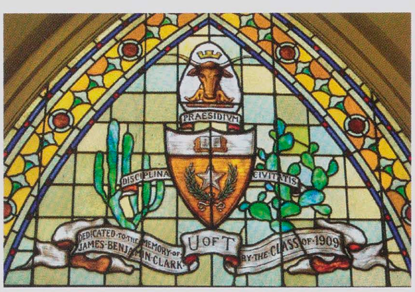
- Clock faces trimmed in gold leaf at Tower
- J. J. Earley decorative concrete panels at the carillon level
- Ornamental balcony with bronze balustrades on south façade
- Hand-wrought iron balustrades at south-projecting wings
- Wrought iron gates at north courts
- Triple hung steel windows at the wings of the base
- Bronze picture and pivot windows at second floor
- "Browne" steel pivot windows at Tower
- Carved inscription in south frieze: "Ye shall know the truth and the truth shall make you free"
- Terra cotta coats of arms and stone plaques carved with names
- Red clay tile roofs

Interior

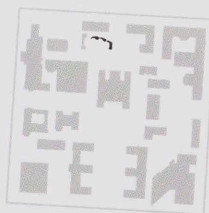
- Ornamental iron and bronze stair railings at main stairway
- Terrazzo, marble, limestone, and ceramic tile finishes in public areas
- Wood and stone carvings throughout the building
- Ornamental metal light fixtures throughout the building
- Wood and bronze doors at exterior and in public corridors
- Marble drinking fountains
- Decoratively painted beam ceilings in reading rooms
- Gold leaf door surrounds, marble trim, and medallions in second floor Academic Room
- Old Main stained glass window
- Wood paneling, stained glass, and ceiling painting in fourth floor President's Office
- Original clock mechanism in the Tower
- Original elevators and elevator mechanism in the Tower

Photo: Emily Freeman Reed

Decoratively painted beam ceilings in reading rooms



Old Main stained glass window



[BIO PONDS]

Biology Ponds, 1939

(contributing, H-2)

Description

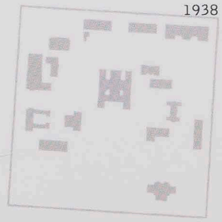
The Biology Ponds are three concrete ponds south of the Biology Building, freeform and together making an arc in plan, at slightly different elevations descending from west to east. The ponds are linked as a single recirculating system. The easternmost is the largest and most public, with a concrete edge that serves as a bench for viewing the numerous turtles (from which comes the alternate name, the "Turtle Ponds").

History

Home to six species of turtles and a variety of plants and fish, the three ponds, situated south of the Biology Building, were built between 1934 and 1939 as a replacement for Beck's Lake, which had been west of Battle Hall before construction of the Architecture Building. Originally the system flowed with treated water that emptied into a storm drain; the recirculating pump was installed in 1996.[27] In 1999 the university dedicated the ponds and surrounding lawn as the "Tower Garden," a memorial to the victims and those affected by the Charles

[27] Cret, Report, 18. See Cret to Battle, Apr. 29 1930, Battle to Cret Apr. 22, 1930.

1938



Whitman shootings of 1966. They were drained and repaired in 2002. The ponds are significant for their age, their instructional role, their commemorative status and also for being the only "natural" water feature on the Forty Acres.

Integrity

The ponds have excellent integrity. Minor changes have accommodated heavier foot traffic around them, and added memorial features.

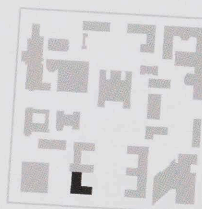
Character-defining features include:

- Naturalistic pond forms
- Flowing water
- Aquatic vegetation
- Turtles

Rainey Hall, 1942

(contributing, H-1)

[HRH]



Description

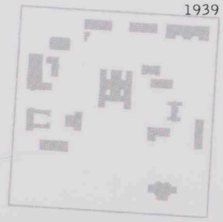
Homer Rainey Hall is a Spanish Renaissance building with an L-shape plan formed by an auditorium extending north from its western end. A pink granite base wraps around the building, with rusticated Cordova Cream Limestone quoins at the corners. The façades of each elevation are primarily of Cordova Shell Limestone. A red tile hipped roof, with nine dormers of various sizes, tops the four-story southernmost section of the building. A flat roof with balustrades tops the three-story northern arm.

The main entrance is located on the south façade, with less-elaborate entrances that mimic the main entrance on the west and east façades. Though each of these entrances differs slightly, all have double wooden doors, set within rusticated limestone surrounds, and iron and glass light fixtures. Three-bay iron balconies project from each of the entrance façades. On each, a large, multi-paned center window is set within a limestone surround, with an ornamental broken pediment enlarging the presence of the entrance. The entry wings have an overhanging eave with painted pink soffit and brown modillions.

Photo: Emily Freeman Reed

Limestone pediment and painted soffit

1939



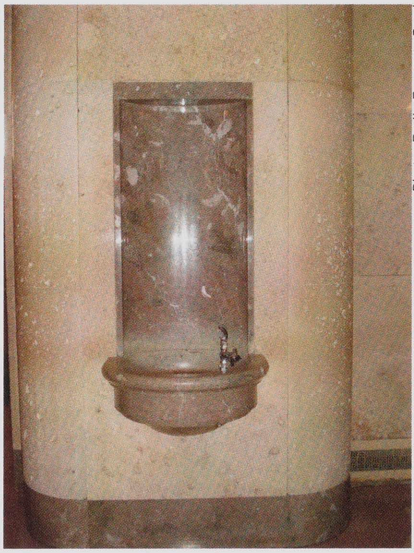


Photo: Emily Freeman Reed

Original water fountain

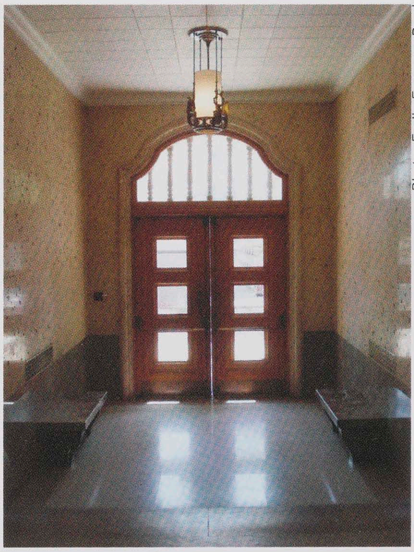


Photo: Emily Freeman Reed

Marble and limestone foyer

Music-note boot scraper

Two steel-frame end windows flank doors on the east and west façades. Five bays of steel-frame windows flank the main entrance. The window pattern found on the first floor is repeated on the upper level and continues around the buildings to the six-bay north façade. A one-story loggia, with a red tile roof, runs along the length of the extended wing of the east façade. The loggia provides entry at the second level into a marble and limestone corridor, with the auditorium entrance, ticket booth and foyer located at the western corner. East end stairwell and central (north) stairwells provide access to the third and fourth floors. Offices, classrooms and practice rooms run along a central corridor with larger rooms situated at the western end on both upper floors. Some interior walls are 21 inches thick due to multiple layers of materials meant to soundproof rooms.

History

Three years after the Department of Music was established in 1938, construction of a new building to house the program was underway. Dallas firm LaRoche and Dahl and Paul Cret acted as contributing architects, while Robert Leon White served as supervising architect. The building was later named after UT President Homer Rainey (1939-1944). The first of the "six-pack" buildings, Rainey Hall's exterior was designed to match other campus buildings, but its interior was influenced more by its intended use as a soundproof music building, and by the popular style of the time, Art Deco. Inexperienced with acoustics, the architects brought in C.C. Potwin to supervise the acoustical design. Upon completion, William Battle proudly described the modern Rainey Hall as Texas' first building to use such innovative soundproofing and acoustic technology. Rainey was also the first building designed to be air conditioned.

Its construction was no small feat as materials, especially metals, were sparse due to World War II rationing. Re-rolled rail steel was used rather than new steel, and lockers throughout the building were constructed of wood rather than metal since the university lacked priority listing for such materials.

With construction of Calhoun Hall in 1967, the northern façade of the extended auditorium arm was covered. This resulted in the removal of rooftop terra cotta urns and a slight alteration to the edge of the loggia roof. In 1982, Jessen Auditorium underwent a renovation to install table-arm seats, projection screens and upgraded lighting. In 2010, Jessen Auditorium was refurbished to repair water damage. Music rooms and offices are still located in Rainey Hall; the French and Italian Language programs now also occupy space within the building.

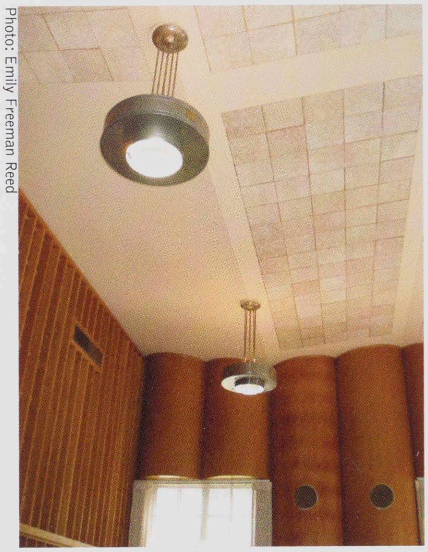
Integrity

Rainey Hall retains a high level of integrity. Both the exterior and interior remain largely unaltered from their original state. Though it no longer is strictly devoted to music, much of its interior still reflects the building's original need for soundproof spaces. The layout of rooms and interior finish materials used as soundproofing elements remain today as do a number of light fixtures, furniture pieces, wall clocks, and door hardware.

Character-defining features include:

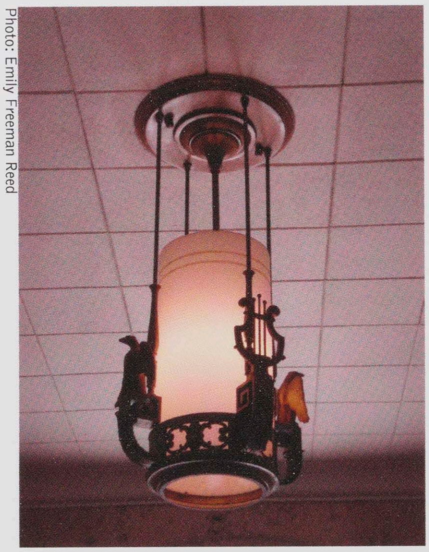
- Rusticated limestone at corners and doors
- Wrought-iron balconies
- Light fixtures at exterior entrances
- Loggia
- Carved cast-stone details around door
- Balustrade along extended arm
- Broken pediments
- Urns along roof of extended arm
- Steel-framed windows
- Painted soffit
- Red tile roof
- Marble and limestone foyer with ticket booth and water fountain embedded in wall
- Marble benches found in loggia, foyer, and throughout building
- Ornamental lighting fixtures found throughout the building
- Floor tiles in bathrooms
- Wooden lockers on third and fourth floors
- Wall clocks
- Third-floor old rehearsal room with Art Deco detailing
- Layout of rooms along corridor meant for soundproofing
- Acoustical wall treatments

Photo: Emily Freeman Reed



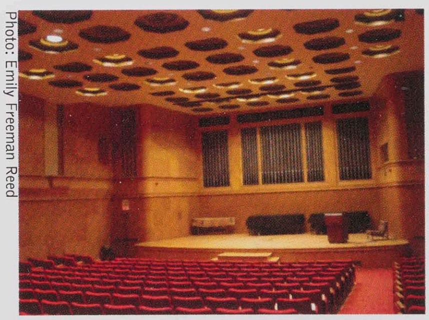
Acoustic treatments in recital room

Photo: Emily Freeman Reed

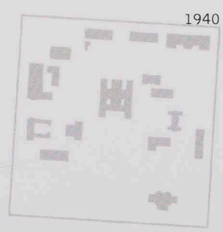


Original light fixtures

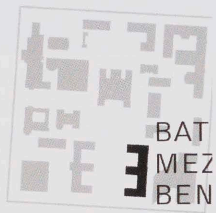
Photo: Emily Freeman Reed



Jessen Auditorium



- Parquet floors
- Plum-colored terrazzo floors and stairs
- Marble floor tiles in fourth-floor hall
- Door hardware with University seal
- Original water fountains on third and fourth floors
- Air vents on second floor found on limestone walls
- Musical-motif shoe scraper outside loggia entrance

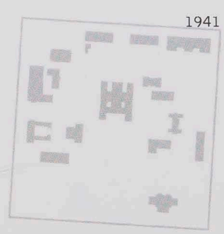


Benedict, 1952 [BEN] (contributing, H-2)
Mezes Hall, 1952 [MEZ] (contributing, H-2)
Batts Hall, 1952 [BAT] (contributing, H-2)

Benedict, Mezes, and Batts Halls were built as a single project and are treated here together.

Description

The Benedict-Mezes-Batts complex consists of three rectangular four-story buildings, each oriented east-west, with three-story connecting wings between. Together, the buildings form two small sunken landscaped courts, oriented west towards the South Mall. Benedict is farthest south, adjoined by Mezes to the north and Batts beyond it to the north. The buildings are set on a site that slopes downward from north to south, such that the ground floor of each building is partially below grade and the upper floors are offset from the neighboring building by about a half story. Finished to resemble Rainey Hall across the South Mall, the three buildings are identical on the east and west façades. The north and south façades are similar, but vary slightly based on each building's position within the trio. The buildings are topped with red-tile hipped roofs with hipped dormers. Wide eaves feature cast-in-place cornice moldings, modillions (painted yellow), and shallow soffits (painted pink and green). All three buildings are finished at the ground and fourth levels in large regular-coursed Cordova Cream Limestone panels and at the second and third levels in small random-coursed shell limestone units. The buildings' corners, doors, and loggia columns are defined by cream limestone quoins. The fenestration pattern, consisting



North entrance to Batts, with globe light fixtures

of fixed aluminum units ranging in size from 5'x4' to 6'x12' in punched or stone-trimmed openings, is identical on the east and west façades of all three buildings, with variations on the north and south façades and connecting wings.

Due to the sloping terrain, the primary entrances to all three buildings are located at the second floor on the west façade, through wooden double-leaf doors with glazed panels. The name of each building is carved in a limestone panel above the entry door, with a three-bay painted wrought-iron balcony at the third floor. A prominent broken pediment with carvings (Benedict has a five-pointed star; Mezes and Batts have books) tops an enlarged central window above. The east façades are variations on the west façade. The north and south façades facing onto the courts feature four-bay balconies at the second level, accessed by French doors. The south façade of Benedict and the north façade of Batts have centrally placed wooden double-leaf entry doors, which are approached by grand staircases. The entryways feature turned wood grilles at the transom, quoin surrounds, and globe light fixtures. The broken pediments with carvings are repeated here with shell and crest motifs. The Benedict-Mezes connecting wing is less elaborate, with two simplified gabled entrances. The Mezes-Batts connecting wing is defined by a west-facing two-story loggia with a red tile roof, half-round dormer vents, and red grilles over the fourth floor windows.

The plans for all three buildings are double-loaded corridors running east west. Some original finishes remain, such as travertine floors, glazed ceramic tile walls, and polychrome patterned floor tiles, but many have been replaced.

History

Responding to the influx of students following World War II, the University Faculty Building Committee in 1947 identified classroom buildings as one of the most urgent needs for the growing campus, and recommended that three such buildings be constructed on the south mall, the southernmost one to balance Rainey Hall. The committee expressed equal urgency regarding the style of these new buildings, indicating that "no serious variation in style of architecture will be approved for the buildings now under consideration. The style adopted in our recent buildings is so satisfactory, so appropriate to our Texas heritage, and has met with such general approbation that we cannot depart from it without danger."[28] Such a design was carried out by Mark Lemmon, Consulting Architect, with Staub and Rather, a Houston-based architectural firm, as Associate Architects.

[28] Alcalde, Nov.-Dec. 2008, 32.

The buildings were designed first as generic classroom spaces and in the last stages of design adapted to the needs of the departments recognized as being in most critical need of space.[29] All three buildings were completed in 1952.

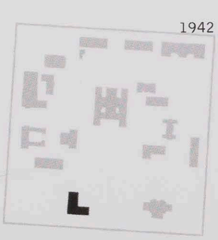
Benedict, Mezes, and Batts Halls were originally called Classroom Building No. 1, No. 2, and No. 3 respectively, but were renamed in 1953 to honor H. Y. Benedict, former professor of mathematics and president of the university (1927-1937); Sidney Edward Mezes, former professor and president of the university from 1908 to 1914; and Judge R. L. Batts, a former law professor and Chairman of the Board of Regents.


Benedict-Mezes connection, the most recent part of the sixpack, under construction in 2004

Benedict Hall was built to house the Department of Mathematics, which did not have any particular programmatic requirements of the building other than it have "perfect classroom lighting, the best quality blackboards, and classroom seats far enough apart to prevent cheating."[30] Benedict Hall was originally connected to Mezes Hall by a single-story enclosed walkway with a red-tiled roof, configured as such because at that time the Old Law School Building still projected onto the eastern part of the site. Mezes Hall was slated primarily for the Department of Psychology and contained spaces such as soundproof and anechoic rooms for hearing research, constant temperature rooms, and a suite of spaces with one-way mirrors for clinical observation, designed by then department chair Karl Dallenbach.[31] The Department of Philosophy also occupied some classroom and office space in Mezes. The Mezes-Batts connecting wing originally contained a large auditorium on the lower floor with a lobby entrance in Batts Hall, which was used for lectures, demonstrations, and performances by the foreign language departments. Batts Hall originally housed classrooms, offices, a phonetics lab, recording studio, darkroom, motion picture projection booth and listening rooms for German, Spanish, Portuguese, and French courses.

A fire on the first floor of Mezes Hall in 1970 prompted a modest interior renovation project in both Mezes and Benedict Halls, completed in 1972 and designed by Kuehne and Turnley Architects. With this project, the Department of Mathematics left Benedict Hall, and the Department of Psychology expanded into it. A much more extensive renovation project in all three buildings began in 2002, designed by 3D/International. Completed in 2007, the project involved both exterior and interior alterations. The original auditorium in the Mezes-Batts connecting wing was removed and replaced by classrooms and offices. A fourth floor with exterior red decorative metal grilles and a red-tiled hipped roof were also added to this wing. On the interior,

[29] biosci.utexas.edu/news/2003/turtlepond.aspx.
[30] Report from the Faculty Building Committee (Chair, W.J. Battle) to T.S. Painter, President, July 7, 1947, UT President's Office Records, 1907-1968, Box VF 22/C.a, Folder "Building Committee."
[31] E.J. Matthews, Registrar and Dean of Admissions, to Dr. A.E. Cooper of the Faculty Building Committee, Feb. 9, 1948. President's Office Records, 1907-1968, Box VF 22/C.a, Folder "Building Committee," CAH.



specialized lab and testing spaces were removed and replaced by classrooms and offices. The Benedict-Mezes connecting walkway was replaced by a new addition, which includes a new auditorium, a large mechanical space, and offices. New interior partitions, doors, and an additional elevator were also added during this renovation.


Mezes-Benedict courtyard

With the most recent renovation, the buildings no longer have strong departmental identities. Departmental space is spread among the three buildings, with the Department of Spanish and Portuguese occupying Benedict and part of Mezes Hall, the College of Liberal Arts Instructional Technology Services unit occupying lower floors of Mezes, and the Department of Government occupying Batts and part of Mezes Hall. Shared classroom space occupies lower levels of Benedict and Mezes Halls.

Integrity

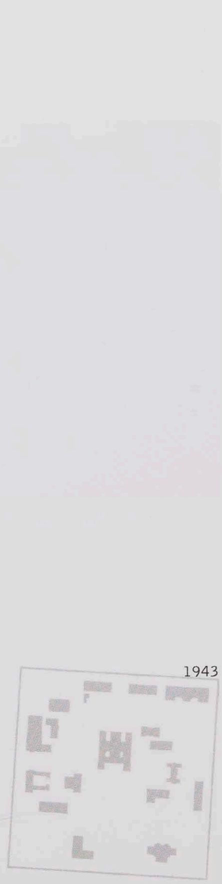
The exterior of the Benedict-Mezes-Batts complex retains a high degree of integrity. It has experienced little alteration to the exterior, with the exception of the connecting wings, which have been expanded or replaced, and the original steel casement windows, which have been replaced by fixed aluminum units with a similar profile. With the removal of the original auditorium and the addition of a new one, the interior has not fared as well as the exterior, but many original interior materials remain.

Their preservation priority of H-2 (Secondary Historic resources) represents the significance of the fabric of each building as a whole; their western façades and massing are Primary Historic resources for their contribution to the South Mall ensemble.

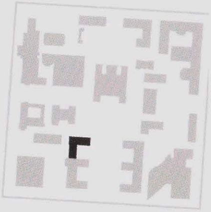
Character-defining features include:

- Mix of Cordova Cream and Shell Limestone on exterior
- Red tile hipped roof
- Roof dormers
- Overhanging eave with painted soffits and modillions
- Limestone quoins
- Carved limestone motifs found in broken pediments
- Wrought iron balconies
- Varied window schedule
- Two-story loggia

- Glass globe lights at exterior entrances
- Travertine and chromatic tile floors
- Light yellow and blue ceramic tiles on walls



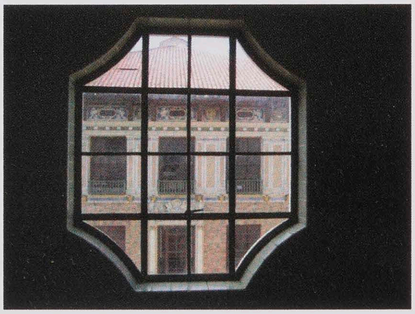
[PAR]



Parlin Hall, 1955
(contributing, H-2)

Description

Parlin Hall has an L-shaped plan and façades dressed in Cordova Shell and Cream Limestone atop a pink granite base. The building is topped with a red tile hipped roof with gabled dormers. The north end of Parlin contains the main east façade, while the extended arm of the building is defined by a loggia running along its east façade. Quoins are found at the corners, around doors, and along the extended arm of the building. The building has broken pediments of various styles, differing carved motifs at doors, and second-story wrought-iron balconies of various lengths. The interior has central hallways with flanking classrooms and offices. Parlin connects to neighboring Calhoun Hall at the basement, first, second, and third floor hallways.



View of Sutton Hall from Parlin Hall

History

Parlin Hall, originally called the English Building, was constructed in 1954-1955 with Mark Lemmon serving as consulting architect and Dallas firm Broad and Nelson serving as associate architects. In 1954, the Board of Regents approved the site and funding for the construction of a new English Building. V Hall, sitting on the proposed site, had to be relocated just west of Rainey Hall in order for construction to begin. Completed in 1955, the building was the first on campus devoted entirely to the English Department. It housed both classrooms and offices and, in the basement, soundproof listening rooms. In 1957 the ceilings in these soundproof rooms began to buckle and sag due to water retention and needed to be replaced. In 1968 the building was renamed for the dean of the College of Arts and Sciences and founder of the Plan II Honors Program, Dr. W. T. Parlin. Today Parlin still houses the English Department.

Integrity

Parlin Hall retains a high level of integrity, having seen very few alterations since its completion in 1955. In 1990 a wheelchair access ramp was added to the west façade without detracting from the integrity of the building.

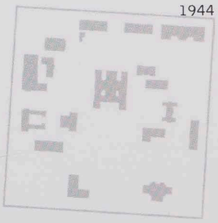
Parlin's preservation priority of H-2 (Secondary Historic resource) represents the significance of the fabric of the building as a whole; its eastern façade and massing is a Primary Historic resource for its contribution to the South Mall ensemble.

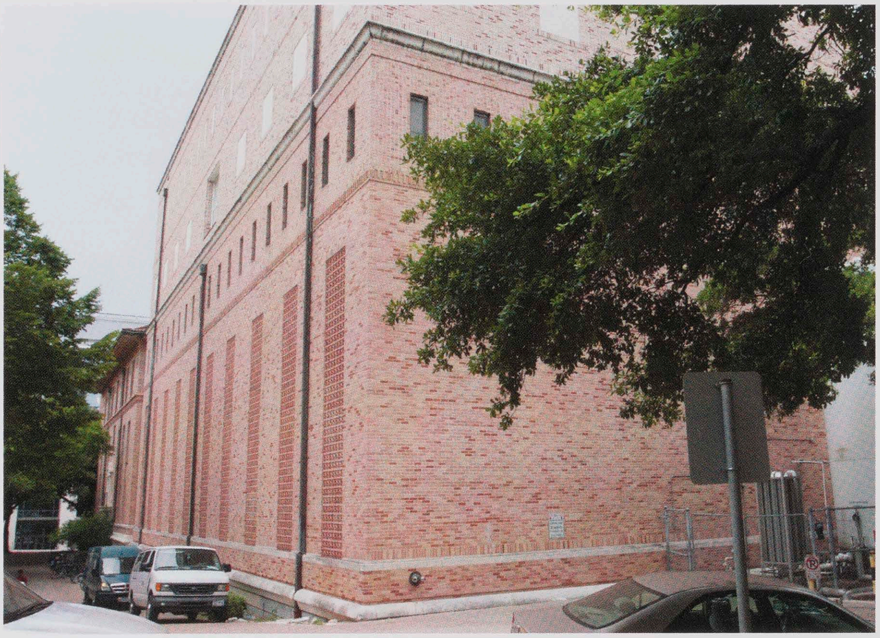
Character-defining features include:

- Loggia
- Red tile hipped roof
- Gabled dormers on roof
- Overhanging eave with painted soffits and modillions
- Limestone quoins
- Carved limestone motifs found in broken pediments
- Wrought iron balconies
- Green ceramic interior tile
- Casement windows
- Wall clocks
- Varied window schedule
- Lanterns found on exterior and in loggia
- Post office boxes on first floor
- Marble walls at north entrance

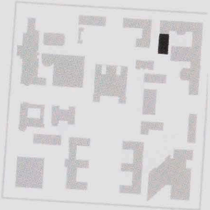
Original mailboxes

1944





[WEL B]



Welch B, 1961

(non-contributing, N-H)

Description

The six-story rectangular West Wing addition ("Welch B") of the Chemistry Building adjoins the 1931 structure as an extension of the western leg of the original building's E-shaped plan. Oriented north-south, the building sits on a sloping site that ascends from east to west, causing part of the ground floor to be below grade, accessible only from a sunken courtyard on the east side. The second addition to the Chemistry Building ("Welch C") adjoins Welch B at the southeast. Although it has a flat roof, Welch B is detailed to continue the material and decorative schemes of the Chemistry Building.

A single bay containing steel casement windows and faced in vertically oriented rectangular Cordova Cream Limestone panels clearly marks the transition between the 1931 building and the West Wing addition. The bulk of the building to the south is faced in Cordova Cream Limestone at the ground floor, tooled to match the 1931 building, with mixed buff-to-brown brick above. The west façade is organized into ten bays on the second and third floors, with windows concealed behind terra cotta screens vertically spanning both floors. The fourth floor includes two narrow, fixed dark anodized aluminum framed windows per bay. Above the fourth floor is a concrete cornice molding that marks the original height of the building before a two-story mechanical penthouse was added. The penthouse is finished in a brick blend of slightly higher contrast, with a pattern of blank panels simulating windows, and concrete cornice molding similar to the floors below. The south façade is blank below the fourth story. Visible portions of east façade are similar to the west façade, but with steel casement windows at the ground level.

The Welch B floor plan is a simple double-loaded corridor, organized with shallow office spaces to the east and deeper laboratories to the west. Public corridor walls are finished in cream-colored tile with prominent curvature at corners and door surrounds. Stairwells are decorated with multi-colored tile and feature a modern-style aluminum handrail.

Terra cotta screen

History

Completed in 1961, Welch B was designed by Consulting Architects Page, Southerland, Page with Associate Architects Goleman and Rolfe.[32] It was originally built to house Chemistry Department administrative and faculty offices and graduate instruction laboratories, which had been previously located in the nearby Experimental Science Building, and it is still used by the Chemistry Department. It was altered in the 1970s to accommodate the addition of Welch C. A major fire on the fifth floor of Welch B in 1996 prompted a renovation project that included interior alterations and addition of the two-story mechanical penthouse.[33]

Integrity

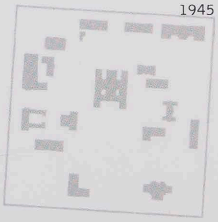
Welch B does not retain integrity. The penthouse addition significantly changed the massing and scale of the building, especially in terms of its relationship to the 1931 structure, and it is not appropriately differentiated from the original 1961 structure.

Character-defining features include:

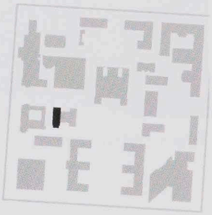
- Cordova Cream Limestone connecting element
- Cordova Cream Limestone base
- Buff-to-brown brick with stacked header coursing at top story
- Terra cotta screens

[32] Letter from mathematics faculty to President Logan, Feb. 1953. President's Office Records, 1907-1968, Box VF 22/B.a, Folder "Classroom Buildings – Benedict Hall; Mezes Hall; Batts Hall, 1949-1953," CAH.

[33] Michael Domjan, "Through the Roof," Observer, Journal of the Association for Psychological Science 17:6 (June 2004). psychologicalscience.org/index.php/uncategorized/through-the-roof.html.



[WMB]



West Mall Office Building, 1962
(contributing, H-2)

Description

The West Mall Office Building is a five-story rectangular building oriented north-south. It adjoins Battle Hall, together forming an "H" shape, but there is no interior connection between the two buildings. A one-story covered loading dock projects from the south end. The building sits on a bi-level site, negotiating a one-level grade change from north to south. It is concrete-framed, faced in Cordova Cream Limestone with a gray granite base. Wide eaves with shallow bluish-green coffers, copper gutters, and red-tiled hip roof recall Battle Hall, but here the soffit is trimmed only with a simple concrete molding.

The main entry door at the north is a recessed aluminum storefront assembly, surrounded by wide stone trim and with a decorative cast iron balcony above. The door is flanked by two small windows with decorative iron grilles. These and the three bays of double hung wood windows above are clustered at the center of the façade. On the west façade, the seven bays are symmetrical, with five bays of paired double hung wood windows at the center, and two bays of single windows at the ends on the upper four floors. Three entry doors on the west are similar to the north door, here alternating with full-sized windows with decorative iron grilles. A half-round molding, interrupted by dark copper downspouts, marks the floor level above the doors and continues around to the south and east façades. The south façade above the loading dock is similar to the north. At the second level a massive steel balcony has been added to support the School of Architecture's Thermal Lab structure. The east façade is mostly concealed by the cross bar of Battle Hall.

Although in elevation the West Mall Office Building was designed to complement Battle Hall, in plan it is very much a 1960s building, with a simple double-loaded corridor and no grand public spaces. The lobby and stairwell at the north end are minimally decorated with one-inch blue ceramic tile and a distinctive modern-style aluminum handrail.

History

Completed in 1962, the West Mall Office Building fulfilled an element of the 1933 Cret plan, which showed a building of this shape and size adjacent to the Old Library (now Battle Hall). The original program for this building was overflow office space from other campus buildings, and thus it has never been identified with any particular campus unit. The first occupants were the post office, the campus stenographic pool, administrative offices for the College of Arts and Sciences, the Counseling Center, and other student services. The post office has remained, and the building now houses the Center for Middle Eastern Studies and parts of the School of Architecture.

Designed by Consulting Architect Jessen, Jessen, Millhouse and Greeven, with Associate Architect Staub, Rather, and Howze; the architects referred to the building as simply "utilitarian" even in campus press releases.[34] It was harshly criticized for its historicist design, especially by students of the neighboring School of Architecture, who picketed the building in protest of its "mediocre" design.[35] It was a background building, contextual before contextualism.

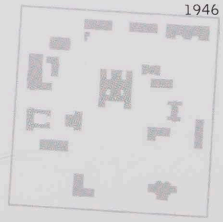
Integrity

The West Mall Office Building retains integrity. All exterior façades are unaltered, and the interior public spaces (north lobby and stairwell) have had minimal alterations. Office areas have been altered somewhat over the years, but the original double-loaded corridor arrangement is still evident.

[34] Lawrence W. Speck and Richard L. Cleary, The Campus Guide: The University of Texas at Austin (New York: Princeton Architectural Press, 2011)..

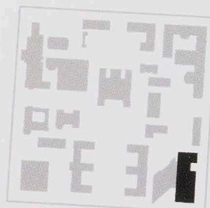
[35] "Chemistry Building, 1931 -," lib.utexas.edu/chem/history/welch.html.

1946



Character-defining features include:

- Cordova Cream Limestone walls with stone trim and molding
- Wide projecting eaves with red tile roof
- Copper gutters and downspouts
- Double-hung wood windows
- Cast-iron balcony railing and window grilles
- North lobby and stairwell tile and aluminum handrail



[CBA]

College of Business Administration, 1962

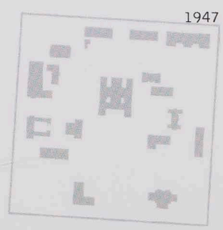
(non-contributing, N-H)

Description

The College of Business Administration (CBA) is made up of a five-story plus basement classroom building to the south and a seven-story office building to the north, with a connecting structure between. It connects to the Graduate School of Business (GSB) to the west. Together the two CBA buildings form a large rectangle oriented north-south. The buildings are located on a site that slopes down gradually from west to east and are finished to continue the material palette and basic architectural motifs of Waggener Hall located to the north, albeit in a modern and simplified manner.

The ground floors of both buildings are faced in Cordova Cream Limestone with a Texas pink granite base. Above the ground floor, both are finished in tan and brown brick with punched window openings, with dark bronze single panel in-swing casement windows.

At the classroom building, the top floor consists of widely spaced square limestone pilasters with a window wall recessed behind. This floor used to feature terra cotta screens, similar to those found on nearby Mezes Hall, but they have been removed. Wide eaves with deep concrete coffers, and a narrow band of red-tiled roofing, gives the appearance of the hipped roofs of other campus buildings, but the building is actually topped with a flat roof.



At the office building, colorful ceramic panels designed by then art faculty member Paul Hatgil top each column of windows. The parapet roof is finished with only a limestone cornice molding and red-tile coping that minimally invokes red-tile roofs.

The connecting structure, once a narrow band recessed between the two buildings, has been significantly expanded to project beyond the buildings to the east and to connect with the Graduate Business School to the west. It is finished in the material palette of the GSB, large panels of travertine and dark-tinted glass.

The original double-loaded racetrack plan of the classroom building has been altered on most floors, but remains generally intact on the second floor. The center of the classroom building was originally an open court on the upper four floors, but it has since been enclosed to form an atrium. The original double-loaded corridor plan of the office building is still generally intact. With the expansion of the connecting structure, the corridor linking the two buildings shifted west on most floors.

History

Completed in 1962, the College of Business Administration building was designed by Page, Southerland, Page Architects. It was built for the College of Business Administration (now part of the McCombs School of Business), which was rapidly expanding and had outgrown its home in Waggener Hall. At the time it opened, it was the largest classroom building and featured the first escalator on campus, and it was lauded for its modern interpretation of the prevailing campus Mediterranean style.[36] The addition of the Graduate School of Business in 1976 caused the removal of portions of the CBA west façade to connect the two buildings. Another renovation, designed by Graeber, Simmons, and Cowan and completed in 1986, created a new east entrance to the classroom building, replaced the two- and three-panel inward venting windows with single sash casement windows, enclosed the open light court with a skylight, and extended the connecting structure to the east to add a large meeting room and to create a grander entrance to the complex.

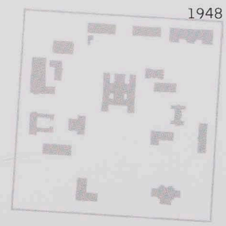
Integrity

The College of Business Administration Building has largely lost integrity. The original divided windows have been replaced with windows of a different profile. Terra cotta window screens and the large cast-stone screen once covering the connecting band have been removed. The scale and expression of the connecting structure has been significantly altered. However, the massing, roof profile, dominant finish materials, and window positioning remain unchanged.

[36] University of Texas News and Information Service, news release, Sept. 21, 1962.

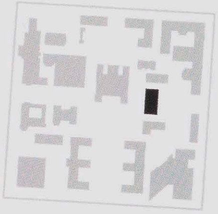
Character-defining features incude:

- Ceramic art panels by Paul Hatgil
- Cordova Cream Limestone and pink granite base
- Tan and brown brick
- Wide projecting eaves with red tile
- Limestone cornice molding with red tile



1948

[COM]



Computation Center, 1962

(contributing, N-H)[37]

Description

The Computation Center is a single-story rectangular concrete frame building, positioned slightly below grade, with its roof functioning as an extension of the Main Building pedestrian plaza. Oriented to the east, the Computation Center acts as a transitional element from the upper plaza to the lower level of the East Mall, with its west end set into the slope beneath the plaza. The Computation Center was designed to be an unobtrusive addition to the Forty Acres, conceived and detailed as an enlarged grand public stairway and finished to match the existing retaining wall.

The primary east elevation is symmetrical and dominated by the large exterior double-return granite staircase leading to the Main Building plaza. Substantial corner elements, finished in coursed cut limestone, bracket limestone panels arranged in a random ashlar pattern to match the retaining wall surfaces to the north and south of the building. Three bays of steel casement windows with cut stone trim are positioned nearly at grade. The north and south façades are identical and both contain building entry doors, which are aluminum storefront assemblies. The random ashlar limestone veneer and steel casement windows are repeated here, with a shallow areaway to prevent the windows from being below grade. Adjacent to the plaza retaining

[37] COM is marked with N-H as a preservation priority, even though it is eligible for the National Register as a contributing feature of a Forty Acres district. Its disruption of the relationship between Garrison Hall and Will C. Hogg makes it an inappropriate addition in the larger design of the district.

walls on both north and south are vented metal doors which provide access to a service corridor. The roof elevation is clearly visible as the pedestrian plaza above and is finished in a mix of hardscape and raised planters.

The plan of the Computation Center is a double-loaded corridor layout, organized around a central core of computing equipment areas and a small auditorium, with offices at the perimeter. Access to the building is through doorways and half-flights of stairs at either end of a main north-south corridor. A service corridor, unconnected to the main corridors, runs along the west end of the building and provides access to a sizable mechanical space at the core.

History

The Computation Center program was founded in 1958 as a research and academic service unit to the campus, providing advanced equipment (for the time) and instruction in the use of computers to students, faculty, and researchers. Computation Center staff, headed by Director David M. Young, conducted basic research in computer science and guided students and researchers who could reserve time on the Computation Center equipment to carry out computational analysis for research projects in various fields. As computers and networks became more common on campus, the Computation Center was merged with the campus Data Processing department and the Telecommunications group to become in 2001 the Information Technology Services (ITS) department, which currently occupies the building.

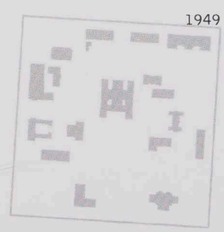
Completed in 1962, the Computation Center was designed by Consulting Architects Jessen, Jessen, Millhouse, and Greeven, with Associate Architects Fehr and Granger. Upon completion of the building, the Computation Center program relocated here from its former home in the Experimental Sciences Building. The Computation Center building had persistent problems with roof leaks,[38] and the flat roof was recovered in the 1990s. Renovations to provide greater accessibility were also recently completed.

Integrity

The Computation Center retains integrity. The exterior has not been altered, and the interior has not seen any major alterations.

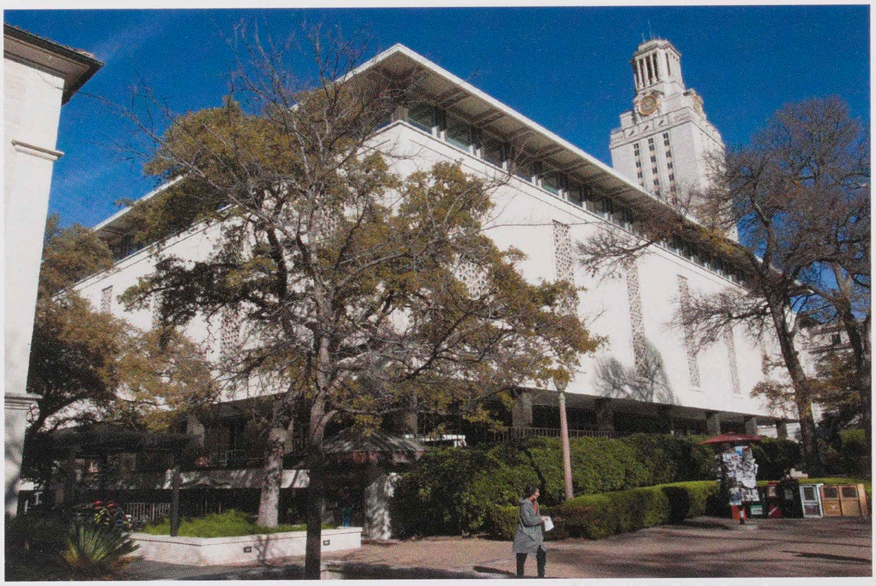
[38] John Sniffen, "West Mall: Bluebonnets to Concrete," Daily Texan, Oct. 16, 1975..

1949



Character-defining features include:

- Exterior granite staircase
- Combination of regular- and random-coursed limestone
- Steel casement windows



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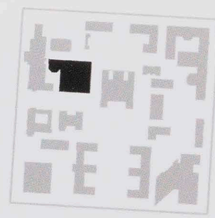


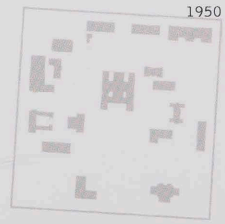
Undergraduate Library (Peter T. Flawn Academic Center), 1963

(contributing, H-1)

Description

Square and flat-roofed, the four-story Peter T. Flawn Academic Center is a distinctively Modern reinterpretation of UT's architectural vocabulary for monumental buildings. Its slightly sloping site creates an exposed basement on the west façade, reached by broad steps descending from the Union courtyard. The main floor, at ground level on the east and expressed as piano nobile at the south-facing entrance, is faced in black granite and aluminum-framed storefront windows and doors. The upper three levels overhang the ground level, supported by eight granite columns on each side. Seven bays of geometrically patterned concrete grilles screen the fenestration on all four façades of the second and third floors, which are faced in Cordova Cream and Cordova Shell Limestone. Almost the full height of the two stories, the grilles provide the most distinctive ornamentation on the box-shaped building. On the fourth floor, a single row of black granite columns, positioned behind the extended limestone walls of the third floor, once defined the outer perimeter of a loggia on all four sides of the building, with a blue and brown painted coffered ceiling that extended out to the decorative overhanging eave. The fourth floor surrounded an open-air courtyard, where Austin sculptor Charles Umlauf's "The Three Graces" was displayed. On the roof, two mechanical penthouses joined by two concrete barrel-vaulted canopies framed the courtyard's view of the Tower. The office structure was faced in blue and green mosaic tiles, and punctuated by windows and sliding glass doors with aluminum

1950



frames, on both its courtyard and loggia façades. The fourth floor is now enclosed on all sides and the granite columns engaged within continuous glazing, and the interior wall of the loggia has been mostly removed.

Original fourth-floor terrace (enclosed 1984) with Charles Umlauf's "Three Graces"

An octagon shaped two-story limestone lecture hall, attached through a basement hallway, extends west from the building's northwest corner.

History

In the years before Flawn's construction, the university's libraries were located in what is now Battle Hall and the Tower. Undergraduate students faced limited access to the library and were unable to browse the stacks, instead relying on the card catalog. Wishing to improve the research experience for undergraduates, Vice President and Provost Harry Hunt Ransom spearheaded a movement in 1958 to build a separate library, designed with this audience in mind. A revolutionary concept at the time, the University was a leader in the undergraduate library movement as one of only six universities in the country in 1960 building or having built a new undergraduate library. The Undergraduate Library and Academic Center (renamed the Peter T. Flawn Academic Center in 1985) was completed in 1963, three years after breaking ground.

Designed by George Dahl of Dallas in collaboration with the Austin firm of Jessen, Jessen, Millhouse and Greeven, Flawn's layout was greatly influenced by its proposed function. Students were to have open access to the stacks and special places for study and reflection, such as the fourth-floor open-air courtyard and a southeast area of the loggia, which doubled as study area and art gallery. The undergraduate library occupied the first three floors, and the fourth floor was devoted to housing the university's special collections, another of Ransom's special projects. Though many of the collections have since been relocated to the Harry Ransom Center, the fourth floor is home to the Esther Hoblitzelle Room, the Erle Stanley Gardner Study and the Alfred and Blanche Knopf Library.

While Flawn's interior has seen minor alterations, the most notable changes have been made to the function of the building and its fourth floor exterior. During the summer of 2005 Flawn's book collection was removed and the building was retooled to function as a technology-driven academic center. Once housing books, Flawn is now home to computer labs.

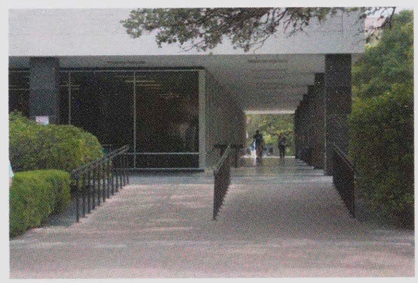
The most significant architectural alteration occurred in 1984, when the university enclosed Flawn's distinctive fourth-floor courtyard, converting it to interior lecture and meeting space. Renovations in 2010-11 enclosed the fourth-floor loggia to expand office space, and made interior changes including a new code-compliant railing added to the original rail of the main stair.

Integrity

Flawn maintains a high level of integrity, with the exception of its altered fourth floor. Minor interior alterations, largely to second- and third-floor offices, took place with the 2005 change in function from an undergraduate library to a technology-driven academic center. The largest alteration though was the 1984 conversion of the fourth floor open-air courtyard into a lecture and meeting space. Flawn's exterior has remained largely unchanged and many of the original exterior and interior materials still exist.

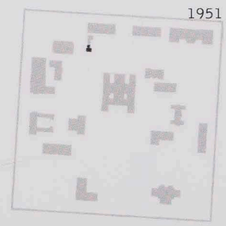
Character-defining features include:

- Flat roof form
- Barrel-vaulted concrete canopy atop roof
- Geometric fenestration grilles
- Cordova Shell and Cream limestone veneer façades at the second and third levels
- Storefront aluminum-framed glass walls and doors
- First-floor colonnade and patio with meta-anorthosite columns
- Interior door hardware
- Colored mosaic tiles
- Stair hall and stair



First-floor colonnade and storefront walls

1951



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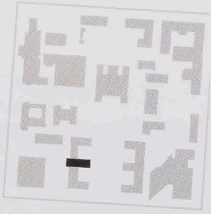


Calhoun Hall, 1967
(contributing, H-2)

Description

Calhoun Hall features a symmetrical façade and is rectangular in plan. A slate-floor portico with a white-painted metal railing with cross-detailing wraps around the ground level of the building and provides access to its two neighboring buildings. Shell limestone, above the pink granite base, covers the majority of each façade. The portico, window and door surrounds, pilasters, corner quoins and belt courses are primarily cream limestone. The east façade is the main and only decorative façade. Two wooden double doors with glass insets serve as the main entrance into Calhoun. Above the main entrance a large sash window runs the height of the second and third floors. A broken pediment with a shell relief adorns the top of the window, while a balcony with an unpainted railing matching the one below sits beneath. Smaller casement windows flank the central bay on the second, third and fourth floors. Separated from the fourth floor by a belt course, the windows on the Cordova cream predominant-fifth floor differ in size but remain aligned with the ones below. The red tile hip roof's overhanging eave has a painted pink and green soffit and painted yellow modillions. Ten dormers top the roof. Calhoun's interior, more modern than the exterior, has linoleum flooring, industrial tile walls, aluminum stair railings and fluorescent modern lighting. A large study lounge and auditorium form a large portion of the first floor while classrooms and offices occupy the four upper floors. Interior connections to Parlin Hall to the north are provided on the second, third and fourth floors.

History

Calhoun Hall's construction in 1967 completed the six-pack. Austin firm Brooks, Barr, Graeber and White designed Calhoun according to university instructions in order to create a congruous six-pack. The Faculty Building Committee first expressed need for a new building in 1964 to provide much needed classroom, lecture and office space. Dedicated in 1969 by Chancellor Harry Ransom as the South Mall Office and Classroom Building, it primarily functioned as office space for graduate education in the humanities. Later renamed after former University Chancellor, President ad interim, and Comptroller John Calhoun, the building quickly transitioned into office, classroom, and lecture space for the English and Linguistics Departments, who still occupy it today.

Integrity

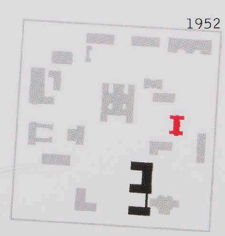
Calhoun retains a high level of integrity. Minor alterations throughout the building and to specific suites have sporadically occurred since 1967. A new door on the north façade was installed to provide access to the elevator lobby in 1970. Most recently in 2004, work was completed on the roof and gutter system.

Calhoun's preservation priority of H-2 (Secondary Historic resource) represents the significance of the fabric of the building as a whole; its eastern façade and massing is a Primary Historic resource for its contribution to the South Mall ensemble.

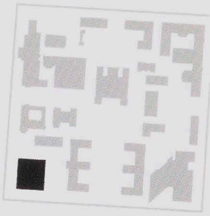
Character-defining features include:

Vermont slate on portico floor

- Wrought-iron portico railing and balcony
- Wrap-around portico
- Limestone pediment with shell relief
- Overhanging eave with painted soffit and modillions
- Red tile roof
- Casement windows
- Interior wall tiles
- Interior connection to Parlin Hall
- Large east façade window



[HRC]



Harry Ransom Center, 1971

(non-contributing, N-H)

Description

The Harry Ransom Center (HRC) is a seven-story box-shaped building set on a nearly-flat site just south of Sutton Hall. The white concrete structural frame of the building is partially exposed, infilled in various configurations with shell limestone clad elements. The minimal quantity, size, and arrangement of windows give the building a monolithic appearance, and this imposing quality is reinforced by a wide, limestone-clad overhang at the roof level. With the exception of the main entry on the east, the four elevations of the building are essentially identical, divided into four bays on the north and south and five bays on the east and west. The first and second floors are deeply recessed behind the structural columns, creating a covered walkway around the perimeter. The second floor features a row of ribbon windows behind concrete balconies with metal handrails. The third floor is articulated with closely spaced rectangular limestone panels, set perpendicular to the façade and projecting beyond the structural frame. The floors above are blank shell limestone panels, with the floor levels articulated by deep reveals between the panels. Narrow vertical windows at the upper levels are arranged on either side of the recessed structural columns and set perpendicular to the face of the building, such that they are almost concealed from view. The main entry doors are aluminum storefront assemblies.

History

Completed in 1971, the Humanities Research Center in 1982 was renamed the Harry Ransom Humanities Research Center after Harry Huntt Ransom, the former UT president, chancellor, and founder of the Center. The architects, Jessen, Jessen, Millhouse, Greeven, and Crume, were chosen by Ransom because he was pleased with their work on the undergraduate library (now Flawn Academic Center). The new building not only brought together research collections from around campus, it also housed galleries for the Michener Collection of Twentieth-Century American Art and the Graduate School of Library Science, the classrooms of which were included to qualify the project for a two-million dollar federal construction grant. Given its stark appearance and strong contrast to the surrounding campus buildings, the HRC evoked strong criticism. The Library School moved out in the early 1980s, and the research center expanded into the space with a newly organized conservation department. The planned move of the Michener Collection to a new university art museum building prompted a major renovation of the first and second floors, designed by Lake/Flato architects and completed in 2003. The renovation replaced solid walls at the southeast and northeast corners with glass, enclosed the second floor exterior east balcony and opened it to a new double-height atrium behind, added a small theater to the gallery space, and moved the main reading room to the second floor.

Integrity

The Harry Ransom Center retains integrity. The exterior has been only minimally altered by the 2003 renovation. The interior arrangement has changed over time, but the primary uses of display, research, storage, and treatment have remained consistent.

Character-defining features include:

- Shell limestone cladding
- White concrete structural elements
- Narrow vertically arranged windows
- Massive austere geometry

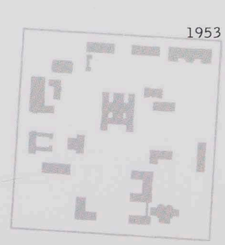
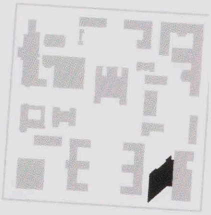


Photo: Jennifer Minner

[GSB]



Graduate School of Business, 1976

(non-contributing, N-H)

Description

The Graduate School of Business (GSB) is a four-story modified-parallelogram shaped building adjoining the College of Business Administration (CBA). The unusual shape resulted from an effort to retain a stand of mature live oak trees north of the building and creates pedestrian plazas on the north and south sides of the building. An outdoor walkway tunnels through the building at the southwest corner and continues as a pedestrian bridge across Twenty-first Street to the Undergraduate Teaching Center. The stark, angular design of the building is reinforced by a high-contrast material palette of darkly tinted glass and travertine. The north façade is divided into three segments with large blank travertine walls at the sides and a dark glass curtain wall containing a building entrance at the center. A narrow balcony at the second level above the entry doors is articulated in travertine. The west façade is a blank travertine wall, with a small band of ribbon windows at the north end of the fourth level. Two entry level openings offset from perpendicular to the façade emphasize the angularity of the overall design; one opening leads to a secondary building entry, the other to the pedestrian bridge. The south façade is similar to the north façade, except there is no balcony and the entry doors here are located at the east end, where a glass curtain wall angles back to meet the travertine wall above. To emphasize the connection of the GSB to the adjacent CBA building, the architects covered the cream limestone of the first floor of the west façade of the

CBA with travertine. At the extreme southwest and northeast corners of the building, stairwells are expressed as narrow vertical slit windows of the same darkly tinted glass. The roof of the building is flat, behind a parapet.

History

Completed in 1976, the Graduate School of Business was designed by Kenneth Bentsen Associates. It was built on the former site of Pearce Hall, the 1908 Law Building. The building was to house the then rapidly expanding graduate program in business, which had been created in 1964. The building was designed to promote interaction among students and faculty, with a number of group study rooms and student lounges and wide halls laid out to encourage informal gatherings. A special feature was a behavioral science laboratory, where mock negotiation sessions or business meetings could be observed and studied.[39] A 1983 renovation, designed by Graeber, Simmons, and Cowan, changed many of the interior finishes, but did not significantly alter the exterior. Small alterations to the space plan over time have increased the number of private offices, especially on the upper two floors.

Integrity

The Graduate School of business retains integrity. The exterior of the building is intact, with the exception of the pedestrian tunnel associated with the Twenty-first Street walkway. However, original the construction drawings suggest that this tunnel was a planned alteration; the wall areas that were later removed were indicated to be of knock-out wall type construction. The interior plan of the building has been altered incrementally over time, but the layout and circulation patterns remain generally intact.

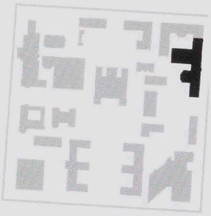
Character-defining features include:

- Travertine contrasted with darkly tinted glass
- Vertical slit windows at stairwells

[39] Speck and Cleary, Campus Guide.

1954

[WEL]



Welch C, 1978

(non-contributing, N-H)

Description

The four-story plus basement addition ("Welch C") to the Chemistry Building adjoins the 1931 structure as a long extension of the eastern leg of the original building's E-shaped plan, with a crossbar element connecting to the south end of the 1961 addition ("Welch B"). On a sloping site ascending from east to west, Welch C comprises two sections: the northern T-shaped section with flat roof, and the southern rectangular section with hipped red-tile roof. Together with the 1931 Chemistry Building and Welch B, the Welch C complex forms the shape of the number nine, with a partially sunken bi-level courtyard enclosed in the northern portion. Single-story lecture halls with sloping or hipped red-tiled roofs form appendages on the south and west.

On the east façade, the two sections of Welch C are unified horizontally at the ground level by a limestone arcade, but a vertical element consisting of alternating bands of limestone and darkly tinted glass above a slightly projecting limestone portico enunciates the dividing point between the two sections. The same vertical element appears where Welch C adjoins the 1931 building and also where it adjoins Welch B. The upper three levels of the building are finished in a mix of buff-to-brown brick, with deep reveals marking the floor levels. Regularly placed punched window openings contain two-part dark-bronze framed fixed windows with limestone panels above. The southern section has wide eaves, but unlike the 1931 building, it has does not have cornice decoration or exposed rafters. Set back at varying distances from the small roof parapet on the northern section are greenhouses and a small plainly finished structure containing additional laboratories and office space.

The Welch C floor plan is a basic double-loaded corridor, with lecture halls and large classrooms on the ground level and laboratories and offices on the upper floors. The current Chemistry Department library occupies most of the lower level of the central courtyard. Pavers and planters on the roof of the library form the upper level courtyard area. Interior finishes are generally utilitarian. The ground floor public spaces feature an exposed concrete waffle slab ceiling and dark red tile floors. Upper levels have an extensive raised floor system of removable square white panels.

History

Designed by Wyatt C. Hendrick, Architects and Engineers, and completed in 1978, Welch C was built on the site of the Radio-Television-Film building. Welch C was built to provide supplementary laboratory space, additional large lecture halls, and an enlarged departmental library, and to assemble under one roof the majority of Chemistry Department activities. Perceived problems with the laboratory drainage and fume hood systems in the 1978 design prompted a follow-on project to resolve these issues,[40] but otherwise the building has not undergone a major renovation since completion in 1978 and continues to be used by the Chemistry Department for instruction and research.

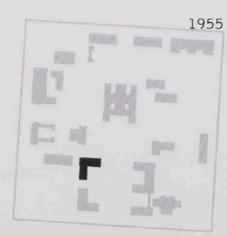
Integrity

Welch C retains integrity. The exterior of the building is intact, and the interior has been minimally altered. Recent pavilion additions to the upper-level courtyard have not significantly changed the character of the space (and in fact have improved its usability).

Character-defining features include:

- Cordova Cream Limestone connecting elements
- Cordova Cream Limestone arcade and window panels
- Buff-to-brown brick
- Red-tile hipped roof

[40] "Computers' Roof Leaks," Daily Texan, Aug. 5, 1975.



3.4. Systems of landscape features

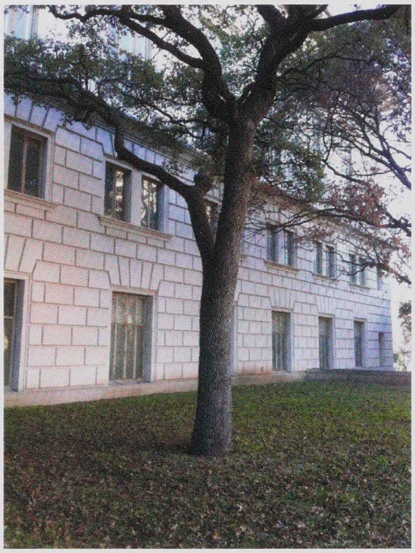
3.4.1. Trees

The trees of the University of Texas, taken together, are as important to the campus as any of the university's works of architecture. Live oaks, in particular, are iconic to the campus identity.

Native Live Oaks between Batts and Mezes

Austin's first settlers found few trees except along watercourses. The original trees outside the valleys were mostly mesquites. The urban forest of the campus (and the rest of the city) is largely a human creation. The earliest development of the campus, starting in 1882 and directed by Regent and Proctor James Benjamin Clark, included tree planting, mainly cedar elms, pecans, and English walnuts. These early planting efforts survive only as a few individual trees.

In its forest as in its architecture, the University of Texas started over with a grander vision in the early twentieth century. This became the "Live Oak Era." It began with preservation, in the successful campaign to save the Battle Oaks, and then turned to planting anew. The central figure in establishing UT's forest was J. W. Calhoun, who served as comptroller and later as president ad interim. Calhoun remembered the forests of his native Tennessee, and he saw comparable grandeur in Texas's native live oaks. Harry B. Beck, longtime superintendant of buildings and grounds, insisted that they could not be transplanted successfully. Calhoun asked him to try as an experiment, and in the winter of 1926-27, Beck took a number of bare-rooted trees from Eastwoods Park and planted them in a row south of Sutton Hall. They all died, and Beck cut them back to the ground. The next spring they all sprouted with new shoots, and these are the majestic trees we see today.[41]



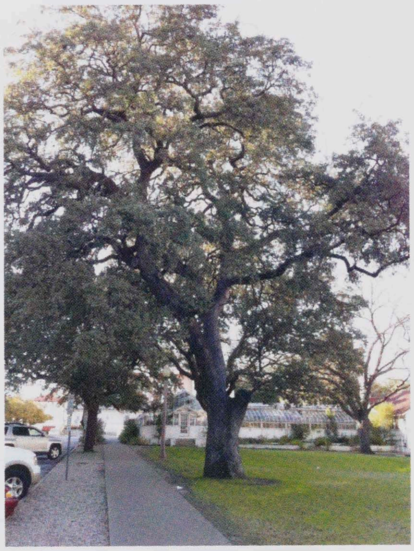
Constitution Oak

With campus plans in flux, Calhoun needed to anticipate areas of development in order to plant his live oaks out of their way. "We had no plot plan and no means of knowing the location of future buildings, walks, drives and the like," he wrote. "The one sure place was the terrace between the Peripatos and the surrounding streets .... Then too it seemed likely that a line of trees inside the Peripatos and rather close to it would also be safe." By the 1930s, trees could be located in consultation with Paul Cret and Hare & Hare. Calhoun by no means retired from an active role. "I, as a member of the Building Committee, sat in on the plans until I had succeeded in getting a Live Oak put in almost every conceivable place, and I then left the Committee the

[41] David Frink, "UT's Business School – A Rhomboid Build for Informal Learning," Austin American Statesman, Feb. 29, 1976; Robert Schwab, "Construction of New UT Building Set," Austin American, Dec. 20, 1972.

matter of shrubbery and secondary trees. I had my Live Oaks." He urged Hare and Hare to preserve, to the greatest extent possible, existing live oak trees.[42] He relocated storm drains in order to channel water toward tree roots.

Live oaks are a long-term investment. They can live for centuries in a rural setting, and at least 175 years in the city, with proper care. Their characteristic broad canopy, with stout and sinuous limbs, takes decades to mature. In President Larry Faulkner's 1998 inaugural address, he reflected on changes in the campus since the 1960s. "What struck us as having most changed the character of the Forty Acres in the intervening years were not the buildings, but the trees. Once-youthful oaks have grown into graceful, magnificent trees with broad reach and grand stature."[43]



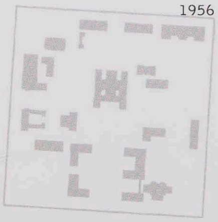
Native Live Oak at Biology Ponds

During those same decades, UT's care for its trees has steadily improved. From the low point of Frank Erwin's order to "get the big ones first" in 1969, by the 1980s a grove of native live oaks was enough to bend the Graduate School of Business into a parallelogram. In recent years, beyond the Forty Acres, construction of the Blanton Museum in 2003 and the stadium expansion in 2007 included relocation of a total of 29 mature live oaks, and Almetris Duren Hall was designed as a courtyard around a magnificent oak.[44]

Stewardship also requires the less-heroic but more time-consuming work of pruning and caring for the trees, and protecting them from damage by compaction of the ground and suffocation by paving or filling over their roots. The level of care improved markedly in 2004 with creation of the post of Campus Urban Forester. Under the Campus Forester, UT contracted with Arbor Pro, Inc., and inventoried and mapped all of its trees (see 4.6.1. below for recommendations on adapting this inventory for the purposes of cultural resource management). The Campus Forester has prepared a draft Campus Tree Protection Policy.

The trees of the Forty Acres have cultural value in at least three distinct ways, with somewhat different implications for their management. First is the mature tree canopy in general, with its benefits of aesthetics and also the climate adaptation of shade. Second are those groups of trees that are parts of the geometry of larger designs. Many examples are live oaks, including the allees of the South Mall and the Peripatos walks, and the live oak rows that frame the Main Plaza. Other species also make appearances, such as the four Sabal Palms of the Goldsmith courtyard. Finally, there are landmark trees, whose significance attaches to them individually. In some cases the trees are intentional monuments, their significance conferred when

[42] "Hazards May Limit Welch Wing's Use," Daily Texan, Sept. 15, 1978.
[43] J. W. Calhoun. Trees on the Campus of the University of Texas. Unpublished manuscript, CAH, 12
[44] Calhoun, Trees, 12; Correspondence between acting comptroller Simmons and Hare & Hare, Jan. 21, 1939, President's Office Records, CAH, 1.



they were planted (the Constitution Oak of 1937, for example); other trees are akin to historical monuments, their significance earned over time (the Battle Oaks, the mesquite that is among the last survivors of Clark's early plantings).

Some landmark trees

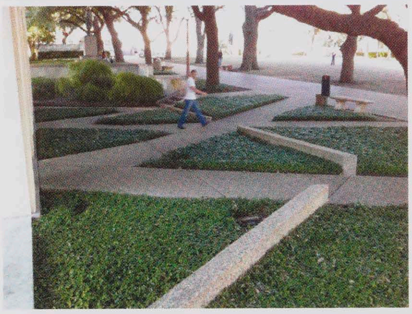
named trees | native live oaks | live oaks | other trees

Landmark trees include, but are not limited to:

1. The Battle Oaks
2. The Louisiana Live Oak Society oak, next to the Battle Oaks
3. Clark's mesquite, in front of WCH;
4. The Constitution Oak (1937), east of MAI, planted by the Colonial Dames of America to commemorate the 150th anniversary of the U.S. Constitution;[45]
5. Memorial trees: for example, the Tres Jones memorial Live Oak planted in 2010 northeast of Garrison Hall[46]
6. Other native live oaks, at GSB, at the Turtle Ponds, and in the courtyard between BAT and MEZ;

3.4.2. Flora other than trees

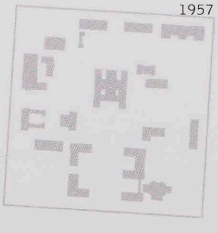
The plantings of the Forty Acres, other than trees, originate in the Hare & Hare planting plan. Probably nothing earlier remains; some of the 1933 planting design may remain; their successors are our landscape. "The mountain laurels, yaupons, agaritas, and cinesas of the landscaping of 1933," wrote William Battle, "do something to atone for the loss of blue bonnets."[47] The planting contract was awarded in Spring, 1934, to Mrs. C. B. Whitehead of Fort Worth. "Almost every type of native Texas trees and shrubs will be included in the planting. The trees will be set at irregular intervals, making a more spontaneous looking landscape. Nurseries from all over the State have been called on to supply the shrubs."[48]



Ground cover beds at Calhoun Hall

Since the 1930s, the Forty Acres ground cover has evolved from primarily turf to primarily perennial beds. Open lawns carried a memory of the original prairie and accommodated the lower-density social uses of a smaller residential college. They served as a pleasant land bank, not just for the many decades until permanent development, but also for the shorter intervals between various temporary structures. Perennial ground covers help conserve water and reduce maintenance; in a longer historical perspective they are a natural complement to the hardscaping of the campus landscape as the intensity of its use has increased. Most of the planted ground surface can no longer be available for this intensified human traffic, so it is planted instead primarily for visual contribution. In another aspect of this landscape evolution, most bedded annuals have been replaced with perennials.

[45] Address on the State of the University, Oct. 6, 1998, utexas.edu/president/speeches/utexas115.pdf.
[46] Tim Taliaferro, "The War for the Trees," Alcalde, Jan-Feb. 2008, 44-53.
[47] Calhoun, Trees, 16.
[48] utexas.edu/cola/depts/history/news/2875.



Turf now remains at the South Mall and two quadrangles on the Main Plaza, as well as a number of smaller sites throughout the Forty Acres. The South Mall lawn is a significant designed feature of the campus, and a significant social feature, and UT makes a great investment to maintain it – the lawn is re-sodded annually in time for commencement (the old sod is used for patching elsewhere on campus). Some of the other lawns are significant for the traditional uses of turf as a social setting; others are significant primarily for their visual qualities.

3.4.3. Fauna

Turtles at the Biology Ponds

The animals on the Forty Acres over the past 130 years have changed as the character of the landscape changed from rural outskirts of town to an urban campus in a large city. The campus has never been gated to control access by humans, but in its early years it was fenced to control access by cattle. Grazing sheep mowed the lawns. A mule in 1900 offered commentary on law lectures. "There were little green snakes everywhere"; there were also horned lizards.[49] These rural denizens have moved on.

Predominant species today are those that coexist with humans in urban settings. The campus has opossums, rats, at least one feral cat, pet dogs. It has pigeons, who create architectural conservation issues with their droppings and are controlled with bird netting. Grackles cause similar problems, amplified by their habit of assembling in great flocks to raise their melodious voices; as recently as the 1980s they were controlled by the use of firearms on campus (not to cull but to relocate them). Squirrels, like birds, may be counted both an amenity and a pest. There is a website ranking university campuses by their squirrels. They also damage tree canopies by gnawing bark.

Only one species may be said to hold cultural significance particular to the campus: the turtles of the Biology Ponds, known also as the Turtle Ponds.

3.4.4. Circulation

The Forty Acres' most important circulation paths are around it rather than through it. The Forty Acres is a relatively small area of the whole campus, defined by its bounding streets – Guadalupe, Speedway, 21st and 24th Streets. They make the Peripatos, the pedestrian frame of the original campus. All designs since have maintained this frame: movement along, access from, views from these streets. All of Speedway and parts of 21st and 24th are now within the campus.

[49] Battle papers, box 4Q526, folder 3: Growth of the Campus, 2.

Within the Forty Acres, Inner Campus Drive is an original part of the Paul Cret and Hare & Hare landscape design. Inner Campus Drive limited auto access that had been unrestricted. Auto access gates were established at 24th Street to Hogg Auditorium and the north axis to the Tower; also at Guadalupe and 22nd Street (moved slightly for the Goldsmith addition), 23rd Street between Hogg Auditorium and the Union (eliminated with the Union addition). An auto entrance was added in the 1960s at 22d and Speedway, by then not an external gateway.

Transit access strongly shaped the Forty Acres. The West Mall evolved as the practical front door (in contrast to the ceremonial front door of South Mall) because the streetcar ran on Guadalupe, and throughout the university's early years it was served by a handsome trolley shelter there. This side of campus continues as a main direction of transit access, but the expression of this function in the landscape, since the 1970s walls, ranges from parsimonious (on 21st Street) to nil on Guadalupe.

Pedestrian circulation within the Forty Acres has followed consistent paths since the 1933 contract to Coombs & Glade for "sidewalks and steps": "Permanency was paramount in the minds of the engineers"; sidewalks were 10 feet wide, 8 inches thick, of reinforced concrete; in the exposed aggregate finish that has defined the campus flatwork ever since. [50]

The Hare & Hare era also produced the "GI poles" with chains that can be found along many of the 1933 walks and beds, as a low barrier steering pedestrians away from landscape areas.

3.4.5. Walls, stairs and structures

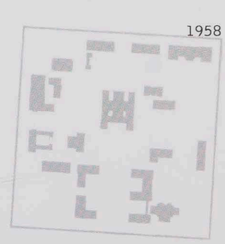
The Beaux-Arts design of the Forty Acres consists not only of buildings and plantings, but also walls and stairs that are some of the most important, and durable, features of the historic landscape.

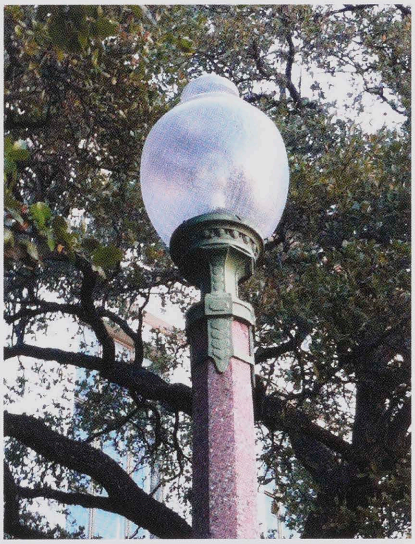
Most important of these is the Main Terrace, constructed at the same time as the present Main Building. The Main Terrace is defined by rusticated limestone retaining walls, balustrade, and monumental main stairs to South Mall. A smaller but still monumental stair is south of Battle Hall.

At the other end of South Mall, the terrace behind the Littlefield Fountain continues as a plinth for Rainey and Benedict Halls, and was constructed before those buildings.

[50] Alcalde March 1934: 99.

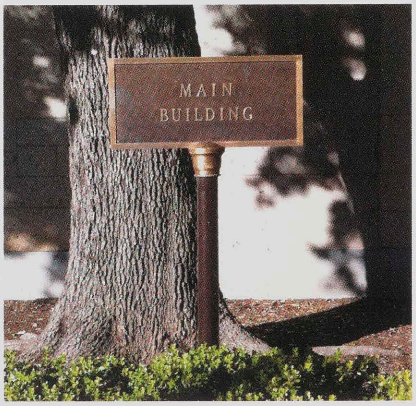
1958





Belmont lantern

Flagpole base in Main Plaza



Cret's building identification signs

More modest structures in the same idiom, in some cases constructed or altered later, include the stairs from West Mall between West Mall Building and Goldsmith; the walls and ramps of the South Mall courtyards and the western end of the East Mall.

The 1960s brought the walls and benches of West Mall and the granite-faced walls at the College of Business Administration – like some of the buildings near them, they reinterpret the Beaux-Arts vocabulary of the campus in more modern forms. The greatest departure came in the 1970s, with the assertively modern walls and planters along Guadalupe and Speedway, introducing 45-degree angles into the plan for the first time.

3.4.6. Lighting

Early electric lighting on and around the Forty Acres was functional rather than ornamental, and was completely replaced beginning in 1933. Lighting specifications were provided by Montgomery and Ward (engineers of Wichita Falls, Texas, not the mail-order house). They specified lanterns from the catalogs of Westinghouse and General Electric, and provided their own designs for concrete lighting standards on which to mount them. "The standards are to be manufactured of concrete using pink colored granite or other aggregate to match the color effect of the Littlefield memorial and walk surfaces."[51] A contract was awarded to J.E. Morgan & Sons, of El Paso, to install an "ornamental lighting system"; we have not located records as to the particular fixture specifications.[52]

From photographic evidence, these are the lanterns and standards that still grace much of the Forty Acres. A second model, generally compatible, is intermingled throughout and mounted on a similar standard.

3.4.7. Furniture and fixtures

The Forty Acres is populated with cast-stone benches in a simple Beaux-Arts design. The earliest of these date from the Cret and Hare & Hare designs of the 1930s. They have been replaced in kind, and moved about in the course of many construction and landscape projects.

Benches around the perimeter of Sutton Hall are original furnishings from the building's construction in 1918.

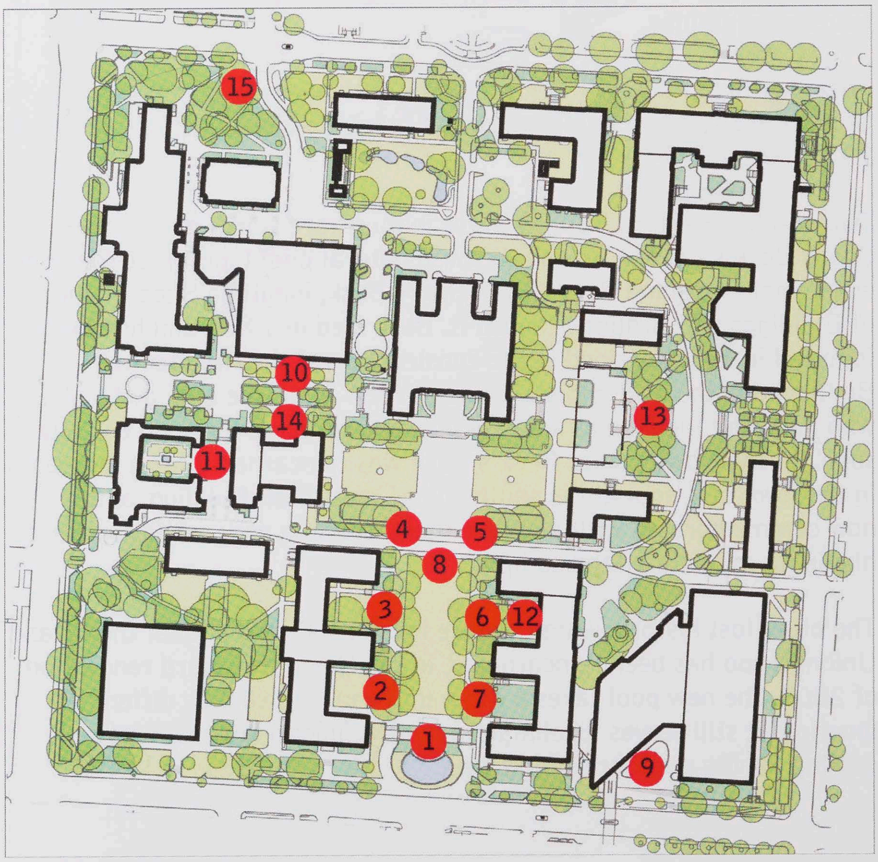
[51] Jim Nicar, "The Mighty Battle for the Water Tank," e-mail 10.14.2011 (mule); "West Mall: Bluebonnets to Concrete," Daily Texan Oct. 16, 1975: 11 (snakes - the account depicts the campus in 1931).
[52] Alcalde, Oct. 1933: 4.

At the Main Plaza, the two flagpoles are among the earliest features of the campus, dating from Cass Gilbert's 1910 plan. The bases of these poles are bronze bas-reliefs in a motif of desert plants.

Identification signage for older buildings are cast bronze, a design by Paul Cret.

3.4.8. Public art

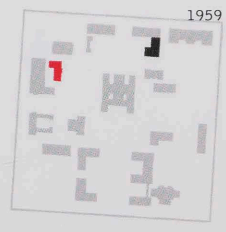
The Forty Acres is UT's center for commemorative statuary – pride of place. The South Mall statues, when dispersed by Paul Cret, lost their contextual meaning of national reconciliation and have been perceived instead as celebrating the Confederacy. This meaning has been accepted by both those who approve of it and those who do not, and their concurrence has the effect of cementing this meaning, though it was not the intention of the original design.

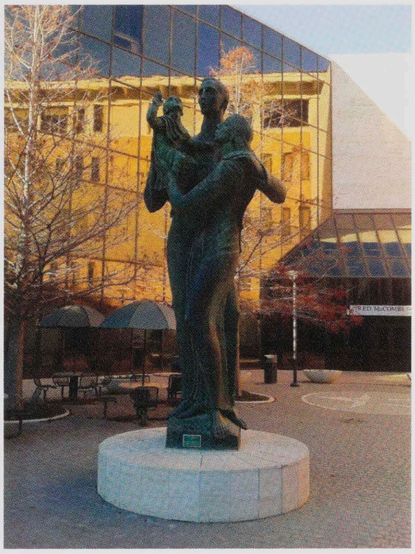


Public art of the Forty Acres

Art on the Forty Acres

1. Littlefield Fountain War Memorial (Pompeo Coppini, 1933)
2. Robert E. Lee (Pompeo Coppini, 1933)
3. Albert Sidney Johnston (Pompeo Coppini, 1933)
4. Jefferson Davis (Pompeo Coppini, 1933)
5. Woodrow Wilson (Pompeo Coppini, 1933)
6. James Stephen Hogg (Pompeo Coppini, 1933)
7. John H. Reagan (Pompeo Coppini, 1933)
8. George Washington (Pompeo Coppini, 1955)
9. The Family (Charles Umlauf, 1960)
10. The Torchbearers (Charles Umlauf, 1961)
11. Verduggio Glimpse (Anthony Caro, 1972-1973)
12. Eleanor at 7:15 (Willard Boepple, 1977)
13. The West (Donald Lipski, 1987)
14. Cesar Chavez (Pablo Eduardo, 2007)
15. Barbara Jordan (Bruce Wolfe, 2009)





Charles Umlauf, "The Family Group" (1962), at GSB

Placement of a statue honoring Martin Luther King, Jr., on the axis of the East Mall just east of the Forty Acres, in 1999, began broadening the scope of commemorative statuary. Since then the university has added Cesar Chavez (2008) and Barbara Jordan (2009), both on the Forty Acres.

In 2007, UT commissioned a public art plan from Peter Walker Partners, Landscape Architects. In 2008 the university launched its "Landmarks" Public Art Program, beginning with 28 sculptures on loan from the Metropolitan Museum in New York. These are modern, non-representational, and not commemorative. They have been installed in both interior and exterior locations, several on the Forty Acres.

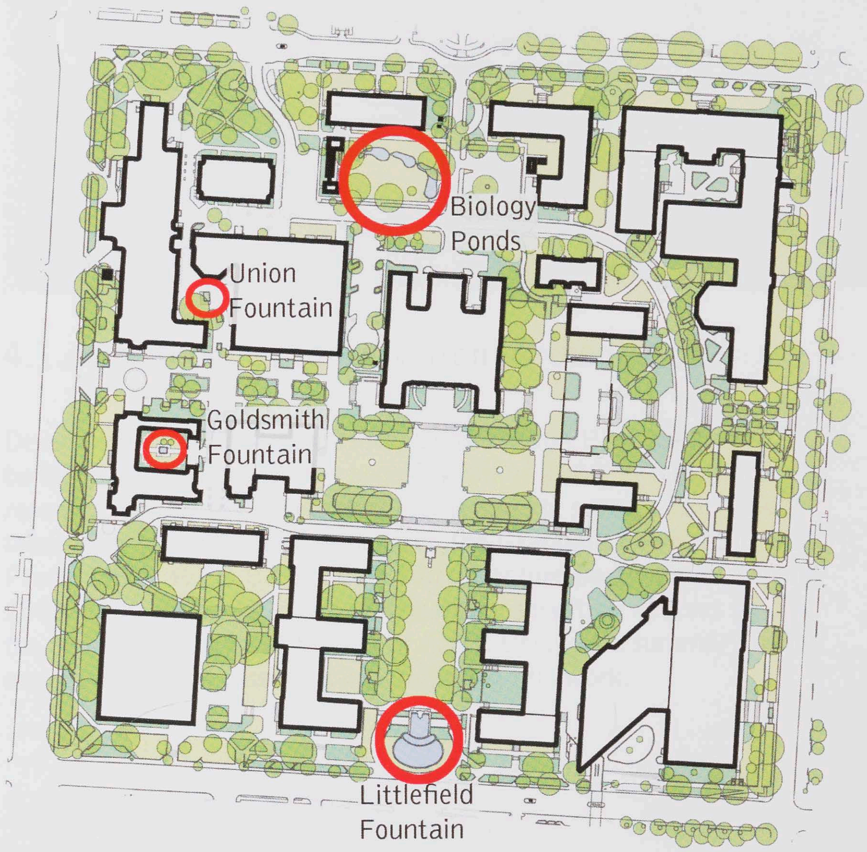
3.4.9. Water features

Littlefield Fountain and Biology Ponds, the two most important historic water features of the Forty Acres, are described above as major landscape features.

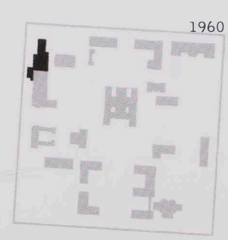
The other extant historic water feature of the Forty Acres is the Goldsmith courtyard pool, an original feature of the building's design in 1931.

Two no-longer-extant historic water features are worth mentioning. One is Beck's Lake, a tiny but beloved natural pool (spring fed? leaking water main?) behind Battle Hall. Harry Beck, longtime Superintendent of Buildings and Grounds, tended it. Beck died in 1929, and his lake followed in 1932, drained in the construction of the Architecture Building and the wall and stairs along West Mall. The biology faculty, who had used the lake as a handy teaching resource for pond ecology, soon got their own ponds. Beck's Lake was reincarnated for a few years in the form of a pool at the south end of West Mall Building, and is now commemorated with a plaque there, one of a very small number of historical markers on the campus.

The other lost historic water feature is the courtyard pool of the Texas Union. It too has been reincarnated, in the Union courtyard renovation of 2008. The new pool takes a different form, in a slightly different location. It still serves its climate-adaptive function of evaporative cooling for the outdoor seating area.



Water features in the Forty Acres



Conservation Plan 4

4.1. Architectural conservation methodology

Photo: Melissa Huber

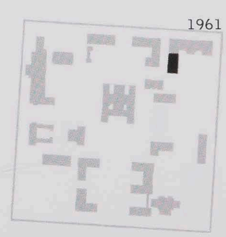
Development of the Architectural Conservation Plan for historic buildings of the Forty Acres began in fall of 2007, and included research, review of existing documents, on-site surveys, and field and laboratory testing. Many students in the Graduate Program in Historic Preservation at the UT School of Architecture participated. During 2007-2009, students in two materials conservation courses studied the historic buildings of the Forty Acres. Below is a summary of the methodology that was used in completing this work.

4.1.1. Research conducted

Several UT libraries were important resources for the project. The Architecture and Planning Library and the Alexander Architectural Archive were used by team members throughout the project. The Dolph Briscoe Center for American History was also an important resource, providing official university records, personal and professional papers of significant administrators, faculty, and staff and other materials that documented the history and development of the university. Minutes for meetings of the Board of Regents (available online from 1881 to the present) were also consulted.

4.1.2. Existing document review

The Alexander Architectural Archive's UT Buildings Collection of drawings and manuscript material provided important information. UT's Project Management and Construction Services (PMCS) shared elevation drawings and original construction documents. At the outset of the project we reviewed the reports of facilities condition assessments that were conducted by VFA, Inc., a facilities management and capital planning consulting firm. Beginning in 2003, VFA was hired by UT to assess conditions of building systems, including roofing, mechanical, electrical, plumbing, interior, and exterior. The VFA reports



are intended to provide "a documentary framework for keeping each facility in good condition by studying the current state of its system, analyzing its system maintenance requirements, prioritizing its maintenance needs, and projecting future maintenance costs." In addition to providing information about existing conditions, the reports were useful in developing appropriate procedures for addressing deficiencies that were identified in historic buildings. Note that analysis and recommendations for improvement of the VFA reports are included in Chapter 5 of this report.

Reports of previous investigations of Battle Hall also were important resources. These included the 2006 Battle Hall Exterior Condition Assessment report prepared by Volz & Associates and their consultant Sparks Engineering for Steinbomer & Associates. This report provides an in-depth analysis of the building envelope and recommendations for emergency stabilization procedures as well as restoration. During the course of our project, a Preservation Investigations report was prepared by Volz & Associates through a separate contract with UT Project Management and Construction Services. Submitted in June, 2008, this report is an in-depth study of character-defining features and finishes of Battle Hall and is intended to provide a framework for future restoration work.

During our project, PMCS hired Architexas to undertake a feasibility study on the exterior envelope of the Main Building and Tower. The goal was to determine the scope of work needed to "repair, restore and rehabilitate" the exterior envelope, and their work included evaluating existing conditions, providing recommendations for repair and restoration and developing cost estimates for the recommended work. This project provided an opportunity for collaboration, and we were pleased to share our research at the outset of the project, and to review the Architexas report that was submitted to PMCS.

4.1.3. Laboratory testing

The University of Texas Architectural Conservation Laboratory, located in West Mall Building, is a teaching and research facility dedicated to understanding historic building materials through science. Students in the 2008 and 2009 Conservation Laboratory Methods courses studied materials of the historic buildings on the UT Forty Acres. This course focuses on laboratory examination and testing of historic building materials. Through lectures and laboratory sessions, students learn about the physical and chemical properties of paints and coatings, mortars, wood and other building materials, and are introduced to laboratory procedures, including microscopy, solubility and micro-chemical testing.

Course requirements included an independent research project that involved studying building materials used to construct historic buildings of the Forty Acres and deterioration conditions affecting them. The project included examining samples in the laboratory, studying conditions affecting the materials, and identifying additional laboratory testing that might be helpful in understanding performance. The lab studies included microscopical examinations, analytical tests to identify components, cleaning tests to evaluate effectiveness and rule out adverse effects and water absorption evaluations.

As part of a master's thesis project, historic preservation student Casey Gallagher conducted laboratory testing to identify biological growth present on Cordova Cream and Cordova Shell limestone. This testing was conducted in collaboration with the UT School of Biological Sciences. In addition to identifying the organisms using DNA analysis, Gallagher also evaluated the biocidal effectiveness of cleaning products in laboratory testing.

Photo: Fran Gale

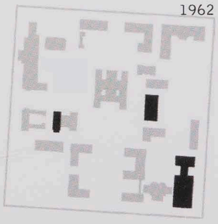
Laboratory Methods student Emily Rainwater works on mortar analysis

The Department of Geological Sciences at the Jackson School of Geosciences also provided assistance with laboratory testing. Dr. Danggao Zhao, Manager of Electron Beam Laboratories, assisted Gallagher with environmental scanning electron microscope (ESEM) and Energy Dispersive X-ray (EDS) analysis. Dr. Richard Ketcham, Director of the High-resolution X-ray Computed Tomography Facility, evaluated the residues of coatings applied to Cordova Cream Limestone.

4.1.4. Field testing

Conditions surveys were conducted in a fall semester course taught by Frances Gale in 2007 and 2008. The course, Architectural Conservation: Field Methods, provides an introduction to architectural materials conservation and focuses on on-site examination and testing. It covers traditional building materials and systems, deterioration phenomena and resulting conditions, and a variety of investigative techniques. During the semester, students learn about the effects of weathering, become familiar with investigative methods that are used to study historic buildings and gain practical experience in conducting conditions surveys and on-site testing.

Students in the Field Methods course each selected an historic building of the Forty Acres for further study. Students researched the construction history of the building and determined character-defining features. In addition, they identified materials and conditions of building exteriors, and analyzed sources of deterioration. Elevation



drawings for each building were provided for the conditions surveys. Working together, the students developed a master list of conditions affecting the Forty Acres buildings, and created an illustrated glossary of conditions.

Photo: Fran Gale

Onsite testing at Goldsmith Hall

On-site cleaning tests to remove biological growth on limestone substrates were conducted during the fall 2008 Field Methods course. Test areas included a Cordova Shell Limestone of a low planter wall at Twenty-fourth Street near the Battle Oaks and Cordova Cream Limestone of the roof balustrade at the east elevation of Goldsmith Hall. This testing was evaluated by Historic Preservation student Casey Gallagher.

4.2. Architectural Palette of exterior materials

4.2.1. Limestone

Limestone is perhaps the most widespread and character-defining building material used at the University of Texas, with most buildings on the Forty Acres constructed with at least one of the following types: Cordova Cream, Cordova Shell, Indiana or Lueders. Cass Gilbert used Cordova Cream Limestone for Battle Hall's entire façade and Lueders limestone for the base of Sutton Hall. While Greene, LaRoche and Dahl designed buildings in both Gilbert's limestone and brick idiom, as well as buildings primarily faced with brick, Paul Cret's era saw a shift towards buildings constructed entirely of limestone, often for monumental structures such as the Main Building, Hogg Memorial Auditorium, and the Texas Memorial Museum.

Photo: Fran Gale

Cordova Cream Limestone on the West Mall Building

Cordova Cream and Cordova Shell

Cordova Cream is the trade name for a limestone quarried in Cedar Park, Texas, by Texas Quarries, Inc., and is the most common type of limestone on campus. It is a soft, fine-grained, cream-colored limestone composed of microfossils, fossil fragments and oolites, and it has a warmer appearance than Lueders or Indiana limestone. It is most frequently used in combination with Cordova Shell Limestone, which is easily recognizable by its large imprints of shells and fossils.

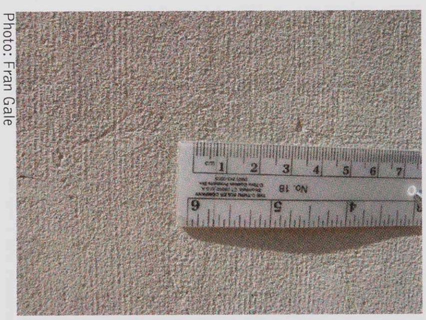
During its formation, Cordova Cream Limestone was deposited on the ocean floor directly above its "sister" limestone, Cordova Shell. The heavier components of the more fossiliferous Cordova Shell Limestone sank and lighter organisms rose to the surface. As these smaller organisms died, they deposited calcium carbonate, eventually forming Cordova Cream Limestone. Cordova Cream costs less to quarry because it sits above Cordova Shell and there is nearly twice as much of it.

Cordova Shell Limestone on Rainey Hall (1942)

While Cordova Cream works well as a wall covering, it is rarely successful in applications extending completely down to the ground. This is partly because it has a high effective porosity, with a network of highly interconnected interior pores. This porosity allows liquids and dissolved salts to travel easily through the stone, while the stone itself acts like a sponge. Where Cordova Cream has come in contact with the ground surface, there is notable damage from wet-dry cycles, rising damp, and subflorescence. As a light-colored stone, Cordova Cream is also prone to staining from prolonged exposure to alkalis.

Cordova Cream is used as the primary material for both Battle Hall and the West Mall Office Building, as the base course for Welch Hall and Painter Hall, and for accents on scores of buildings across the campus. The combination of Cordova Cream and Cordova Shell first appeared in Paul Cret's work, at Goldsmith Hall, the Texas Union, Hogg Auditorium, the Texas Memorial Museum, and later at Rainey Hall. Mark Lemmon continued the combination for the rest of the six-pack. The Computation Center also has a combination of the two stones. Flawn Academic Center has Cordova Shell walls and Cordova Cream trim, completing the set of all-limestone buildings on the West Mall. The Harry Ransom Center and the low perimeter walls constructed during the 1970s are Cordova Shell Limestone.

Photo: Fran Gale

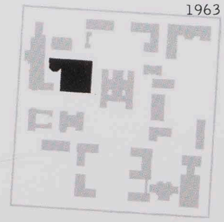


Lueders limestone on Sutton Hall

Lueders

Lueders limestone is a fine-grained, dense, fossiliferous, grayish-white stone. Perhaps due in part to the limitations of Cordova Cream Limestone and the similar appearance of the two stones, Lueders limestone was employed for several buildings built between 1917 and 1933. Geologically, Lueders Limestone is about three times as old as Cordova Cream, is grayer in color, and does not show the cross lamination and bedding seen in the Cordova Cream. It is produced by Texas Quarries in the town of Lueders, about twenty-five miles north of Albany, Texas. Lueders limestone appears as the base course on Sutton Hall, the Biological Laboratory, Waggener Hall, Will C. Hogg Building, and Garrison Hall.

1963



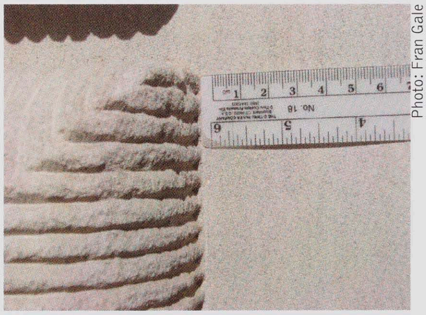


Photo: Fran Gale

Indiana limestone on the Main Building

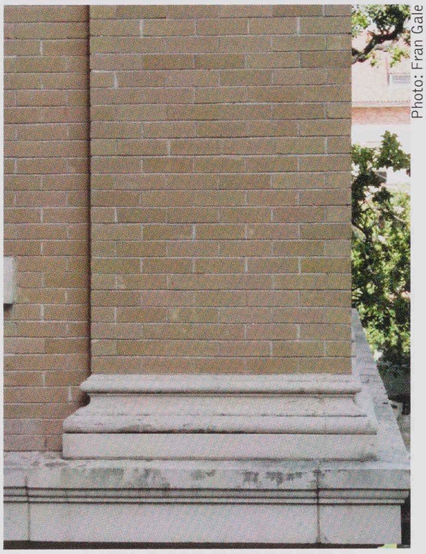
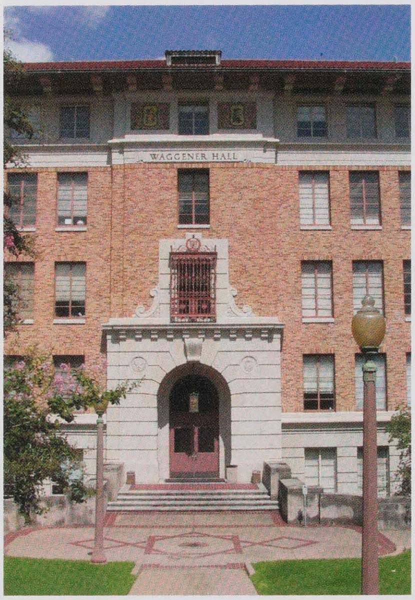


Photo: Fran Gale

Monochrome, buff-colored bricks of Gebauer, atypical on campus



Waggener Hall, executed in a signature idiom, combining brick and limestone

Indiana

Indiana limestone was used as the primary material for the campus' most iconic structure, the new Main Building and Tower. William J. Battle credits the use of Indiana limestone because of "its great hardness, its finer texture, and its more durable color." Indeed, Indiana limestone is considered by some to be the highest quality limestone quarried in the United States. However, as Battle also noted, the stone is not indestructible, and "weathers badly in places." [1] Quarried in south central Indiana, between Bedford and Bloomington, the stone has a grayer color than Cordova Cream Limestone. It has a relatively uniform smooth texture and exhibits no preferential direction for splitting and can, therefore, be cut and carved in a variety of shapes and sizes.[2] Indiana limestone is used less frequently in the Forty Acres than Cordova Shell and Cordova Cream.

4.2.2. Brick

Brick comprised the campus' first material palette in the 1880s and 1890s. Battle explained its prevalence: "Texas is rich in clays. Brick therefore was abundant from an early time. There were in fact extensive and excellent brick kilns no further away from Austin than Elgin. Elgin bricks were cheap too and could be had in various tints of buff and almost any form and finish."[3] Though most of the earliest brick buildings have since been demolished, the oldest buildings still standing on the campus, the Littlefield Home and the Gebauer Building, are constructed primarily of brick. The bricks used for Gebauer are a lighter buff shade than the other brick buildings on campus. Gebauer's bricks are also of uniform color, while most other brick buildings employ a mixture of brown, tan and ochre bricks.

A variation of tan-colored bricks was used for the upper floors of many buildings constructed in the 1910s through the 1930s, such as Sutton Hall, Biological Laboratory, Garrison Hall, and Waggener Hall. After the period of mainly limestone buildings, from Cret's era to the 1960s, brick was used again as the primary material for the College of Business Administration. In recent years, there has been an expressed desire for the return to the variegated, warm-colored brick used for earlier campus buildings. The brick of Anna Hiss Gym, located off the Forty Acres, was selected as a guide to create the current campus brick palette, comprised of a "golden range" of bricks in seven values.[4]

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[1] Battle papers, box 4Q526, folder 3: Early Building Problems, 2-3.

[2] Indiana Geological Survey, http://igs.indiana.edu/geology/minRes/indianaLimestone/index.cfm

[3] Battle papers, box 4Q526, folder 3: Early Building Problems, 1-2.

[4] Cesar Pelli & Associates, Campus Master Plan: Architectural and Landscape Guidelines (UT Austin, 1999), 55.

4.2.3. Granite

Granite is employed almost universally for the base course and entrance steps of buildings across campus. This less porous stone is well suited for contact with moisture from the ground.

Pearl Gray granite

Most early campus buildings use Pearl Gray granite. Like most building stones of the campus, this granite is of Texas origin. It is quarried in Llano, Mason, and Burnet Counties, and is comprised of white feldspar, clear quartz, flakes of biotite, hornblende or both. One exception is the gray granite of the Will C. Hogg building, which came from quarry near Stone Mountain, Georgia.[5]


Texas pink granite on the base course of Rainey Hall

Texas Pink granite

Texas Pink granite is quarried in the same Texas counties as Pearl Gray, is roughly the same age, and has a similar composition, with orange-pink instead of white feldspar.[6] The use of Texas Pink granite was introduced in the early 1940s with Rainey Hall and continued in the other buildings of the six-pack. Later buildings using Texas Pink include the College of Business Administration, the Graduate School of Business, and the retaining wall east and south of that complex. The Computation Center has Texas Pink steps, and the 1988 addition to Goldsmith Hall also employed pink granite.

4.2.4. Dark igneous stone (meta-anorthosite and black granite)

Meta-anorthosite is comprised primarily of feldspar and closely resembles black granite. Both green Meta-anorthosite and black granite appear at the first floor loggia and fountain of Flawn Academic Center.[7] A band of green-black granite is used as trim on the Goldsmith addition.

Photo: Emily Freeman Reed


Meta-anorthosite on the north façade of the Flawn Academic Center

[5] S.P. Ellison, Jr. and Joseph J. Jones, Walking the Forty Acres : building stones, Precambrian to Pleistocene (UT, 1984).
[6] Walking the 40 Acres.
[7] Walking the 40 Acres.

1964

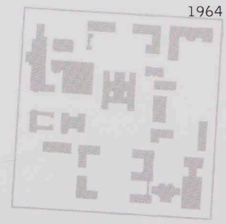


Photo: Fran Gale

Concrete soffits on the Main Building

Earley Process Concrete on the walls of the first floor loggia of the south façade of the Main Building

Photo: Emily Freeman Reed

Orange-colored stucco on Hogg Memorial Auditorium

4.2.5. Concrete

Concrete is an important structural component of many buildings and has been used for roof decking and many ADA and life safety modifications, such as ramps and exterior stairs, but its most important contribution to the character of campus is in its use for soffits and brackets on the overhanging eaves of many buildings. The wood grain imprints left from formwork have sometimes led to misidentification as wood; the painted concrete is almost indistinguishable from the wood used for Battle and Sutton's soffits and brackets.

Also of note is the "Earley Process" decorative concrete used for the Main Building. John J. Earley developed a process, patented in 1921, for decorative exposed aggregate concrete. Before the concrete was fully set, the formwork was stripped away and the surface brushed, exposing the aggregate. By using "gap graded" colored stones (in contrast to the typical industry practice of using aggregate of several different sizes), he could achieve a warmly colored and evenly textured surface. Earley developed about 200 colors of decorative concrete, adding unconventional materials to the mix, including glass, ceramics, marble, and many other stones.[8] His patent called for the use of standard Portland cement in the mixture, asserting that the color of the finished product was largely determined by the color of the aggregate. Earley held the contract for decorative concrete on the Main Building.[9] There are panels of the exposed aggregate concrete on the loggia walls of the south façade, flanking the main entrance. Additionally, his work can be seen on the east, south, and west façades of the fourth floor as well as on the walls of the Tower's carillon.

4.2.6. Stucco

Colored stuccowork is present on two Forty Acres buildings. Harmonizing with the warm color of the Cordova limestone, Hogg Memorial Auditorium (1933) features walls of integrally colored orange stucco behind the doors of the second floor of the front (east) façade. At the Union, the western door of the south façade also has orange-colored stucco. It is a slightly different shade than at Hogg and appears to have been painted at least twice.

Conventional stucco was used on the ceiling of the fourth floor loggia of Flawn Academic Center to create coffered soffits. Additionally, cream colored stucco with a swirl pattern clads the walls of the south entrance to the Main Building, above the Earley Process panels.

[8] Benjamin Forgey, "Concrete Proof Of One Man's Legacy To Washington," Washington Post, Mar. 31, 2001.
[9] John J. Earley to Robert White, Feb. 24, 1936, Box D172, Alexander Architectural Archive.

4.2.7. Decorative metals

Wrought iron

Wrought iron was used on Battle Hall, in conjunction with cast iron, to create delicate balconies for all second story windows, as well as the first story windows on the east façade. Painted a green-blue, these balconies feature beautiful detailing, with a globe shape ornamenting the two end posts on each balcony. Ornate balconies can be seen on several other early campus buildings. Many of the ironwork designs could be ordered directly from building catalogues, but in the case of Battle and Garrison Hall, for example, the wrought iron balcony designs were custom made to reflect the iconography of the university, depicting interlocking "UT"s and the university seal, respectively. Shop drawings indicate that the Battle Hall balconies were provided by the H.B. Milmine Co. Ornamental Iron and Steel of Toledo, Ohio.

The ornate iron lamps outside Battle Hall established a precedent for decorative metal exterior lighting fixtures. Similar fixtures can be seen on Sutton Hall, this time replicating the design of a lamp from the fifteenth century Strozzi Palace in Florence.[10] This design was popular in several building catalogues of the early twentieth century, and the "Strozzi" lamps can also be seen on campus on the Power Plant (1928) and on the original portion of Welch Hall (1931). Elsewhere, there are petite versions of this style of fixture on Biological Laboratories (1925) and Waggener (1931).

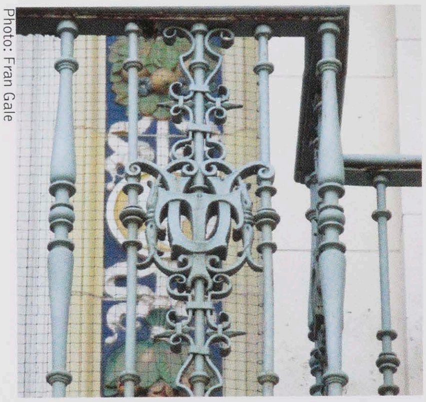
Additionally, many buildings on campus feature decorative grilles covering the windows, often made of wrought iron.

Cast iron

Cast iron has been used along with wrought iron to create balconies on many buildings on campus and alone for the simpler balcony designs and some light fixtures, for example Rainey Hall. One particularly important use of cast iron was for the spandrel panels of the tower of the Main Building. Five different types of spandrel panels, some with gold lettering, extend the height of the tower in rows of three, and are each topped by steel casement windows. Shop drawings and correspondence indicate that the spandrel panels (at least for the upper portion of the tower) were furnished by Southern Ornamental Ironworks.[11] Malleable cast iron was invented in 1949, replacing graphite flakes with spheres of graphite. As the Tower was built more than a decade before this technology became available, the cast iron of the spandrel panels is likely gray cast iron.

[10] Roxanne Kuter Williamson, "A History of the Campus and Buildings of the University of Texas with Emphasis on the Sources for Architectural Styles," 1965, 26.
[11] UT Buildings collection, 1882-, Box 58B, Alexander Archive.

Photo: Fran Gale



Intricate wrought iron balcony over Battle Hall entrance, depicting "UT" design

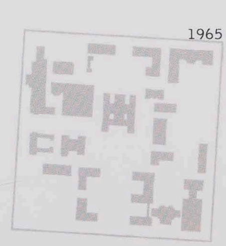
Photo: Emily Freeman Reed

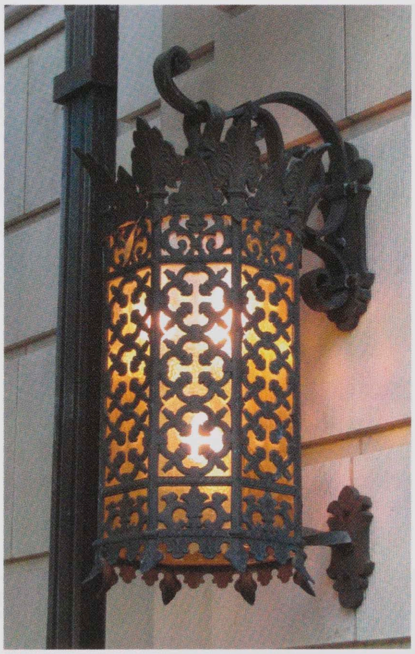
"Strozzi" light fixture at southern entrance to Sutton Hall

Photo: Fran Gale

Main Building Tower painted cast iron spandrel panels, featuring gold lettering

1965





Bronze exterior light fixture outside Waggener Hall

Photo: Fran Gale

Steel casement windows on Goldsmith Hall. Goldsmith has a combination of wood and metal windows

Bronze

Several exterior lighting fixtures are made of bronze, including the lamps on the Union, Waggener, and Welch Hall. Bronze has also been used for thresholds and kick plates for exterior doors on campus. The Main Building employs bronze for the balconies and brackets of the second floor south façade, as well as several elements of the tower's clock, including the rim, hands and numerals.

Copper

Used relatively consistently for gutters and downspouts on the buildings of the Forty Acres, copper is also used as flashing material.

4.2.8. Steel

Rolled steel windows became popular in the United States as early as 1890. Fire-proof characteristics made them attractive for use in factories and in the burgeoning high-rise developments at the turn of the century. The casement and pivot styles were particularly beneficial in warmer climates such as Austin prior to the use of central air conditioning. Rolled steel window sash was first introduced on campus with the construction of Welch Hall and Waggener Hall in 1931. The Main Building and Goldsmith Hall (1933) were transitional buildings, employing both wood sash and steel casement windows in their design, but metal soon became the preferred material for windows on campus. The six-pack buildings, constructed between 1942 and 1967, have similar rolled steel windows using a variety of casement, pivot, and fixed pane configurations.

Several Forty Acres buildings feature a special window system, known as Browne windows. Patented in 1916 by Richard Browne of New York, these steel casement windows allowed both exterior and interior glass surfaces to be cleaned from inside the building. The windows have a vertical sash and bend outward from a hinge in the center. They were advertised as "fireproof, weatherproof, and dustproof" in the 1926-27 edition of Sweets Architectural Catalogue, and compare favorably with other steel window systems available in the period. The product literature notes that the airtight and dustproof qualities of the windows were established under laboratory tests of 140 mph winds. Construction correspondence in the Alexander Archive indicates that the Main Building windows, at least for the upper portion of the tower, are Browne windows. Universal Building Products of Dallas, an authorized distributor of Browne windows, supplied the windows, which were made by Richey, Browne, and Donald of New York.[12] Waggener Hall and Welch Hall also feature Browne windows.

Browne windows on Waggener Hall

4.2.9. Aluminum

Aluminum-framed fixed pane windows came into use on campus with the construction of the Flawn Academic Center and the College of Business Administration in 1962. Whereas rolled steel was used to divide sash into multiple small panes from the 1930s through the 1950s, aluminum frames were used where the design called for larger expanses of glass. Many later buildings have aluminum frame windows, including Flawn the Graduate School of Business, and the additions to the Union and Welch Hall.

Some later buildings feature metal doors, often for entrances to additions, such as the ells of the six-pack buildings. Aluminum doors are original to some of the recent buildings, including West Mall Office Building, the Computation Center, and Flawn Academic Center. The latter has particularly notable storefront assemblies.

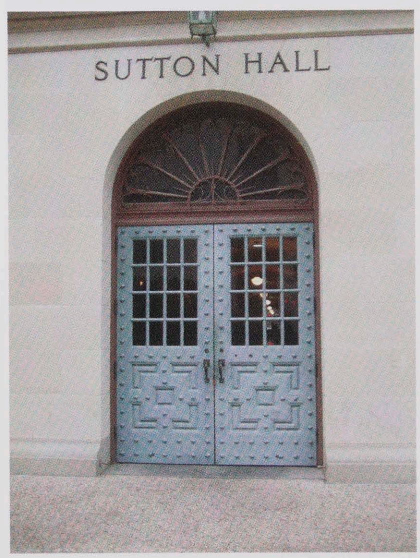
Photo: Emily Freeman Reed

Aluminum storefront assembly on the south entrance of the Flawn Academic Center

4.2.10. Wood

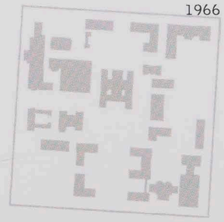
The large majority of doors on Forty Acres buildings are wooden, either solid wood or assemblies with glass panels. Battle Hall has beautiful solid wooden doors, studded with rough-forged iron spike nails; similar doors can be seen on Sutton Hall and the west façade of Hogg Auditorium.

Wood is the earliest material used in window assemblies in the United States. It is easily shaped to a variety of profiles, has high structural strength, and original old-growth wood windows such as the ones present on historic buildings of the Forty Acres can last upwards of 300 years, as they have in numerous English properties, if properly maintained on a regular basis. Wood species used in the fabrication of these sash typically were tight-grained, old-growth wood such as yellow pine or Washington fir. These materials are unmatched in quality in today's stock: they are stronger and more resistant to rot and decay than modern pine and fir.

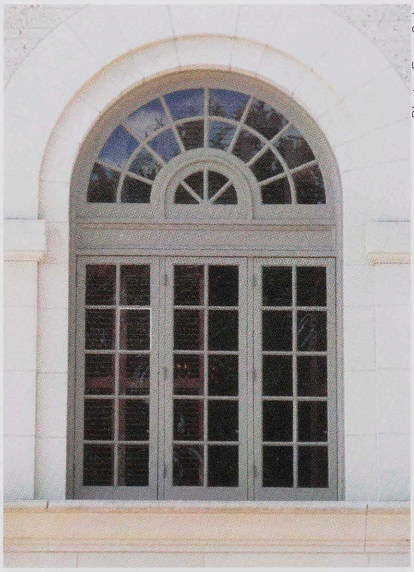


Studded wooden entry door on Sutton Hall

1966



[12] "MBLE: Folding Steel Windows and Venetian Blinds" folder, UT Buildings, 1882-, Box D175, Alexander Archive.

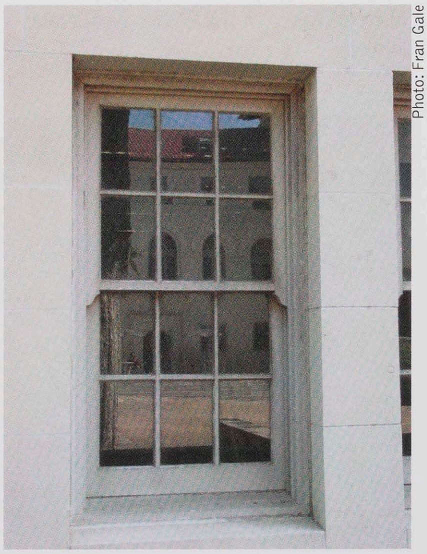


Wooden casement windows on the Texas Union

The earliest buildings on the Forty Acres featured wooden windows, including Gebauer, Battle, Sutton, Biology, and Garrison. After 1926, most buildings were fitted with metal windows; Painter Hall and the Union (both completed in 1933) were the only buildings of the 1930s to feature all wooden windows. Also completed in 1933, Goldsmith Hall and Will C. Hogg Building have a combination of wooden and metal windows. In 1962, the West Mall Office Building returned to exclusively wooden windows, likely chosen to harmonize with the wooden windows of Battle Hall abutting it. Most wooden windows on the Forty Acres are double-hung, though Battle Hall and the Union feature wood-framed casement windows. Battle Hall's windows were specified to be Washington Fir.

Aside from its use for doors and windows, the presence of wood on building exteriors is rare. Though exposed wooden elements complement the materials palette of the modified Spanish Renaissance style architecture, its occurrence often elicits surprise, or at least a second look. One such instance is the porch on the east elevation of Painter Hall. Massive wooden beams support an overhang topped with clay tile. Garrison Hall also has wooden beams and brackets on the ceiling of the entrance loggia on the west façade, and wooden grilles with carved ornament cover the fanlights above the doors. The Main Building has wooden beams with minimal painted accents lining the ceiling of the entrance loggia on the south façade.

Less immediately identifiable as wood are the soffits and brackets of several early campus buildings, including Battle, Sutton, and Biology. Always painted, the wooden soffits and brackets are difficult to distinguish from those of concrete. According to Cass Gilbert's specifications for Battle Hall, these elements were to be Washington fir, or yellow pine of the same grade, and free of knots.



Wooden double hung window on Goldsmith Hall. All wooden windows of this type on campus feature decorative horns below the sash.

4.2.11. Glass

Historic buildings of the Forty Acres were constructed prior to the general use of insulated glass, and are typically glazed with single pane 1/8" to 1/4" clear float glass, back-bedded in the sash and glazed with various types of putties.

4.2.12. Red clay roof tiles

Battle Hall set a precedent with its hipped red tile roof. The tiles were originally specified as Ludowici Old Mission roof tile, to vary in color from buff to light red, a variation in shade being desired. In 1934, Herbert M. Greene called for a complete roof replacement, using

Imperial Spanish Roofing Tile to match the color of the previous roofing tile.[13] Tile roofs appear on almost all buildings in the Forty Acres, with the exceptions of Flawn, the Harry Ransom Center, the Business School, and the additions to Welch and Painter.

Photo: Emily Freeman Reed

Wooden porch at Painter Hall

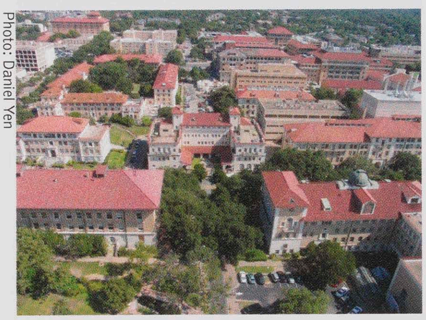
4.2.13. Terra cotta

Beginning with Battle Hall, Cass Gilbert established terra cotta accents as a feature that would help define the university's architectural character. In Sutton Hall (1918), colorful terra cotta decoration was employed even more liberally, with a frieze at the building's cornice, decorative window surrounds, panels, and engaged columns. The terra cotta for Sutton was provided by Atlantic Terra Cotta of Perth Amboy, New Jersey. Though the extent and exuberance of the colorful decoration used on Battle Hall, and especially Sutton Hall, would not be matched, terra cotta remains an important accent material for buildings on campus.

Painted wooden soffits on Sutton Hall

Following Gilbert's tenure, colorful terra cotta embellishments were used regularly on buildings of the Greene era, notably including the Biological Laboratories, Garrison Hall, and Waggener Hall. Greene's use of terra cotta on Welch Hall is more subdued, using panels of natural beige without colored glazing.

Photo: Daniel Yen



View to the north from Main Building tower, showing prevalence of red tile roofs on campus

Paul Cret's buildings often contained terra cotta elements, but they were used sparingly, rarely including elements with colored glazes. The only terra cotta used on Goldsmith Hall are the two cartouches flanking the entrance from the courtyard. Cret's Will C. Hogg Building has a terra cotta frieze between the stone base of the building and brick above, depicting various fossils. The terra cotta on both these buildings is of a color so light that it could pass for limestone at first glance.

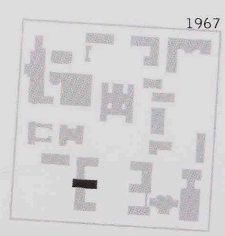
On the Union, terra cotta is seen only in the emblems of the west elevation, also of subtle color. The coats of arms on the east and west façades of the Main Building are the last pieces employed in campus architecture until Rainey Hall (1942), where it is used solely for decorative urns near the parapet.

Decorative terra cotta over entrance to Sutton Hall

Though terra cotta had evolved into less of a dominant decorative motif by the late 1930s, the material had become closely associated with the architectural identity of the campus. Buildings built much later and in more modern styles utilized colorful terra cotta elements as a link to the character of buildings of another era. Notably, the northern building

[13] Herbert M. Greene Co., Architects, Addenda Specifications for a Complete New Roof on Library Building (Dallas, May 15, 1924), 1-3.

1967



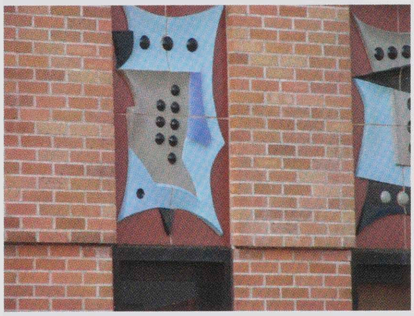
Buff-colored terra cotta frieze on the Will C. Hogg Building

of the McCombs School of Business complex has a colorful frieze of terra cotta tiles, created by former Art faculty member Paul Peter Hatgil. Though the abstract designs are distinctly modern, the reference to earlier architectural traditions is clear.

4.2.14. Mosaic and clay tile

Mosaic tile appears on the Forty Acres exclusively on the Flawn Academic Center and the pool in the Goldsmith courtyard. The walls of the fourth-floor, open-air loggia of Flawn are faced with varying shades of three-quarter-inch square blue and green glass mosaic tiles. The fenestration grilles of Flawn are decorated with muted orange ceramic mosaic tiles of roughly the same size.

Glazed clay tile appears on the ceiling of the portico created by the 1980 modification to Sutton Hall, which added a northern entrance. Primarily blue and yellow, but including all colors of the rainbow, these approximately two-inch square glazed tiles are meant to mimic the colorful terra cotta used elsewhere on the building, especially the highly detailed terra cotta work on the ceiling of the original south portico.



Terra cotta frieze at the cornice of the northern wing of the McCombs School of Business

Unglazed clay tile can be seen on the floor of the Flawn loggia, where there are six-inch square tiles. There are also clay flooring tiles on the second story loggia of the east façade of Goldsmith.

4.3. Architectural conditions surveys

Students in the 2007 and 2008 fall semester Field Methods course conducted conditions surveys of many of the buildings on the Forty Acres. Each student studied a building's construction history and determined its character-defining features. In addition, students identified materials and existing conditions and considered possible sources of deterioration. Elevation drawings were used to display materials and conditions.

Glass mosaic tiles cladding the fourth floor loggia of the Flawn Academic Center

After reviewing the information collected by the Field Methods students, we developed a master list of conditions and an illustrated glossary for the ensemble of historic buildings. We selected five case study buildings for further study. Battle Hall and the Main Building were selected because of their architectural and historical significance to the University of Texas. Waggener Hall is representative of buildings where brick is the primary masonry material; Goldsmith Hall is representative of limestone buildings. Finally, Flawn Academic Center, a relatively new addition to the Forty Acres, was selected because it represents the evolution of building design on campus.

During the summer months of 2008 and 2009, our team re-examined the student work on the case study buildings, adding information about roofing materials and conditions, and revising and updating the data. The results of our efforts are the detailed, informative reports on the case study buildings below, and a set of annotated elevation drawings and illustrated glossary of conditions.

Case study building 1 – Battle Hall (BTL)

Information about conditions affecting Battle Hall was obtained from two previous reports submitted to The University of Texas at Austin: the 2006 Battle Hall Exterior Condition Assessment report prepared by Volz & Associates and their consultant Sparks Engineering for Steinbomer & Associates; and the 2008 Preservation Investigations report prepared by Volz & Associates. The 2006 report provides an in-depth analysis of the building envelope and recommendations for emergency stabilization as well as restoration. The 2008 report was intended to provide a framework for restoration and renewal of character-defining features and finishes.

Building materials

Concrete: Cast-in-place concrete was used for the footings, floors, stairs and roof arches of Battle Hall. Conduits and piping were placed before concrete floor toppings were poured, and metal fabric was used for reinforcing.

Mortar: According to the original specifications, Meier's Puzzolano Cement was used for exterior mortar. The building was repointed in 1961, and in 2006, open joints were tuckpointed with a soft lime grout as a stop-gap measure to prevent water infiltration. The width of mortar joints is 1/8" to 3/16."

Granite: Pearl Gray Granite is used for the water table, entrance steps and for copings.

Cordova Cream Limestone: The exterior walls of Battle Hall are of limestone quarried in nearby Cedar Park, Texas. Veneer blocks are generally 17" tall by 39" wide, and 4-8" in depth. Alternate ashlar stones in walls and every stone at a pier are anchored to the brick backing with wrought iron anchors. Stone in alternate courses, coping courses and all projecting moldings are anchored with cramps.

Terra cotta: Glazed terra cotta panels surround the large arched second floor windows of Battle Hall and glazed terra cotta medallions are set in the spandrels between the window arches. Terra cotta units are anchored with 1/4" x 8" wrought iron rods.

Ornamental metal, cast and wrought iron: The balconies of the first floor have platforms and framework of galvanized wrought and cast iron. The railings and brackets are also wrought and cast iron, but are not galvanized. The floor grilles of the balconies were detailed to be removable, presumably for cleaning. The balconies were provided by the H.B. Milmine Company Ornamental Iron and Steel of Toledo, Ohio. Most of the cast iron grilles covering exterior windows are original; exceptions are windows on the south side at ground level, where the replacement grilles are simpler in design. Original wrought iron lanterns flank the main entrance.

Roof system: 1911 roof: Per the original specifications, roof slabs were at least 5" thick reinforced concrete. Felt layers and coal tar pitch were the original waterproofing materials below the clay tile of the roof, and metal flashings were bedded between the second and third layers from the top.[1] An asphaltic compound was specified for the flat area of roof deck and for joints at skylights and curbs, and a "mortar cushion" of lightweight concrete was specified to go below the flat promenade tiles of the flat area of roof deck. A porous concrete nailable deck that included sawdust was used on sloped roofs over the concrete. Original tiles for the flat roof were 1"x6"x9" flat "promenade" or "platform" tile similar to those manufactured by the Ludowici-Celadon Company with a "soft or dull glaze, not a high glaze." Tiles on sloped roofs were Ludowici Old Mission roof tile, 1" x 6" x 9" in size, and of colors varying buff to light red. They were fully grouted into the mortar bed with 3/16" joints between tiles. Yellow pine or cypress nailing strips were used with the tiles. Flashings were set into masonry using reglets, wedged with the use of lead wedges every 12" and capped with a 1:2 cement mortar.

1934 roof replacement: In 1934, architect Herbert M. Greene specified a complete roof replacement, including felt underlayment and waterproof cement. Tiles were to match the existing colors and set without cement except at hip and ridge rolls. The flat roof replacement was a standard Barrett 20-year guaranteed roof over the entire deck of the building. Perimeter flashings were 16 oz. soft copper, with counterflashings installed in masonry reglets and sealed with "elastic cement" to allow for movement.

[1] Gilbert, Specifications, 26.

Valley flashings were 24″ wide lead sheets attached with galvanized roofing nails. The original concealed gutter system was replaced, presumably because of problems associated with water infiltration.

Existing roof: The existing roof is a fairly monochromatic darker red barrel tile that matches the roof of the 1961 West Mall Office Building, suggesting that the roof may have replaced at the time that WMB was constructed. The existing flat roof is a built-up system with gravel ballast. The existing roof drainage system consists of half-round, rolled copper gutters and round copper downspouts that drain to a sub-grade drainage system.

Cornice eaves: The exposed portions of the main cornice eave components, including brackets, purlins and rafters, are wood. A weatherproof wood fiber composition was used for brackets, corbels, pendants and ornamental panels attached to the soffits.

Doors and windows: Exterior doors of Battle Hall are wood and are 2 1/4″ thick. The main entrance doors are studded with rough-forged iron spike nails, and the side entrance doors have wrought-iron grilles over the glass panels. Exterior doors have bronze thresholds, and second floor east elevation balcony doors have bronze sills.

Window frames in the stack wing that support double hung sash are yellow pine with outside frame casings and sills of Washington Fir. Casement windows are also Washington Fir. Joints between the frame and masonry were originally caulked with oakum for both window types. As of 2006, most of the original wood sash and casement windows were extant; some of the sash have been replaced with new sash that do not match the original design, or have been modified for leaded glass (now removed) or window air conditioner units.

Deterioration and resulting conditions

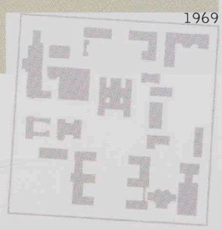
Problems related to leaking gutters and downspouts and poor site drainage have affected exterior materials of Battle Hall, resulting in limestone deterioration, rotting wood and metal corrosion. These conditions are further discussed in **4.4. Architectural conservation issues.**

Concrete deterioration: The underside of the concrete roof deck at the north elevation exhibits several types of deterioration, including spalling, apparently related to the anchors used to attach framing modifications for the 1961 addition of West Mall Building; long term water infiltration through the roof system has caused efflorescence, reinforcing wire corrosion, spalling and other deterioration of the concrete roof deck and deterioration of the nailable roof deck.

Limestone mortar joint separation and missing mortar: The use of high strength Portland cement mortar in the 1961 repointing has resulted in joint separation in some areas, creating pathways for water infiltration. In some cases, the mortar is missing, creating openings for water infiltration into the wall assembly. This condition, in conjunction with the previous roof leaks, has accelerated deterioration of the galvanized iron anchors. There is mortar deterioration at some window sills at the northeast corner of the building, at the south end of the west elevation, and most notably at the north elevation stack wall, beneath the 2006 repair area.

Limestone biological growth: The open mortar joints also have encouraged plant growth. Fern roots currently growing in the mortar joints hold moisture in the wall and are causing further disintegration of the mortar. The pigmented Portland cement-based masonry coating on the north elevation has separated from the limestone substrate in some locations, with biological growth present between the two materials.

Limestone deterioration includes erosion, pitting, spalling and cracks. Limestone erosion and pitting, particularly on the north elevation near the building entry may be an unwanted result of the "wet aggregate cleaning" (sandblasting) in 1961. The extensive surface losses (including flaking and spalling) seen on the north elevation stack wall and along the stairway at the south elevation are moisture-related deterioration conditions that have been exacerbated by the moisture-impermeable Portland cement coating that was applied in the 1960s. Salts from groundwater or from de-icing treatments have contributed to the deterioration of the limestone near the south elevation stairs. Limestone cracks are present on all elevations, but are more numerous at the first story



levels of the east and north elevations, especially near windows. Previous repairs using a white mortar that does not match the color of the limestone make many of these cracks more noticeable.

Granite deterioration: Although the granite of the water table is in generally good condition, peeling was noted at the south end of the east elevation.

Decorative metal corrosion: Corrosion of the original wrought iron balconettes is related to deterioration of their protective coating, and subsequent exposure of the unprotected iron to moisture. Galvanic corrosion may also be a factor.

Roof eaves deterioration: The roof eaves exhibit several signs of decay including peeling paint and deterioration of the composition owls that decorate the eave brackets.

Clogged and damaged gutters: Pigeon debris and leaves clog the gutter in several locations. The gutter running along the south elevation is damaged, and has drained on the eave assembly for an extended period, resulting in warped wood and biological growth at the eaves.

Poor site drainage is a problem at the east elevation of Battle Hall, primarily caused by regrading of the South Mall sidewalks and a poorly functioning site drain, buried within the boxwood perimeter hedge. During a 2004 examination, it was discovered that the original perimeter drain pipes were found crushed and abandoned in 1934. No record of repairs was found.[2]

[2] Steinbomer & Associates, Inc., Subsurface Waterproofing and Drainage for Exterior, CP #1211178, 15 June 2006, 5.

Case study building 2 – Waggener Hall (WAG)

Building materials

Concrete: The 2007 VFA report states that Waggener Hall has reinforced cast-in-place concrete foundation walls and a reinforced cast-in-place concrete superstructure that includes columns and beams with a ribbed slab on the upper levels. The roof deck of Waggener Hall is also cast-in-place concrete. The exterior envelope is a cavity wall system with limestone and brick veneers with a block back-up. Concrete is also used for the soffits and brackets of the overhanging eaves.

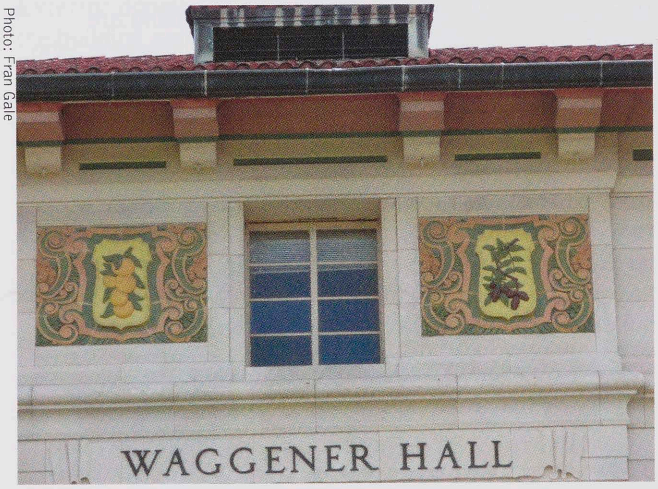
Granite: Pearl Gray Granite is used at the base course of the water table, steps, and doorsills.

Limestone: Above the granite at the water table, machine-tooled Lueders limestone is used to face the first floor up to an articulated stringcourse aligning with the second floor. Another limestone stringcourse at the fifth floor line defines the top story of the building, which is clad in smooth-faced limestone punctuated with decorative terra cotta panels. Other Lueders limestone elements include the stringcourses and windowsills. According to the original specifications, the coursed limestone was anchored to the structure using Lewis bolts dipped in asphaltum. The setting mortar specified for limestone was a mixture of one part cement, three parts sand and one-fifth part hydrated lime. Pointing mortar for limestone was one part well slaked lime putty to one part cement to six parts sand, or one part Ft. Scott Cement (a natural cement) to three parts sand.

Terra cotta: The decorative terra cotta panels used on the top story were produced by the Northwestern Terra Cotta Company. The panels have six high-fire glazed polychrome colors depicting the major exports of Texas, including corn, cotton, citrus fruits, pecans, peaches, onions, and cabbage.

Brick: The second through fourth floors are clad with a #1 tan-colored extruded face brick, with most of the brickwork laid in a running bond with a full header course every sixth course. The lintels of the window openings are articulated with brick soldier courses.

Photo: Fran Gale



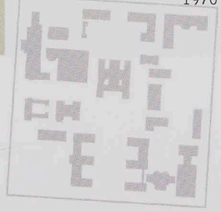
Terra cotta panels depicting fruit at the cornice of Waggener Hall

Specifications indicate that the setting and pointing mortars described above for limestone were also used for brick. Mortar joints for brick were to be "neatly underhand struck."

Roof: The hipped roof structure is a reinforced concrete slab supported on concrete beams. The beams extend beyond the perimeter wall to form decorative brackets at the roof eave. Three copper-clad shed dormers on the east and west sides of the roof provide ventilation to the attic. The roof is covered with Imperial Spanish clay-tile in a variegated color blend. The wire-scored tiles appear to be original to the building and are secured with nails and set in a mortar bed. Ridge and hip tiles are a simple rounded cover and have a smooth surface. Eave closure tiles are used around the perimeter and over each dormer.

Copper: The copper gutter extends around the perimeter of the building, and has an ogee molding profile. The gutter is supported by copper strap and bracket hangers at three foot intervals. Twelve copper downspouts (four on each primary elevation and two at each end) curve downward into decorative copper leaders mounted to the limestone veneer at the fifth floor. Rectangular copper downspouts with vertical ribs extend from each leader into cast iron boots at grade that connect to a subsurface drainage system.

1970



Windows: The windows throughout the building are called "Browne Windows" after Richard B. Browne, who patented the design in 1916. Manufactured by Richey, Browne & Donald, Inc., the Waggener windows were installed as specified by the architect. The frames and sashes are of solid rolled steel, with bronze interior screen frames remaining on some windows. Sashes are attached to the head, sill, jambs, and vertical division member with forged steel hinged arms and are insulated with original heavy felt weatherstripping. Waggener was the first building on campus with Browne windows.

Deterioration and resulting conditions

Soil erosion: The most significant concerns at Waggener Hall are the erosion of soil, poor drainage, and sinkhole cavities along the southern and eastern perimeter. The soil is severely eroded along the relatively steep grade of the east side, and several large holes, the deepest one meter deep, exist along the south side. The interior wall finishes adjacent to the largest sinkhole were checked at the first floor and found to be undamaged by water infiltration. Adjacent crawlspace areas were not accessible at the time of our inspection. If left unchecked, the extent of this erosion may undermine the structural integrity of the foundation.

Soil erosion at grade outside Waggener Hall

Biological staining is evident on all elevations, particularly at the limestone caps of stair walls and retaining walls, and at stringcourses. The limestone caps of the stair walls at the west and east façades are blackened with biological soiling.

Additional staining: The underside of the stringcourse on each façade has light brown drip marks, uncharacteristic of normal weather-related staining. This staining may be related to a previously applied coating used as a bird-repellent or water repellent treatment. Light blue-green staining at the south entrance of the eastern façade on the north stair wall appears to be related to corrosion of the bronze light fixture above.

Masonry deterioration: The face of brick has spalled at a small number of abandoned and corroded metal anchors, creating an entry point for water. Small holes in mortar joints indicate the locations of previous anchors. A narrow horizontal crack runs through the limestone along the bedding plane at the lower stringcourse on the south façade. Additional cracks are above the north and south entrances of the east façade, near the bronze lettering. Here the cracks appear to be related to expansion of the internal fasteners. There is erosion and pitting on the west façade.

The deterioration on the stair walls flanking each entrance is similar in appearance to salt fretting. However, the use of de-icing salt could not be confirmed. Damage to limestone of the door surrounds at each entrance lines up with the original door hardware. The installation of door stops appears to have prevented further damage. Additional mechanical damage is present at the northeast entrance, presumably related to the installation of automatic door-opening hardware. The northernmost stair wall on the east façade has a displaced stone. A previously applied limestone repair has failed, indicating continued movement of the stone. The cap stones of the north stair wall at the north entrance on the east façade also show displacement. With these, open mortar joints allow water to enter the wall assembly. There also are isolated locations where metal anchors have been removed, and the existing openings

Photo: Lauren Vienne Boone

Limestone cracks behind bronze lettering

allow water to enter the wall. During our inspection of upper areas of Waggener Hall, a sealant was noted on several ledges of the brick quoins. This non-original material was probably used to seal cracked mortar joints.

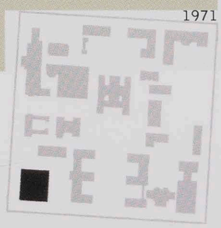
Metal corrosion: The decorative wrought iron grilles above the building entries exhibit mild to moderate corrosion, especially in areas where paint is deteriorated or missing. Corrosion also affects wrought iron near the setting joints for the grilles. Corrosion of the steel lintels above masonry openings was noted in some locations.

Windows: Although the original Browne windows are generally in good condition, inadequate maintenance has resulted in deterioration of some elements. Of the existing windows, several appear difficult to close due to corrosion or damage to weatherstripping. Paint deterioration, present at all windows, has resulted in mild to moderate corrosion, though no substantial loss of material at any of the windows was observed. Sealants at the window perimeters are dried, cracked, and missing in some locations, allowing moisture to enter into the window system. The original felt weatherstripping is deteriorated or missing at many windows. Additionally, the windows of the east and west façades exhibit deterioration of the window film, and the window glazing compound has deteriorated throughout the windows of the building.

Exterior doors: The existing doors are not original to the building and exhibit mild to moderate deterioration. Weatherstripping at the astragal of the paired doors is missing or severely deteriorated and should be replaced.

Paints and coatings: As noted above, deterioration of paint on the window sash, frames, sills, and metal grills on all four façades is the primary cause for corrosion of the metal substrates. Paint finishes at the concrete soffits appear to be in good condition.

Roof: The clay tile roof is generally in excellent condition, with only a minimal number of broken or dislodged tiles. However, caulking is cracked and in poor condition throughout. Small pieces of mortar used between the tiles is missing, but this does not appear to have affected their stability. Very little biological growth was observed on the roof tile, but downspout connections are not tight in some locations, resulting in associated corrosion and biological growth. Sealant joints between the copper and tile at one dormer were visibly cracked. The copper gutter and downspout system is in generally good condition. Minor ponding water and debris were observed in several gutter locations. Straps securing the downspout or leader to the wall have come loose or are missing in some areas.



Case study building 3 – Goldsmith Hall (GOL)

Building materials

A variety of materials were employed in the construction of Goldsmith. The relatively narrow palette contributes to the building's distinctive austere appearance.

Limestone: Cordova Cream Limestone and Cordova Shell Limestone ashlars are used for the veneers over yellow and red brick walls. Smooth, regular Cordova Cream Limestone composes the first story of the building while Cordova Shell Limestone provides a textured surface to the walls of the remaining upper stories.

Concrete: The substructure is comprised of reinforced concrete perimeter foundation walls with interior spread footings and a slab on grade on the first level. The superstructure is comprised of cast in place reinforced concrete columns supporting metal beams and joists, with reinforced pan slab flooring on the upper levels.

Granite: A band of Pearl Gray Granite surrounds the building at ground level; Pearl Gray Granite is also used for door sills and steps. On the addition, Texas Pink granite is used for the high water table and steps leading to the south entrance, and a band of green-black granite serves to distinguish this structure from the original.

Windows consist of steel-framed single-pane casement windows and wooden double-hung windows.

Wrought ron: Ornamental wrought iron adorns the windows, grilles and balconies.

Clay tile: The roof is clad with red clay tiles, and there are clay flooring tiles on the second story loggia of the east façade.

Copper is used for the gutters and downspouts, and there are copper panels on the roof.

Terra cotta: The cartouches flanking the courtyard entrance to the building are made of glazed terra cotta.

Deterioration and resulting conditions

Even though there is a wide array of deterioration types and conditions at Goldsmith Hall, only a few of them detract from the building's appearance. The simultaneous presence of biological growth and drip marks on the stone should be addressed, as one condition may be causing the other. Additionally, the floor of the second-story loggia terrace and the ceiling below it need immediate attention and repair work, which may involve invasive measures, including possible removal of tile and installation of waterproofing.

Photo: Erin Tyson

Biological staining on the east façade of Goldsmith Hall

Masonry soiling: Biological soiling and drip marks are the predominant types of deterioration and conditions found on the exterior façades of Goldsmith Hall. Dark staining located on most of the projecting elements (string course, brackets and window sills), decorative features and behind downspouts indicate the presence of biological growth. Particularly severe staining can be seen on the balustrades above the loggia on the East elevation and on the decorative urns capping the second story above grade, also on the East elevation. Drip marks can be seen on almost all the protruding parts of Goldsmith Hall. In many places, biological growth and drip marks appear concurrently, indicating a possible relationship between the two conditions. There is also metallic staining located beneath a spout protruding from the eastern façade of the building. Other minor soiling conditions include lichen growth, atmospheric staining, mottling, and streaks.

Photo: Fran Gale

Deteriorated concrete on the ceiling of the Goldsmith loggia

Masonry deterioration and mortar loss: An abnormally irregular surface on the limestone and recessed patches indicate erosion. On one of the units of the balustrade, a large piece of stone has become detached from the structure, yet remains intact itself. Loss of mortar is also apparent between the stone ashlars on the second-story loggia.

Plant growth: Ivy is currently growing on the sides of Goldsmith Hall. A large, robust patch of ivy occupies the central portion of the courtyard's south façade. On the western façade, around the first floor windows, ivy also is apparent; in this location, small individual vines are growing in scattered patterns across the balustrades and the arched window surrounds.

Concrete deterioration: On the east façade, the loggia ceiling and the floor on the second story above it exhibit many problems. On the ceiling, the concrete is spalling, exposing the steel reinforcement. Near the northwest corner, there are large cracks, spalling, and poorly executed patches.

Soiling near grade: The reddish discoloration on limestone along the first floor of the north façade is the result of exposure to moisture from groundwater, or from sprinklers.

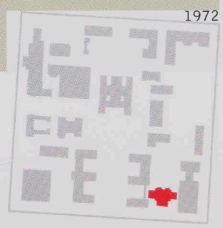
Floor tile bulging: Bulges on the roof-top terrace tile floor suggest that water penetration has occurred.

Window conditions: Metallic staining appears around the steel frames and there is chipped paint on the wooden frames. Some wooden windows exhibit deterioration and decay.

Broken or cracked clay roof tiles and use of sealant: The clay tile roof is generally in excellent condition, with few broken or dislodged tiles in various locations. Sealant has been used between tiles in several areas in an attempt to stop leaks.

Photo: Erin Tyson

Soiling near grade



Damage to flat seam roofing: The copper flat seam roofing over the shed dormers has been damaged by hail, but does not appear to be leaking.

Roof drainage: The copper gutters, leaders and downspouts are in good condition. However, accumulations of dirt and debris that could prevent proper drainage were noted in multiple locations. One gutter appears to be deformed or sagging and several downspouts are not securely attached to the masonry.

Case study building 4 – Main Building and Tower (MAI)

Building materials

The predominant exterior finish materials used in the construction of Main Building are Indiana limestone, Cordova Shell Limestone, cast iron, and Spanish tile roofing, with more limited use of steel, granite, slate, ornamental concrete, copper, and bronze.

Limestone: The exterior veneer of the Main Building and Tower is Indiana limestone, which was indicated in a Building Committee Report of 1942, "the only exception to the use of Texas materials for walls is the Indiana Limestone of the new library, adopted because of its superior hardness."[3] The first floor loggia uses a combination of Cordova Shell Limestone veneer, Earley-process decorative concrete, and stucco walls. A carved limestone balustrade on the south parapet of the Main Building includes carved limestone finials and urns.

Granite: The base course of the Tower is Texas Gray granite furnished by the Llano Granite works, and the Main Building has a Pearl Gray Granite base course.

Brick: The structural infill for the stone veneer is brick, requested by architect Robert L. White to eliminate the need for two types of mortar, which could cause staining to the limestone veneer.[4] Buff brick is used as an exterior wall surface in interior courtyards, but is not visible from primary exterior views.

Mortar was specified as "Magnolia Stainless Cement" from Southern Cement, with U.S. Gypsum Company quicklime, and sand. The ratio is 1 part cement: 3/4 part quicklime: 4 parts sand with Omicron waterproofing added in accordance with the manufacturer's directions.[5]

Cast and wrought iron: Shop drawings and correspondence for the spandrel panels of the upper portion of the Tower indicate that the panels are ¼" thick molded cast iron with two different styles of raised panel designs. They were furnished by Southern Ornamental Ironworks. Shop drawings and correspondence also revealed that the spandrel panels were to be shop primed with traditional red lead paint. "Genuine hand hammered wrought iron railings" are used on the second-floor wing balconies and on the first floor loggia.[6] The window grilles and the posts of the awnings on the fourth floor garden balconies are also wrought iron. A utilitarian painted metal guardrail runs above the western and eastern parapet walls.

Bronze appears in the ornamental railing, balustrade, decorative panels, and supporting brackets of the second-floor south façade, and in the clock rim, hands and numerals of the tower clocks. The rim was gilded, while other elements were left their natural bronze. The clock hands originally were so shiny that the time could not be read, prompting Dr. Battle to ask Robert White, "while the workmen are engaged in gilding the stonework, would it not be well to have them remove the lacquer from the hands and add the oxidizing acid?"[7] Battle's request appears to have been carried out.

Windows: The majority of windows throughout the building are various forms and configurations of extruded steel frames and sash that are glazed with single paned 1/8" to 1/4" plate glass, with some reinforced or frosted glass in areas requiring more privacy or security. Cret used a wide range of window types, including accordion, casements, pivots, awnings, double and triple hung sash. Correspondence dated 1934 and later indicates that the windows, at least for the upper portion of the Tower, are steel, and are a patented type of window assembly known as Browne windows. Universal Building Products of Dallas, an authorized distributor of Browne windows, supplied the windows for the upper part of the Tower, which were made by Richey, Browne, and Donald of New York. These windows are labeled "Type T" in the drawings. The Browne windows have bronze handles.[8]

The steel in these windows has an average carbon content of 0.20%, and in a letter to Architect White, the alteration of the formula was explained, "protection against rust being of prime importance, we use more

[3] Battle Papers.

[4] R.L. White to Bellows Construction, Aug. 9, 1935, Main Building Papers, Alexander Archive.

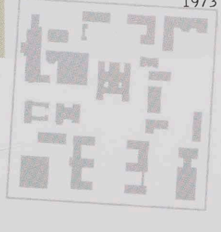
[5] Bellows to White, July 17, 1935, Main Building Papers, Alexander Archive.

[6] Bellows to White, July 17, 1935; Main Building and Library Extension Elevation Detail No. 2, Oct. 8, 1934, Alexander Archive.

[7] Battle to RL White, Nov. 24, 1936, Battle Papers, 1870-1959.

[8] Letter from W.S. Bellows Construction, July 20, 1935, "MBLE: Folding Steel Windows and Venetian Blinds" folder, UT Buildings collection, Box D175, 1882-, Alexander Archive.

1973



costly steel containing a proportion of copper."[9] Specifications called for two shop coats of paint on all windows. The decision to add extra rust protection has proven essential to the continued performance of these windows, which have received minimal exterior maintenance. The windows also have continuous extension jambs, going up the height of the tower. According to correspondence, these jambs were to be erected after the masonry was complete, after the spandrel panels were in place, and before the erection of the windows.[10]

Concrete was used for the cast-in-place foundation, structural frame, and floor slabs. It was also used for the soffits on the east and west façades.

Decorative concrete: Polychrome decorative concrete panels are used in the friezes of the first floor loggia, in the panels between the doors and windows on the fourth floor, and at the carillon level of the tower. Cret specifically called for John Earley to construct the decorative concrete with his colored, exposed aggregate "Earley Method."

Tile: Ceramic and concrete tile is used at the floor deck, caps and sides of the raised garden beds on the fourth floor roof deck. Polychrome concrete tiles employing geometric and organic patterns are used on the walls and other vertical applications. The remainder of the tile is solid colored dark orange quarry tile.

Terra cotta: On the east and west façades, the coats of arms from universities which contributed to Western education are made of terra cotta.

Stained glass can be seen in the fourth floor windows of the south façade.

Roof systems: The roof of the fourth floor of Main Building is a hipped-style clay tile roof with clay tile ridge caps. Small shed dormers penetrate the roof with copper louvered ventilation grilles. Roofs on the second, third and fourth floors are generally a combination built-up tar and gravel system with red clay tile coping. Areas of roof that have been replaced within the past five years utilize a built up roof system with a mineral cap sheet, as seen at some roofs above the third floor. The Tower roof is an older single-ply membrane.

Copper gutters (16-gauge) were used at the top of the Tower and at the fourth floor of Main Building; the rest of the building has internal roof drains. Copper is also used for the dormer louvers.

Exterior flooring materials include Crab Orchard limestone and Edwards limestone in the first floor loggia. The fourth-floor penthouse has concrete base, and ceramic tile floors outside.

Deterioration and resulting conditions

The Main Building and Tower are in need of prompt attention to address several areas of concern before repair evolves into costly material replacement. The building materials and construction techniques employed in this building are enduring and worthy of conservation and repair in order to maintain the quality and character of the original design.

At the time of this report, the highest priority concerns include replacement of the Tower roof, conservation of the cast iron spandrel panels and steel windows, wood window repair or replacement at the fourth floor, cleaning and repair of copper gutters at the fourth floor roofs, and repair and repainting of all wood and ferrous metal throughout the exterior. Secondary concerns include the need to clean the masonry and replace missing and deteriorated mortar. Deteriorated roof and flashing details around the clocks should be replaced, and the gold leaf ornamentation around the clocks should be restored. Isolated areas of gutter cleaning and roof tile repair are warranted as well. Cleaning and repair of finishes at the fourth floor terraces should be completed to ensure the longevity of these features.

Tower roof: The most pressing issues for the Tower include the poor condition of the uppermost roof decks and the visible corrosion of the cast iron spandrel panels and steel frame windows. The single-ply membrane of the

[9] R.L. White to Universal Building Products, Mar. 1934, Main Building Papers, Alexander Archive.

[10] Letter from W.S. Bellows Construction, July 19, 1935, "MBLE: Folding Steel Windows and Venetian Blinds" folder, UT Buildings collection, 1882-, Box D175, Alexander Archive.

uppermost roof of the tower is very deteriorated, with numerous signs of wear, open joints, and nail penetrations. These conditions have allowed water to enter the building at the highest level, causing the concrete fireproofing of the steel frame to spall and the steel to corrode in the attic.

Cracking: A recurring crack runs along the eastern elevation where the building connects with the first new library building. The crack has been patched more than once, but the repairs continue to fail either due to ineffective procedures or techniques inadequately matched to the underlying cause (possibly building settlement). Caulking here, as well as at other joints throughout the building, has cracked and shrunk, and in some cases is covered with biological growth. Horizontal cracks run through the decorative concrete wall finishes at the fourth floor patio. Granite used for the foundation appears to be in good condition, with just a few instances of cracking and peeling. Although the limestone also is in generally good condition, there are areas of surface loss, discoloration, and occasional cracking. Some of these conditions may be due to irregularities in the stone. However, further investigation is recommended when close-up examination is possible.

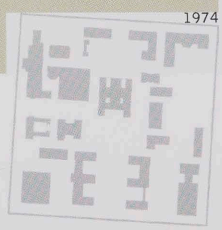
Biological growth appears on all limestone features protruding from the Main Building's building plane. The growth is most closely associated with the limestone areas where water repeatedly drips or pools and is able to penetrate the substrate. This condition is most problematic on the top of the main shield centered in the southern façade. Moisture penetration from the first-floor balconies has also caused the granite balcony floors to effloresce at the drain holes. There is also water damage and biological growth at the granite base trim along most of the northern façade. All four façades of the Tower also have areas of biological growth. This condition is the most severe on the north façade; in addition to the more ubiquitous gray or black discoloration, there are also areas of green.

Guano: On the Main Building, there are several preferred pigeon perches above decorated door lintels on the south facing balconies, and several mud nests adhered to all three elevations in corners and crevices beneath balconies, cornices, and rusticated joints. On the north façade of the Tower, birds have nested, and seem to routinely perch. Their droppings have begun to accumulate in these areas, and may eventually damage the stone.

Metal corrosion: All window and door frames in the Main Building show some degree of metal corrosion, from slight to severe. Wrought-iron railings and balconies exhibit corrosion, particularly in areas of joints or attachments. Corrosion products have also stained the masonry substrates below, as seen on the south courtyard ramps and second-floor side balconies. The wrought iron balcony floors on the east and west façades also exhibit corrosion.

Deteriorating paint films at the spandrels and window frames have enabled corrosion of the substrate materials. The corrosion at the spandrel panels and window frames appears severe when viewed from the ground, but from close range it is clear that they are not irreversibly corroded. Windows and spandrels at the north and west sides of the 19th and 21st floors were reviewed to verify what appeared to be the worst conditions visible from the ground. While these elements have received very little maintenance and suffer from significant loss of paint, the high carbon content of the iron and steel have prevented severe and irreversible corrosion so far. Surface corrosion must be addressed in the near future to address long-term conservation needs of these materials and prevent the additional expense of replacement.

Cast-iron spandrel corrosion is perhaps most visually striking on the tower. Like the windows, the appearance of corrosion at the spandrel panels looks severe when viewed from the ground, but with direct access, the corrosion appears limited to the very outer surface of the material, with no delamination or flaking. Spandrels at the north and west sides of the 19th and 21st floors were reviewed to verify the worst conditions at close range. Consistently on all four elevations, the middle column of spandrels is most significantly corroded, possibly due to the detailing and roof drainage patterns. All of the ornamental letters on the spandrels at the lower floors have lost at least some of their gold leaf.



Copper gutters: Roof gutters are consistently clogged with plant material, bird droppings, and dirt along the perimeter of the fourth floor terrace. Some gutters are deformed, as well. These conditions cause water to overflow the gutters, dropping excess water on the fourth floor terrace and creating additional opportunities for water damage to an already vulnerable rooftop terrace design.

Metal roof flashings: Construction documents and correspondence call for sheet metal flashings at many stone elements near the top of the tower, including lining the scuppers. Maintenance crew pictures show that these flashings do not extend to the edges of the stone elements, and may therefore be exposing some areas of the stone to increased water infiltration.

Missing mortar was noted in many areas of the limestone veneer, cornices and stringcourses.

Stucco cracks: The stucco walls at the interior of the loggia of the Main Building, referred to as "Mission Finish Plaster" in Cret's original drawings, have a pronounced crack following the curve of each archway, running the full length of each half circle. No other cracks emanate from it, suggesting the crack is related to the possible corrosion (and subsequent dimensional change) of an arched metal strap or support piece incorporated in the archway's internal construction.

Limestone discoloration: There are several areas on the Tower limestone that appear discolored, that first appeared to be inappropriate patches when viewed from the ground level with binoculars. Close-up inspection of similar areas nearer the ground suggests that these discolored areas are naturally occurring veins and occlusions in the stone. Further investigation of limestone discoloration in the Tower is recommended. There appears to be no correlation between the veneer anchors and the areas of discoloration. The Tower also suffers from rust staining on the limestone below the windows of the shaft.

Windows: The only set of wood window frames in the Main Building are found on the north façade, on the northeast wing, on the east-facing wall of the interior court on the fourth floor. Significant wood sash and frame rot is evident. Metal windows exhibit corrosion. While the glass appears to be in good condition, all windows (except the first-floor windows) have partial or complete loss of the glazing compound. The effectiveness of the windows in keeping out wind, thermal flux, and moisture cannot be assumed based on their current condition.

Concrete deterioration: The inside surface of the pediment walls are concrete and show cracking, weathering, general aging and deterioration. Spalling is particularly significant and the patching has failed. There are also two noticeable spots of complete loss of the concrete on the pediment. This cracking and weathering is most noticeable on the north and west sides. The south side shows no cracking. Ground erosion on the north and west façades exposes the concrete foundation. The floor tiles of the fourth floor balcony are cracking due to a failing subfloor. The concrete used for the soffit on the northern part of the east and west façades is discolored, perhaps due to biological soiling from water.

Other damage: The 1966 shoot-out between Charles Whitman and the police left multiple bullet holes in the limestone walls of the south and east side on the 27th floor, the scalloped-shell ornament below the clock face on the south face. Most of this damage has been repaired and the patching material appears to be in generally good condition.

Case study building 5 – Flawn Academic Center (FAC)

Building materials

Limestone: The façades of the second and third story are primarily clad in limestone. Flush-faced slabs of Cordova Cream Limestone frame the inset field of random ashlar Cordova Shell Limestone veneer. The large cast stone fenestration grilles that punctuate the random ashlar field are framed by flush-faced Cordova Cream Limestone. The walls of the fourth floor terrace, exterior wall of the loggia, penthouses, and roof coping are clad in Cordova Cream Limestone.

Dark igneous stone (meta-anorthosite and black granite): Black granite (Argentine Andes Black Granite or California Black Granite) is used for the stairs to the main entry on the south façade as well as for the cap on the back wall of the fountain in front of the building. Black granite is also used for the base course of the first floor façade and the base of the columns. The north and west façades on the first floor as well as the columns of the first and fourth floor are clad in green-black meta-anorthosite. This is also the primary material for the fountain.

Terrazzo: The patio surrounding the first floor and the steps leading to it are paved with black terrazzo to complement the granite and meta-anorthosite. This material is also used for the flooring and the fountain at the fourth-floor terrace.

Steel: The simple vertical post and molded rail balustrade surrounding the first floor patio is made of galvanized tube steel with a bronze top rail.

Ceramic mosaic tiles are used to decorate the fenestration grilles, with orange tiles facing outward and blue tiles facing the interior. The fourth floor loggia wall is covered with varying shades of three-quarter inch square blue and green glass mosaic tiles.

Clay Tile: Six-inch square, muted green-colored clay tile covers the loggia floor.

Aluminum-framed glass storefront assemblies: The first floor consists of aluminum-framed glass walls and doors on the south and east façades; the north and west façades have partial glass walls. Sliding glass doors and aluminum framed windows interrupt the tiled walls at intervals along the fourth-floor loggia.

Concrete: The geometrically patterned coffered ceiling above the fourth floor creates a deep overhang beyond the building. It is comprised of polychrome painted stucco over cast-in place concrete.

Roof system is a low sloped built up system with gravel ballast. Two penthouses, one with mechanical equipment and one empty, sit atop the roof. A pair of concrete barrel-vaulted canopies on the roof frame the original open-air courtyard in the center of the building. The roof that now covers the courtyard is also a low sloped built-up system with gravel ballast, punctuated by barrel-vaulted plexiglas skylights.

Deterioration and resulting conditions

The building currently is in good condition; most conservation concerns are located on the first and fourth floors. Water infiltration is the most significant source of deterioration. This occurs at drains serving the roof overhangs, causing concrete, stucco, tile, and limestone deterioration at the fourth floor loggia. Large holes in the plexiglass skylights over the fourth floor central courtyard are also a significant source of water infiltration. This is of particular concern because the enclosed courtyard space is no longer used or visible from the corridor. If water infiltration continues, damage to the structural frame supporting the fourth floor may occur, requiring significant and costly repairs. Limited areas of concrete cracking and spalling at the barrel vaulted roof canopies also are allowing water to enter the assembly, corroding the reinforcing steel and causing further deterioration of the concrete. On the first floor, water has caused deterioration of the patio and basement wall, and has stained the meta-anorthosite fountain.

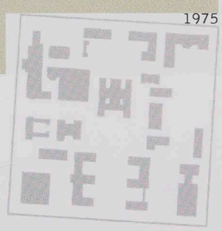



Photo: Kristina Kupferschmidt

Displacement of meta-anorthsite on the west façade

Structural movement, exhibited in masonry cracking, displacement, and previous repairs, is another source of deterioration. The building should be evaluated by a structural engineer to determine if repairs are needed.

Human activities seem to be another source of problems for Flawn, including mechanical damage and soiling of columns at the first floor and inscribed graffiti on the limestone balcony coping at the fourth-floor loggia.

Meta-anorthosite displacement and cracking: The top course of meta-anorthosite north corner of the west façade on the first floor has shifted in relation to the adjacent wall. The meta-anorthosite pieces are pushed out, and in some instances cracked. This condition appears also on the west façade, where the wall forms a corner and pushes back into the glassed wall.

Concrete cracking: The concrete vaulted roof canopies reveal areas of structural distress at the spring line of the arches, and hairline cracks occur throughout the material. Cracking at the spring line of one arch reveals corroded reinforcing steel which is exerting stress on the concrete. This location, inaccessible to the public but very exposed to the elements, requires repair.

Floor tile cracking and bulging: Clay tile flooring used at the fourth-floor loggia is cracked and failing at several locations along column lines, indicating structural movement of the assembly. One instance of bulging, on the north side, has pushed the tiles out of their proper plane.

Stucco deterioration and exposed rebar: The inset panels of the stucco ceiling and overhanging soffit at the fourth floor loggia are deteriorated in several locations on all four elevations, exposing corroded metal lath and the cast-in place concrete structural slab of the roof. These locations align perfectly with the roof drains above, and the condition stems from moisture infiltration.

Limestone patching material deterioration: Below the areas of stucco deterioration, repairs are visible at three lengths of the limestone coping at the loggia wall, indicating previous repairs to extensive horizontal limestone cracks. Though the cracks have been filled and the patching appears to have halted the cracking, the intervention adversely affects the limestone's appearance.

Mortar loss: The mortar used for the meta-anorthosite columns on the fourth floor is eroding, and some joints have separated. Occurring randomly throughout the fourth floor, the worst instance of mortar erosion and joint separation occur on the north corner of the west façade. Of note, the mortar deterioration on the fourth


Photo: Volz & Associates

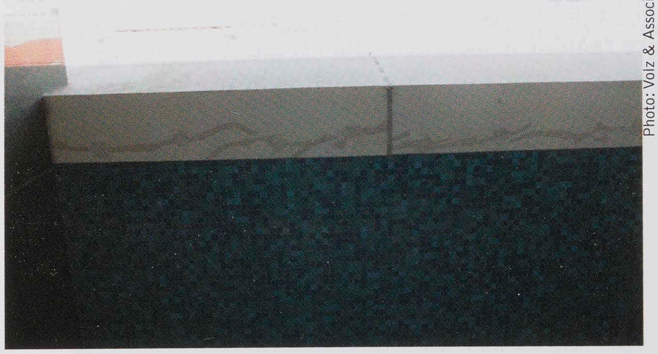
Peeling stucco on the ceiling of the fourth-floor loggia of Flawn floor is directly above the meta-anorthosite displacement occurring on the first floor. In addition, the mortar erosion has occurred between the plinth and the meta-anorthosite shaft on the first floor.

Mechanical damage: Some meta-anorthosite columns at the corners of Flawn Academic Center have chipped corners, most likely from impact damage. The plinth of one of the columns at the corner of the south and east façades is severely cracked and has been displaced into three parts. On the fourth-floor loggia, the limestone in one place appears to have been power washed or sandblasted, resulting in circular pitting. Mechanical damage to the terrazzo floor has resulted in cracks.

Incised graffiti in limestone is found only on the fourth floor. Once open to students, the limestone course of the loggia exhibits several carvings.

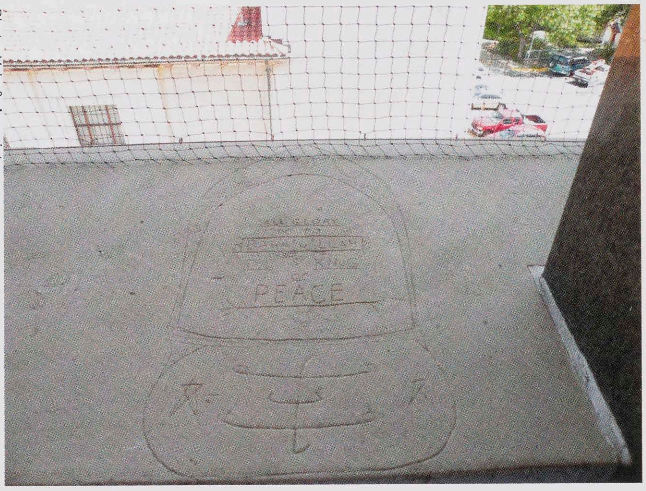
Soiling: On the first floor there are instances of biological, atmospheric and soiling from what appears to be a previous cleaning technique. Biological growth occurs on the limestone retaining wall, and in some locations plants are also present. Biological growth also occurs along the granite course below the aluminum window and doorframe on the first floor. Atmospheric soiling is present on the terrazzo floor on the first and fourth floors as well as on the meta-anorthosite walls and columns. Also, on the north façade, the fire hose connection is corroding and has caused metallic stains on the granite and terrazzo floor. General environmental soiling typical for a building of this age is evident at the barrel-vaulted canopies and tile floors.

Photo: Volz & Associates



Limestone patching on the fourth floor loggia of Flawn

Photo: Volz & Associates



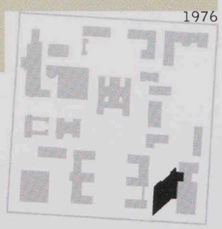
Incised graffiti on the limestone of Flawn's fourth floor loggia

The fountain on the south side of Flawn Academic Center has a meta-anorthosite wall. Exposure to water from the fountain over a period of nearly 50 years has altered the meta-anorthosite surface, and metallic staining is present.

Mosaic tile deterioration: Previously completed repairs to the mosaic tiled walls of the fourth floor loggia are evidenced by the use of a slightly different colored grout and sloppy technique, resulting in a wider joint than the original. Most of the original tile is in good condition.

Peeling paint: Along the west façade, underneath the patio and above the exposed basement, the wall edges have chipped paint, exposing corroded metal. Paint is also peeling at the galvanized tube steel balustrade that wraps the west and south first floor colonnade.

Cracked glass appears only on the west side of the fourth-floor loggia.



4.4. Architectural conservation issues

Our surveys of the five case study buildings showed several conditions that occur throughout. Towards developing an architectural conservation plan for historic buildings of the Forty Acres and the rest of the UT campus, we identified several conditions that merited further investigation. To better understand the conservation issues, we studied water drainage and other sources of deterioration affecting limestone and mortar materials. We also investigated metal corrosion, especially as it affects the performance of historic windows. A summary of our findings is below.

4.4.1. Drainage

Site drainage

Most Forty Acres buildings have partially-recessed ground floor levels, monumental staircases leading to first floors, and at least one accessible entrance. The natural slope generally facilitates drainage. Two exceptions are stormwater inlets in low- to no-slope areas that become clogged and ineffective, and landscape sumps created by breaches in the landscape irrigation system.

Natural site drainage is augmented by stormwater inlets tied to 6″ to 12″ storm sewer lines that run adjacent to the buildings generally on the uphill side. Additional inlets are strategically located in courtyards to carry runoff from impervious paving. Concealed inlets within planting beds, as at the east side of Battle Hall, are vulnerable to clogging from leaves and debris. Such inlets can be clogged for years, causing long-term water infiltration into adjacent basements.

Landscape irrigation in use at the east side of Main Building is discharging excessive amounts of water against the building, causing long term damage to the foundation.

Landscape sumps are more frequent and can be seen at several locations, including the east side of Main and the south side of Waggener. Artificial irrigation systems, designed to assist in landscape maintenance, require regular inspections and repair to ensure their continued performance. Damage or poor adjustment of these systems results not only in damage to the renewable landscape, but also to the foundations and wall systems of adjacent buildings.

Masonry deterioration is evident in areas of poor drainage or artificially created sumps that collect water. Continued exposure to water from these sources often results in damage to stonework and dissolution of mortar binder. Sulfates and other soluble salts that are naturally present in the soil exacerbate the problem. Damaged and missing mortar opens up cavities in the wall system, allowing water to penetrate into interior walls.

Surface erosion has resulted in exposure of foundation walls in some areas, creating vulnerability to erosion, water infiltration, and eventually, structural damage to building materials.

Site drainage on steep slopes such as the southeast corner of the Forty Acres campus area, combined with non-functioning or non-existing foundation drains, will negatively affect foundations, retaining walls and stair walls. Properly functioning foundation drains are needed to relieve the hydraulic pressure exerted on the wall and avoid structural shifting of the masonry.

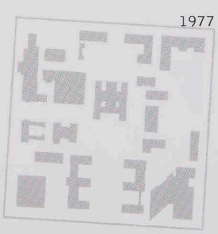
Roof drainage

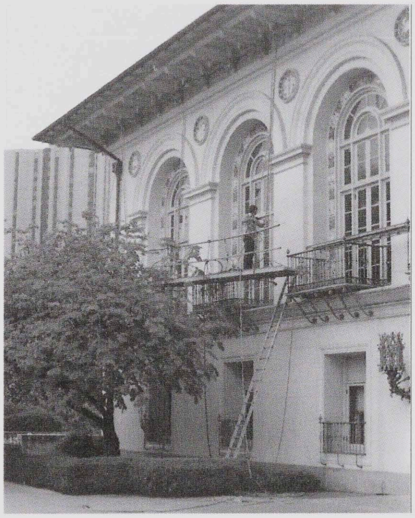
Roof drainage throughout the original campus is typically carried from half round or molded copper gutters to downspouts concealed in the wall cavities or exposed with decorative copper leader heads and downspouts. Exceptions can be found at buildings with a low-sloped roof design, such as many parts of Main and all of Flawn. In these instances, water discharges from the roof through cast metal drains or perimeter inlets to downspouts concealed within the wall assemblies. From the downspouts, whether concealed or exposed, roof water is carried to a subgrade drain system of 5″ to 6″ storm sewers lines at the building perimeters.

Challenges to effective roof drainage systems on the campus include gutters clogged with leaves or pigeon debris and flat roof drains clogged with gravel ballast. A wide array of other challenges are noted on our annotated elevation drawings, including failures at edge, valley, and step flashings, roof and drainage modifications that were not properly installed, breeches to gutters and downspouts that discharge water to exterior walls, and material deterioration.

Most low-sloped roofs on campus are constructed of layers of roof felt bound together with asphalt. The assembly is then topped with a gravel ballast to protect the asphalt from UV degradation. As asphaltic binder degrades, the gravel ballast becomes loose, then shifts in heavy rains. Drain bodies at low-sloped built-up roofs tend to become clogged with the gravel ballast, while the scrim of the roof felts in adjacent areas becomes exposed. The clogged drain holds water on the roof, usually over the exposed scrim. This leads to eventual damage of the roof deck and eventual leaks to the interior.

1977





Water blasting of Cordova Cream exterior of Battle

4.4.2. Masonry

Previous repairs and restoration work

During our survey of conditions, we noted repair work on exterior masonry materials of several buildings of the Forty Acres. For example, there appear to be replacement mortars on Battle Hall, and many limestone cracks have been repaired. The replacement mortars and crack repairs are noticeable because they do not match the color or texture of original mortar or adjacent stonework. In addition to these obvious repairs, there are other conditions that suggest inappropriate materials or methods used in restoring or maintaining exterior masonry. To better understand existing conditions of exterior masonry materials, our investigation included a review of records of previous repair work. A summary of previous repairs and restoration follows with our comments about how this work may have affected weathering.

Cleaning

Several conditions noted during our surveys suggest that previous cleaning "campaigns" on the Forty Acres may have adversely affected limestone substrates.

For several buildings, there are photographs that document exterior cleaning. Brenda Kirkland's thesis, Building Stone of the Campus of the University of Texas, includes a photograph clearly showing a suspended scaffold on the east elevation of Battle Hall. The caption reads "Water blasting of Cordova Cream Limestone of Battle Hall, May 1982". Commenting on the cleaning techniques, Kirkland notes that "water-blasting has caused accelerated weathering of Cordova Cream Limestone of Welch Hall." She speculates that "any sort of blasting, even with just water, weakens the surface of Cordova Cream Limestone and makes it more susceptible to chemical weathering by acidic rainwater."[14] Photographs from the Visual Resource Collection show exterior cleaning of Goldsmith Hall, with a suspended scaffold on the south elevation and a worker who appears to be using a pressure washer wand. This photograph is not dated, but appears to predate Goldsmith's 1988 addition.

Exterior cleaning of Goldsmith

Although water washing is generally considered to be the "gentlest means possible," this cleaning technique is not without risks. For example, high pressure water washing can erode the surface of soft stones such as limestone and damage fragile masonry. In several locations, circular erosion patterns in the limestone surface appear to be "wand" marks from overly zealous pressure washing. This effect is shown in the photograph of limestone on the west façade at the ground

[14] Brenda L. Kirkland, Building stone on the campus of the University of Texas (1995), 6.

Possible wand marks

floor level. If masonry cracks are present, or if mortar joints are deteriorated, water intrusion can be an unwanted result of water washing. With water soaking, the extended exposure to water can encourage the recurrence of biological growth on limestone substrates.

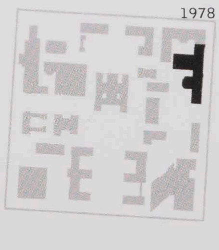
Limestone cleaning also was carried out in 1993, when Battle Hall received an exterior "face-lift." Notes on the elevation drawings indicate cleaning limestone walls "with a cleaning solution in accordance with the material manufacturer's directions, and as approved by the Engineer." Specifications for the 1993 exterior maintenance work on Battle Hall and West Mall Building provide information about the cleaning solutions that were used. A one-part limestone cleaner was specified for "limestone," and a two-part limestone cleaner was specified for "stonework." The one-part cleaner is identified as Sure Klean Limestone Restorer manufactured by Prosoco, Inc., and the two-part cleaners are Diedrich Limestone Cleaner Prerinse and Afterrinse manufactured by Diedrich Chemicals or Sure Klean Prewash and Afterwash manufactured by Prosoco, Inc.

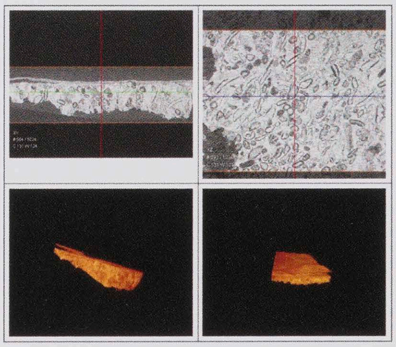
Both Battle Hall and West Mall Building are constructed of Cordova Cream Limestone, and it's not clear how "limestone" and "stonework" are differentiated. However, none of the products specified is appropriate for cleaning limestone of historic buildings. The one-part cleaner contains hydrochloric acid, and with its use there is a risk of dissolving calcium carbonate minerals, the primary component of limestone. The two-part cleaners contain highly alkaline sodium hydroxide solutions that are used in conjunction with acetic acid solutions. The acetic acid after wash is used to "neutralize" the surface following cleaning with the alkaline prewash. In practice, it is sometimes difficult to remove the alkaline residues, and problems with efflorescence can occur if soluble salts remain on the masonry surface. In addition to problems with soluble salts, the use of strongly alkaline cleaners can result in staining. Limestone substrates are particularly vulnerable because the iron-containing minerals that are present in limestone react with the alkali, resulting in brown or reddish-brown staining.

Specifications developed by UT's Project Management and Construction Services in recent years are more suitable for historic building exteriors and are discussed in the recommended treatment sections below.

Coatings

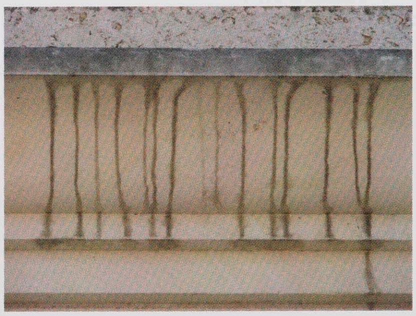
The 2008 Laboratory Methods course also provided an opportunity to further investigate the presence of water repellents on limestone samples. Students visited the High-Resolution X-Ray Computed Tomography Facility at the UT Jackson School of Geosciences.





Cordova cream sample; sample with coating

Condensation



Dripmarks

Dr. Richard Ketcham used a small sample from the south wall of Battle Hall to demonstrate the new computerized tomography instrument. The image from this examination shows clear evidence that a water repellent was applied.

During our on-site surveys, we also noted conditions that suggested the presence of water repellent treatments. The formation of condensate on Cordova Cream Limestone of Battle Hall provides evidence that water repellent treatments were used on exterior walls. Also, the dark-color drip marks below projecting moldings are unusual, suggesting residues of previously applied treatments. The dark color of this staining is from biological growth.

Protective treatments used on the historic buildings of the Forty Acres were discussed in the 1982 Kirkland thesis. Kirkland states that following water blasting to "clean the stone and remove micro-organisms" from Welch Hall, an acrylic coating was applied.[15]

Kirkland indicates that when Batts Hall, Mezes Hall, and Benedict Hall were constructed, the Cordova Cream Limestone was "sprayed with a silicone compound that penetrates into the stone and helps protect it from moisture and weathering." She comments that "products such as these can be very beneficial; however, if they are applied to the surface of a stone containing water in the pore spaces, the effects can be disastrous."

In fact, it is not possible to keep water out of the interior pore network of masonry materials. Unless coatings are "breathable" (i.e., they allow for the transmission of water vapor), moisture is trapped within the stone, and eventually deterioration occurs, resulting in damage to the coating as well as the substrate. In addition to this problem, research has suggested that acrylic coatings actually encourage biological growth, serving as a food source for some organisms. It is possible that the dark-colored drip marks below projecting moldings are residues of old coatings that support biological growth.

In 1993, protective coatings were specified for exterior maintenance work that was carried out on Battle Hall and West Mall Building. Notes from 1993 drawings indicate the intention to "apply approved water repellent in accordance with the manufacturer's direction and as approved by the Engineer." Specifications section 07175 specifies a 3% concentration of polymerized silicone resins in solvent, and lists several manufacturers that comply with the requirements.

The 2001 UT PMCS specifications for protective treatments are more appropriate for use on historic buildings and are discussed in the recommended treatment sections below.

[15] Kirkland, Building Stone, 5.

Repointing

Our conditions survey and our review of construction documents indicate that original mortars have been replaced in some locations. Research conducted by Volz & Associates for an earlier UT project provides information about work specified in May, 1961. The specification package was for "Restoration and Waterproofing of Stonework" on four campus buildings, including Battle Hall. "Western's DILATO non-shrinking mortar which is compounded to include Portland Cement, fine aggregate, and water repellent, causing the compound to expand upon initial setting" was specified for repointing. This replacement mortar has greater mechanical strength than Cordova Cream Limestone of Battle Hall, and its use has resulted in problems, including joint separation that allows for water intrusion.

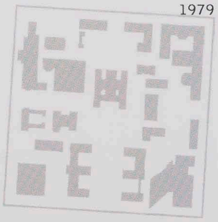
Drawings for the 1993 exterior maintenance work for Battle Hall and West Mall Building include notes for repointing: "Rake and repoint or reseal all vertical and horizontal joints in steps and slabs at entrances to buildings and steps adjacent to building. Replace miscellaneous missing or loose mortar in stone joints to match existing and as directed by the Engineer. Include in Base Bid to repoint 2000 linear feet of stone mortar joints." Specifications for this work include mortar mixes. Section 04500 Masonry Restoration and Cleaning indicates a "one-part Portland cement, one-part lime, six-parts colored mortar aggregate" for pointing stone and a Type N mortar, with "cementitious material content limited to Portland cement-lime" for "rebuilding mortar."

Further research

Although we were successful in locating records for some of the previous work, our review is not complete. Other work on building exteriors may have been carried out. For example, when Battle Hall was renovated as the Barker Texas History Center, starting in 1946, exterior restoration work may have been carried out. The three-year renovation and repair project on the Student Union that began in 1974 may have included exterior restoration and maintenance. We know that Sutton Hall was renovated in 1980 to accommodate expansion in Architecture, but we have not located records providing details of this work.

Our investigation of previous restoration and maintenance work on the Forty Acres will continue, and we expect historic preservation students to pursue this topic in the Materials Conservation course. A comprehensive record of restoration and maintenance work is valuable in understanding the performance of building materials and systems, and is a useful planning tool. Recommendations for documenting future maintenance work will be further discussed in Chapter 5.

1979



Biological staining

For our survey of conditions, biological growth was defined as algae, fungi, bacteria, and other micro organisms of various colors and forms that colonize on the surface of building materials or penetrate into the interior network of pores. The result of this colonization is a biofilm that often is dark-colored and, depending on the environmental conditions and substrate type, may form solid layers or films.

The presence of biological growth was noted during our on-site inspections, and is particularly noticeable on light-colored limestone substrates. Biological growth is more severe on projecting moldings and other areas where moisture is retained. In many locations, biological growth is present as dark-colored vertical streaking. There also are dark-colored vertical drip marks below some of the projecting moldings where biological growth is severe. Photographs of Goldsmith Hall from the Visual Resources Collection indicate that biological growth has been an issue for some time.

Associated problems

Limestone discoloration, especially the black streaking associated with biological growth, has long been a concern on historic buildings. In a 1947 publication on the building stones of Central Texas, the authors comment that "in the warm, humid atmosphere of the southern coastal states, many stones are discolored by organic plants which grow on the surface of the stone."[16] In discussing highly porous stone such as Cordova Cream Limestone, the authors add that "The greatest discoloration will occur on coping stones and projecting ledges where water can collect and penetrate the stone, and also in streaks down the sides of buildings where leaky downspoutings, cracked cornices or copings permit excess water to come in contact with the walls." They recommend protecting the stone with a colorless waterproofing material.[17]

In addition to detracting from the appearance of light-colored stonework, microorganisms accelerate deterioration. Most biofilms hold in moisture, and some organisms produce acidic metabolites that can damage acid-sensitive materials such as limestone. Minerals present in some masonry materials are a food source for biological growth. Endolithic organisms are of particular concern because they are known to penetrate several centimeters into the substrate. Scientists have studied these problems for several decades. Problems related to the presence of biological growth on limestone include:

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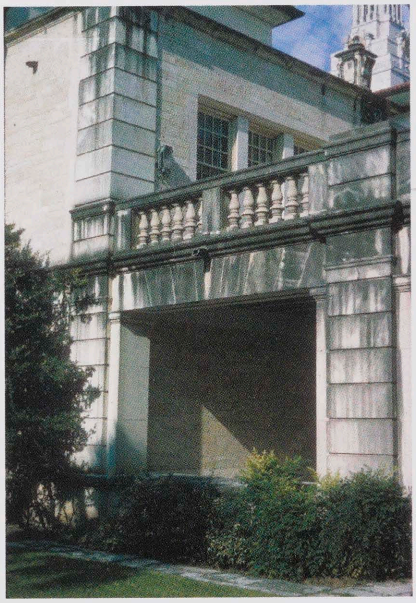
[16] Barnes, Virgil E., Raymond F. Dawson and George A. Parkinson, Building Stones of Central Texas (UT Publication No. 4246, 1947), 181.
[17] Building Stones of Central Texas, 181.

- Production of harmful metabolites
- Mechanical stress created by production of extracellular polymeric substances
- Alteration of pore size and distribution
- Accelerated accumulation of atmospheric pollutants
- Catalyst for crust formation



Biological growth

Previous treatment

Some cleaning materials and techniques may accelerate the recurrence of biological growth. The use of harsh chemicals and high pressure water rinsing often damages limestone substrates, enlarging pore size. With increased surface area, prolonged contact with water and increased absorption may create an environment conducive to biological growth. Although our research provides information about previous cleaning campaigns, there are no records of how quickly the biological growth reappeared on limestone surfaces.

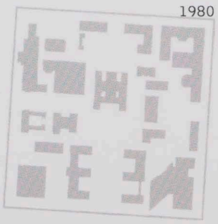
Research also suggests that film-forming coatings such as acrylic and silicone water repellents promote biological growth, and it has been shown that some are potential food sources for the micro-organisms. The dark-color drip marks below projecting moldings are unusual, and suggest that residues of previously applied treatments may be present. The dark color of this staining is from biological growth.

Identification of organisms present

Prior to beginning our research on the Forty Acres, another project involving a historic 1930s Cordova Cream Limestone building located in Texas provided an opportunity to identify the micro organisms present. We consulted Dr. Jerry Brand, Director of UT's Culture Collection of Algae. Surface scrapings were examined using a stage microscope at 400x magnification with Nomarski illumination. The majority of organisms Dr. Brand saw were cyanobacteria, also known as blue-green algae. These organisms were characterized as filamentary, nonheterocyst cyanobacteria, 12-15 microns in diameter. According to Dr. Brand, these organisms typically form gels that hold in moisture, and change color during drought. Carbon dioxide is a food source. Some orange resting phase eukaryotic algae were also present.

Historic preservation graduate student Casey Gallagher continued our study of the organisms present on Cordova Cream and Cordova Shell Limestone in the spring 2008 Laboratory Methods course. Working with Dr. Brand, she identified cyanobacteria as the main component of biofilms present on limestone samples from historic buildings of the

1980



UT Forty Acres. Gallagher's research provided additional information about problems associated with cyanobacteria, including the formation of endolithic colonies below the masonry surface. Although these resilient organisms require water, they survive in dry weather in a dormant stage, during which their color darkens. This darker color helps protect the endolithic colonies.

Cyanobacteria thrive in the alkaline environment that limestone provides. In addition to adversely affecting the interior pore system of the limestone substrate, some cyanobacteria produce harmful metabolites. In addition, cyanobacteria are known to be primary colonizers of limestone, providing an environment that is conducive to the growth of other bacteria, algae and fungi that also contribute to deterioration of masonry materials.

Laboratory testing

In 2008 and 2009, Casey Gallagher studied cyanobacterial growth on Texas limestone for her thesis project, and her laboratory and field work included Cordova Cream Limestone of the Forty Acres. Through DNA testing, Gallagher identified several species of cyanobacteria, including some that are known to be endolithic. The laboratory testing also included evaluating the effect of cleaning agents on cyanobacteria cultures. The results of her laboratory and field testing are summarized in our recommendation.

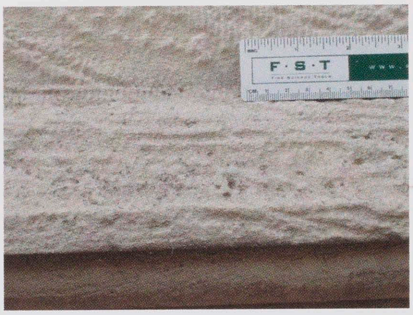
Limestone deterioration

Limestone surface finishes are varied throughout the Forty Acres. Examples are smooth-finished Cordova Cream Limestone of Battle Hall, tooled Lueders limestone of Waggener Hall and broached Indiana limestone of the Main Building. Coursing also varies, such as the random ashlar coursing of Cordova Shell Limestone and rusticated Indiana limestone of the Main Building.

Although the condition of the limestone of the historic buildings of the Forty Acres is generally good, several conditions of deterioration were observed during the conditions surveys. Some conditions appear to be the result of normal weathering, while other conditions may be the result of deferred maintenance or inappropriate previous repair work. Below is a description of the conditions affecting limestone substrates and a discussion of possible sources of deterioration. Additional information about previous repairs and restoration work that may have contributed to deterioration conditions is included in the previous section.

Existing conditions

Surface losses: Conditions involving losses to the limestone surface include erosion, flaking, peeling, pitting and spalling. Erosion generally occurs slowly, and becomes noticeable as edges, corners and carved details become less crisp. Erosion can be the result of naturally occurring phenomena involving water, wind, and wind-blown particles. Erosion affects the building's appearance, especially when carved ornament and lettering become difficult to read; in addition erosion often increases surface area, prolonging contact of the masonry surface with moisture.



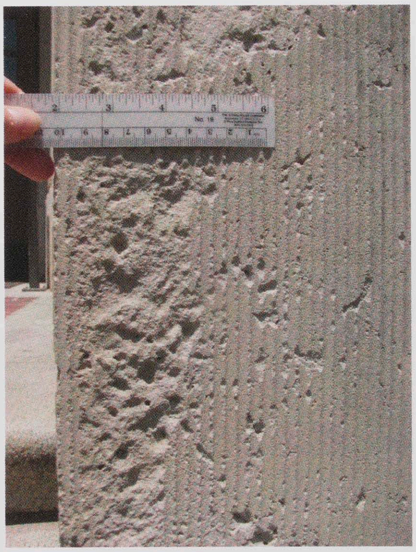
Erosion

Although slight surface erosion was noted on much of the limestone throughout the Forty Acres, the condition is generally not severe. In some locations, severe erosion and the appearance of circular "wand" marks suggest that damage is the result of high pressure washing, as observed on Battle Hall and Goldsmith Hall.

Flaking and peeling are more serious conditions, resulting in material loss as thin pieces of the limestone substrate become detached. Flaking usually involves the loss of small pieces; with peeling, a larger surface area is affected. Both conditions are generally related to the movement of interior moisture and are exacerbated by the presence of soluble salts. The most noticeable surface losses have occurred on Battle Hall limestone of the north elevation stack wall and at the south elevation stairs. In both locations, surface losses are sometimes significant, and the condition appears to be exacerbated by the presence of a Portland-cement based coating that restricts the movement of interior moisture.

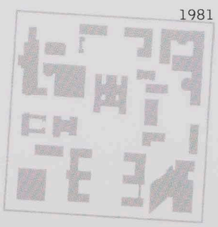
Peeling

Surface pitting produces small cavities in the limestone surface. This condition can be the result of differential weathering of individual components, but it is more typically related to the movement of interior moisture that contains soluble salts. On Waggener Hall, although the cause of severe surface pitting of Lueders limestone was not conclusively determined, it may be related to contact with soluble salts in groundwater, because the pitting is located near grade. Alternatively, the damage may be the result of previous cleaning with harsh chemicals.



Limestone pitting

Spalling involves substantial surface losses, with the outer layers breaking off unevenly. Like flaking, peeling, and pitting, this condition is caused by the movement of interior moisture. With many of the limestone spalls observed during our inspections, there is associated corrosion of metal ties and reinforcing materials.



Spall

Cracks of varying sizes were noted on limestone substrates of the Forty Acres. Although most cracks are small and do not appear to be serious, it was not possible to determine whether they are stable or active. In some locations, the cracks appear to be related to structural settlement or movement. Examples are the cracks in limestone capstones of the Flawn Academic Center fourth-floor loggia; many of these cracks have been repaired.

The most noticeable cracks are at Battle Hall, where the dark color of the patching material does not match the adjacent limestone. Historical documents suggest that these cracks may have occurred soon after construction was completed: "The Library was constructed in 1910, and numerous cracks in its walls are to be seen already. The stone setting was very poorly done, however, and it is not believed that the failure of the stone was due to any weakness in the stone itself, even though part of the materials used was of poor grade due to weather conditions." This observation is from a 1992 master's thesis on the geology of Cedar Park building stone (Cordova Cream Limestone). It is not clear whether the author is referring to exterior or interior walls.[18]

Crack repair

Other damage: Mechanical damage is the loss of material due to impact, especially originating from human activity. In addition to aesthetic issues, mechanical damage may also accelerate deterioration by allowing moisture to enter the wall. Mechanical damage has affected limestone near loading docks and where retrofitted entry doors have been installed. Examples on the Forty Acres are the loading dock of West Mall Building and at the Waggener Hall entry at the north end of the east elevation.

Displacement involves the movement of a masonry unit or section out of alignment with the wall or building element. If severe, displacement can pose a hazard to passersby. Examples of displacement are the stair walls on the east elevation of Waggener Hall and the retaining wall between the Student Union and Flawn.

Displacement

In some locations, deterioration of old repair materials has occurred. Deteriorated patching material is an aesthetic issue, and may also result in deterioration of the substrate. Deterioration associated with inappropriate repair work is further discussed below.

Sources of deterioration

Inherent problems: Some of the deterioration conditions affecting limestone of the case study buildings are related to the composition and properties of the limestone itself. Limestone substrates are particularly vulnerable to water-related deterioration because the mineral of most

[18] Leonidas Theodore Barrow, The Geology of the Building Stone of Cedar Park and Vicinity (UT Masters Thesis, 1922), 55-56.

limestones is calcium carbonate, which is slightly soluble in rainwater, especially when it is acidic. The pH of rainwater in Texas has been measured at 5.7, a pH that is significantly more acidic than 7.0 which is neutral.[19] Given this vulnerability of limestone to acidic precipitation, it is not surprising that contact with rainwater eventually results in surface erosion. Flaking, pitting, and other surface losses are also associated with limestone mineralogy.

The porosity of limestone is also an inherent property that contributes to deterioration. Cordova Cream Limestone is the most porous of the Forty Acres limestone substrates. In a 1927 National Bureau of Standards report, the 24-hour water absorption for Cordova Cream Limestone is reported at 9.8-12.3%, and its resistance to frost action is noted as remarkable, considering its physical properties.[20] Water absorption rates are lower for Lueders and Indiana limestones. The 24-hour water absorption for Lueders limestone is 6.0-6.9% and the 24-hour absorption rate for limestone from Bedford, Indiana averages 4.2%.

Although the 1927 report does not include 24-hour water absorption test results for Cordova Shell Limestone, its capillary water absorption was evaluated by Casey Gallagher. For this testing, limestone test specimens were placed on glass beads in a container, with one surface exposed to water. Capillary water absorption, measured as weight gain, was evaluated over a one hour period. Capillary absorption of Cordova Shell Limestone was 1.63%. For Cordova Cream Limestone, capillary absorption was significantly higher at 8.03%.

Because so many deterioration processes are water-related, high absorption rates are problematic for limestone substrates. It is not surprising that Cordova Cream, with the highest absorption rate, appears to be most vulnerable to salt damage, biological growth and other water-related deterioration processes.

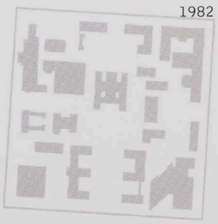
Water drainage: Damaged, defective or poorly maintained gutters and downspouts have contributed to limestone deterioration.

Previous restoration work has contributed to the limestone deterioration. Water-impermeable mortars, patching materials and coatings are of particular concern because these materials trap moisture and salts within the stone. Alternating periods of wetting and drying of this trapped moisture causes clay minerals to swell, eventually resulting in damage to the interior pore system and to the limestone surface. Damage from water-impermeable coatings is most severe on Battle Hall limestone of the north stack wall and the south wall by the stairs.

[19] Texas Water Development Board, Texas Manual on Rainwater Harvesting (2005), 22.

[20] D. W. Kessler and W. H. Sligh, Physical Properties of the Principal Commercial Limestones Used for Building Construction in the United States (United States Bureau Technical Paper No. 34, Government Printing Office, Washington, D.C., 1927).

1982




Inappropriate Patch

Additional problems with previous repair work include the development of limestone cracks when high strength repair materials are used and water infiltration when detachment of patching materials occurs.

The use of harsh chemicals and high pressure water in cleaning often damages limestone substrates, enlarging pore size. With increased surface area, prolonged contact with water and increased absorption may create an environment conducive to biological growth.

Mortar joints

Existing conditions affecting mortar joints of unit masonry included deteriorated and missing mortar, joint separation, and inappropriate replacement mortars. The importance of properly maintained mortar joints is well understood. In addition to preventing water intrusion, mortar also fills voids between masonry units, and provides a "cushion" that allows for slight movement.[21] The color, texture and form of mortar joints contribute to the appearance of the masonry wall.

Mortar materials

Most mortars are composed of a cementitious "binder" mixed with sand. With historic buildings, mortar binders have included lime putty, hydrated lime, and Portland or other manufactured cement. In the early twentieth century, manufactured cements often were blended or gauged with lime.

Sand helps to prevent shrinkage and reduces the cost of mortars. Because sand is the primary component of most mortars, it influences color and texture. The shape of pit sand grains is generally angular while beach sand grains are more rounded. Sand grading (related to grain sizes) influences workability, water retention, and bond strength. Although local sands were used on most building projects in the early twentieth century, the importance of using clean, washed, and properly graded sand was widely understood.

Mortar samples are examined in the laboratory to identify mortar components and to determine their mix. On this project, samples were not available for laboratory examination, so information about original materials and mixes of the case study buildings was determined through archival research at the Alexander Architectural Archive.

[21] Harley J. McKee, Introduction to Early American Masonry, stone, brick, mortar, and plaster (Washington: National Trust for Historic Preservation, 1973), 61.

Battle Hall: Construction documents suggest that the mortar used in setting stone work of exterior walls included a mix of lime and Portland cement, in a ratio of "about five parts lime mortar to one part cement." Meier's Puzzolan Cement (or an approved brand of American Portland cement) was specified and the sand for mortar was to be "clean, coarse, sharp river sand free from loam, clay or dirt and to be screened to remove large pebbles."[22]

Waggener Hall: The bedding mortar specified for brick and stone was one part well slaked lime putty to one part cement to six parts sand by volume. Cement was to be "Magnolia Stainless Cement or Fort Scott Cement," with Fort Scott Cement mortar to be composed of one part Fort Scott cement to three parts sand. Lime was to be "a well known and tried make and brand approved by the Architects and shall conform with the Tentative Standard Specifications and Tests for quicklime." Sand was to be "clean, properly graded, washed Colorado River sand free from loam, acids, alkalis, soluble salts, clay and organic matter." Mortar was to be "mixed, soaked and handled in accordance with the manufacturer's directions, subject to approval by the Superintendent."

For brick, the specifications indicate that "each brick shall be laid with a full joint in full bed of mortar, all interstices being thoroughly filled and where brick come in contact with anchors, each shall be 'brought home' to do all the work possible. Each piece of common brick work shall begin and end with a header course. All mortar joints in exposed common brickwork and tile work shall be neatly underhand struck ... and shall be cleaned of with a stiff brush as work progresses."

The pointing mortar for limestone was "a carefully prepared non-staining mortar composed of one part of approved brand non-staining cement to three parts sharp, clean washed sand with the addition of one-fifth part of hydrated lime." Bedding mortar was to be "raked out 3/4 inch from face of stone to allow for pointing."[23]

Goldsmith Hall: During construction, Superintendent of Construction Hugh Yantis disapproved of the 1:1:6 mix of cement, lime and sand, instead recommending a one to three mix of cement and sand, leaving out all lime entirely. Cements mentioned in project correspondence include Magnolia Waterproof cement (without the addition of extra waterproofing), Dittlinger Masonry cement, and Bedford Stainless Cement. It is not clear whether the cement mortar preferred by Yantis was actually used.[24]

[22] General Specifications for the Construction of the Library Building.
[23] Box D270 Waggener Hall.
[24] Box D130 Architecture Building, Box 1.

1983

Main Building: Robert Leon White's correspondence includes his approval of the use of Magnolia Cement in a mix comprised of one part cement, three-quarters part quicklime and four parts sand with Omicron waterproofing added in accordance with the manufacturer's directions. Testing of mortar materials conducted by Pittsburgh Testing Laboratories included testing a local lime from a New Braunfels manufacturer, sand from Austin, and Omicron mortar-proofing from Master Builders of Cleveland, Ohio. Correspondence suggests that Pittsburgh Testing Company also evaluated a mortar mix with Magnolia Cement in a one part cement to one-half part lime to four parts sand ratio, but this mix does not appear to have been approved by Architect White.[25]

Flawn Academic Center: Industry standards for mortar materials were well established by the 1960s. Specifications indicate that Portland cement was to comply with ASTM C 150; lime with C-207 and sand was to be well graded and free from organic matter, meeting ASTM C-144. A type N mortar mix composed by volume of 1 part Portland Cement, one-quarter part lime and three parts sand, conforming to ASTM C-270 was specified.[26]

Sources of deterioration

Several sources of deterioration have affected the original mortars of the case study buildings, including natural weathering, problems with water drainage and the use of inappropriate replacement mortars.

Natural weathering: Well designed and executed mortar joints have a service life of several decades, but mortar materials are vulnerable to natural weathering. Most deterioration processes affecting mortars are water-related, and the presence of soluble salts from ground water, cleaning residues, and adjacent materials can accelerate weathering of mortar joints.

On the historic buildings of the Forty Acres, original mortars are slightly eroded in areas exposed to rainwater, such as the head joints of projecting elements. Biological growth that is found preferentially in these areas may have contributed to mortar deterioration. Mortar deterioration was most noticeable at the Battle Hall north stack wall and the south wall along the stairway. In both locations, it appears that soluble salts have accelerated deterioration.

Water drainage: Leaking roofs and gutters are other major sources of mortar deterioration. Poorly functioning gutters and leaders (downspouts) are often the result of design flaws or inadequate maintenance. This topic is further discussed in the section on water drainage.

[25] Boxes D172, D173, D174 MBLE.

[26] General Specifications for Undergraduate Library and Academic Center.

Previous restoration work: The use of inappropriate replacement mortars is also a source of deterioration. Replacement mortars that do not match the color, texture, and joint profile of the original mortar detract from the appearance of the wall. For example, the darker color and wider joint profile of replacement mortars used on Battle Hall and Goldsmith Hall detract from the appearance of exterior limestone walls. More important, the use of hard, impermeable mortar often is damaging to the unit masonry. Soft, highly porous Cordova Cream Limestone is particularly affected by the use of inappropriate replacement mortars.

4.4.3. Metal corrosion

Ferrous metals

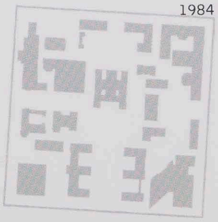
Decorative metal work of the case study buildings includes wrought iron balcony railings, window grilles and lanterns. Cast iron was used for some of the decorative elements of the Battle Hall balcony railings and for the Main Building spandrel panels. These ferrous metals were originally painted, with specifications such as one coat of red lead primer followed by two coats of linseed oil paint with white lead and zinc pigments.

Although the condition of most of the wrought and cast-iron metal work is generally good, there are areas of paint loss and localized corrosion throughout. More serious corrosion affects the Main Building spandrel panels, where the condition is sometimes severe.

With both wrought and cast iron, corrosion is associated with areas of paint loss. The process generally begins when coating defects allow contact between liquid water or water vapor and the ferrous metal substrate. Corrosion products (rust) form, with an accompanying increase in substrate volume. The corrosion process accelerates as the coating continues to fail, particularly in areas where cracks and crevices allow moisture to collect. As expected, the degree of corrosion present on metal work of historic buildings of the Forty Acres is related to the condition of the protective coatings and its contact time with moisture.

Other ferrous metals, such as steel used for windows are discussed in the Window Conditions section.

1984



Nonferrous

Several decorative elements of the Main Building are bronze, including the balconies, brackets and second floor windows on the south façade. The original finish for these bronze elements is not known. Contract documents from 1934 state that the finish on window frames and sash "shall be as selected by the Architect." The original finish may have been a purposely applied patina created by applying a chemical solution to the bronze surface following manufacture. Dark-colored statuary finishes, produced by applying a sulfide solution to the bronze surface, were widely used during the early twentieth century. The decorative lanterns of Waggener Hall are bronze, but they appear to have a dark-colored coating, rather than a chemical patina.

The bronze metal work appears to be in generally good condition. Some corrosion is present throughout, formed by the reaction of the bronze with pollutants (sulfuric and nitrous oxides) in the air. Most of the corrosion appears to be stable (i.e., not water-soluble).

4.4.4. Window conditions

Windows throughout campus are in excellent to fair condition. Windows in excellent condition include those of Garrison Hall, Will C. Hogg Building and Gebauer Building, all of which have been rehabilitated in recent years. With other historic buildings, deterioration of historic windows reflects the lack of regularly scheduled maintenance. Examples are the windows of the Main Building, Waggener Hall, and Welch Hall. Although in need of repainting and repair work, these windows still retain their functionality. Given their high-quality materials, it would be very costly to replace them with comparable windows. The treatment section of this chapter outlines appropriate materials and procedures for window repair and maintenance.

Awnings

Historic photographs reveal that many west- and south-facing windows on campus were protected by awnings in the earlier part of the twentieth century. Anchors from these awnings are still evident at most buildings, including Main, Battle Hall, Will C. Hogg, and many others. These awnings were drawn to protect the windows during the hot summer months, and retracted during the winter to provide natural warmth to the interior. Awnings deteriorate, with a typical lifespan of 5-10 years, and none are in use today, except at the fourth-floor penthouse of Main.

Window films

A contemporary solution to heat gain through windows is the use of window films applied to the interior face of the glass. Windows of several campus buildings have been treated with films of varying character to control heat gain. The most noticeable films are used on the east side of the Tower and at Welch Hall, where the gold tinted film is aging and deteriorated on many windows. A much less noticeable gray-tinted film was installed in 2008 on the west side of the Tower. Window films have a lifespan of 10-20 years, depending on the manufacturer and material technology.

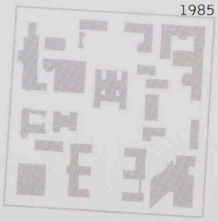
Wood

Most wood sash are in good to excellent condition. The windows of Garrison Hall have been beautifully restored to their original appearance; this project received the 2008 Merit Award from the Heritage Society of Austin. Wood sash at the Gebauer Building, Will Hogg, and Sutton Hall have also been restored within the past 20 years. The singular instance of extreme wood sash deterioration can be found at the Main Building, where wood casements at the third floor interior courtyard are likely rotted beyond repair.

Steel

Rolled steel windows have fared well in all locations. Even though paint finishes are not always intact, the base steel of all rolled steel windows is in remarkably good condition. Functionality, particularly of the Browne Windows at the Main Building and Waggener Hall, is sound as well. Surface corrosion expands the steel seven-fold, and iron oxide tends to stain the intact paint finishes below, making the windows appear to be in worse condition than they actually are. By industry standards, steel windows are considered to be moderately deteriorated when corrosion penetrates the metal, indicated by a bubbling of the metal. Corrosion that has penetrated deep into the metal, causing delamination and structural damage, is considered severe. Few instances of moderate deterioration were noted, and no instances of severe corrosion were found at campus windows. Most of the steel windows installed on campus pre-date 1955, when factory galvanizing became an industry standard. Without this treatment, preservation of these windows has relied on the quality of the steel and its gauge.

1985



Steel casement windows at Batts Hall have been replaced with reasonably sensitive facsimiles, but the new windows are non-operational. Limited window replacement has also occurred at the Main Building Library Extension, fourth floor interior courtyard. The aluminum replacement windows do not match the detailing or form of the original steel windows, and should not be used as a prototype for additional replacements.

Aluminum

Anodized aluminum windows have an expected life span of 20 years, and repair methods have not been refined. Aluminum is also the most thermally-conductive frame material available, and is more prone to condensation in the winter months.

4.5. Architectural conservation recommendations

4.5.1. Drainage

Site drainage

Treatment

Site drainage concerns fall into three categories: surface erosion, under-performing or non-existing foundation drains, and damage to irrigation and water lines. Long-term site drainage issues also affect adjacent masonry. Masonry repairs must be completed prior to or in concert with site repairs to fully address the negative impacts of site drainage.

Surface erosion can be addressed through ordinary landscape maintenance, and on steep slopes through terracing. Any terracing should be carried out under the direction of a landscape architect and in consideration of the historic landscape character of the Forty Acres.

Foundation drains are more challenging, costly and disruptive to install or replace. Proper foundation drain installation includes excavation to the base of the wall footing, installation or replacement of the foundation waterproofing membrane, installation of a drainage board and filter fabric, the laying of a perforated drain wrapped in filter fabric that is sloped and connected to a storm drain, and back fill with properly sized aggregate. Once the topsoil is restored, it is not possible to tell if the drain is present or not. Long-term maintenance of the drain can be upheld with the installation of clean-out risers that allow the pipe to be routed on a maintenance schedule.

Irrigation and water supply lines are adjacent to every building. Irrigation sprinklers must be monitored and maintained on a regular basis to ensure that they are not malfunctioning or spraying water on adjacent buildings. Is addition, sprinkler heads should not be set within 24″ of building perimeters.

Maintenance

Regular grounds maintenance needed to facilitate proper site drainage includes landscape maintenance and mulching to prevent erosion, clean out of foundation drains every five years, and continuous vigilance in irrigation and utility system maintenance.

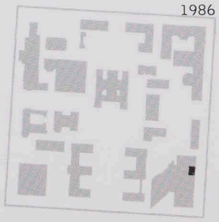
Roof drainage

Treatment

Proper roof drainage requires continued vigilance in monitoring and repairs. This is challenging because gutters and roof drains require special access, and cannot be monitored from the ground in most cases. Clogged gutters and downspouts can have disastrous effects, as seen on the north wall of Battle Hall, where long term clogs in existing gutters and early leaks in the original concealed gutter system have led to deterioration of the masonry wall below. The recommended treatment for the north stack wall of Battle Hall is replacing the exterior limestone veneer and interior plaster, but this work should not be carried out until the gutters and downspouts are cleaned and repaired, and there is a plan for regular inspection and maintenance. Repairs to roof drainage systems are essential to prevent similar damage to other buildings.

The exposed gutter and downspout systems of historic buildings are cold rolled copper, which is a superior material for this purpose. Repairs to copper gutters and downspouts should be completed by a qualified and experienced craftsperson. Typical copper repairs may include re-soldering open joints and pinholes, and re-anchoring downspout straps into the mortar joints. Expansion joints must be maintained to accommodate the natural expansion and contraction of the metal. Asphaltic mastic and other types of roof cement should not be used to repair copper gutters and downspouts because they have a different coefficient of expansion, and will rapidly deteriorate when used with copper. Such repairs will be short-lived.

1986



A skilled roofer should repair built-up asphalt and gravel ballast roofing in a manner that does not impede roof drainage. This work should include clearing the drains, eliminating the exposure of the fiberglass scrim, repairing loose and damaged flashings, and eliminating bubbles and other irregularities.

Maintenance

The University's recent installation of new roof ladders on most buildings is an important step in providing safe and convenient roof access for maintenance personnel. Many roof areas, particularly the perimeter gutter, are accessible only by lift. Maintenance and repair work should include inspection of all drain bodies, gutters, and downspouts, with cleaning and repair as necessary. Inspections should be scheduled on a bi-annual basis. The optimum times are in the fall after deciduous trees have dropped their leaves, and in the spring after live oaks have dropped theirs.

4.5.2. Masonry

Biological staining

Treatment

We noted biological staining on Cordova Cream, Cordova Shell, Lueders and Indiana limestones. We investigated through research and testing to identify the organisms present and to evaluate adverse effects to the limestone. Because the biological growth present on historic buildings of the Forty Acres is associated with deterioration processes affecting limestone substrates, our treatment recommendations discuss materials and methods for exterior cleaning.

Cleaning methods: Desire for improved appearance often motivates cleaning of exterior masonry on historic buildings. However, there often are other issues to consider. With biological staining on limestone substrates, the biofilm retains moisture, and some microorganisms produce acidic metabolites that damage limestone and other acid-sensitive materials. In addition, severe biological staining sometimes masks erosion, cracks and other deterioration conditions.

The methods that have been used for exterior cleaning include mechanical cleaning, water washing, and chemical cleaning. The goal should be to remove soiling without adverse effects to the substrate. Excessive water pressure, harsh chemicals, and mechanical cleaning should be avoided, as they often damage the surface of the limestone, increasing its vulnerability to water-related deterioration. Inappropriate cleaning materials and techniques sometimes encourage the recurrence of biological growth.

Specifications developed by UT's PMCS in recent years are more suitable for historic building exteriors. The 2001 specifications for cleaning state:

> Masonry cleaning shall be limited to the gentlest means possible. Test areas in inconspicuous locations. Tests must be approved by University project representative. Low pressure wash no greater than 400 psi unless authorized by University project representative. In no instance shall sandblasting be acceptable. Compliance with the Office of Environmental Health and Safety is required.
>
> Discharges from pressure washing shall not be allowed to enter a storm sewer or waterway. Vacuum the water for disposal off-site or berm the process water and allow it to evaporate. If the rinsate only contains water and dirt or sediment, it may be spread on the ground only with written prior permission from the University of Texas at Austin Office of Environmental Health and Safety.[27]

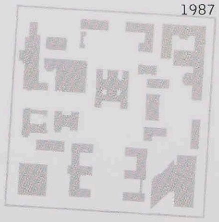
This low-pressure washing specification seems appropriate for exterior limestone substrate. It may be advisable to include also a recommendation for a wide-angle spray tip for the pressure washing nozzle and to limit water volume to 4 gallons per minute.

Although we have photographs, drawing and specifications from past projects, there is no documentation of how quickly the biological growth reappeared following cleaning, or whether the recurrence was more severe. Conditions of biological growth should be consistently monitored and recorded for the benefit of future treatment planning.

Selecting a cleaning method should include an evaluation of adverse effects as well as its success in removing the soiling. On-site testing is best conducted in unobtrusive locations with representative conditions. In October 2008, students in the Field Methods course conducted on-site cleaning tests to remove biological growth from limestone substrates. Tests areas included Cordova Shell Limestone of a low planter wall near the Battle Oaks at Twenty-fourth Street, and Cordova Cream Limestone of the roof balustrade on the east elevation of Goldsmith Hall, at the south side. On-site testing was directed by Historic Preservation student Casey Gallagher, whose thesis focused on identifying the biological organisms present on Texas limestone.

[27] utexas.edu/pmcs/dcstandards/divisions/DivisionFour/04930.pdf.

1987



Following a literature search and discussions with architectural conservators, two commercially available products were selected for on-site testing. These products, D/2 Biological Solution, manufactured by Cathedral Stone Products, Inc., and EnviroKlean BioWash, manufactured by Prosoco, Inc. D/2 and BioWash are commercially available products that contain a quaternary ammonium compound. Both appear to be effective in removing biological growth without causing adverse effects to limestone substrates.

In our test locations, D/2 and BioWash were applied to test areas (each approximately 4″ x 6″) as recommended by the manufacturers. A third test area was cleaned with water and gentle scrubbing. Both cleaning products and water washing appear to be effective in removing most of the biological growth present in the test areas. In the initial results, there was little difference among the cleaning materials and techniques that were tested.

Quaternary ammonium cleaning compounds were further evaluated in laboratory testing during the 2009 spring semester, in collaboration with the UT School of Biological Sciences. In the laboratory tests, the quaternary ammonium compound-based cleaner appears to "decolorize" the cyanobacteria, presumably adversely affecting its viability.

Forty Acres testing results: Based on the results of our research and testing, we recommend a quaternary ammonium-based product, such as D/2 Biological Solution or EnviroKlean BioWash. Low-pressure water rinsing should be used to remove cleaning residues and for general cleaning of limestone in areas where biological growth is not present. Harsh chemicals and high pressure water rinsing are potentially damaging to limestone substrates and should be avoided.

Model project off campus: Recent work on a building similar to historic Forty Acres buildings, the 1909 United University Methodist Church (UUMC), provides a good model for restoration on campus. The project included exterior cleaning to remove biological growth from Cordova Cream Limestone. As with historic buildings of the Forty Acres, biological staining on the UUMC limestone was severe on projecting elements and other areas where moisture is retained.

Heimsath Architects, an Austin-based firm, originally planned to clean exterior limestone with Prosoco's EnviroKlean BioWash. However, BioWash was not effective in removing severe staining. For these areas, a more aggressive cleaning process was used. EnviroKlean BioKlean cleaner, a sodium hydroxide-based cleaner was mixed with BioKlean activator, a hydrogen peroxide bleach. An acidic neutralized rinse was applied following rinsing to remove any residual alkali. The cleaned appearance of the limestone is excellent, but as discussed above, there is always a potential for surface damage with harsh chemical cleaners. We intend to evaluate the recurrence of biological growth following a year's exposure to weathering.

Laser cleaning: The use of lasers to remove soiling from masonry substrates is a relatively new method for cleaning historic buildings. Until recently, this use of lasers was limited, in part due to logistics and the cost of equipment. However, recent reports of their success in cleaning a variety of substrates suggest that this technique may be worth investigating. PMCS staff became interested in laser cleaning following discussions with a Chicago-based conservator who bid on a UT project. The laser produces intense coherent electromagnetic radiation that is absorbed by dark-colored soiling, including biological staining. Absorption of radiation results in vaporization, and when the light-colored stone is exposed, the laser beam is reflected away from the surface, effectively stopping the cleaning process. If done correctly by a trained technician, the stone substrate is not damaged by radiation.

Coatings: The 2001 UT PMCS specifications for protective treatments are:

> If use of a water repellant sealer is proposed, the sealant shall be a "breathable" type, and shall be approved by UT project representative and the Texas Historical Commission. Use water based materials when possible.

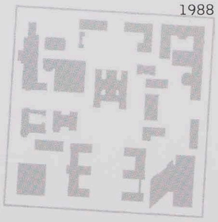
Because of the inherent problems associated with water repellents, our recommendations do not include application of a protective treatment for limestone substrates.

Maintenance

The biological growth present on exterior limestone of the Forty Acres detracts from its appearance and our research indicates that the biofilm accelerates weathering. Cleaning to remove biological growth is recommended, and should be coordinated with other exterior restoration work. We expect that cleaning will be needed at 5-10 year intervals.

In addition to cleaning, there are other measures that can be taken to inhibit biological growth on exterior limestone.

- Inspect water drainage systems, including gutters, downspouts, connector heads, etc. annually, and repair or replace poorly functioning elements;
- Repair masonry cracks, losses and other damage that allows water to collect on the surface or enter the wall;



- Repoint open and deteriorated mortar joints;
- Trim tree branches that provide excessive shading (trimming should be done under direction of the Campus Urban Forester, and may involve trade-offs with shading for regulation of heat gain);
- Remove ivy, creeper and other plants from masonry walls.

Exterior cleaning should be documented, and reports should include the materials and methods used with "before" and "after" photographs of conditions. Preventive maintenance inspections should include an assessment of biological growth, with photographs documenting existing conditions. This step is especially important following cleaning because it establishes a record of the recurrence of biological growth.

Limestone deterioration

Treatment

There are several goals in treating limestone deterioration: improving the appearance of the masonry, restoring the integrity of the building surface or element, and preventing further deterioration. The selection of repair materials and techniques is important, and the skill of the craftsman executing the repair is critical to success.

Unfortunately, not all deterioration conditions can be successfully repaired. For example, treatment of superficial surface losses is not recommended because repair techniques require the removal of a significant amount of sound limestone. The repair of small cracks also requires removal of sound stone. For these conditions, monitoring is the better approach.

Surface losses: Patching is recommended for spalls and other losses that extend below a superficial level. Patching materials for historic masonry generally are mixtures of lime, cement and sand. The size, shape and color of the aggregate are critical to achieving a mix that will match the color and texture of adjacent stonework. Alkali-stable pigments also are sometimes required. For most repairs, the addition of bonding agents and other admixtures is not recommended. Following curing, the patching material should be permeable to water vapor, and its mechanical properties should not exceed those of the limestone. Commercially available products that have been used in patching on historic building projects include Jahn M70 Restoration Mortar manufactured by Cathedral Stone Products, Inc. and Rosendale 13 P Natural Cement-based Repair Mortar, manufactured by Edison Coatings, Inc. Product literature, including application instructions and Material Safety Data Sheets, is available on the company websites.

In locations where spalled limestone has exposed reinforcement, metal corrosion is usually present. This condition should be further investigated and treatment of metal corrosion should be carried out prior to patching.

Dutchman repair and replacement are alternative repair methods that may be appropriate for some limestone deterioration conditions. Dutchman is a term used to describe the use of new (or salvaged) stone that is cut to match the existing stone where the loss has occurred. Because Cordova Cream, Cordova Shell, Lueders and Indiana limestone are still available, Dutchman repair and replacement may be the best repair options in locations where significant losses have occurred.

Mechanical damage at loading dock

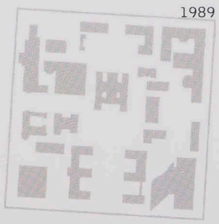
The mechanical damage noted at the south elevation loading dock of West Mall Building is example where Dutchman repair may be an appropriate repair option. With Dutchman repairs, chisels are used to remove existing stone at the spall or loss, forming a rectangle with square corners, and with a two inch minimum depth. The new stone piece is cut to fit the loss, and the exposed surface prepared to match the existing limestone. The Dutchman is secured using stainless steel pins and epoxy adhesive. Following cure of the epoxy, a matching pointing mortar is used to complete the repair.

In areas of extensive deterioration, replacement may be the best option. An example is the north stack wall of Battle Hall. Here the condition of the limestone is visually distracting, especially because the previously applied treatment is also deteriorated. The extensive limestone losses are largely superficial, making patching problematic in this location. Replacement appears to be the best repair option. The condition of limestone at the stairs on the south elevation is similar in appearance to that of the north stack wall and appears to be another candidate for replacement.

Displacement: In some locations, a limestone block has shifted, and is now out of alignment with the wall or building element. An example is on the east elevation of Waggener Hall at the north entry. In this location, the movement of soil or tree roots may have caused displacement. Another example is the retaining wall in the alleyway between the Student Union and Flawn Academic Center. Limestone displacement should be further inspected and, if there are public safety risks, treatment is recommended. Treatment involves disassembling the masonry wall. During this process, each masonry unit should be numbered and its location keyed in to a drawing or photograph. The source of deterioration should be addressed prior to reassembly. The wall should be rebuilt using the existing stone and a mortar that matches the original in color, texture, and hardness.


Displacement

1989



Exceptions: Several conditions noted during our survey do not require treatment at the present time. These include erosion and other superficial losses. Although sometimes unsightly, erosion, flaking and peeling are generally superficial conditions that do not affect the integrity of the limestone block or element. Unless the condition is severe, the installation of patching material requires removal of additional limestone to ensure a mechanical bond. The limestone cracks that were noted during our conditions survey are small in size, and treatment is not recommended at this time. Except for areas where mechanical damage is severe (e.g., at the West Mall Building loading dock), treatment of this condition is not recommended. Monitoring of superficial losses, minor limestone cracks and most areas of mechanical damage is discussed below in Maintenance. With mechanical damage, steps should be taken to prevent further damage from vehicular traffic.

Maintenance

Periodic inspections: Beginning in 2003, inspections of historic buildings of the Forty Acres have been conducted by VFA, a Boston-based company that provides services for facilities asset management and capital planning. The VFA inspections include assessing conditions of exterior limestone, and their reports provide cost data for the required repairs and replacement. Although the information provided by VFA is a valuable planning tool, the report recommendations are not always appropriate for historic buildings. We recommend participation of an historic preservation specialist in assessing masonry conditions and determining treatment for historic buildings. This recommendation is further discussed Chapter 5.

Monitoring: There several conditions affecting limestone that should be monitored, including erosion, small cracks, and other superficial losses that do not require treatment. Photographs and written records could be included with maintenance reports. Cracks that appear to be active should be further investigated to determine the sources of deterioration. Any changes in length or width can be easily monitored with a simple crack monitor. This device consists of two overlapping acrylic plates, one with a grid and the other with crosshairs. The plates are affixed to the wall on either side of the crack with the grid and crosshairs lined up. Epoxy adhesive and, if necessary, small screws are used to secure the monitor. The gauge is checked at regular intervals, and the position of the crosshairs on the grid is recorded. Changes that occur over time can be used to determine the pattern of crack movement. Avongard Crack Monitors are available from Avongard Products USA, Ltd.

Mortar joints

Treatment

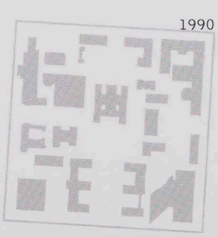
Replacing deteriorated and missing mortar restores visual and physical integrity to exterior walls. In most cases, replacing only deteriorated and missing mortar is recommended rather than total replacement. Prior to initiating repointing work, a thorough inspection of existing conditions helps to identify deteriorated areas and to quantify the work required. In the surveys that we conducted during 2008-2009, the condition of mortar joints of historic buildings of the Forty Acres was generally good. Although open joints and deteriorated mortar were occasionally noted on the case study buildings, these conditions affected less than ten percent of exterior walls of these buildings.

Laboratory testing: With historic buildings such as those of the Forty Acres, laboratory testing often is used to identify materials of the original mortar and to determine the best mortar mix. A simple method consists of examining the sample with a stereomicroscope, then acid digesting (dissolving) the soluble components of the binder. Following digestion, sand is separated from the clay or cement residues that are not acid soluble, then sieved to determine grain sizing. Information about the sand fraction, including color, grain size, and shape, is useful in specifying replacement mortars.

Although this method has been used to characterize historic mortar, it is not a reliable test for determining original mortar composition. Additional laboratory testing including petrographic examination of whole mortar samples helps eliminate errors. ASTM C 1324 Test Method for Examination and Analysis of Hardened Mortars covers procedures for petrographic examination and chemical analysis of masonry mortar samples, and provides information for determining component proportions. A standard test method used in examining sand fractions is ASTM C 295 Guide for Petrographic Examination of Aggregates for Concrete. National Park Service Preservation Brief No.2, Repointing Mortar Joints in Historic Masonry Buildings, contains a review of methods used to analyze historic mortars.

Section 4.3 includes information about mortar materials and mixes that were specified for the case study buildings. Based on historical documents for these buildings and correspondence related to construction, it appears that the pointing mortars for the case study buildings consisted of cement-lime binders mixed with sand. For some, the use of river sand (presumably locally available) was specified. Because mortar samples from historic buildings of the Forty Acres were not available for laboratory testing, the information obtained in

1990



our historical research was used to determine appropriate materials and mixes for replacement mortar. These recommendations can be verified through laboratory testing when mortar replacement is required.

In addition to studying information about the original mortar materials and mixes, it is also important to consider the composition and properties of the unit masonry. Most importantly, the replacement mortars should never be harder or have greater strength than adjacent limestone or brick masonry. Mortar should be a sacrificial material, weathering before the masonry substrates. Replacement mortars must also be permeable to water vapor, allowing for the transmission of interior moisture.

Preliminary recommendations: Little information about replacement mortars is provided in the 2001 UT PMCS specifications. Section 04930 – Masonry Restoration and Cleaning states:

> Historic buildings' grout repointing shall comply with the UT Austin campus historic restoration recommendations. Extreme care shall be taken during the repointing process. Use of hand tools is required.

In June 2006, Volz & Associates recommended repointing open joints of the north wall of Battle Hall. Because funds to carry out restoration work on Battle Hall were not available, Volz & Associates recommended using a soft lime grout using five parts lime to one part Portland cement as a temporary measure to prevent further water intrusion.

The following are preliminary recommendations for replacement mortars:

- Type O mortar consisting of one part cement, two parts lime, and seven to nine parts sand is recommended for Cordova Cream and Cordova Shell Limestone of Battle Hall, Flawn Academic Center, etc.;
- Type N mortar consisting of one part cement, one part lime, and four to six parts sand for Indiana limestone of the Main Building;
- Type N mortar consisting of one part cement, one part lime and six parts sand for Lueders limestone of Waggener Hall, Sutton Hall, etc.;
- Type N mortar consisting of one part cement, one part lime, and six parts sand for brick of Waggener Hall.

ASTM C 270 Standard Specification for Mortar for Unit Masonry provides additional information about these mixes.

These preliminary recommendations should be evaluated further in laboratory and on-site testing. As discussed above, total replacement is not recommended, and replacement mortar should match the color and texture of the original. Selection of appropriate sand is an important first step. In some cases, however, the addition of small amounts of alkali-stable pigment may be required. In addition to determining how well the replacement mortar blends in with the color, texture and joint profile of the original mortar, field testing is useful in evaluating workmanship.

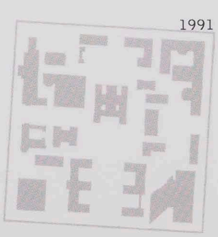
Prior to installing replacement mortars, deteriorated material should be removed and the joint prepared for repointing. This generally involves removing old mortar to a depth of 2-2 ½ times the width of the joint. Although hand chisels are preferred, in some cases small, pneumatically powered chisels and diamond-blade grinders can be effective in the hands of an experienced worker. Successful test areas should serve as standards for the materials and methods used in replacing deteriorated and missing mortar.

Maintenance

Mortar joints have been called the first line of defense against water intrusion. Because of their importance to the integrity of exterior walls, preventive maintenance inspections should include assessment of mortar joint conditions. Open joints, friable or deteriorated mortar, and joint separation should be noted, and any signs of moisture in exterior or interior wall surfaces should be thoroughly investigated. Because mortar deterioration often is related to problems with water drainage, periodic inspections should include assessing the performance of gutters and downspouts. Removal of ivy, creeper, and other plant growth is recommended.

Treatment is generally not recommended for joint separation or for inappropriate mortars that are performing well. However, these conditions should be monitored during periodic maintenance inspections. With joint separation, the length of the affected area and the width of the gap between materials should be recorded in inspection reports. With inappropriate repointing mortars, adhesion and damage to adjacent masonry should be noted. Replacement is recommended only in locations where the inappropriate mortar is adversely affecting the condition of the substrate. The above treatment recommendations should be followed when replacing inappropriate mortars.

1991



4.5.3 Metal corrosion

Treatment

Ferrous: Severe corrosion affects cast-iron spandrel panels throughout the Main Building Tower. Recommended restoration work includes removing the existing coatings and repainting. Because the spandrel panels "fins" are embedded in concrete, we expect that this work will be carried out in situ from a supported or suspended scaffold. Restoration of the cast iron spandrel panels should be coordinated with window restoration.

Paint removal can be accomplished using chemical paint stripping or by abrasive blasting. With either method, the presence of lead paint necessitates appropriate abatement procedures. Safety is critical to the success of the project, and lead-containing paint stripping effluent must be collected for disposal at an approved facility. We recommend conducting on-site testing prior to initiating the work.

Following paint stripping, the spandrel panels should be protected with a rust inhibitive primer and 100% acrylic enamel top coats to match the original paint color. An alternative paint system consists of an epoxy primer, a polyurethane intermediate coating, and a high-solids fluoropolymer top coat. Although more costly, this paint system appears to have a longer service life.

For most of the decorative wrought and cast-iron metal work where corrosion is not severe, removal of existing coatings and repainting is not recommended at this time. Instead, this work should be coordinated with upcoming renovation projects.

Non-ferrous: Bronze elements of the case study buildings are in generally good condition. Treatment includes gentle cleaning to remove surface contaminants. This can be accomplished with a nonionic detergent solution and scrubbing with a natural bristle brush. The detergent enhances cleaning, but does not leave an alkaline residue. A soft cloth should be used to remove excess water. Following thorough drying, a protective wax coating can be applied to prevent further corrosion. An added benefit is that wax treatments tend to saturate colors, improving the appearance of the bronze surface. Microcrystalline waxes are preferred.

Maintenance

Exterior metalwork, including wrought iron, cast iron and bronze should be inspected annually, and any new corrosion noted. This inspection can be conducted by the maintenance staff and records should include descriptions of conditions with photographs. Conditions may include coating defects such as pinholes and loss of adhesion, evidence of corrosion in crevices and recessed areas, loose bolts, etc.

With ferrous metals, maintaining the protective paint film is especially important and any defects should be addressed as soon as possible. Surface preparation prior to minor touch-up painting should include sanding to remove existing corrosion, exposing "bright" metal. If protective coatings are applied to bronze elements, reapplication of the coating should be considered an annual or biannual basis.

4.5.4. Windows

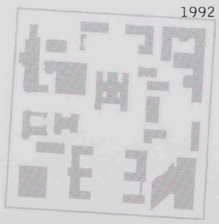
Repair

In most cases, original windows should be repaired rather than replaced in order to maintain the historic integrity of the building. Repairing historic windows also retains the high quality materials used in the original construction and reduces waste. Several measures can be taken to increase the performance and service life of original windows so that costly repairs are not required. These measures include replacement of deteriorated glazing compound and perimeter sealants, proper surface preparation, priming and painting of sash and frames and epoxy repairs to individual elements. Where window materials are deteriorated beyond repair, individual components or assemblies can be replaced in kind by skilled craftsperson. The typical scopes of repair presented below are categorized by degree of current deterioration.

Good condition: Windows in good condition should be evaluated for repair needs on a case-by-case basis every 2-3 years. Maintain sound exterior paint film, sealants, weatherstripping, and glazing compounds, and make minor repairs as needed.

Fair condition: In many cases, windows in fair condition have not been maintained in 20 or more years. Work should begin with a test of the window sash and glazing compound for lead and asbestos content. If hazardous, consult with an environmental engineer for appropriate abatement. Remove loose and unsound paint, and sand edges smooth.

1992



For wood sash and frames, repair early signs of rot using epoxy consolidant and filler. Pay particular attention to window sills, which are more vulnerable to rot and deterioration. Renail mortise and tenon sash joints. For metal windows, wire brush clean to remove rust and scale, clean hardware, and spot weld loose joints. Backbed glass in sealant, and replace deteriorated glazing compound with new putty to match original, allowing compound to cure for at least a month prior to painting.

Mask hardware, prep, prime with an oil-based primer on wood or a red oxide metal primer on metal, and paint window sash and frames with 100% acrylic coatings to match original color. An alternative paint system consists of an epoxy primer, a polyurethane intermediate coating, and a high-solids fluoropolymer top coat. Although more costly, this paint system appears to have a longer service life. Because of its increased mil thickness, this system should be further evaluated for its use on steel windows. Adjust hardware and repair or replace weatherstripping as needed.

Poor condition: In many cases, windows in poor condition have not been maintained in 30 or more years. Test windows for lead and asbestos content and consult with an environmental engineer if appropriate. Consider removing sash for off-site treatment if feasible. Remove and salvage glass. Remove old glazing putty and backbedding. Remove loose and unsound paint, and sand smooth, making sure to maintain original profiles and sharp edges in the process.

For wood sash and frames, remove rot, pre-treat remaining wood with an epoxy consolidant, then fill using epoxy filler and sand smooth. Replace severely deteriorated elements in kind to match original wood species and grain density. Consider the appropriateness of biocide and wood preservative treatments especially at north facing, shaded or otherwise vulnerable locations. For metal window sash, strip all paint using mechanical removal processes that do not pit or damage the metal. Replace individual sash and frame elements that are severely corroded to the point of delamination. After removing all corrosion, epoxy repair moderately deteriorated elements to rebuild the original material profile.

Once repairs are complete and before re-glazing, prime all metal with a rust inhibitive primer, and all wood with a high quality oil-based primer. Backbed salvaged glass, install new glazing compound to match original profile, and allow to cure for at least a month prior to painting. Mask hardware, prep and paint window sash and frames with 100% acrylic coatings to match original color. Clean, adjust and lubricate hardware. Replace weatherstripping to form a tight seal.

Improving energy performance

Energy performance can be improved by adding interior storm windows or installing low-e coated glass or low-e coated laminated glass in existing window frames. Single-pane windows can be retrofitted with interior storm windows to double their insulating value, and some window sash can be retrofitted with insulated glass. However, there are drawbacks to insulated glass. It costs from 2.5 to 3 times as much as single pane glass. When an insulated glass panel breaks from storm damage, vandalism, or accidental damage, a new panel must be custom-fabricated, which typically takes 2-3 days to order, whereas simple single pane glass can be replaced the same day.[28] Insulated glass panels with low-e or tinted glass and argon-filled chambers are even more costly to replace to match adjacent elements. Although technology for insulated glass panels has greatly improved in the last decade, seals still break on individual panes, causing the airspace between panels to fill with condensation and permanently cloud. The environmental impacts of manufacturing, shipping, and handling requirements for insulated glass panels also far exceed those of plate glass. Given the variables affecting glass selection, a careful study of life cycle costs and impacts to historic character should be conducted prior to glass replacement on any project.

According to the U.S. Department of Energy, the three most beneficial steps to improve energy efficiency include caulking and weatherstripping, window treatments and coverings, and interior storm windows. Additional comments about improving energy efficiency of UT windows:

- Thorough sealing of windows needs to be balanced with ventilation requirements for the building. Common practice is to seal windows and obtain fresh air for ventilation through a filtered air system in extreme seasons. However, natural ventilation in spring and fall months in Austin can be easily accomplished through opening historic campus windows.

- Awnings reduce solar heat gain in the summer by up to 65% on south facing windows and 77% on west facing windows, and are historically appropriate to the campus. Contemporary awning materials are water repellent and mildew resistant.

- Interior storm windows maintain the historic exterior character of the building while improving the thermal efficiency of the window as much as 100%. The exterior-facing side of the storm window can be treated with a low-e coating to further reduce heat gain. Interior storms must be ventilated to prevent excessive heat build-up and accelerated damage to the interior face of original windows.

[28] Maxey Glass, Austin, Texas, conversation with Tere O'Connell, Aug. 28, 2009.

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- There now are clear window films that do not detract from the historic character of a window. These reduce ultraviolet light by as much as 99% and reduce solar heat gain by as much as 21%.[29] Tinted window films reduce solar heat gain by as much as 78%, but have a negative impact on historic character and on the quality of indoor light. It should be noted that window films typically have only a 10-20 year life span.

Replacement

Replacing original windows should only be considered if the units are beyond repair, or if the energy savings justifies the cost. With historic buildings, replacement in kind is recommended. Window replacement is discussed in NPS Preservation Brief 13, The Repair and Thermal Upgrading of Historic Steel Windows, which recommends that, "in selecting compatible replacement windows, the material, configuration, color, operability, number and size of panes, profile and proportion of metal sections, and reflective quality of the original glass should be duplicated as closely as possible." However, even the best replacement windows mean the loss of historic material, and potentially a subtly different appearance. Any apparent cost advantages of replacement windows often disappear when quality of materials and design are comparable with the originals.[30]

Maintenance

The best time to assess maintenance needs for windows is in conjunction with window cleaning. Maintenance and cleaning personnel can be provided with a short list of items to inspect during cleaning including the following:

- Signs of rust or rot;
- Deteriorated sealants or glazing compound;
- Loose or peeling paint;
- Water infiltration to the interior, indicating poor weatherstripping.

Any of the above conditions should be reported to the university maintenance staff for appropriate action. Given that water infiltration is the cause of virtually all window damage, the highest priority for window maintenance is to maintain a sound paint finish on the window

[29] 3M Safety and Security Window Films, Ultra 600 and Safety S80.

[30] Replacing the Tower windows was investigated by Historic Preservation graduate student Emily Freeman; her 2010 thesis provides a detailed analysis of repair versus replacement. Emily Paige Freeman, Repair Versus Replace, a Second Look: The Windows of the Tower at the University of Texas at Austin (Master's thesis, UT Austin, 2010).

sash, sill, and frame, regardless of the substrate material, and to repair weatherstripping and glazing compounds when deterioration is noted. Hardware functionality should be maintained through cleaning and lubrication.

4.6. Landscape conservation recommendations

Like the rest of this document, the scope of recommendations here is not intended as a comprehensive landscape design or management plan. Rather it aims to address issues specific to the historic values of the Forty Acres landscape.

The Forty Acres landscape is marked by evolution. A few areas have remained remarkably stable over long periods – most importantly, the Main Terrace and South Mall. The Battle Oaks grove, the Biology Ponds, the lawn and grove south of Sutton Hall, parts of the Peripatos walks and tree allees are as they were in the 1930s, but for the satisfying growth of trees. The piecemeal character of this list is an indication of how much more has changed. But the landscape changes less by erasure than by adaptation within an underlying continuity. Certain durable elements often remain – trees, major walls and stairs, the organization of circulation.

These principles should continue to govern. The small set of stable historic landscapes should be preserved unless there is some very compelling reason to do otherwise; this is all the more important where the landscapes have high historical or iconic significance, as at South Mall or the Battle Oaks. Elsewhere, the principle should be continued adaptation, within a framework of continuity and respect for design intentions and tradition.

A particular set of questions will arise from UT's efforts toward sustainability, and particularly water conservation. These issues are not so disruptive as they might otherwise be, as Forty Acres landscape for more than a century has been designed with a deep regard for the climate, and planted with mainly native species, many chosen for the vitality they displayed where they occurred naturally. And then there are those lawns.

An important lesson from our climate-aware predecessors and the historic landscapes they have left us is that here in a semi-arid region, our goal is not to make the campus look like the desert, but just the opposite, to make it an oasis. Where 75,000 people spend their days together in little more than half a square mile, water may be deployed

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very efficiently to welcome them. The oasis landscape is green and shady, with water flowing – familiar here in Central Texas in the geology of limestone springs. Students eat outside in the Union courtyard, under an oak tree planted in 1934, next to a fountain re-created in 2008, when it is 95 degrees Fahrenheit and the air-conditioned interior is thirty feet away. This is an extraordinary step toward sustainability in this climate.

4.6.1. Trees

Management of the campus forest is detailed in the Campus Tree Protection Policy: Standards and Specifications (Landscape Services, 2008).

The general issues of the Forty Acres forest are similar to the rest of the campus. Trees need to be pruned, parasites eliminated, pests controlled and diseases monitored and treated. More than elsewhere on campus, Forty Acres trees, possibly a majority, have experienced raising of grade that has deposited overburden on their roots. On this part of campus, root rejuvenation and regrading are especially important, including some projects of non-trivial scope: the oaks north of GSB had as much as four feet of overburden deposited on their roots. The 1970s walls disrupted the ground plane, especially along Twenty-first Street. Whether and how to treat these issues, after decades, is a question for investigation by a master arborist.

The species most culturally significant to the UT campus is Quercus virginiana, the Southern Live Oak, planted in great numbers by Calhoun in the 1930s and establishing the iconic appearance of the Forty Acres. As with any monoculture plantation, it is vulnerable to disease, in this case the oak wilt fungus, which has infected campus trees. Oak wilt spreads through roots, which is somewhat an advantage for managing it on campus, where trees are in discrete groups separated by buildings and underground utilities. The disease is slower and more manageable than some that affect other species, and can be mitigated by tending to the general health of the live oak forest. Replantings may mix species in order to interrupt the monoculture plantation, but species should be chosen to maintain the visual continuity of the forest.

In chapter 3, we distinguished among three categories of significance for campus trees. The first, the general campus forest, has been addressed above. The others are designed groupings, and individual landmark trees.

The tree inventory database, created by Arbor Pro, Inc., and maintained by Landscape Services, should be used as the basis for a cultural resource inventory of the trees. A cultural or historical field should be added to the record for each tree, as a place for noting which were planted with a commemorative or memorial intention, and any other individual significance. A separate field may note trees that are part of a management unit for design purposes. Each of these carries distinct management implications.

Individual landmark trees should be given special attention, and should be maintained to the end of their lifetimes, longer than might otherwise be indicated on aesthetic grounds. They should be removed only when necessary for safety or the cumulative health of other trees.

Designed groups should be managed as ensembles, in the service of their design intentions. UT's live-oak groups are at early stages in their life cycles, so for now this points toward replacing missing members with mature trees where possible, to maintain uniformity. The more difficult decisions will come later, when whole groups arrive at the end of their lifespans. Replacing a whole group may require removing individual members that are still viable. Retaining viable individuals may disrupt the original design intentions. In some settings it is possible to solve this puzzle by planting whole new rows that can replace older ensembles as a unit; this is unlikely to be a solution on the Forty Acres because of the small scale of the campus and the large scale of Quercus virginiana. It is not our intention to answer these questions, which may not arise for another century if we take good care of our trees.

4.6.2. Other flora

Replacements should maintain complete designs within historic landscapes. The important thing is the design intention, not necessarily the particular choice of species.

Turf should remain in limited areas where it is a character-defining feature of the historic landscape design (especially South Mall), and in other places where it is successfully serving its function as informal gathering and play space (examples include six-pack courtyards, the lawns south of Sutton, the Turtle Ponds-Memorial Garden area; this is not intended as an exhaustive list). Turf species is not central to historic character.

Elsewhere, perennial ground covers may continue to replace turf where that makes sense for water conservation and reduced maintenance. These replacements will tend to come in two conditions: where traffic has overloaded turf, so that perennials may be used as part of a design to keep pedestrians on hardscape, and where turf is serving a visual but

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not a social function. Groundcovers can replicate the visual qualities of turf in design landscapes; star jasmine and liriope both serve this purpose on the Forty Acres by being green, low, and visually uniform as a ground plane.

4.6.3. Fauna

Keep the turtles in Biology Ponds (no other issues of fauna as Cultural Resource management)

4.6.4. Circulation

Inner Campus Drive: any redesign for pedestrians or other purposes should maintain alignment, both plan and vertical (materials are not as important to the historic character.)

Pedestrian paths should be maintained with traditional materials. Within historic areas of the landscape, design of paths and hardscape should be maintained, and any changes subject to consultation with an historic landscape architect.

4.6.5. Walls, stairs and structures

For conservation recommendations, see architectural conservation sections in chapter 4 above.

Walls and landscape structures may be maintained to a standard more tolerant of soiling and biological growth than is appropriate for buildings.

For stairs and ramps, the criteria for maintenance and intervention should be safety and accessibility. Wear on historic structures may be accepted as part of their aesthetic, but not to the point of sacrificing safety.

4.6.6. Lighting

A schedule of individual fixtures should note original 1933 fixtures, and their compatible historic successors. They should be maintained, and if appropriate re-used within historic areas of the campus. Compatible lanterns and standards should continue to be used where replacements are necessary.

4.6.7. Furniture and fixtures

Benches should be preserved and re-used. Original locations are not essential; compatible new locations within historic areas of the campus are fine.

Cret's 1930s building identification signs should be retained, even if new identification signage is installed. They can be polished to achieve bright metal, and protective clear coating applied to maintain them. Consult with a conservator and treat these as historic artifacts.

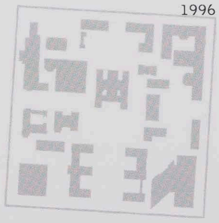
Historical interpretation: the UT campus has been very spare as to historical signage. We should continue this policy, in general, to avoid visual and cognitive clutter and maintain the unselfconscious experience of the campus environment. Opportunities abound for virtual interpretation, and mobile, place-based technologies will surely provide more, so it is especially not the time now to insert much new information directly into the environment.

With all that in mind, the campus nonetheless ought to consider inconspicuous ways of introducing historical information into the ordinary environment, as when designing the building identification signage system. These signs could include building date of construction, original name, and architect, as subsidiary information, allowing interested viewers to read it and everyone else to ignore it, and avoiding the need for any separate system of historical markers.

4.6.8. Public art

The Landmarks Public art program includes a volunteer-based conservation program, with the happy outcome of raising awareness of public art and conservation while accomplishing good stewardship. Any serious conservation issues will require professional attention. Historic art works can be treated together with the contemporary pieces in the Landmarks program; their technical needs are not greatly different.

1996



4.6.9. Water features

Maintain and operate the historic water features. They are icons of the campus.

Campus-wide Recommendations

5

The geographical scope of investigations for this plan has been limited to the Forty Acres proper, bounded by Guadalupe and Speedway, Twenty-first and Twenty-fourth Streets. In this section we turn our attention to recommendations that are generalizable to planning for historic resources on the whole UT Austin campus.

5.1. Historic listing and recognition

5.1.1. Request official determination of eligibility to the National Register of Historic Places. Pursue designation of the historic core of the campus as a National Register historic district.

In chapter 2 of this report we have evaluated the Forty Acres according to National Register eligibility criteria. We found that the whole Forty Acres is eligible as a district, and most of the buildings on the Forty Acres eligible as contributing structures. In the administrative language of the National Register, this is a "field determination" – the work of qualified preservation professionals, not yet reviewed by the State Historic Preservation Office (here, the Texas Historical Commission). If requested, the THC will review a field determination and, if it concurs, will issue an official determination of eligibility. UT has recently requested and THC has issued an official determination of eligibility for the Main Building.

The historic core of the UT Austin campus is larger than the Forty Acres proper. It certainly extends north to encompass the Littlefield House, the Women's Campus and Mary Gearing Hall, and east across Speedway to Gregory Gymnasium, Rapoport and Schoch. We have not made an effort to determine its complete boundaries.

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Regulatory advantages: An official determination of eligibility would allow flexibility in meeting certain code requirements – such as ADA compliance – where they conflict with the historic resources, and where alternate means of compliance can be found.

Official determination brings no additional regulations. Under the National Historic Preservation Act, federally-funded projects are required to identify eligible properties and evaluate potential adverse impacts on them, whether or not they have been previously identified (these determinations are administered by the Texas Historical Commission). Thus the regulatory burdens of NRHP eligibility are in no way triggered by seeking a determination of eligibility. Official determination saves a step and adds predictability. Listing on the NRHP also brings no additional regulations under federal law.

UT projects will be eligible for Save America's Treasures grants if the campus is listed on the National Register at a National level of significance (the National Register also recognizes State or Local levels of significance; we find the UT Forty Acres to be significant at the National level). SAT grants, administered by the National Park Service, typically range from $100k to $700k and are available for planning and design, as well as physical preservation and restoration. While this sum might not go far in rehabilitating a major structure such as Battle Hall or the Tower, it can serve at an early stage of the project, and it is a competitive award that can be useful in further fundraising ("America's Treasures"!). And it could be handy indeed for smaller projects, such as the recent restoration of the Littlefield Fountain. Additional information may be found at nps.gov/history/hps/treasures/ (the future of the SAT grant program is in question as the federal budget is revised).

Regulatory constraints: Under Texas statute, listing has a potential indirect effect: National Register listing is a step required before a publicly-owned property may be designed as a Texas State Archaeological Landmark (Antiquities Code of Texas, section 191.092 (f)). Proposed alterations to Texas State Archaeological Landmarks require a permit from the Texas Historical Commission. We would suggest that this is not as significant a regulatory constraint as it may at first appear.

First, sections 191.021 (b) and (c) of the Antiquities Code of Texas offer great deference to higher education, both in designation of landmarks, and in review of proposed alterations, taking into account cost, programmatic flexibility, maintenance, and energy use. Second, National Register listing is not under the control of the university; a property may be nominated by any individual, and public agencies have no veto over listing of their properties. With a designation as logical as the Forty Acres, UT ought to take the initiative itself.

SAT funding brings SHPO and NPS design review, and requires an easement for maintenance of the subject property.

5.1.2. Pursue designation of the historic core of the campus as a National Historic Landmark district.

National Historic Landmarks are the cream of the historical crop in U.S. national designations. There are only 46 in the State of Texas, and only two in Austin – the Governor's Mansion and the State Capitol (an effort is underway to seek NHL designation for the Elisabet Ney museum). Nationally, only 12 college or university campuses are designated (none in Texas); the only state university campus to achieve NHL listing is the University of Virginia.[1] The University of Texas Forty Acres deserves this honor.

NHL designation has no regulatory effect under federal law. It brings eligibility for Save America's Treasures grants.

NHL designation automatically lists the property on the National Register of Historic Places (see 'Regulatory Constraints' under 4.1.1.). Additional information on National Historic Landmarks may be found at nps.gov/nhl/index.htm.

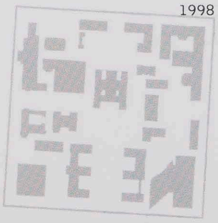
5.2. Inventory and training

5.2.1. Inventory the historic structures, interiors and features of the campus. Classify them into preservation zones by priority. Use these designations in campus planning and management.

Unlike the binary schema of the National Register (in which features are either historic or not historic), UT's preservation zones will be more useful for management by including at least three levels:

[1] Washington University; Howard University; University of Virginia; Washington & Lee University; Gallaudet College; National War College; Principia College (Illinois); College of Medicine of Maryland; Oberlin College; U.S. Naval War College, Newport; College of Charleston; George Peabody College for Teachers, Nashville. There are other campuses included within the boundaries of larger NHL districts, for example the College of William and Mary in Williamsburg NHL district, or Brown University in Providence's College Hill NHL.

1998



H-1: Primary Historic resources: these are the iconic structures and spaces of the campus (example: Battle Hall Reading Room and main stair). The campus should be managed to ensure that graduating students find these familiar places and spaces when they return for their 50th reunion.

H-2: Secondary Historic resources: all the other spaces and features that embody and display historic fabric (example: Battle Hall faculty offices). These spaces should be managed from the perspective that they are of value, and the presumption should be that they will be maintained. But their treatment may be more flexible, and adaptations are preferable here rather than in H-1 zones.

N-H: Non-historic resources: alterations that have not achieved historic status, and utility or support spaces that do not contribute to the character of the building (example: Battle Hall basement storage rooms and south hallway).

The inventory should be compiled at multiple scales: whole buildings, but also individual rooms and spaces. This report applies these categories at the scale of buildings and major features (see 3.3. above). Even at this scale we find ambiguities, as at Batts, Mezes, Benedict, Parlin, and Calhoun Halls, which we list as H-2 for their overall fabric but as H-1 for the contribution of their façades and massing to the South Mall ensemble.

We have not attempted to apply these categories at the scale of interior spaces, which is beyond the scope of this project. A good prototype can be found in the Historic Structures Report for Battle Hall, completed this year. PMCS has begun a campus-wide version with its Catalog of Historic and Significant Campus Interiors (utexas.edu/pmcs/staff/documents/InteriorsCatalog.pdf), which is a good start on listing H-1 interior spaces. An even finer grain will include architectural features, such as the ornamental lanterns of Battle Hall or the music-note boot scrapers of Rainey Hall. Such an inventory ought to identify components that have been removed from buildings, if their whereabouts are known. Also at this fine-grained scale, UT should inventory its movable heritage – furniture and objects of historic and artistic value.

The value of such a zone system will come mainly in the cumulative effects of smaller projects. Projects including H-zoned resources should be assigned to CPFM project managers with preservation training (see "Staff expertise" below). Preservation architects, consultants, and conservators should be included as appropriate on project teams. The most important competency will be in-house at UT.

5.2.2. Improve UT staff expertise in preservation and formalize a staff role for preservation.

In the same way that CES has committed to improving staff training and credentials in Green Building (LEED), UT needs to commit to staff training in historic preservation. Preservation credentials should be a required qualification, at least for those staff members who will make decisions about historic buildings and other historic resources.[2]

UT staff already have a great depth of expertise in historic preservation, acquired through experience on campus and elsewhere, with or without formal training and credentials. CES has appointed a .5 FTE Architectural Materials Conservator, Fran Gale, who brings in-house technical expertise (the appointment is matched by a faculty appointment in the School of Architecture).

The preservation zones described above should be used to steer planning, inspection, and project management to preservation-qualified staff for H-1 and H-2 resources. Projects involving these resources should use preservation-qualified consultants and contractors. Feasibility studies for projects on H-1 or H-2 buildings should include a preservation architect on the team; for H-1 buildings the preservation architect should be a lead member of the team. A preservation landscape architect should be a member of the team for projects in historic landscapes of the campus.

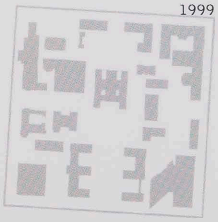
5.2.3. Work with the Texas Historical Commission.

The Texas Historical Commission is among the largest and most professional State Historic Preservation Offices in the country. The THC Courthouse program, in particular, has built a deep reservoir of expertise on complex pubic buildings, comparable in scale and uses to the largest on the campus. THC is a logical partner for UT.

Over the past decade or so, UT has made itself a model institution in its stewardship of the historic campus. This Preservation Plan for the Forty Acres is one testimonial among many, including successful projects large and small to restore and rehabilitate buildings and elements of the campus landscape. Planning is underway for the most ambitious such project to date, the restoration of Battle Hall. Work is also beginning on a new Campus Master Plan, which will for the first time include a preservation component.

[2] There is no preservation equivalent of LEED credentials – that is, an accreditation more modest than a professional degree, available across a range of professions, and available outside of formal university settings. There are graduate degrees, graduate certificates within Architecture and other professional programs, and standards for qualified professionals, specified by the National Park Service (cr.nps.gov/local-law/arch_stnds_9.htm). Training across a broad range of staff roles will need to be designed in-house at UT. This is a burden but also an opportunity to create a system appropriate for UT needs.

1999



The university's relationship with THC has long been based on a compliance model: consultation is required under state statute,[3] and review sometimes required under federal regulations. These interactions have occasionally been adversarial; more often they have been collegial, and consultations have helped to improve projects. In a narrow compliance-model perspective, a closer relationship can bring the benefit of regulatory predictability.

We propose a different approach for this relationship, a value-added model. UT and THC share core goals for the campus and its significant historic resources. Each institution brings a great deal of experience and expertise. We can accomplish more together in addressing issues of accessibility, sustainability, and adaptation of historic spaces.

5.3. Inspections and maintenance

Maintenance helps preserve the integrity of historic structures, and is the most cost-effective method of extending the life of a building. Because maintenance adds years to the service life of buildings, it is critical to sustainability efforts. A comprehensive maintenance program is comprised of several components, including periodic inspections, a written maintenance plan, cyclical maintenance tasks, non-routine, prioritized maintenance activities and an annual report to assess the program. At UT Austin, the office of Campus Planning and Facilities Management oversees maintenance. The generally excellent condition of historic buildings attests to CPFM's commitment to ongoing maintenance and sustainability. This section includes a review of the UT maintenance program, focusing on periodic inspections of historic buildings and planning for needed repair work. Suggestions for improvements are included.

Within the Campus Planning and Facilities Management office, Facilities Services, Project Management and Construction Services (PMCS) and the Information Management Team have roles in maintaining historic buildings. Preventive maintenance activities are within the purview of Facilities Services; PMCS is responsible for building renovation. The CPFM Information Management Team maintains the databases and web-based tools for managing the work carried out by Facilities Services and PMCS, including work requests, cost estimates, scheduling and reporting.

[3] The Antiquities Code of Texas, sec. 191.098, requires that any state agency notify the Texas Historical Commission no less than 60 days before altering, renovating, or demolishing any building 50 years old or older. The Commission may institute proceedings to recognize the building as a State Archaeological Landmark, but in practice the notification begins an informal review and consultation about the project. Clearly the opportunities for constructive consultation are greatly increased by starting the process much earlier.

5.3.1. Incorporate preservation in the FAMIS system of project management, and use it to produce annual reports of work on each building.

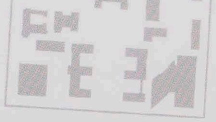
FAMIS (Facility Asset Management & Information System) is CPFM's work order and project management system, a web-based scheduling tool for capital projects and preventive maintenance work. In addition to the FAMIS database, the CPFM Information Management Team also maintains WORQS (The Work Order Request & Query System), a web-based tool for work orders, and CRIB (Construct, Remodel, Install, Build) Request form, a web-based tool for obtaining estimates for requested work.

Preventive Maintenance: A comprehensive maintenance program includes a plan for carrying out all maintenance activities, including preventive and prioritized maintenance. Preventive maintenance involves work that is repeated at regularly scheduled intervals. Some cyclical maintenance work, such as cleaning gutters and downspouts, should be carried out in spring and fall; other activities can be scheduled at less frequent intervals. At UT, the FAMIS database is used to manage Preventive Maintenance, but most activities in the database are related to maintaining equipment, including HVAC and plumbing. FAMIS is an ideal tool for scheduling Preventive Maintenance work on the building envelope as well as its systems.

Prioritized maintenance, such as storm damage repairs, is non-routine work that does not recur regularly. Budgets must include funds for work of this nature and, on some occasions, schedules must be adjusted to allow for unexpected repairs. For example, in May, 2008, west elevation windows of many historic buildings were damaged by high winds. Most repairs were carried out within a week's time, prior to graduation. Exceptions were the Biological Greenhouse and a stained glass window in the Main Building. Repairs to these windows were more complex, requiring further study, and were completed over several months.

Annual report: A comprehensive maintenance plan should also include an annual report with the list of activities that have been completed, including maintenance work and inspections. Towards implementing the sustainability principles outlined in the Campus Sustainability Policy, information in the annual reports helps to determine the short- and long-term costs of repair and replacement of historic building materials and systems. Although the FAMIS system generates a variety of electronic reports, including capital projects and completed work requests, we have not seen comprehensive reports for historic buildings. Clearly, reports of annual work are helpful in determining funds that are required for future cyclical and prioritized maintenance work. They also provide a record of historic building stewardship.

2000



5.3.2. Incorporate preservation into the VFA inspection system.

In Building Pathology, author David S. Watt comments that "Defects are discovered either by the occupants through the manifestation of an obvious fault (such as a leaking roof) or during an intentional inspection or survey of the building by a building professional." Obviously, it is preferable to discover a defect before it results in costly damage. With historic structures, periodic inspections help to avoid repair work that may require highly-skilled craftsmen, and replacement of materials that may no longer be available.

Beginning in 2003, CPFM has contracted with a consulting firm to conduct periodic inspections of all campus buildings of 25,000 sf or larger. The contractor, VFA, is a Boston-based company that provides facilities asset management and capital planning for a variety of clients in the public and private sectors. VFA's work for UT includes conditions assessments of building exteriors and interiors as well as mechanical, electrical and plumbing systems. VFA conducts inspections on one third of the campus buildings every year, producing updated conditions assessments for each building every three years.

The VFA reports provide valuable information about the existing conditions of historic buildings, and identify "deficiencies." These include building materials and systems that do not comply with current building codes, or are at the end of their service life. The reports provide estimated costs for correcting each deficiency. CPFM uses this information to determine renovation needs and to plan maintenance work.

In order to understand the existing system for maintaining historic buildings of the Forty Acres, we reviewed recent VFA reports. For each building, an Asset Detail Report lists requirements for repair work with action dates and estimated costs. The several categories of work include ADA, Fire and Life Safety, Appearance, Functionality, and Beyond Useful Life.

"Beyond Useful Life" is a loaded category where historic resources are concerned. VFA does not specify the criteria used in making these determinations. For building elements in this category, VFA most often comments that "replacement is warranted." This may be helpful as a budgeting observation, but not as a prescription for action. That is, building elements that have reached their budgeted lifetimes may reasonably be in need of further investment. The cost of replacement is a useful benchmark. Whether investment should take the form of replacement or refurbishment requires further consideration. In many cases, service life could be extended with repair, refurbishment and regularly scheduled maintenance, and this course of action would serve multiple goals – historical and artistic value, sustainability, and economy.

We also reviewed VFA's Requirement Detail Reports, which provide in-depth information about the building requirements that are listed in the Asset Detail Reports, descriptions of the required actions for each building and cost estimates. The VFA reports also include recommendations for necessary maintenance (e.g., repainting) and for further structural investigation (e.g. water infiltration in the basement level of Goldsmith Hall).

The VFA reports document the existing conditions of UT buildings and provide important information about the work that is required to maintain integrity, improve performance, enhance appearance and meet current building code requirements. Because cost estimates are included, the reports also provide a valuable planning tool for CPFM. However, the VFA inspection team does not have extensive

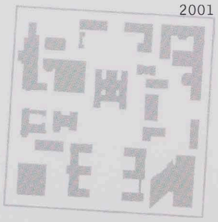
Battle Hall

The Appearance category notes that "exterior masonry walls exhibit surface staining from pigeon droppings and require surface cleaning, particularly on the north wall." A cost estimate is provided for high-pressure water washing and chemical cleaning to current this deficiency. The Integrity category includes a cost estimate for repairing damaged limestone panels on the east wall with epoxy filler to match existing color. Recommendations for exterior windows are also included in the Integrity category. Replacement of the "existing worn, wood-framed assemblies with non-insulating glazing" is included with the comment that to "reduce routine maintenance procedures associated with exterior wood framed assemblies, Physical Plant management should consider

Comments

In the VFA reports, high pressure water washing and chemical cleaning are recommended for exterior brick and limestone walls. On most projects, and especially those involving historic buildings, these procedures are not appropriate. With high pressure water washing, the potential risks include surface damage from excessive pressure, water intrusion and premature recurrence of biological growth. With chemical cleaning, adverse effects often include etching and other surface damage, efflorescence and alkali staining. Chapter 3 of this report provides our recommendations for cleaning exterior masonry of the historic buildings. National Park Service Preservation Brief

2001



replacing the existing assemblies with architecturally equivalent, aluminum-framed units with insulating glazing."

Goldsmith

The Integrity category includes a note that exterior wall surfaces require attention. Cost estimates are provided for removing existing mortar and repointing, for high pressure water washing and chemical cleaning for removing moderate surface staining and "mildew," and for sealing exterior surfaces to maintain a watertight envelope.

The Integrity category calls for replacing the worn wood-framed double-hung sash window assemblies of Goldsmith Hall. To reduce routine maintenance associated with exterior wood-framed assemblies, the report suggests replacing the existing assemblies with "architecturally equivalent" steel sash units with insulating glazing.

Main

In the Appearance category, the report states that "The exterior limestone walls exhibit moderate surface staining algae growth, and require surface cleaning and sealing." Cost estimates are provided for high-pressure water washing and chemical cleaning and for applying a waterproof sealer. The overall poor appearance of the metal-framed single-glazed windows units is also discussed. The report comments that "the windows are difficult to operate, few have any weather-stripping, the glazing is deteriorated, and in many locations the windows are leaking water during wet weather." According to No.1 provides additional guidance for assessing cleaning and water repellent treatments for historic buildings.

In addition to cleaning, replacing mortar joints was recommended for several of the case study buildings. While we agree that there are areas of deteriorated and missing mortar, much of the original mortar is in excellent condition. In most cases, total mortar replacement is not recommended. Instead, deteriorated mortar is removed using hand tools or small pneumatically-powered chisels, and replaced with new mortar that matches the color, texture and hardness of the original. The joint profile should also match the original. Whenever possible, laboratory testing is used to analyze samples of the original mortar to ensure the selection of appropriate materials and mix design. Our recommendations for replacement mortars are provided in Chapter 3. NPS Preservation Brief No. 2 has additional information about repointing mortar joints in historic buildings.[1]

ADA-related deficiencies (e.g., ramps, railing, etc.) are discussed in the VFA reports for all the case study buildings. Although the importance of meeting ADA requirements is paramount, modifying historic buildings while maintaining their character can pose challenges. National Park Service Preservation Brief No. 32 on making historic properties accessible provides information

[1] NPS Preservation Brief No. 2: Repointing Mortar Joints in Historic Buildings.

the report, the window assemblies have reached the end of their expected useful life and should be replaced with new energy-efficient units. A cost estimate for replacing the historic steel windows with aluminum sash, and double glazed insulating glass is provided.

Flawn Academic Center

The VFA report recommends replacing the window wall system along the first and fourth floor levels and the fixed windows located on the second and third levels with new energy-efficient window systems.

Waggener

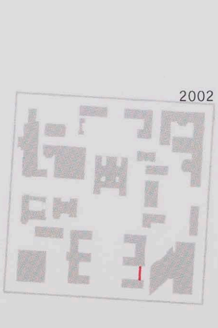
In the Integrity category, the report comments that exterior masonry wall surfaces require attention. Cost estimates are provided for high pressure water washing and chemical cleaning of exterior brick and for cutting the existing mortar out of the joints and repointing. The VFA report comments that metal framed single-glazed casement units are approaching the end of their expected useful life and recommends replacing them with new energy efficient units. The report also anticipates the need to replace materials of the roof within the next five years, commenting that clay tile, associated flashing, and perimeter gutters are nearing the end of their effective useful life.

for determining appropriate solutions for historic buildings.[2] Also, there are a number of Texas-based preservation architects whose work includes modifying historic buildings to comply with ADA requirements.

For several of the case study buildings, the VFA reports recommend replacing exterior doors. Because they are character-defining features of most historic buildings, repair or refurbishment is preferable. When replacement is necessary, design and selection of materials is critical, and replacement in-kind is generally recommended.

Replacing historic windows can be a more complex issue. We certainly agree that improving energy efficiency is critical to sustainability. Our recommendation is to consider repairing existing windows. Studies conducted on Garrison Hall windows indicate that repairing existing windows can be cost effective and improve energy efficiency. We recommend similar studies for historic wood and steel windows of other Forty Acres buildings. (see Research, below)

[2] NPS Preservation Brief No. 32: Making Historic Properties Accessible.


2002

expertise in historic preservation and their recommendations are not always appropriate for historic buildings. Below are several examples for our case study buildings from the 2006 and 2008 reports, with our comments.

The VFA conditions assessments are an important tool for documenting existing conditions. The Requirement Detail Reports provide cost estimates for deficiencies discovered during the inspections and propose action dates for carrying out the work. However, without expertise in historic preservation, the VFA recommendations are not always appropriate for UT's historic buildings.

Participation of historic preservation specialists in periodic inspections carried out by VFA would improve the information provided for historic buildings. The simplest approach, requiring no change to VFA's current scope of work, would add a review of the completed VFA inspection reports by historic preservation specialists to assess impacts on historic resources and find appropriate alternatives. Ideally, preservation specialists would collaborate with VFA in conducting the inspections, and in developing action items and unit costs for maintaining, repairing, and upgrading historic buildings. Either of these alternatives will improve the appropriateness of recommended treatments and improve the value of the cost estimates.

Additional Inspections: In addition to the periodic inspections conducted by VFA, PMCS staff members conduct informal inspections of building materials and systems prior to coordinating construction or renovation projects. Training in historic preservation would improve the information collected by staff during these informal inspections (see 5.2.2. Staff Expertise).

PMCS recently initiated a pilot project with roofing specialists, involving systematic roof inspections for eight buildings. If successful, this project may develop into a campus-wide effort. Such special-purpose inspections should address historical considerations where appropriate. A campus-wide inventory of historic resources would help determine when historical considerations are within the scope of inspections.

5.4. Campus planning and design

5.4.1. The Forty Acres should be treated as a core conservation district.

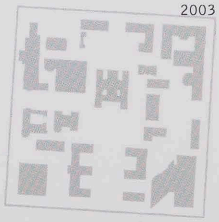
The current campus plan already takes this approach, and it should be continued in any new plan. The district should not be limited to the Forty Acres proper, but should include a larger historic core. This does not mean no changes, and does not even mean no new buildings. It means that in the historic core of the campus, the existing environment is valued and substantially to be maintained; changes here are to preserve, develop and enhance the existing character, not to transform it. Changes may increase density, but any substantial increases will occur elsewhere.

5.4.2. Campus redevelopment can increase density while retaining historic fabric.

UT has demonstrated this successfully over the past generation: the additions to Goldsmith Hall, and to Gregory Gymnasium, each added facilities within the current campus footprint while respecting and even enhancing these historic buildings.

Beyond the historic core conservation district, it is possible to add significant density while retaining buildings or portions of buildings that serve as a link to the past. Consider two examples that face one another across the Civic Center park in Denver: The Denver Public Library by Michael Graves, and the Wellington Webb Municipal Building by David Tryba. Each started with a two-story twentieth-century public building of some architectural merit; each added a far larger addition, increasing density by an order of magnitude. These are not more "façadism"; they each retained all or most of a building and treated it respectfully, while creating an entirely new functional and aesthetic composition. This approach may be controversial with some preservationists (and would be unwelcome, say, at Battle Hall), but beyond the historic core it can be a creative solution allowing campus evolution to build upon the past rather than erasing it.

2003



5.4.3. Space planning should be oriented toward adaptive use – especially lab to non-lab.

Identify historic buildings that are subject to functional obsolescence, or shift in space needs. Add criteria to space planning, seeking:

(1) sympathetic new uses; or
(2) other new uses that can be accomplished through sympathetic alterations.

These questions may be most important for laboratory buildings, where functional requirements are most exacting. The entire Science Row of the Forty Acres – Biology, Painter and Welch Halls – are historic buildings that are functionally stressed because of the enormous changes in science in 80 years (not to mention the enormous growth in science at UT). This has been addressed for decades by an informal version of the strategy that we're recommending: uses have been sorted between new additions that can provide new specialized facilities, and traditional functions such as classrooms and offices that can be accommodated within the historic fabric. These principles can be formalized, and they can be applied beyond a single department. When the fit between a historic building and its users is diverging, long-term space planning should seek appropriate new users.

There is a specific administrative corollary to this recommendation:

5.4.4. VFA's Facilities Cost Index (FCI), which compares the deficiencies of a building with its replacement cost, should be computed separately omitting use-specific deficiencies.

For example, the Biology Laboratories in 2006 showed an FCI of 1.01 – that is, correcting deficiencies would be slightly more expensive than replacing the building. But many of the costliest deficiencies are specific to the use. For example, "Laboratory Fume Hoods – End of Service Life" is a $979,000 item; Laboratory Casework deficiencies total more than $2.4 million. Excluding these use-specific deficiencies, the FCI for Biological Laboratories was .73. The building itself, as a structure available for other uses, is not in such bad shape.

5.5. Sustainability

In the past two years, UT Austin has joined with the UT System in convening a Sustainable Facilities Committee, which has examined broad measures of sustainability in the university's facilities planning and management. The committee has focused on making sustainability part of normal operating procedure, within a very large organization. Its work has been a model for us in looking to how best to incorporate preservation effectively into university operations.

Stewardship of the university's cultural and physical heritage is a foundation of sustainability. In this section we turn to specific intersections between historic preservation and other sustainability efforts.

5.5.1. Celebrate and restore (where feasible) the climate-adaptive features of the historic campus.

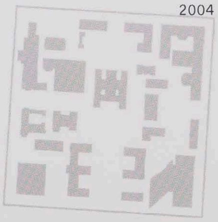
Before air conditioning, the buildings and landscape of the Forty Acres were created as a sophisticated environment for naturally tempering the climate of Central Texas. Operable windows and awnings, siting and building forms to regulate the sun and capture prevailing winds – these are the principles of modern sustainable design, and these are the principles that UT embodied and demonstrated a century ago.

5.5.2. Recognize architectural heritage and display as a core function of the campus in energy management.

For a century, UT's campus design has incorporated custom-designed light fixtures as part of the architectural design of most buildings, exterior and interior. These fixtures, and the character of light they deliver, are a character-defining feature of the campus that should be maintained. Where this can be accomplished through more energy-efficient means, by all means it should be done. UT should make itself a demonstration of accomplishing both goals without compromise.

UT's campus has also used architectural lighting as a central part of its public presentation, most importantly in the Tower, whose lighting is a significant part of UT's cultural landscape and must be maintained. Evolving technologies such as LED lighting will allow us to deliver results more efficiently. Energy efficiency should not dissuade UT from additional architectural lighting that can enhance the presence of other buildings.

2004



5.5.3. UT's campus should be a demonstration for accomplishing sustainability goals in harmony with an historic environment

Such harmony is easiest to accomplish when it is part of long-term planning, which is easier on a university campus than elsewhere. For example, adapting vegetation choices toward water scarcity and climate change mitigation might be disturbing if carried out as a single project; incorporated into a long-term management plan, with attention to historic landscape character, it can be imperceptible.

Rainwater harvest and storage, on the Forty Acres, could be accomplished underground. As a single-purpose project it might be disruptive and would not likely be feasible. Incorporated into long-term infrastructure plans it may be both feasible and unobjectionable. Groundwater recharge through permeable hardscape could hardly be feasible as a single-purpose project; as a long-term goal it is far simpler.

5.6. Research

5.6.1. UT should seek opportunities to combine its core mission of research with its service function of maintaining the campus.

UT's campus, with 22 million square feet mostly of similar materials and construction, creates an opportunity and a responsibility, to seek replicable solutions for recurring issues. Successful solutions will make worthwhile the effort at research to achieve them. Successful solutions will generally be exportable far beyond the campus and thus meet academic as well as operational goals. And academic research efforts can be far more successful with the campus as a laboratory.

UT Austin is already committed to research in support of its campus. Fran Gale's CES appointment is a UT investment in accessing the best current research on materials conservation, and an investment in the capacity to conduct research here to meet UT's needs. In another sphere, creation of the position of Campus Urban Forester was an investment in knowledge-based management of the campus landscape. The School of Architecture Thermal Lab is a facility that can meet both research and operational goals.

A few example research agendas follow:

• Limestone: UT Austin has an investment of hundreds of millions of dollars in the long-term maintenance of Cordova Cream Limestone and Cordova Shell Limestone (as well as some other varieties, such as the Indiana Limestone of the Main Building and Tower). It is important to tap the leading understanding in the world of how to care for this material, and that understanding may be grown here. (What starts here changes the world.)

• Metal windows: the predominance of early- and mid-twentieth-century buildings on the Forty Acres means that UT has a tremendous inventory of metal-framed windows. Their preservation and maintenance can be more technically challenging than older wood-framed windows. UT has an interest, both historical and practical, in answering this challenge. This suggests that it may be economical to make a disproportionate effort in researching and addressing the issues in the first buildings that present them, in order to find replicable solutions.

• Operable windows and non-mechanical climate control with mechanical conditioning: this is a complex problem not merely of mechanical engineering but of human engineering. It is essential to the Green Building goals of returning to climate-adaptive thermal conditioning. UT's climate-adaptive historic structures are the perfect laboratory to address these issues in the complexity of real life (sustainability in contexts other than real life is not sustainable). How to make sure windows are opened only when appropriate, and then closed? Can this be accomplished through indicator lights or warnings? Can it be entirely automated? Conditioned spaces are engineered based on a narrow band of acceptable temperatures and humidities, but people clearly have broader tolerances. Can these preferences reduce HVAC loads by giving individuals the individual control that was built into traditional buildings?

Acknowledgements and Authorship 6

6.1. Acknowledgements

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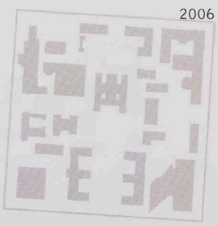

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