Memorial Union, University of Wisconsin-Madison: historic structure report.

Uihlein/Wilson et al.
[Place of publication not identified]: Uihlein/Wilson ; Moody-Nolan, [s.d.]

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Memorial Union

University of Wisconsin-Madison

Historic Structure Report

Memorial Union

REINVESTMENT

Imagining the Next 100 Years

Acknowledgments

The development of this Historic Structure Report has been a joint undertaking of the Uihlein/Wilson and Moody-Nolan project team in conjunction with the efforts of many other individuals and organizations. We greatly appreciate the time and efforts that the many individuals and firms have undertaken to share information, offer advice and provide critical thinking and formative expertise.

We greatly appreciate the continued involvement and guidance of the Memorial Union Reinvestment team members including Mark Guthier, Paul Broadhead, Sam Calvin, Julie Grove, Angela Pakes Ahlman, Wendy von Below, Paul Davidsaver, Maura Donnelly and Del Wilson.

Thanks to Cliff Goodhart, Elizabeth Miller, Kurt Straus, Ed Ornes, Richard Pierce, Stan Smith, Dan Stephans, Mark Guthier, Gary Brown, Maura Donnelly, Jim Draeger, Julie Grove, Paul Broadhead, Ralph Russo and Paul Davidsaver who participated in the Memorial Union Preservation Plan that informed many of the recommendations and design options set forth in this document.

Former Wisconsin Union Director Ted Crabb was a significant contributor to our understanding of Memorial Union, its history and its important role in the community.

The project would not have been possible without the funding support of University of Wisconsin-Madison students. Through a student referendum, significant student segregated frees were allocated to the Memorial Union Reinvestment Project.

We wish to offer a very special acknowledgement to Mr. Neil Stechschulte of Sun Prairie, Wisconsin, for allowing us to use his Memorial Union photographic image, "Union Terrace Chairs in Line" (fall 2008), for the front cover and interior page borders of this report.

Finally we offer our sincere appreciation to our architectural historian Katherine Rankin, copy editor JoAnne Sturiale and our architect/graphic designer Jacqueline Norman for their careful attention to detail in this time intensive task.

Charles J. Quagliana, AIA, NCARB
Preservation Architect
March 26, 2012

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Executive Summary

Administrative Data

Building:
University of Wisconsin - Madison
Memorial Union
800 Langdon Street, Madison, WI 53706

Dates of Construction:
1928, 1939 and 1959

Cultural Resource:
Bascom Hill Historic District, 1974
Wisconsin Register of Historic Places, 1989

Period of Significance:
1928-1939

Summary Statement:
More than any other university building, the Memorial Union is accessible. Visitors can wander into almost every part of the building, and there are always new and interesting things to look at, food to eat, places to rest, an art gallery. The broad terrace behind the building...is the center of summer life on the campus. (Buildings of the University of Wisconsin, Jim Feldman in 1997)

Related Studies:
"Facilities Master Plan Study for the Wisconsin Union", Prepared by Strang, Inc., March 31, 2003

"Cultural Landscape Inventory, Memorial Union Terrace", Prepared by Quinn Evans Architects, 2007

"The Memorial Union Terrace: A Landscape History," Report Prepared by Susan Olsen Haswell, for the Wisconsin Union Building Association and the Brittingham Foundation, January 2008

"University of Wisconsin, Memorial Union Preservation Plan", Prepared by Charles Quagliana, Preservation Architect, July 20, 2010.

"University of Wisconsin-Madison Environmental Impact Assessment Memorial Union Renovation, Lake Mendota Shoreline Rehabilitation and Alumni Park", Prepared by Cornerstone Environmental Group, LLC, November 8, 2011 (Draft).

Project:

Wisconsin Union Redevelopment Project-Theater Wing Renovation
Historic Structure Report
DSF Project No. 09K1K

Consultant Team:

Uihlein/Wilson Architects & Moody-Nolan (lead firm)
Charles Quagliana, Preservation Architect
Arnold & O'Sheridan
Conrad Schmitt Studios, Inc.
GRAEF
Schuler Shook
SmithGroupJJR
Talaske

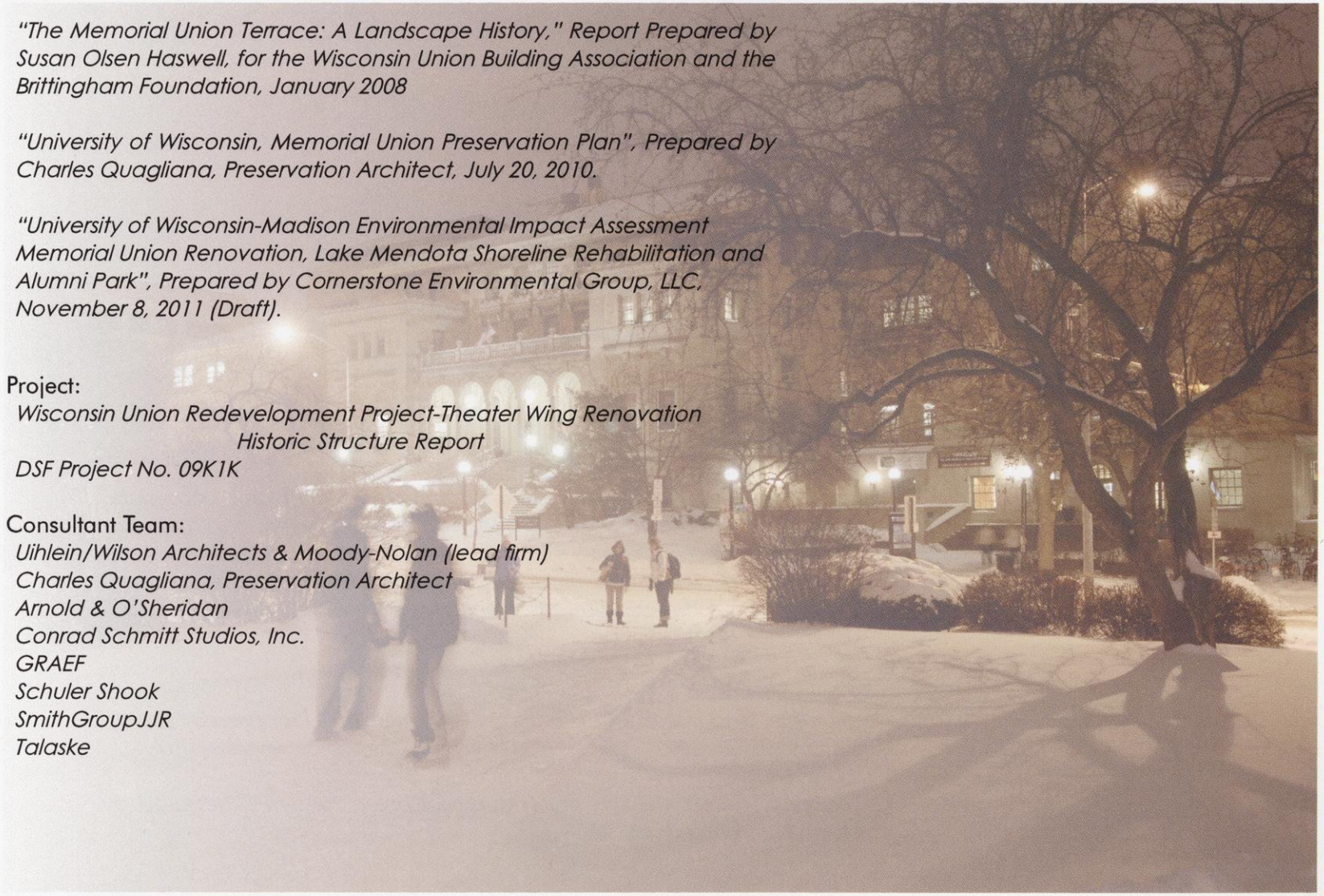


Image: Courtesy Wisconsin Union.

Executive Summary

Project Overview

With its history and tradition, not to mention its timeless and enduring architecture, the Memorial Union is a beloved historic structure. It is however, a facility in need of attention. Time has taken its toll both in terms of systems and functionality. Systems are outdated, and aging pipes have failed causing considerable damage to programs and spaces. Through the years remodeling and renovations have been piecemeal and inconsistent. Most programs are in need of larger or more functional space. As so often happens as a building ages, new or expanded functions are placed in whatever found spaces are available without regard to appropriate adjacencies or physical needs.

The students, recognizing the need to improve the facilities of the Wisconsin Union's Memorial Union and Union South voted in 2006 to increase their student fees by $96 a semester for 30 years to help pay for the Wisconsin Union Building Project. In combination with money raised through donations, Union operating dollars and tenant contributions, funding provided for construction of a new Union South (completed in April 2011) and will support a comprehensive multi-phase rehabilitation of the Memorial Union starting in 2012.

The Memorial Union project will be coordinated with two related projects. Parking Lot 1, located immediately east of the Union, is intended to be replaced with a park funded by alumni and to be called the Alumni Park. It will be an expansion of the East Campus Mall which will ultimately provide a pedestrian linkage between Lake Mendota and Regent Street. A shoreline rehabilitation project is also underway to make improvements to the shore of Lake Mendota from Park Street to Lake Street.

Purpose of the Historic Structure Report

The Memorial Union retains a high degree of architectural integrity, reflecting much of the traditional character and attributes to which students, alumni and the public have become accustomed. Yet as a public building it is faced with multiple issues associated with providing for its continued and evolving contemporary use.

This Historic Structure Report (HSR), prepared by the Uihlein/Wilson, Moody/Nolan team, will help guide the preservation aspects of the proposed multi-phase rehabilitation or reinvestment plan. The HSR is intended to serve as the primary preservation guide for the property as the various phases are designed and implemented.

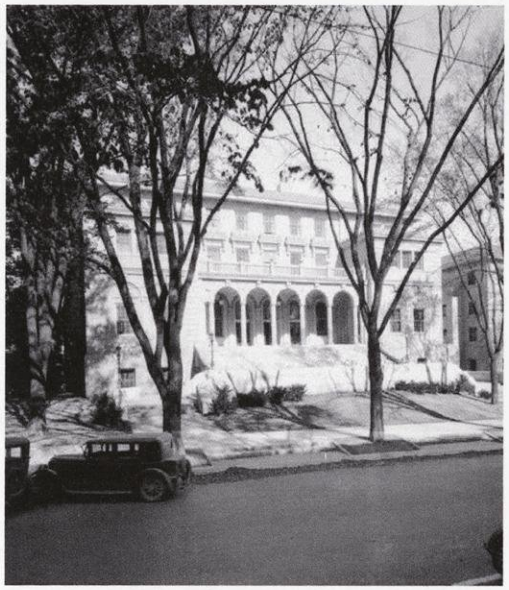
This report includes an overview of the Memorial Union's history and review of existing conditions. It also provides recommendations and strategies to ensure the long-term protection, preservation and continued use of the property. The recommendations are framed in context with the Memorial Union's history, significance and character-defining features and are balanced with the changing needs of contemporary programs contained in the building.

Statement of Significance

As a major contributing resource within the Bascom Hill Historic District, the Memorial Union and its grounds have historical significance in the field of education and architectural significance as an excellent example of a university union building type.

Image: Rathskeller. University of Wisconsin Collection, Image # UW.dn030825361.

The architectural significance relates to overall design and key spaces that retain a high degree of integrity qualifying them for preservation. These spaces include the Rathskeller, the Paul Bunyan Room, Memorial Hall, the Main Lounge, Tripp Commons, Great Hall, and the Wisconsin Union Theater (including its lobbies and downstairs lounge). Equally



important is the Memorial Union's deliberate use of interior decoration and artwork intended to represent and teach Wisconsin history.

The Terrace along the shore of Lake Mendota is also a significant space, although its appearance has changed over time. The Terrace is arguably the most important and best-loved social space at the Memorial Union and University of Wisconsin-Madison.

The Memorial Union is historically significant in education because it exemplifies the university union movement in the United States in the early 20th Century. It reflects the evolving educational role of university unions from the movement's inception in the early 20th century from that of a men's dining and social club "to one of a general community center for all the members of the University family—women as well as men, faculty as well as students, alumni, visitors, parents, conference groups, [and] guests of the University."[1]

Historical Overview

The Memorial Union building was completed in 1928, 21 years after the formation of the Wisconsin Union. Construction of the Central Core (housing Great Hall) and East Wing (Commons) began in February 1926 and was completed in September 1928 funded largely through gifts. Arthur Peabody, then State Architect, developed the plans.

In 1939, the West Wing was constructed which added the Wisconsin Union Theater, Play Circle Theater, craftshops and space to move Hoofers out of the University President's house and into the Memorial Union.

The Wisconsin Union Theater is an integral part of the Memorial Union featuring performing spaces that attract patrons of the arts as well as those attending political or public discussions, travelogues and ceremonial occasions. Throughout the Memorial Union, artwork is displayed for all to experience, fulfilling the wishes of the first Memorial Union Director Porter Butts who believed art should be a part of daily life. Butts was the Memorial Union Director from 1926 until 1968.

Following the end of World War II, the number of students at the University of Wisconsin increased dramatically as returning soldiers re-entered civilian life. As many as 16,000 students passed through the Union every day. The need to serve more students, and the wear and tear on the building in the years since its opening led to a two-part renovation project, completed by 1948.

As needs continued to change and the number of patrons grew, a series of additional remodeling and expansion projects were undertaken. The cafeteria was expanded and remodeled in 1957. The Hoofers boathouse and storage, largely underground, were constructed north of the Theater Wing in 1967. The Theater Lobby was renovated and altered in the late 1980s and the Main Lounge was restored to much of its historic appearance in 2002. The cafeteria was again recon-

■ Image: Memorial Union viewed from Langdon Street, October 9, 1928. Wisconsin Historical Society Image ID 21513

figured in 2003-04 to meet current needs. Many other small remodeling and infill projects have also taken place to meet space needs and provide for improved egress.

Unlike any other union in the country, the Memorial Union has retained its status as a membership organization with more than 80,000 lifetime members as well as all current students. The Union is governed by the Union Council, which is responsible for the policies, direction and governance of the Wisconsin Union. The Union Council consists of 15 voting members including nine students and six non-student members who together represent students, faculty, alumni and staff reporting to the Board of Regents through the Chancellor. In addition to Union Council, the Wisconsin Union Directorate (WUD) is a student programming board whose officers are appointed by the Union Council with the mission of conducting the Wisconsin Union's programs.

The Memorial Union is an active place. The building welcomes more than five million people a year and is second in the number of out-of-town visitors in Madison only to the State Capitol. More than 21,000 meetings and functions are held each year at the Memorial Union, ranging from student groups to wedding receptions and large conferences. The Union also produces more than 1,000 student led programs and events in addition to the thousands of Hoofer classes, trips, meetings and boat use.

No discussion of the Memorial Union would be complete without mentioning the Terrace and Lake Mendota. Throughout the warm months the Terrace, which connects the Memorial Union to the lake, is the most popular spot on campus and perhaps the place of most college memories. In the evenings live music and movies attract large crowds. During summer days many students take their meals to the Terrace either to sit in the sun or under one of the shade trees. Out

Image: Memorial Union Terrace band concert June 10, 1948. Wisconsin Historical Society Image ID 53284

on the lake are many sail boats available for Hoofer club members, part of the eight fleets operated by the Hoofers' Sailing Club.

Investigation Methodology

The development of the Historic Structure Report (HSR) for the Memorial Union was a sequential process involving investigation, research, analysis, documentation and ultimately the development of recommendations for treatment. The effort occurred concurrently with the work of the design team as they progressed from program development through conceptual design and then into the design report submittal stage (which is currently at 35% completion).

Initial investigations of existing conditions took place in the Fall of 2010. This survey was conducted by all disciplines of the design team. The goal was to document physical spaces and elements and to assess the current condition of building materials and systems, both interior and exterior. In conjunction with historical research, the survey of existing conditions helped to determine the historic integrity of the building's structure.

Historical and archival research began in the Fall of 2010 and focused on gathering information and photographic images related to the building's history, original construction and subsequent modifications, occupancies and uses over time.

The process of evaluating and confirming significance was undertaken with a review and comparative analysis of historical data, photographic images and physical evidence. The historical, architectural, engineering and cultural significance of the property were reviewed based upon National Park Service/National Register guidelines. A complete picture of the Memorial Union's significance was formed through a compilation of its original and transitional construction/use and historical documentation of occupants and significant persons associated with its history and development.

A unique aspect of the project was that a Preservation Plan had been developed in advance of the Historic Structure Report. This plan, from the Summer of 2009, was intended as a preliminary guide for the design team with the expectation that refinements and adjustments relative to specific preservation treatments and potential adverse effects would be made as the actual design effort progressed.

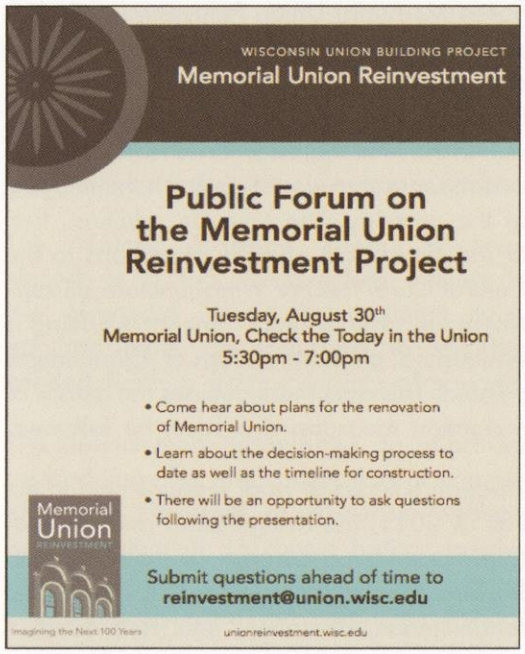
In concert with the development of the program, the design team reviewed previous studies including the 2003 Memorial Union Master Plan and the 2009 Preservation Plan. The result was an articulation of a design goal, namely "to preserve that which is historic and loved while making selective demolitions, additions and rehabilitations to better organize the building's functions and to improve circulation, life safety and service functions necessary for the efficient contemporary operation of the facility."[2]

Through multiple work sessions with stakeholders, the design team developed and refined a rehabilitation design concept. Concurrently, a series of preservation-oriented briefings and work sessions were held with the Division of Historic Preservation of the Wisconsin Historical Society. The design team tested and evolved the interior and exterior design, defining challenges and proposing solutions. Ultimately, the design focused on preserving historical and architectural integrity, improving functional usefulness and enhancing life safety.

As anticipated when the Preservation Plan was initially developed, some portions of the proposed design adversely affect the historic property. An "Adverse Effect" finding occurs when the historic characteristics of a resource are altered to the point that the resource's ability for inclusion on the National Register of Historic Places is compromised. Recommended changes to the Memorial Union are necessary to meet the contemporary needs of the building. To mitigate these effects a consensus Memorandum of

Agreement, or Mitigation Plan, was created. This document outlines the details of negotiated mitigation measures that will be part of the Wisconsin Historical Society's conditional approval of the rehabilitation project.

The process of developing final recommendations and proposed treatments took place as the design matured and was finalized in November of 2011. The effort focused on articulating, supplementing and reinforcing the design parameters and guidelines as established during the evolution of the design.



Broad Preservation Principles

The Memorial Union is a significant cultural resource containing historical, architectural, cultural and landscape resources worthy of preservation. The building and Terrace, recognized by students and alumni as one of the most distinctive places on campus, symbolize the tradition and timelessness of the campus. Together, the structures and spaces present a very recognizable and cohesive place within the larger and broader campus community.

The goal of historic preservation is to maintain this legacy of the past for future generations and to be good stewards of the built environment. The focus of the broad preservation principles is to balance the needs of the historic structure with those of a modern university union.

This durable building possesses a strong degree of integrity. The retention, rehabilitation, preservation and expansion of this building support sustainability goals and good preservation practice while providing for a functional building for the next 100 years.

Continued contemporary use and good stewardship of the building are dependent upon three general areas of importance. These include improving functional usefulness, enhancing life safety and preserving historical and architectural integrity.

The paramount element for a successful Reinvestment Project will be adhering to the National Park Service, Secretary of the Interior's Standards for the Treatment of Historic Properties. These standards will help guide the work and ensure that rehabilitation and new construction will not overly adversely impact the historic context, character defining features or landscape of the Memorial Union.

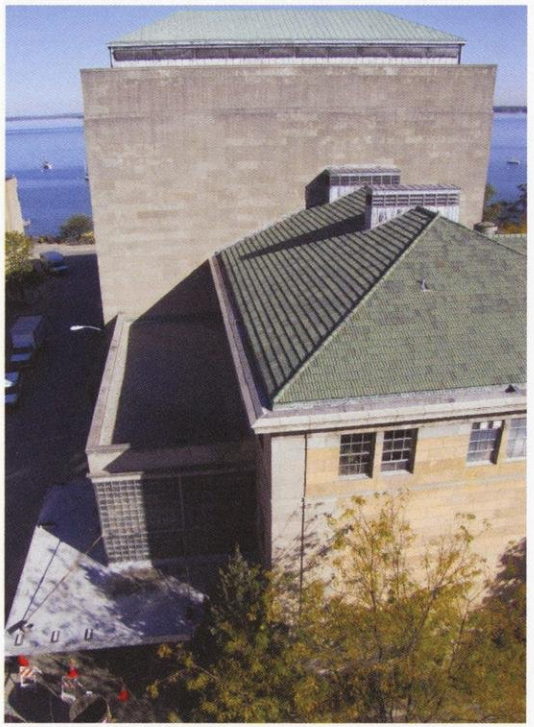
Although the Memorial Union has served students, faculty and the public well over its 80+ year history, rehabilitation of the facility is necessary to provide for its continued contemporary use. Rehabilitation will make possible compatible contemporary use of the property through repairs, alterations and additions while preserving those portions or features which convey its unique historical, cultural and architectural values.

The key motivation for the rehabilitation effort is improving functional usefulness. Improvements are necessary to maximize efficiency of currently intended uses and provide future flexibility for unanticipated uses. These improvements for function and efficiency should be undertaken within the specific recommendations provided for primary and secondary spaces as outlined in Part II of this report.

It is essential that the Memorial Union continue to provide a safe environment for occu-

Image: Announcement for one of the many Public Forums held to gather public input.

pants by upgrading life safety features while retaining historic integrity. Creative solutions, again with a balanced view toward historic and contemporary needs, will be required in the areas of fire protection, egress and security.



The Memorial Union was constructed at a time when universal accessibility was not a consideration, yet this is also an important goal of the rehabilitation efforts. Over the years, accessibility has been compromised and exacerbated through additions and modifications that connect various levels not originally aligned. The result is numerous circulation routes interrupted by steps. Efforts should be made to make the building as accessible as possible realizing that some spaces cannot reasonably be modified or that modifications will negatively impact the historic integrity of primary spaces.

The possible need for infill and/or an addition was acknowledged early in the planning process. The primary axiom for the design of infill or additions is that "the integrity of the Memorial Union as an historic entity is maintained. The primary goal is to protect the qualities and character defining elements that made the property eligible for the National Register of Historic Places." The infill or addition should minimize the loss of historic materials and elements. Character-defining features should not be damaged, destroyed or obscured. Even with this goal, some alteration and loss of integrity was unavoidable.

Adverse Effects

Preservation policies recognize that any proposed project has some influence or impact on the historic property. The standards allow for a balance between the needs of the historic property and a proposed contemporary use or development.

It was determined that portions of the proposed Memorial Union Reinvestment Project pose an adverse effect. A project adversely affects a historic property if it alters the characteristics that qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property. The lakeside addition, loss of the Play Circle and the alterations to the Central Core/Theater Wing juncture all represent an adverse effect. When this finding is established, a Memorandum of Agreement is created. This document outlines the details of mitigation measures that must be followed.

Through a series of work sessions held in the Fall of 2011, the design team and the Historic Preservation Division of the Wisconsin Historical Society reviewed and discussed the rehabilitation, alteration, infill and addition

Image, bottom left: View of the Craftshop and Playcircle section of the Theater Wing.
Image, top right: Main Lounge, 1948. University of Wisconsin Collection, Image #UWdn00301

designs. Compromises were forged, revisions made and general agreement on the designs was agreed upon. As anticipated, even with design revisions some adverse effects remained. These adverse effects were noted and a mutually agreeable mitigation plan developed. A summary of that plan may be found in the recommendations section of this report.

Anticipated Outcomes

The Historic Structure Report should inform the design efforts for all phases of the proposed rehabilitation providing guidance and prescribing specific recommendations.

The report should also aid in educating stakeholders and the general public about the history and significance of the Memorial Union as well as articulating the preservation recommendations.

The Historic Structure Report is envisioned as a tool to stimulate interest in the Memorial Union Reinvestment Project and assist administrators in securing needed funding from a variety of sources.

The project team established an improved methodology for implementation of compliance with University of Wisconsin-Madison and the State of Wisconsin historic preservation policies and procedures. Working collaboratively from the beginning toward resolution and compliance with historic preservation issues, the team efficiently and effectively engaged consultants and diverse stakeholders to bring forth a pragmatic consensus preservation design—a process that should be followed on future university projects.

Endnotes

1. Porter Butts, Interview by Donna T. Hartshorne, August 1979, Tape Index 167, University of Wisconsin-Madison Archives Oral History Project, Steenbock Library, Madison, transcript, p. 83.

2. 2003 Memorial Union Master Plan, Memorial Union archives.

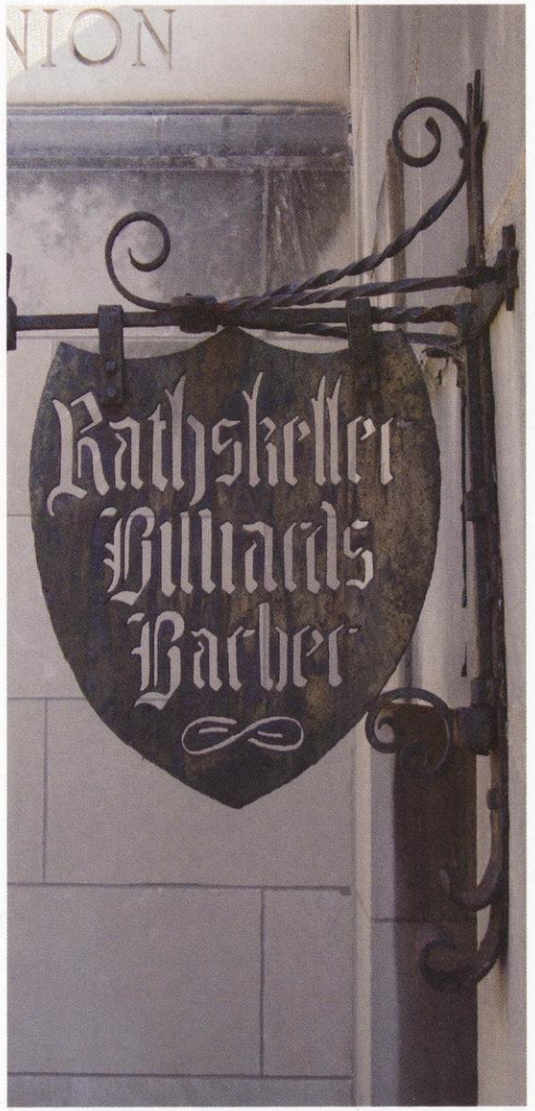


Image: Original Rathskeller sign at south entrance.

Methodology

The Memorial Union is a significant cultural resource containing historical, architectural and landscape resources worthy of preservation. Proposed interventions impacting a significant property are typically predicated upon a Historic Structure Report which serves as a "road map" for the future. This Historic Structure Report is being prepared in conjunction with the initial phases of the Memorial Union Reinvestment Project.

The purpose of this Historic Structure Report is to develop informed recommendations for the treatment, repair, rehabilitation and compatible contemporary use of the Memorial Union property This report provides strategic information and documentation related to the history, alterations and existing conditions of this historic building The knowledge base acquired through this exploratory process serves as the foundation for the recommendations which seek to achieve a balance between continued contemporary use and maintaining historic and architectural integrity. The Historic Structure Report is built upon the groundwork laid by the *University of Wisconsin, Memorial Union Preservation Plan* which was completed in July of 2010.

Team Configuration

An interdisciplinary team of professionals is an essential element of modern architectural practice on complex rehabilitation projects, especially those involving significant historic properties.

The State of Wisconsin, Division of State Facilities (DSF) retained the services of Uihlein/Wilson Architects & Moody-Nolan for the Memorial Union Reinvestment Project. Uihlein/Wilson of Milwaukee, Wisconsin, and Moody-Nolan headquartered in Columbus, Ohio, assembled a team of multi-disciplinary professionals to undertake this complex project. Uihlein/Wilson and Moody-Nolan mobilized a team of firms and individuals with a wide variety of expertise and experience that could work collaboratively together to analyze, plan and design for the continued use of Memorial Union.

This assemblage of firms and individuals was also responsible for developing this Historic Structure Report. The efficient work of these geographically dispersed team members was made possible primarily by means of electronic communications and file sharing. Multiple face-to-face work sessions were critical to the development of the proposed infill, additions, alterations and final recommendations.

The most valuable factor that contributed to a high level of success and quality of the Historic Structure Report was the ability of the

individual team members to work cohesively together toward the common goal. Uihlein/Wilson led the team with preservation architect Charles Quagliana serving as the team coordinator and principal preservation planner. Moody-Nolan coordinated the interface of the Memorial Union Program Statement and design efforts with the previously completed Preservation Plan.

Architectural aspects of the investigations, documentation and analysis were led by Uihlein/Wilson with general architectural design efforts shared between Uihlein/Wilson and Moody-Nolan.

Structural investigation and exterior building envelope study were completed by the Madison office of GRAEF-USA, Inc. Richard Talaske provided acoustic consultation with Schuler Shook imparting its expertise as theater consultants. Arnold and O'Sheridan provided mechanical, electrical and plumbing expertise as well as laser scanning of the building with Uihlein-Wilson developing the data into 3D Building Information Model. Site, landscape and civil engineering investigations, analysis and conceptual design were accomplished by the Madison office of JJR. The team worked under the guidance and vision provided by members of the Memorial Union Reinvestment Core Team and members of the Wisconsin Historical Society, Division of Historic Preservation and Public History.

Approach

Prior to the work on this Historic Structure Report, a Preservation Plan was developed for Memorial Union. This work commenced in February 2010 and was completed in July of 2010. The Preservation Plan outlined general concepts and approaches to alterations, infill and additions that would not adversely impact the Memorial Union.

The Preservation Plan was envisioned as a consensus-based, living document that could be revised and reinterpreted by the Historic Structure Report team based on new information and view-

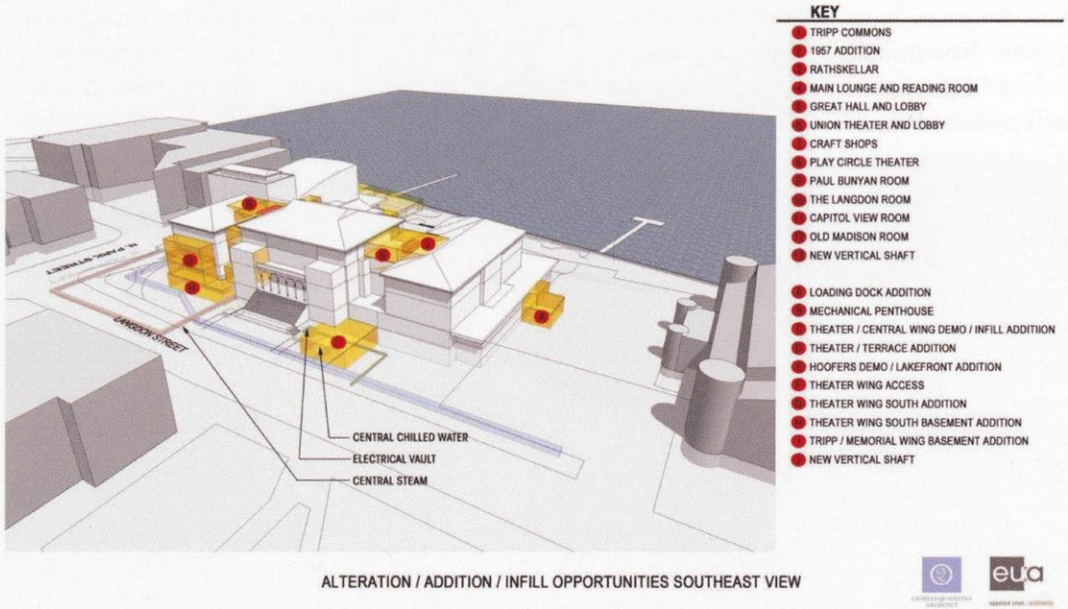
Image: General view of Memorial Union from Library Mall, courtesy of Jeff Miller, the University of Wisconsin-Madison

points and evolving changes in campus "cultural norms."

The Memorial Union is a large complex building. Because of its complexity, team members from the start recognized the need to use proven, rigorous preservation techniques of investigation, research, documentation and analysis.

Historic research which began during the preparation of the Preservation Plan laid the groundwork for developing the statement of significance along with the historical overview and a building transition chronology.

Unique qualities differentiate rehabilitation projects from new construction. A key difference is that the team must assemble a significant knowledge base of the existing structure before it can proceed with design efforts. Extensive site condition assessment efforts in the fall of 2010 assisted team members with creating a record of what existed and confirmed probable transitional changes needed for the building. The team developed a growing body of knowledge about the building through the evaluation and documentation of materials, construction assemblies, components and systems. This work served as a basis for developing a precise scope of rehabilitation work and identifying opportunities for integrating new systems within the existing architecture. The level of documentation included field notes, photographs and confirmation of general building measurements. No field testing of components or assemblies was undertaken.



ALTERATION / ADDITION / INFILL OPPORTUNITIES SOUTHEAST VIEW

In addition to reviewing and analyzing archival and contemporary drawings, the team developed a Building Information Model of Memorial Union using 3D data laser technology to scan portions of the building. The building was scanned in segments using a series of targets which were knitted together within the computer software. This enabled the team to generate reliable dimensional recordings of conditions efficiently. The resulting data were transformed into an electronic 3D digital model using Revit software.

An extensive building code analysis was undertaken to assess the deficiencies and

Image: Preservation Plan, 3d Image.

opportunities present within the existing structure. Various levels of code compliance scenarios were evaluated. The building's special historic nature was considered in identifying code variances and developing a definitive code strategy. A parallel effort to the analysis and documentation of the building's condition was the development of a comprehensive Program Statement for Memorial Union. This three-month effort in the fall of 2010 produced a document that articulates the projected needs of Memorial Union for the next decade. It describes the quantity and quality of the spaces needed to support the mission of Memorial Union. Evaluation, diagnosis and analysis followed the conclusion of programming. The condition of Memorial Union was assessed and a general understanding reached relative to the potential remedial, rehabilitation and alterations necessary to continue contemporary use of the building. Multiple options for meeting contemporary needs were explored and evaluated during an extensive series of workshops with stakeholders. The project team met for numerous sessions during January through September of 2011 to discuss and resolve the potential impacts of the proposed rehabilitation, infill and expansion in coordination with the Preservation Plan. The team developed several implementation scenarios that would provide much needed new space and infrastructure in a manner well integrated into the architecture, yet providing flexibility and adaptability for the future.

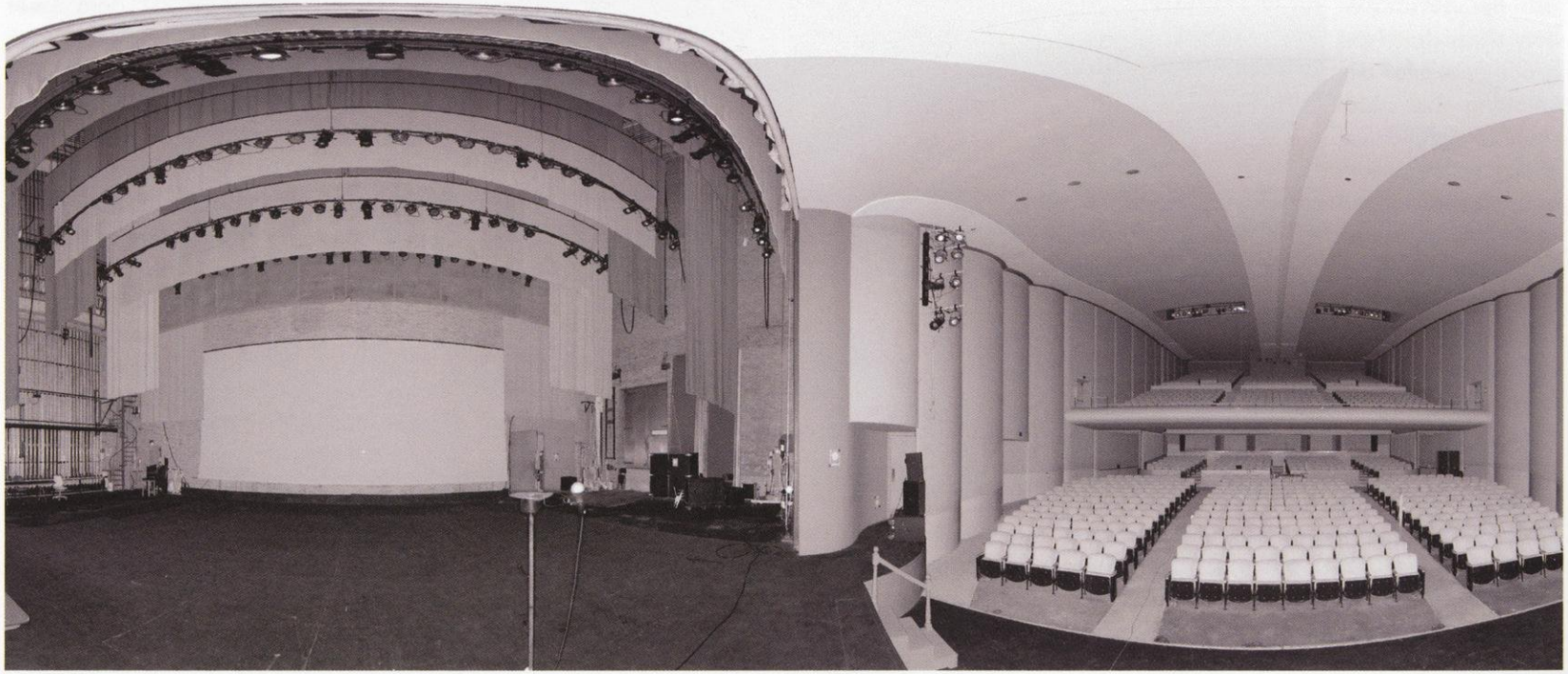
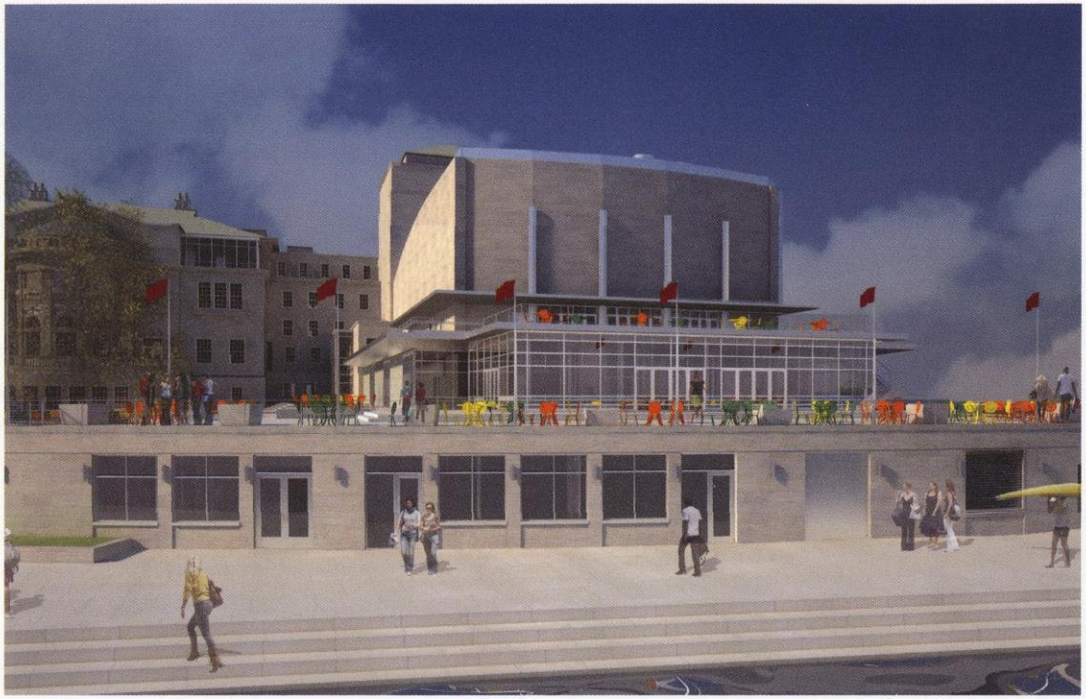


Image: Interior of the Union Theater as seen by the laser scanner.



The use of appropriate rehabilitation approaches and materials combined with sensitive infill and additions will extend the useful life of the building significantly. The conclusions reached provided for informed decision making about the building's future.

Recommendations

In developing recommendations during the summer and fall of 2011, the team drew upon its investigative and analytical work in conjunction with its evaluation and proposed modifications to the Preservation Plan. Numerous challenges and potential alternatives were explored culminating in a series of general and specific prioritized preservation recommendations. Final recommendations were presented in a set of design drawings articulating areas of compliance and divergence with the Preservation Plan and Secretary of the Interior's Standards for Rehabilitation. In addition to issues related to Historic Preservation, recommendations also addressed the areas of life safety, functional usefulness and sustainability.

For ease of access to the primary content of the report, an executive summary was developed and included at the beginning of this report. Readers interested in the technical support data may review the contents of the appendix provided separately.

Statement of Significance

Summary

The University of Wisconsin Memorial Union is considered a contributing element in the Bascom Hill Historic District, which was listed on the National Register of Historic Places in 1974 and on the Wisconsin Register of Historic Places in 1989. As an individual building in the Bascom Hill Historic District, the Memorial Union and its grounds have historical significance in the field of education and architectural significance as an excellent example of a university union building type. Significant Union spaces retaining a degree of integrity that recommends them for preservation are the Rathskeller, the Paul Bunyan Room, Memorial Hall, Main Lounge, Tripp Commons, Great Hall and the Wisconsin Union Theater (including its lobbies and downstairs lounge). The Terrace is also a significant space, although its appearance has changed over time and its integrity warrants further evaluation. The Hamel Family

Image: Design concept illustration of the proposed Hoofers and north addition to the Union Theater.

Browsing Library is another important space whose integrity needs additional assessment. Intact spaces and elements whose preservation should be considered include the Frederic March Play Circle, the vestibule north of the Wisconsin Union Theater and the grand staircases in the central section. The mural in the Old Madison Room is also important as an original feature designed to illustrate the campus and teach about local history. The Craftshop and adjacent rooms on the fourth floor of the Theater Wing, and Studios A and B on the third floor of the Theater Wing, retain a high degree of integrity.

Historical Significance: Education

The Memorial Union is historically significant in education because it exemplifies the university union movement in the United States. The building reflects the evolving educational role of university unions from the movement's inception in the early twentieth century from that of a men's dining and social club "to one of a general community center for all the members of the University family—women as well as men, faculty as well as students, alumni, visitors, parents, conference groups, [and] guests of the University." 1

The major purposes of the Wisconsin Union, were (and are) to provide opportunities for students and faculty to develop personal relationships with each other, making the large university a more human place; to organize and host social, cultural and recreational activities that complement the academic program and contribute to each student's total education; and to help prepare students for citizenship and leadership through the Union's various student-run cooperative committees. When the Memorial Union opened in 1928, there were 25 university unions in the United States. In 2010, the Association of College Unions International (ACUI), of which the University of Wisconsin-Madison was a founding member in 1914, includes 560 university unions in seven countries. A large part of the leadership role that the Wisconsin Union played in the university union movement, especially in the United States, came through the tireless efforts of Porter Butts (1903-1991), the first director of the Wisconsin Union (from 1928 until 1968). Butts was not only a leader in the ACUI, he was the author of its mission statement, "The Role of the College Unions," in 1956. 2 Butts also served as a consultant to "some 110 colleges and universities... on union planning [in the United States, Puerto Rico, Canada, Taiwan, Japan, and Pakistan]... so the Wisconsin influence on the union movement in the United States has been amplified..." 3

One of the major purpose of the Wisconsin Union was to provide opportunities for students and faculty to develop personal relationshps with each other, making the large university a more human place.

Architectural Significance: University Union Building Type

The Memorial Union is architecturally significant as an excellent example of a university union building type. Research efforts identified no resources that present the history of the union building type or that identify and evaluate the building type's distinguishing characteristics. However, the Memorial Union fundraising literature, written in the early 1920s, describes elements of other university unions recently completed and articulates an idea of the kinds of spaces that characterize a university union of the time. These include a caf-

■ Image this page: Rathskeller (tap Room) circa 1933. Image courtesy of the Wisconsin Union.

eteria, dining rooms of various sizes, kitchens, guest accommodations, a library and reading room, a ballroom, game rooms and lounges. 4 The Memorial Union incorporated and retains all of these spaces, although some have lost integrity. In addition, the Memorial Union displays features found in few other union buildings. The Memorial Union includes Memorial Hall, which honors alumni who lost their lives in military service from the Civil War through World War I; an art gallery (the first university union in the nation to include one); a lounge and a drawing room for women (most university unions of the early twentieth century were for men only); and, in 1939, a theater. The Memorial Union was one of the first university union building to include a theater, and only a few other union buildings followed suit. The union building movement accelerated after World War II, when university enrollment expanded rapidly to accommodate returning servicemen. However, during the same period, the university theater was typically included in the building that housed the drama, music, dance and/or speech department rather than in the union. Other spaces special to the Memorial Union are the Play Circle (an experimental teaching space) and the Craftshop (the Wisconsin Union was the first to incorporate art-making spaces for students). The office and lounge (both altered) for the Hoofers, which represents the outing club and whose founding was facilitated by Porter Butts, is also noteworthy although these rooms have lost integrity. Another significant aspect of the Memorial Union is its deliberate use of interior decoration intended to represent and teach Wisconsin history. Primary examples include the Rathskeller, the Paul Bunyan Room, the Old Madison Room and the representations of Ho-Chunk that appear in the Memorial Hall (outside the main lounge, second floor). Architectural significance through association with Michael Hare and the firm of Corbett and Mac Murray was considered but does not

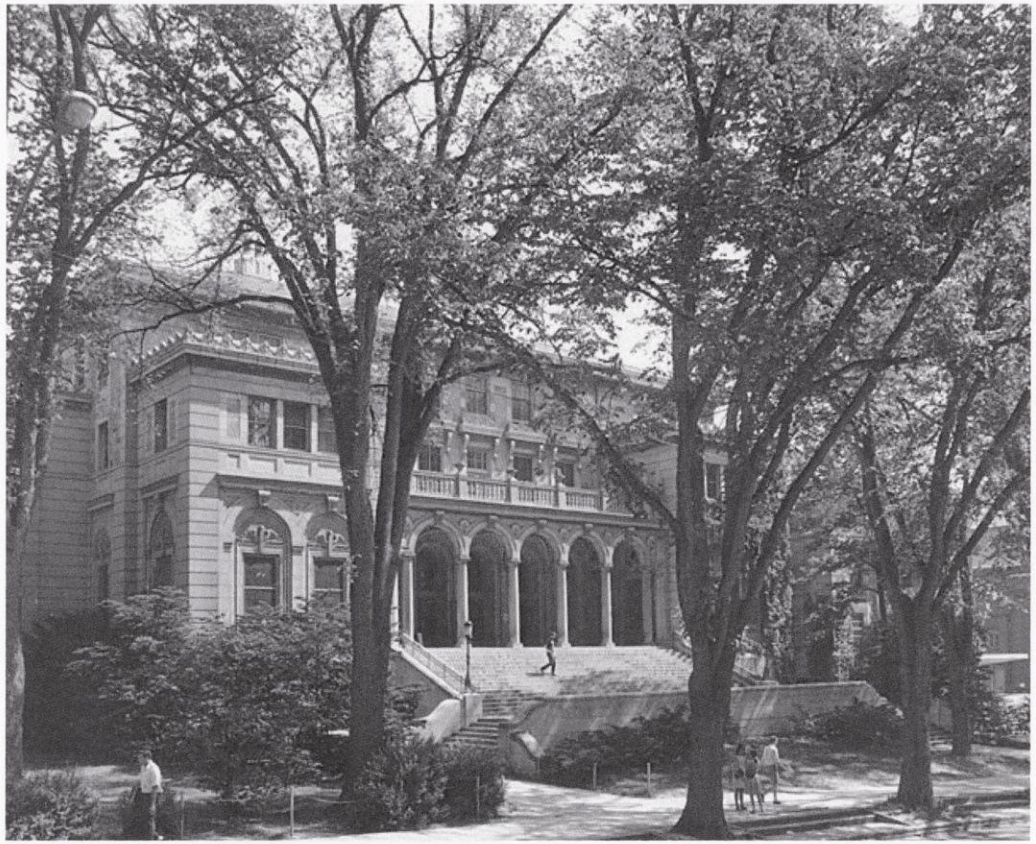
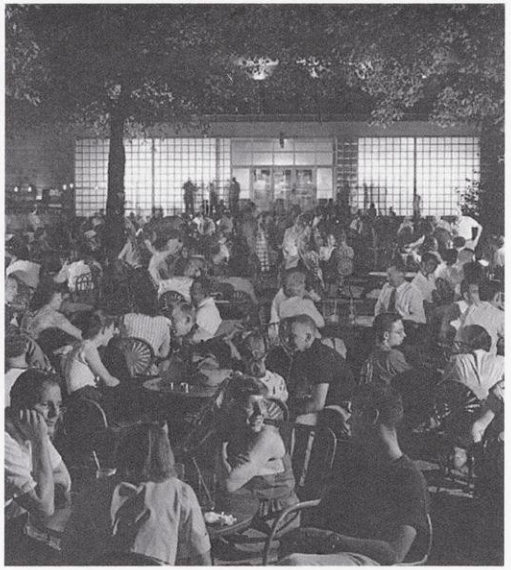


Image this page: View of the front entry and loggia along Langdon Street. University of Wisconsin Archives Image # UW.dn030825111.

seem to apply. Michael Hare was a young architect with the New York firm of (Harvey Wiley) Corbett and Mac Murray, one of three firms that had been involved in the planning for the Rockefeller Center. Corbett and MacMurray are best known for office buildings, most notably the Bush Tower and the Metropolitan Life North Building in Manhattan. Corbett (1873-1954) was also a lecturer at the Columbia University School of Architecture from 1907 into the 1930s, and that may be where Michael Hare met Corbett. Hare attended Columbia University and graduated in 1935. 5

Michael Hare had not yet designed a major building prior to his work on the Wisconsin Union Theater although he had designed one small theater (the Delft) in Marquette, Michigan. His later architectural career was interrupted by service in World War II. After the war he opened his own firm as a theater consultant, but found little work although he was involved in the 1947-48 remodeling of the Union. Hare joined with Donald Hatch in New York, and they opened an office in Caracas, Venezuela, where they built a variety of buildings including a large hotel. That partnership ended in 1954, and Hare received a variety of commissions from the US State Department in Latin America, including a chancery and residence in Tegucigalpa, Honduras. Most of Hare's work was institutional. 6

The Terrace is a significant outdoor space on the grounds of the Memorial Union. The main terrace retains much of its 1928 design, except that original flagstones were replaced with concrete and Kasota stone slabs in 1964. In 1966-1967, the upper terrace that lies north of the Theater Wing gained its current appearance. Down along the lakeshore, the courses of stone steps that descend into the lake as well as the concrete breakwater and pier, the boat mooring adjacent to the Red Gym and the Class of 1917 plaza behind the Below Alumni Center were installed in 1969-70 and planned by Peter Ker Walker, an associate of the distinguished landscape architect Dan Kiley. Finally, between the sidewalk along the lakeshore and the mid terrace is the lower terrace. The lower terrace includes the brat stand and permanent stage which were constructed in 1986. The Terrace is not significant as a Dan Kiley-Peter Ker Walker design because they were involved only in that part of the Terrace that runs along the lakeshore. The Terrace probably does not have design significance because the upper terrace, mid terrace, lower terrace, main terrace and lakeshore elements were built at different times, and only the main terrace is more than 50 years old. However, the Terrace is arguably the most important and best-loved social space at the Memorial Union and at the University of Wisconsin-Madison.



Planning for the Future

This Historic Structure Report provides fundamental information about Memorial Union's history and existing conditions and delineates the evolution and final recommendations for appropriate preservation treatments. This report should serve as an important guide for anticipated changes that may be made to this valuable historic resource during the proposed Memorial Union Reinvestment (rehabilitation) Project. The report is as comprehensive as time and budget would allow. Further supplemental and coordinated investigations and analysis are suggested as outlined below.

■ Image this page: Memorial Union Terrace at night. Image courtesy of the Wisconsin Union. Image # 30825221.

- Based on the foregoing historical research completed to date we recommend that the Wisconsin Union pursue an individual listing for Memorial Union on the National Register of Historic Places. Doing so gives formal recognition of a property's historical, architectural or archeological significance based on national standards.

- We believe the potential may exist for designating Memorial Union as a National Historic Landmark. These landmarks are designated by the Secretary of the Interior as nationally significant historic places because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States. The designation as a National Historic Landmark may provide opportunities for specific preservation incentives, grants or gifts that may be desirable in future phases of the comprehensive redevelopment project.

- Additional survey and documentation work is recommended in the areas of original and existing doors and casings, hardware, HVAC grilles, windows, stonework and terrazzo. The purpose is to document and catalog these components then assesses their condition and potential for reuse in the rehabilitation effort.

- Careful study is recommended on changes needed to the building's mechanical, electrical or plumbing system or utility infrastructure and impacts upon the existing Langdon Street (primary) façade of Memorial Union. Further analysis and design refinement is needed for a new Alumni Park-Below-Grade Service Facility.

- Additional design refinement is recommended for the Terrace and lakeshore areas from North Park Street to North Lake Street in coordination with the Lake Mendota Shoreline Rehabilitation project now in the final design phase.

- Further research is needed to document the contributions of the key individuals who played a significant role in the development and history of Memorial Union.

Endnotes

1-Porter Butts, Interview by Donna T. Hartshorne, August 1979, Tape Index 167, University of Wisconsin-Madison Archives Oral History Project, Steenbock Library, Madison, transcript, p. 83.

2-Ibid., pp. 83-86; and http://www.acui.org, website of the Association of College Unions International, retrieved March 27, 2010. The mission statement is based on that of the Wisconsin Union.

3--Porter Butts, p. 61.

4-The Memorial Union: The University of Wisconsin, Bulletin of the University of Wisconsin, Serial #1160, general series #943, c. 1922; "The Union Building," Wisconsin Alumni Magazine, (January 1926), vol. 27, p. 86; and "The Plans for the Memorial Union Building," Wisconsin Alumni Magazine, (January 1922), vol. 23, supplement, p. 3.

5-http://www.artnet.com/library/01/0194/t019422.asp, "Biography: Harvey Wiley Corbett," retrieved March 27, 2010.

6-Jane Loeffler, The Architecture of Diplomacy: Building America's Embassies," (Princeton, New Jersey: Princeton Architectural Press, 1998), pp. 157-58.

Glossary of Memorial Union Terms

Preservation Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity and materials of a historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction.

Rehabiliation Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations and additions while preserving those portions or features which convey its historical, cultural or architectural values.

Restoration Restoration is defined as the act or process of accurately depicting the form, features and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

Renovation Renovation is defined as the act or process of eliminating the qualities that define the historic character of a building, if they remain extant, and upgrading the property, or portions thereof, to adapt it to contemporary needs.

Integrity Integrity is the authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic period or period of significance.

Commons Wing The Commons or East Wing of Memorial Union was constructed with the Central core. This section is slightly smaller and set back from the Core of the building and contains various meeting rooms, Tripp Commons and the Lake Front on Langdon.

Central Core The Central Core was constructed in a 1926-28 classical revival style and is the main block and largest section of Memorial Union. It projects the furthest towards Langdon Street and is flanked by symmetrical wings, separated by hyphens (smaller building sections) from the main block. Major interior spaces include Memorial Hall, Great Hall and the Rathskeller.

■ Image: Terrace tables and chairs ready for winter, October 30, 2012.

Theater Wing

Constructed in 1938-39, the Theater or West Wing houses the Union Theater, support space, Crafts Shops, Play Circle and offices. The orientation of the West Wing places the front façade toward Lake Mendota. The architecture is more modern in character than the Central Core and Commons Wing, with smooth stone and glass block walls and a flat-roofed, metal canopy.

Terrace

The Terrace is a significant outdoor space along the shore of Lake Mendota on the grounds of the Memorial Union. It is arguably the most important and best-loved social space at the University of Wisconsin-Madison. The Terrace is composed of four distinct areas including the main terrace (the original area designed with the Memorial Union), the mid and lower Terrace (constructed in 1986 in front of the Central Core and Commons Wing) and the upper terrace (the portion that sits atop the Hoofers' boat house built in 1967).

Hoofers

Hoofers is a largely underground portion of the Memorial Union building adjacent to the lakeshore and beneath the Union Theater. This area houses the Hoofer recreational club, one of the oldest and largest organizations on campus.

Play Circle

The Fredric March Play Circle Theater is a 168-seat multi-purpose room that is used for small drama, music, movie and lecture purposes. Located in the Theater Wing it was originally built as an experimental and instructional theater.

Cafeteria Addition

In 1956 the union cafeteria and kitchen were gutted and enlarged in the iconic 1950s modern style designed by the firm of Weiler, Strang and McMillin. The cafeteria was enlarged toward the lake. To take better advantage of the beautiful lake views large expanses of glass picture windows were provided toward the lake. The widely overhanging canopy of the theater was also reproduced. This are currently houses the Lakefront on Langdon café.

Historical Overview

There is no other building on the University of Wisconsin campus as important as the Memorial Union. Students and faculty of all departments congregate within its walls and on the Terrace. Union programs draw students, Madisonians and people from beyond. It is the most visited and most used of all buildings on campus. It has been a place to hear radio messages of war and victory in the Rose Bowl; to see films with subtitles; to eat bratwurst under the sun; and to hear the words of Eleanor Roosevelt and Gandhi and John F. Kennedy.

> ***College is often seen as a preparation for life – but, in fact, college is life, four precious years of it, and so we aim to make it pleasant and productive" - Porter Butts 1***

Prelude

The University of Wisconsin was established by the state legislature in 1848. In 1850 work began on its first building - North Hall - situated in untracked woods about half a mile west of the end of State Street, which then stopped at Gilman Street. North Hall opened in 1851 to house the entire university. It had a lecture hall, rooms for study and a chapel on the fourth floor. On the lower three floors lived 30 students and one janitor. The first graduation was celebrated in 1854 with a graduating class of two. The second building, South Hall, was completed in 1855. It also served as combined dormitories and classrooms, and even had living accommodations for several professors and their families.

As with most 19th century universities and colleges the UW had begun as a men-only institution.

In 1863, during the Civil War, when many young men were serving their country instead of attending college, the State decided that it was time to permit women to come to the university. There was a fair amount of segregation at first, with women taking classes separately from the men, in what was known as the Female College. In 1870 a fine new residence and classroom building was constructed for the women, Ladies Hall. It wasn't long, however, before women gained the right to take classes with the men, and Ladies Hall became solely a residence hall (later known as Chadbourne Hall, replaced in 1957 by the current Chadbourne Hall).

In 1884 the original Science Hall, which was only seven years old, was destroyed by fire. On the day after the fire, the university asked the resident students and faculty to move out of both North and South Halls so they could be converted to desperately needed class-

room and laboratory space. The male students were left to find housing off-campus in rented rooms, boarding houses or fraternities.

By 1904, the UW had grown into a respected university of 3150 students, 228 faculty members and about 17 major buildings. The university was in a major growth spurt, more than doubling in size every ten years.

> ***At the commons [i.e. dining hall] the men meet one another every day; at the union they adjourn for close, wholesome, social intercourse. The union should be a commodious and beautiful building, comfortably, even artistically, furnished. When the students are done with their work in the evening, the attractive union is at hand, where refreshments may be had, and a pleasant hour may be spent at games, with the magazines, in a novel or in social chat. 2***

The Idea

In 1904 geology professor Charles Van Hise was selected as the new President of the university. He stepped into the management of an institution suffering from growing pains. The rapid rise in enrollment, the disorganized location of classroom buildings once Bascom Hill was built out, the inexorable need for new construction, and the fact that male students were scattered in private quarters all over the west side of Madison, made it necessary for Van Hise to take stock and assess the future.

In his inaugural speech in 1904, which also happened to be the University of Wisconsin's 50-year jubilee, President Van Hise laid out his vision for the university. He had lofty goals and more practical proposals, too. He recommended that the UW follow the model of the English universities, which had several hundred years to develop their programs. The English system was organized into lecture rooms, on-campus residence halls, commons [i.e. dining halls], athletic facilities and social centers. Van Hise noted that "the communal life of instructors and students in work, in play and in social relations is the very essence of the spirit of Oxford and Cambridge." 3 The University already had accommodations for male athletics and, of course, classrooms. He proposed that high priority be given to providing a social and athletic center for women, on-campus residence halls for men

Image: Bascom Hill, ca. 1900-1916. University of Wisconsin Collection Image # UW.CLP-S0001.

and a social center for men – modeled after the popular men's clubs of the time, but minus their exclusivity. Justifying the value of casual socialization Van Hise said "when a student goes out into the world, there is no other part of his education which is of such fundamental importance as capacity to deal with men." [4]

Wisconsin wasn't alone in its growing pains. Universities around the country were suffering from the same situation – mushrooming enrollments, the adoption of the German system of large lectures where students had little chance to get to know each other, a lack of sufficient dormitories and dining halls, the ever-increasing number of departments and electives which made it less and less common for students to meet, and rivalries and even bad feelings between various social societies, like fraternities. Public universities had the added responsibility to help students of modest means take advantage of the education the university could offer. On public campuses students of different monetary means and "social classes" mingled, which in those times was a novel experience for many at both ends of the spectrum. It was generally believed across the country that dormitories, commons and social centers were the most promising solutions to ease these problems.

Van Hise hoped that the wealthy men of Wisconsin would step up to donate these facilities. He promised that the halls could be named for their benefactors. But, apparently no donors were forthcoming. In every annual request to the legislature after that, President Van Hise brought his proposals forth and every year the Legislature rejected them. That is, until 1907, when the Legislature approved the construction of a women's center. The women were the first to get their social facilities because they had no accommodations for physical education and athletics. The men had their relatively new Armory and Gymnasium (the Old Red Gym) but, despite erstwhile petitioning, the women were not allowed to use it. So Lathrop Hall was constructed behind the Ladies Hall. While it seems rather tucked away now, when it was built, it was one of the most prominent buildings on campus. It included a very large gymnasium, a concert hall with a stage, a swimming pool, a running track, a kitchen and dining rooms, and even a laundry and a bowling alley.

Image: Lathrop Hall, ca. 1924. University of Wisconsin Collection, Image # UW.tk09072014.

The First Wisconsin Union

Meanwhile some of the male students were mulling over President Van Hise's idea for a social center of their own. The story goes that in 1907 a professor talked to Willard Stephenson, one of the "big men on campus," and told him that the recently opened YMCA on Langdon Street (where the parking lot is today between the Union and the Old Red Gym) was likely to go into receivership because students were not renting the dorm rooms as quickly as they had hoped. He suggested that the Y might welcome having a small men's club in part of the building. Stephenson and his friends were part of an honorary senior fraternity known as the "Iron Cross Society." The purpose of the Society was to select male student leaders who had given of their time for the UW and who wanted to continue working together during their senior year on the University's behalf. The society put together a proposal for the YMCA to lease out the first floor of the building for a men's club. The Y agreed and the rooms were fitted out with billiard and card tables, a selection of newspapers and magazines in a reading room, meeting rooms for student groups and a stand for the sale of candy, cigars and sundry items. The University's trophies were on display in a trophy room with photographs of the various athletic teams. Porter Butts, who would later become the long-term director of the Memorial Union, said that Stephenson had been to a football game at the University of Michigan and visited their new union, located in an old house near campus.

The fledgling version of the Wisconsin "Men's Union," as they called it, soon became a popular spot for young men to relax and see their friends. Union leaders helped the YMCA by persuading some of the popular fellows on campus to rent rooms there, too. The Union instituted a number of social programs, such as "smokers" for freshmen men to get to know each other, dances at Lathrop Hall, and faculty-student mixers. The Union sponsored the establishment of the Haresfoot Club, a show troupe of young men who presented programs of funny skits, and a variety show called the "Union Vodvil," both later used to good effect as fundraisers for the future Union building. When the YMCA got back on its feet, though, and no longer needed the revenue generated by the Union, it kicked the Men's Union out, ostensibly because they needed the space, but in reality because the cigars, the drinking and the pool and card games seemed unsuitable uses for a building run by a religious group.

The displaced Union, now called the "Wisconsin Union," moved into the Raymer House (752 Langdon Street), which the university had been using as a student infirmary. It was a large Queen Anne style house, but the Union shared the premises with several other student groups and the Federal Board for Vocational Education. Despite the limited size of their quarters, the Union continued their programs and created more yearly events, including a week-long all-university exposition for departments to showcase their work to other students, the general public, and most particularly to the state legislature. They also founded the UW's concert series, which in those early times brought people like Pablo Casals, Jascha Heifetz, and Serge Rachmaninoff to Madison.

The Precedents

At Cambridge University students established a private debating club in 1815. The club combined two or three earlier debating societies, so they named it the "Cambridge Union." When the Union built a facility for

Image 3: YMCA lounge and game room, ca. 1915. University of Wisconsin Collection, Image # UW.dn03082208.

itself in 1866, it had not only a large hall for debates, but also a dining hall and a sumptuous library, following the model of the private men's club. The collegiate style in England had been Gothic since the universities were established in the Middle Ages, and the style of the new club was in a Victorian version of Gothic. In 1823 students in Oxford founded their debating club and built their own impressive facilities in 1879. The next union in the United Kingdom was formed by students at the University of Glasgow in 1885 "to provide students with the comforts and conveniences of a social club, to hold debates, and to form a center to which various university societies may be affiliated."[5]

Across the Atlantic in the United States, the first union in the sense of a student organization was established at Harvard in the 1830s, but lasted only a few years. The group was revived in the 1880s, with facilities constructed in 1901, in the prevalent red brick Georgian style of the Harvard campus. At the University of Pennsylvania, Houston Hall is generally agreed to have been the first union in the sense of a physical facility. Constructed in 1894-1896 it is a very impressive stone Gothic clubhouse (known in the United States as Collegiate Gothic). It was beautifully furnished. Case Western Reserve's original union, built in 1897, was a red brick Queen Anne style house, called Hitchcock Hall. Many unions in the early days were located in old houses, but this is the only one that was built like a house, albeit a quite large house, both in its exterior design and its interior layout. In 1908 the Excelsior Ballroom, a Queen Anne/Jacobean style ballroom and lounge building, was constructed next door to the union. Wisconsin Union backers travelled to several other unions to get ideas for the Memorial Union.

Unions typically included multiple services. Uses that sometimes appear in unions, but not in the Memorial Union, included bookstores, athletic facilities, like gymnasia, swimming pools and archery ranges, and faculty

Image bottom left: Goodman Library, Oxford Union Society, Image courtesey of Oxfor Union Society.
Image top right: Cambridge Union Society. Image courtesy of the Cambridge Union Society.

clubs and lounges. Universities that were constructing unions at about the same time as the Wisconsin Union include Purdue (1924), Emporia State University in Kansas, the first union west of the Mississippi (1925), Iowa (1924-1925), Michigan State (1925), Cornell (1925), Kansas (1926-1927), Michigan-League, the women's union (1927-1929), and Oklahoma (1928). Most of these were built as war memorials, some in conjunction with stadia and dormitories. Most of the unions built across the country were Collegiate Gothic in style. In second place, and far behind, was Georgian Colonial. As far as we know, the Memorial Union is the only union ever built in the Italian Renaissance style.

> ***A building that would be the logical center of the social life of the men students, as Lathrop is for the women, a building which every man in the University would feel was his by inalienable right. 6***

The Drive

After the UW Women's Building was constructed, President Van Hise continued to request the State to fund the men's social center and men's residence halls. It didn't help that the Regents were, at best, lukewarm to the proposals. The Regents believed that any funding squeezed out of the State should go to classrooms and laboratories (even 100 years ago, the State and the University sparred over money). The Legislature continued to turn down funding for the men's facilities for another six years. Finally in 1913 the State approved the two men's projects, but, two years later, a new Legislature revoked the funding. This had to have been a blow to the University and President Van Hise. Union proponents decided to cut their losses and abandon their pleas to the Legislature and finance the construction of the Union by private fundraising. This would be the first time the University of Wisconsin would raise funds from private sources for a university project.

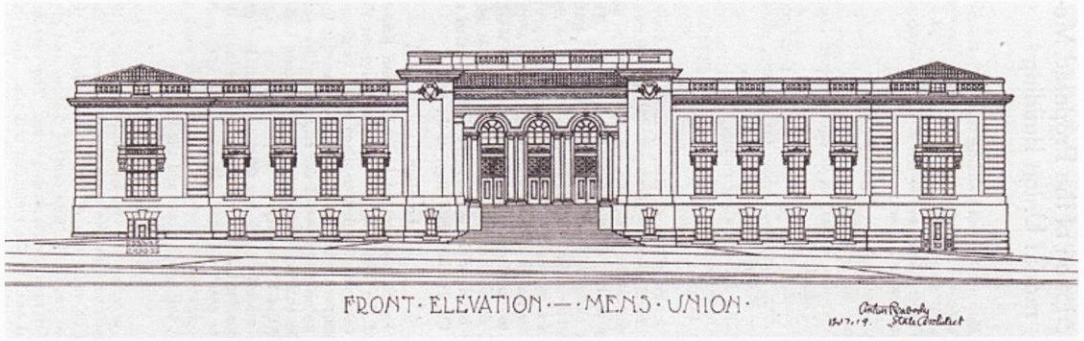
Around this time the University informally decided that the Union would be in the 700 block of Langdon, west of the YMCA where three houses stood, including the Raymer house (the building being used by the Union) and the UW President's House at the west end of the block. Not long after, the United States became involved in World War I, and the university's attention turned away from building activity and toward the war effort -- serving the military by housing, feeding and providing classroom space for soldiers in training, including soldiers who had recently been UW students.

At the war's end, President Van Hise, the champion of the Men's Union, died unexpectedly, just one week after the Armistice was signed. But before he died Van Hise had recruited a new champion for the Union, President of the Board of Regents, Walter J. Kohler Sr., son of the founder of the Kohler Co., a large Sheboygan concern that made plumbing fixtures. Kohler was a man of progressive mind and had recently built a large and impressive building next to the company's industrial plant that contained residential accommodations for his workers, dining rooms and a clubhouse. His rationale was similar to the need of the university for a union – many of his workers were young men who had immigrated to America specifically to work at the Kohler Company and they needed housing and meals and they needed friendship, not to mention English lessons. Kohler strongly believed that the university's rapid rise in enrollment had eroded campus camaraderie and spirit.

At the same time, many believed that the University should have a memorial to the students and faculty who had recently lost their lives in the War. Campuses around the country were planning and building war memorials of various kinds.

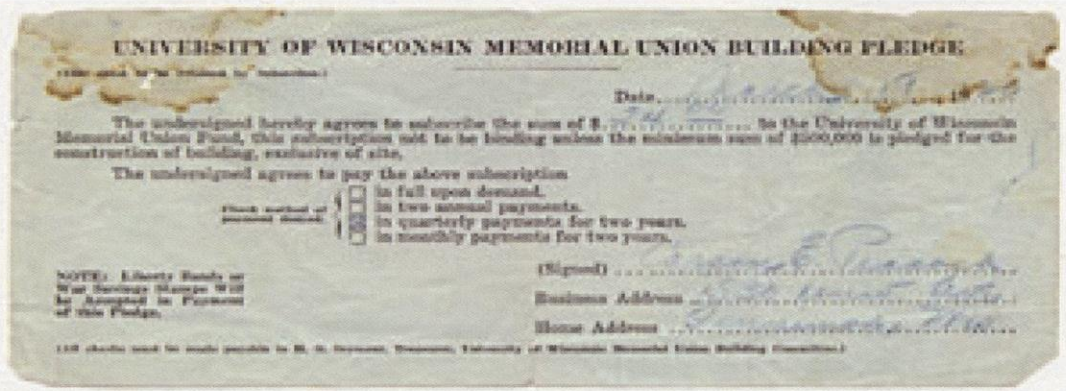
The first activity of the building committee was to travel around the country to visit the other unions that had already been built. They paid particular attention to the Hart House

at the University of Toronto and the Michigan Union. The most recent unions to open their doors, Michigan and Toronto represented the state of the art at the time. They also held meetings in Madison and Milwaukee to discuss what features should be included. The plan that they decided to pursue was to raise $500,000 for a building to be known as the "Memorial Union." At the time, costs of construction were fluctuating and no one was certain exactly what features the Union would include so they decided to remain flexible and simply shoot for $500,000 to begin with. There were two flaws to this plan. One was that they never had the costs estimated and the other was that for some reason no one planned for the costs of finishing the interior and furnishing the building. To get around the State's requirements that no loans could be used in the construction of State buildings, Kohler suggested setting up a building corporation to own the building. The University would use this plan in the future and a version of it is still used on some University and State projects to this day. Kohler and the building committee recommended that a fundraising committee be formed. Students were appointed to the president and vice-president positions to show clearly that this was a student effort and that the Union would be a student-owned building. Men of wealth and influence from around the state were also asked to serve on the board of the building committee, men who were friends of people who had the wherewithal to make substantial donations to the building fund.



The Wisconsin State Architect, Arthur Peabody, began the design process. The original buildings on the campus – North, South and Bascom Halls had been designed in a restrained Italianate style. The design for the State Historical Society/University Library had also been designed in a style inspired by Italy – the neo-classical revival. The design of the relatively new historical society building was eye-catching, assertive and exuberant, described by Van Hise as "crowning all" 7 of the buildings on campus. Peabody decided that the Union should complement it without being a copy. It should also complement the other original campus buildings, like Lathrop Hall had done. Finally it should be properly monumental and dignified for its use as a memorial building. For inspiration he chose a neo-classical building designed by Paul Phillipe Cret, a professor in the architecture school of the University of Pennsylvania who had recently helped the UW prepare a master plan and who had helped design Lathrop Hall. The model for the first Union design was Cret's first major commission – the Pan American Building in Washington D.C. of 1910.

Image, bottom left: Michigan Union.
Image, top right: Peabody's early design for the "Mens Union," dated 1919.



UNIVERSITY OF WISCONSIN MEMORIAL UNION BUILDING PLEDGE

Date.....

The undersigned hereby agrees to subscribe the sum of $..... to the University of Wisconsin Memorial Union Fund, this subscription not to be binding unless the minimum sum of $500,000 is pledged for the construction of building, exclusive of site.

The undersigned agrees to pay the above subscription
- ☐ in full upon demand.
- ☐ in two annual payments.
- ☒ in quarterly payments for two years.
- ☐ in monthly payments for two years.

(Signed) .....

Business Address .....

House Address .....

The Union fundraising committee divided the state into regions with a chair for each region. They promised donors that their donations would be returned if the sum of $500,000 was not reached. The war memorial idea had the effect of making fundraising for the Union easier. Kohler and his well-to-do colleagues opened their hearts and their purses. Remarkably the first $500,000 was reached within months. The committee, emboldened by their success, decided to pursue raising another $500,000.

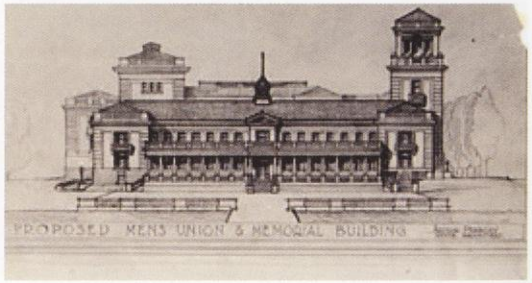
> ***The Union will be a working part of the university, advancing and aiding its highest educational function – to make real and forceful in the heart of youth the spirit of their university, their state and their country. The project of its erection is at once Wisconsin's greatest undertaking and Wisconsin's greatest opportunity. - E. A. Birge, President of the University 10***

In the next campaign the Wisconsin Union proponents took their patriotism a step further. In a promotional brochure in 1921 they noted that 150 disabled veterans who were attending the UW needed a room of their own in which they could read government publications relating to their needs, and "visit, smoke, play cards or do the Argonne Drive over again as they may wish." 8 The caption was "The 'Buddies' Need It" by S. H. Goodnight. Dean Goodnight was a member of the fundraising committee and was very active in the campaign. Speaking more generally, Dean Goodnight noted that "there is no place for the 'get together' that is so dear to the average fellow." 9 The brochure stated that the principal elements of the new building would include a memorial and trophy room, reading and social rooms, a commons, consisting of dining rooms, large and small, rooms for the Union board, senate, court, and debating societies, areas for dancing, offices for various student organizations, billiard and bowling rooms, alumni headquarters, faculty rooms and a 1200-seat theater.

For the new campaign the committee switched to asking for hard money rather than pledges. E. H. Gardner, a professor of advertising and marketing, was given a three semester leave of absence to administer the fundraising. The first campaign had essentially exhausted the pool of wealthy donors so attention turned to alumni, students, faculty and state residents.

The plans at this time were still based on the Pan Am building, but large wings had been added to each side and a campanile graced the Park Street side of the structure.

The *Daily Cardinal* wrote story after story, pushing the project. The editor of the *Cardinal* was Porter Butts, later to become assistant



■ Image, top left: Fundraising Pledge, 1920.
Image, bottom right: *Preliminary Design of Lake Façade Drawn by Peabody*, 1921.

> ***On November 5 [1921] a huge parade marched down State Street, wound around the square, and came to rest on the lower campus. The Stars and Stripes fluttered at half mast from a staff on the site of the Memorial Building, a volley sounded, and there floated out on the still air the most poignant notes a soldier knows, the music of "taps." Amid impressive ceremonies, the representatives of the state, the regents, the city, the alumni, the students and the university, accepted the dedication – and with a roar of cannon from the lake front the drive was on. 11***

to the fundraising administrator, then fundraising administrator and then first director of the Union.

The students had contests to see which student society could raise the most money. The four classes were pitted against each other, with every $500 raised by the seniors marked by firing a cannon on Observatory Hill. At one evening meeting, the students' enthusiasm broke loose and in ten minutes, the campaign had raised $10,000. Amazingly more than half of the student population donated $50.00 or more; in return they would receive a life-time membership in the Union.

Porter Butts (1903-1991)

Porter Butts, Union director from 1928 until his retirement in 1968, is the one person most responsible for the success of Wisconsin's Memorial Union. His connection with the Union started when he was an undergraduate and editor of the Daily Cardinal. When he graduated he was appointed to be assistant to the fund-raising committee, and in 1928 he was appointed the first director of the Union, a position he held for four decades.

What made Butts' contribution so great was his decision to focus on what the Union should be all about. He believed strongly that students should own and operate the Union. He made sure that students formed the majority on the Union board and that students made the important decisions. Butts was the steady hand that kept the focus where it should be, what he referred to as "the gist of it." He also encouraged students to think outside the box, to constantly be thinking about new ideas that would enhance the purpose of the Union. He wanted the Memorial Union to be a place not only for leisure, eating and socializing but also a place that would broaden horizons, and particularly would engender a love of the arts and the value of community service.

In 1936 Butts received the first master's degree awarded by the new University of Wisconsin Department of Art History. He published *Art in Wisconsin* the same year, which to this day is considered essential to the study of Wisconsin art history. He also founded the Wisconsin Salon of Arts (a competitive show held annually from 1934-1971). He established the Memorial Union art gallery that now bears his name soon after the Union was completed. He also established the Union art collection, which now numbers 1300 pieces.

In his career, Butts consulted on the design and operation of over 100 unions in North America and beyond. He wrote extensively on the goals and mission of the student union and his book *The College Union Idea* is a synopsis of everything he had learned.

In today's money $50 translates to $620.00, a not insignificant sum for most modern college kids. The fundraising competition must have been intense, but it's also true that the average student at the UW in the 1920s was probably from a relatively well-to-do family. Prof. Gardner traveled the country looking for alumni (no records of alumni had been compiled before) and invoking their generosity at dinners and receptions with the theme "Build a Home for the Wisconsin Spirit."

Alumni were offered $100 lifetime memberships in the Union, giving them a token return on their investment and discounts when they traveled back to their alma mater. They also were awarded lapel pins in the shape of a red "W." It's a little hard to understand now, but in those days lapel pins were *de rigueur* and many alums wore their red Ws proudly.

The second campaign raised an additional $380,000. The City of Madison pledged $80,000 and the faculty gave $30,000. In addition, the UW was surprised to find out that a person little known to them, J. Stephen Tripp, had left his fortune of $500,000 to the university. Tripp was a banker in Sauk City and Prairie du Sac. When Tripp was a boy in New York State he had had to pay for his high school education by working early and late and even sometimes studying instead of sleeping. He later became a successful lawyer and banker. After what he went through as a child, he "disliked to think of any boy enduring what he did in his quest for knowledge." Having no heirs Tripp chose to leave most of his estate to the University of Wisconsin. Kohler was successful in convincing the Board of Regents to use $200,000 of the Tripp estate for the Union project (the rest would go to the construction of the first dormitory for men, Tripp Hall).

The new design that was drawn up was intended to look like the summer villas that were built by wealthy families on the river between Venice and Padua during the Renaissance. It was a hard job, designing a building that would fit in and not compete with the Historical Society building.

1923 donors had pledged $880,000 for the Union project and the Memorial Building committee had approved schematic drawings and a site plan for the building.

Over the course of fundraising the architect's plans changed time and again, especially when the trustees decided to up the funds from $500,000 to $1,000,000. At that time, the Union building committee decided to hire their own architect, Alexander C. Eschweiler, an accomplished architect from Milwaukee. But then they found out that according to state law, the state architect was required to design all public buildings. The idea to make Eschweiler a temporary employee of the state architect's office was tried for a while but didn't sit well with any of the parties. For whatever reason, after 15 months of wrangling, Eschweiler quit the job and Peabody proceeded without him. As in many private architectural firms Peabody had a staff, which included at least two other architects. Porter Butts noted that one of those, Frank Moulton, was Peabody's chief designer. Moulton signed most of the drawings prepared for the Union and his obituary listed the Union as one of his important designs. Peabody's obituary credits him with the design. It is likely that the design was a collaborative effort.

The original design was scrapped in favor of a less formal design. The committee had always held that the Union should be welcoming and comfortable for the students.

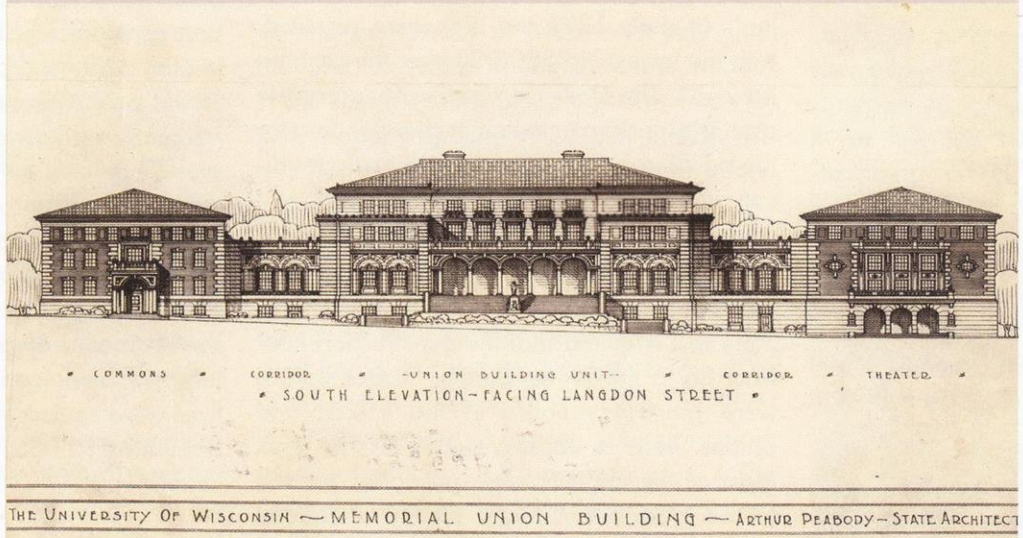
The new design that was drawn up was intended to look like the summer villas that were built by wealthy families on the river between Venice and Padua during the Renaissance. It was a hard job, designing a building that would fit in and not compete with the Historical Society building. It should be monumental enough to serve its purpose as a memorial and homey enough to be comfort-

able for students and others using the building for dining and socializing. The Northern Renaissance style the architects selected suited the program perfectly. This is what Peabody wrote to his fellow architects about the chosen style:

"The treatment is in the rather light-hearted manner of the palaces erected during the seventeenth century on the Italian Campagna by the wealthy society domiciled in Venice and Padua to which the glorious company of the nobility and their retainers came in houseboats and gondolas in the pleasant season of the year." 12

Instead of the smooth light-colored Bedford stone of the first design, the new iteration used Madison sandstone for the walls with a gray Bedford stone for the architectural details. To reduce the apparent mass, the building was divided into three blocks - the memorial unit (now the Central Core), the commons/dining wing (now the Commons Wing), and the Theater (West) Wing. The highest quality materials would be used, especially in the memorial hall, and the exterior architectural detail would be hand-carved.

The Memorial Union Building will give us the living room which converts the University from a house of learning into a home of learning. 13



THE UNIVERSITY OF WISCONSIN — MEMORIAL UNION BUILDING — ARTHUR PEABODY - STATE ARCHITECT

The dominant purpose of the architects is to make the building homelike so it will be a place where students, alumni and visitors will want to go. The great Memorial Hall in the center of the first floor will be the living-room of the men students of the university with a huge fireplace at the farther end. Three large dining rooms with a combined capacity of 1000 overlook the lake on the same floor, while private dining rooms and offices occupy the remaining space. A number of private dining rooms are on the second floor and a banquet and dance hall on the third floor will be of a size capable of accommodating the alumni banquet at commencement. 14

During the fundraising campaign the committee realized that the theater was going to be a very expensive part of the building and they were not certain they could raise the additional funds. Rather than compromising the quality or size of the project, they decided to build the Central Core and Commons Wing and postpone the west wing indefinitely. The fundraising took long enough that donors had started to ask

Image: State Architect's Office Design for the Memorial Union, 1925.

if the Union would ever be built. But the fundraising committee only had about $200,000 in hard cash, the rest was in unpaid pledges. The $200,000 was enough to do the excavation and construction of the foundation. The committee decided to proceed in the hopes that people who had pledged would finally pay up. John Dollard, the hired administrator of fundraising vowed "we will say it with stone from now on." [15]With great ceremony, on Armistice Day, 1925, President

> ***The slogan, 'America's Most Beautiful Union' is the whole truth and nothing but the truth when it comes to the Memorial Union, as this lake view of the building shows. A lake frontage of 320 feet will provide a greensward where students will find a welcome satisfying playground. Now bumpy hillocks of snow cover what will be a carefully groomed lawn terrace which will stretch from the lake to an outdoor restaurant a la Paris. 16***

Glenn Frank put the first shovel into the earth. Because the Raymer house, home of the Men's Union, would be demolished imminently, the Union and the other offices moved temporarily one more time, to the President's house at the corner of Langdon and Park. The Union would remain here during constructed of the Memorial Union.

While the foundation was taking shape, the trustees sought bids for completing the building. In early 1926 the bids were received, with the lowest bid $80,000 over the cash on hand. [17] The *Daily Cardinal* wrote an article about the crisis, continuing its cheerleading for the building. [18] A group of well-to-do Madison men were recruited to go to the bank and write personal notes worth $10,000 each.

Construction

State law required that the construction contract go to the lowest bidder. Labor unions were gaining strength in the 1920s and unions were a *cause célèbre* at the time. Most of the Regents were pro-labor but the lowest bidder was Jacob Pfeffer of Duluth, who ran an open shop. The Regents had no choice but to award the contract to Pfeffer. The building construction began in October of 1926. Everything went smoothly on the construction site until April 15, 1927, when 21 union men walked off the job and then picketers showed up. Union workers threw stones at the laborers on the job and at the taxicabs that brought them to work. The contractor reacted by building a shed on the lakeshore behind the building site so that the workers would not have to cross picket lines. On May 20, 1927 a mob of 200 men retaliated by dragging out the occupants, throwing them in the lake and demolishing the shacks. Porter Butts called the police and fire departments, but got no response, despite repeated calls, because both the police and fire departments were unionized. A few men were beaten badly and permanent ink was thrown at the new masonry of the Union building. Minor disruptions continued for a few days more, but local sentiment turned against the violence and the university received a court restraining order against the picketers. There were no more disruptions. On Memorial Day 1927 the cornerstone was laid. The military service record of university students and faculty and the names of 219 who had lost their lives were sealed in the stone along with the names of 10,000 paid-in-full donors to the Union.

As the Union was getting closer to opening, the old "Men's Union" name was formally dropped and the name changed to the "Memorial Union." The board was dissolved and a new Union board was established, with 9 out of 15 members to be students. The first Board also included both men and women in the board membership. From the beginning, the Union had been planned as a men's domain, as was almost every other union being contemplated at the time. Some universities, realizing the inequity of an all-male associa-

tion, even took the step to build equally-sized unions for each of the sexes. Even though the Wisconsin women had Lathrop Hall, it couldn't hold a candle to the facilities planned for the Union. The women had worked along with the men in fundraising, donating and promoting the Union and they were not to be denied. As the Union was taking shape the original room scheme was revised to include women in some of the spaces. Before the Union opened, it was decided to use the Great Hall during the daytime as a women's only lounge. Women would also be permitted in a parlor designated for their use and in the cafeteria. Women were also permitted to attend events in the Great Hall at night.

Meanwhile the alumni who were working on the fund-raising for the Union grappled with the problems of fitting and furnishing the building, including things like elevators and lighting. Former Union board member Philip La Follette set up another non-profit building corporation to borrow $400,000 for this purpose. The Board of Regents approved a scheme by which all students would pay a $10 Union fee each year, providing sufficient funds over the next few years to pay off the loan (the loan was paid back in 1933).

The grand opening celebration of the Union was held on October 5, 1928. Five thousand people gathered to hear speeches from the lakeside balconies and in the evening they watched a show of fireworks over the lake. President Frank, speaking at the opening ceremony, said that he hoped the Union would "become the radiant center of a more valid college democracy in which snobbery shall die and the spirit of exclusiveness wither." 19The Union was the place to be from the very first. Already by June 1929, one million visitors had passed through the Union's doors.

The Original Exterior

Peabody's final design for the Union was essentially symmetrical, typical of designs based on the architecture of Italy, from ancient Rome and the Renaissance to the 20th century. The massing of the Union building in 1928 consisted of a large, four-story main mass raised on a full basement story. The Central Core was flanked by two-story connectors (known now as the West Wing Connector and the Tripp Connector). The Commons Wing and the West Wing were meant to be mirror images of each other but construction of the West Wing was delayed until more funds could be raised. The theater was meant to be attached to the west (left) but in 1928 the connector was used for offices. The old President's house remained to its west and was used as a Union annex. To the east (right) was the Commons Wing, smaller in height, width and footprint to the main block. All windows were multi-paned, which was

> ***It was seen as the vision as the project developed, however, that a men's house would not be adequate in the University so decidedly co-educational ... in all its aspects... Wisconsin was one of the first to create the now common men's and women's union. 20***

standard for the time. The two masses were covered in green tile, as was common in Italian domestic architecture.

The large three-story Central Core was reached by an imposing ceremonial staircase leading directly up to the Memorial Hall. At the top of the steps was an arcade of five

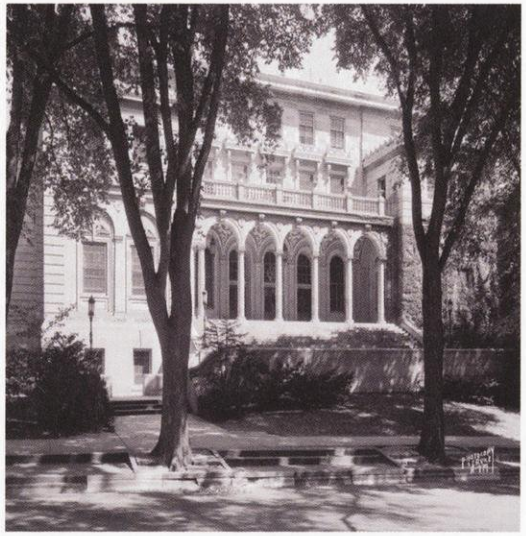
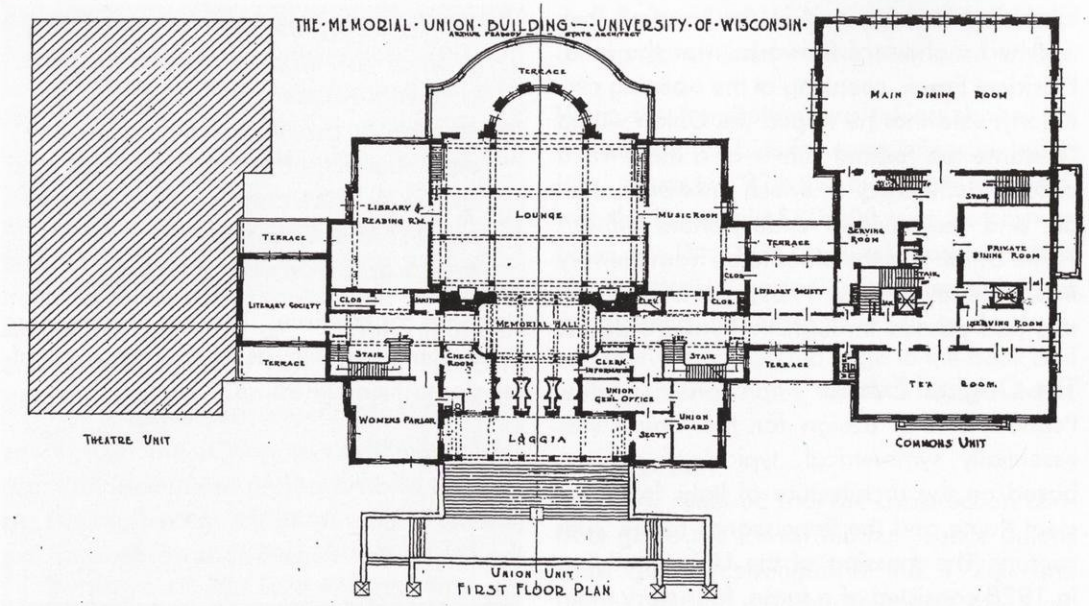


Image: Memorial Union Building, 1944, Wisconsin Historical Society Image #WHI-13277.



arches with an open vestibule behind; the round arch is another hallmark of classical design. A stone balustrade topped by stone urns crowned the entrance vestibule. On the intrados (underside) of the arches was a motif used elsewhere in the building – moldings at each edge decorated sparingly between them with plain round medallions. The ceiling of the arcade was painted with an exuberant tracing of delicate scrolled foliage - scrolling foliage is another motif used in several places within the building. To either side of the entrance was a two-story projecting pavilion. The arcade of the entrance is echoed in the round arches over the two front windows of each pavilion. The architects brought distinction to the building by the extensive use of stone carving and complex moldings, keystones, window lintels, and decorative balustrades. An enumeration of the many different elements would look like a dictionary of classical architecture. One particularly unusual element was the winged post design in the arches over each window, the symbolism of which is unknown. Along some rooflines is a cresting of multi-colored terra cotta "W"s, shown on the plans as *cheneaux*.

The façade of the Commons Wing unit was itself symmetrical, with a three-story slightly projecting pavilion encompassing the three round arches of the front doors. Stone balustrades decorated the top of the one-story entrance and the top of the three-story pavilion. The designers included a similar variety of carved stone elements on the wing as on the main block.

The Floor Plan

In the summer after the Union opened *The American Architect* published an article written by Peabody about the new Union. The plans show the two units that were built, the Commons Wing to the east, and the memorial unit (now the Central Core) in the middle. To the west was an outline of where they hoped to build the theater when funds became available. On the ground floor (note – this is the European way of designating floors – today we call it the first floor) were two large rooms - the cafeteria in the Commons Wing and the tap room in the middle. Just west of the tap room was a billiards room and just south of the tap room was the hall for displaying athletic trophies. Adjacent to the trophy hall on the east was a barber shop and on the west was a card room.

On the "first" floor, reached by the wide flight of steps on Langdon Street, was memorial hall, which was basically in the entrance and hallway in front of the main lounge. To the west of the main lounge was a library/

■ Image: First floor plan from *The American Architect,* 1929.

reading room and to the east was the music room. Above the cafeteria in the Commons Wing were the main dining room and a smaller private dining room. Along Langdon Street in the Commons Wing was a tea room, reserved for women. Other small rooms on this floor were intended as offices of various student organizations.

On the "second" floor was the "alumni hall," or the ballroom (now called "Great Hall") and in the Commons Wing two more private dining rooms. By the time the building was furnished, the main rooms remained the same, but the uses of some of the other rooms were different; these changes will be noted below. The "third" floor had offices in the center unit and guest rooms in the Commons Wing. The plans also showed a dormitory for visiting athletic teams, but putting athletes in a building that was full of activity and noise on the night before the big game did not sit well with coaches. The team room function was quickly dropped.

> ***If the money is available to carry through the interior plans [the Union planners were still raising funds at this late date], Wisconsin's Union will be one of the most interesting buildings to be found anywhere in the Middle West - Porter Butts. 21***

The Interior Decor

Leon R. Pescheret, an interior decorator from Chicago, was selected to take care of the interior decoration and furnishing of the Union. It was Pescheret who suggested naming the tap room the "Rathskeller." With its ceiling of shallow arches, the space reminded him of the city halls in Germany that had taverns in their basements. Union planners liked the idea of a room that was linked to Wisconsin's German heritage. They also liked the Milwaukee traditions of Gemutlichkeit (which refers to cheerfulness and sharing good times with friends) and beer drinking (in moderation of course) and the name Rathskeller stuck. With this idea under their belt, the designer and the Union planners decided to furnish and decorate the Union "to reflect Wisconsin's unique heritage." 22 Rooms that were originally designed with references to Wisconsin culture included the Rathskeller (Germans), the Paul Bunyan Room (lumberjacks), Memorial Hall (Native Americans and local flora and fauna), Old Madison Room (local history), Georgian Grill (early American), Lex Vobiscum (noted local politician Fighting Bob La Follette), the Beefeater and Roundtable Rooms (English) and the Cafeteria (Native Americans).

The Terrace

Just as the Rathskeller was a beloved spot on a snowy winter evening with the fires blazing, the Terrace was a legendary place to bask in the summer breezes and watch the sun go down. Early on in the planning for the Union, the architects realized that the lake should not just be a pretty backdrop for the building but rather that the back façade should be designed as a second front. When Eschweiler was on board for a time he believed that the Union should be set back from Langdon Street to give the building a proper setting, but Peabody and his architects disagreed, saying that it would be much more functional to have a wide lawn in back to serve "as an undergraduate playground." 23 Peabody's opinion prevailed and balconies were added to the plans so that users of the building could enjoy the lake views and speeches could be made to the assembled crowds.

The first plans for the landscaping in the rear lawn called for a simple rectangular patio centered on the large rounded bay of the Rathskeller. Butts, in looking over the plans, saw that the young oak trees behind the Union were to be cleared. He was successful in persuading the architects to leave the trees and design around them. By 1925 it was generally understood that the back yard was to be an important part of the total package.

In 1926 H. O. Jenkins drew a beautiful, if perhaps wishful, perspective view of the Union on the lake side, showing a formal cascade of

terraced steps with classical balustrades leading down to a lakeside overlook. No doubt the formal walkway would have been lovely, but it would also have been very expensive.

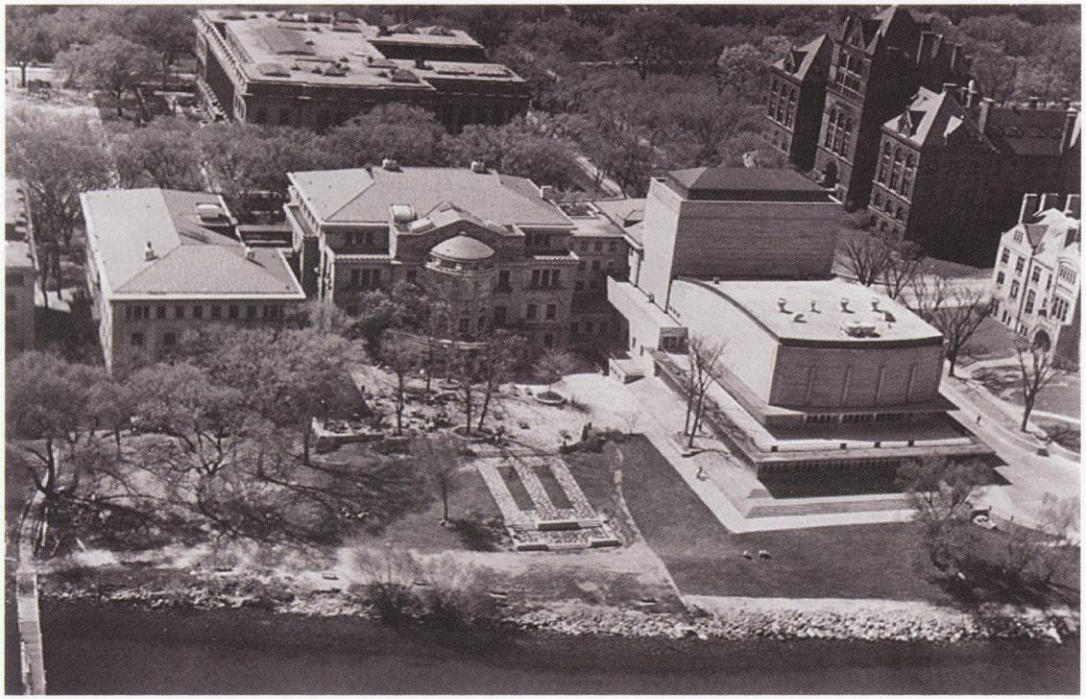
While the Union was being constructed, the architects started to think seriously about the landscaping treatment for the building. They had capable help in the form of Peabody's daughter, Charlotte Peabody, who had just been hired by her father to work in his office. Charlotte had spent the past three years studying at the Cambridge School of Domestic Architecture and Landscape Architecture. Peabody assigned the landscape treatment to her.

We could see that here we sat on the lakeshore of Lake Mendota with broad lawns between the building and the lakeshore, an unparalleled and spectacular location for any building, particularly for a social and cultural center building to make a pleasant experience for thousands of students, faculty and alumni. - Porter Butts 24

Charlotte Peabody's plans comprised a large rectangular terrace centered on the Rathskeller bay and adjoining the cafeteria unit. The pavement was flagstone and low masonry walls enclosed the patio. The existing trees were surrounded by low stone walls. Leading toward the lake was a centered walk divided by linear rectangles of grass ending at a small overlook some ways away from the lake. The space near the lake was covered with gravel. It was a much more modest design than shown in the Jenkins drawing and it is probable that there was little money left after the interior design had been completed.

It didn't take much more than a month of nice weather after the Terrace was finished for the students, alumni and visitors to discover the pleasures of visiting the Terrace. *The Capital Times*, on June 28, 1929 said: "Scores of students, when they are unrushed by classes, go to a certain window on the terrace side of the Union building, seize a tray, order their toast, orange juice and coffee, and walk carefully over the grass outlined stones to one of the

Image: Terrace ca. 1955, University of Wisconsin Collection, Image# UW.dn030825211.



little tables, and enjoy their view and coffee in idyllic contentment. As one student said, 'Why dream of Heidelberg when you have this?' "

In 1930, horticulture instructor G. William Longenecker created a simple planting plan for the Terrace, using mostly native Wisconsin plants. A photograph taken soon after it was constructed shows plants in general conformation to those Longenecker specified.

The first furniture used on the Terrace was Adirondack style rustic hickory tables and chairs. Striped umbrellas sheltered patrons from the sun.

The West Wing

In 1919, before the Union was built, the Union members had created a concert series. Concerts were held at the armory, the stock pavilion or room 272, a large lecture hall in Bascom Hall. The Great Hall in the Union seemed elegant compared to those locations. But the noise from the jukebox in the Rathskeller was a problem and the folding chairs in the Great Hall were less than comfortable. Butts recalled the time a telephone rang on the stage in the middle of a baritone's aria. The baritone calmly stopped singing, answered the phone, said "you can't call now," signaled the pianist and went back to his aria. 27

During the Depression the government used a program, known as the Works Progress Administration, to make available federal funds for civic improvements as a way to put people back to work. The Union was eager to apply for some of this funding for the new West Wing. But beforehand the Union undertook an extensive survey to estimate exactly what types of facilities students, faculty and alumni would like to have. A theater was by far the number one vote-getter. Second came bowling lanes, as bowling was becoming quite popular. Then there were some things the Union was already doing that desperately needed more room, such as craftshops, that were housed in the Old President's House, which would be demolished when the West Wing was built.

Being young and cultured, Butts wanted nothing to do with the old-fashioned Italian Renaissance style of the Union or the fact that too little of the lake views were visible from the Union windows. Butts approached Peabody with the hope that he could convince

Image: Aerial view of Union with West Wing, ca. 1950, University of Wisconsin Collection, Image # UW.uwar00299.

him that the project called for an architect who knew theaters, with their special needs for sightlines, acoustics, and crowd control. Peabody agreed. Butts had been impressed by a book written by a New York stage designer, called the *Stage is Set.* He wrote to the author, Lee Simonson, asking him to be a consultant and asking him to give advice on a potential architect. Simonson recommended a young architect who worked in a large established architectural firm and who had a knowledge of and propensity for modern architecture. The architect was Michael Hare of the large New York firm of Corbett and McMurray, who had helped build Rockefeller Center. Peabody's office agreed to take him on as a part-time consultant, as they had done with Eschweiler.

> ***The new Union addition will be a blessing for campus dramatics. With the new rehearsal rooms, workshops, dressing rooms, experimental facilities, and a stage designed and equipped by one of the world's experts, great advances will be possible in all forms of play production. It will be a treat, both for student players and audiences, to see what can be done." - J. Russell Lane, Director of the University Theater 26***

This time, the consultant's design was completely modern, which pleased Butts but shocked Peabody and many others. The only nod to the existing building was the use of Madison stone and Bedford stone for the exterior. There was concern also about Hare's decision to make the lake side the front of the theater to maximize the views. Hare had also let the shape of the theater, with its sweeping curved roof, became part of the design, rather than hiding it underneath a hipped Italianate roof. And he had projected the West Wing on the Langdon Street side almost to the sidewalk. The design was vigorously opposed by the State Bureau of Engineering, the Union's physical plant supervisor, the university business manager, the State, and the Board of Regents ("it looked like a silo, a woman's hat and a grain elevator"). 27 So the plans went back to the drawing board. Peabody once again called in the man he revered, Paul Cret, to help smooth things out. When they met with Simonson and Hare, Cret's first question was "Why do you need a theater? A theater doesn't belong at a university!" 28 Butts was far from pleased. But after much going back and forth, Cret said that the building really should be set back the same amount as the Commons Wing and should be similar in design. The design as built reflects his recommendations.

The Union had donations, surplus funds and the authority to borrow. The Works Progress Administration made up the rest with a grant of $266,000, for a grand total of $986,000. Ground was broken in 1938.

The design of the West Wing was a cross between Art Moderne and International Style, with hints of Italian Renaissance thrown in to pay homage to the original design of the Union. The West Wing includes three simple masses – the first, facing Langdon Street, was the design that Cret proposed, and essentially mimics the size and mass of the east wing at the other end. It also includes a smaller linking structure between it and the Central Core which imitates not only in size and mass, but also in details, the link between the Central Core and the east wing. The Langdon Street façade of the west wing replicates the three basement windows and three upper windows of the Commons Wing, but the rest of the façade is a blank expanse of stone, hiding services behind it. The façade also incorporates the same classical cornice of the east wing. On the Park Street, set back from the Langdon Street façade is a two-story section with glass block walls, announcing that here the old ends and the modern begins.

The second mass is the tall stagehouse, a requirement for proper theater productions of the era. Hidden somewhat by the mass of the front and back sections of the wing, the

stagehouse is a block of stone with almost no openings. The third mass encloses the main auditorium space of the theater. It has a convex curving roofline that follows the ceiling curve in the auditorium.

As one walks along the Park Street façade, dramatically wide canopies trimmed in aluminum protect passersby and theater goers from the elements. The wide canopy wraps around the west, north and east sides of the auditorium, which are reached on the north and east side by stairs which also wrap around both the north and east sides. The north and east facades under the canopies are simple walls of glass - doors on the north and doors and expanses of glass block on the east. On the second floor of the north façade is another wide canopy covering glass doors that extend part of the way across the façade. The expanse of the tall, slightly curved wall above is relieved only by narrow vertical panels that hide lights behind them, in an abstract take on the vertical neon tubes on the most modern motion pictures houses of the day.

> ***Here in the open spaces, where the cabs take one across town for a dime and where the railroads charge only a nickel for a coffee, has been built one of the finest legitimate theaters in America.... the Wisconsin Union Theater...is opening in a blaze of glory – The New York Times (October 8, 1939).***

The exterior was designed in the International Style, the design type that would become ubiquitous in the 1940s and 1950s. Essentially, the International Style eschewed all hints of "style" and instead created basic forms, such as the theater auditorium, that reflected the use inside. The watchword was "form follows function," clean and simple with no stylistic details to get in the way of the pure form. This was a truly modern building in its time.

The only change to the exterior since the wing

Image: Union Theater Auditorium, date unknown, University of Wisconsin Collection, Image #UW.uwar00299.

was built was the addition, in 1993-1994, of a small ticket office on the Park Street side.

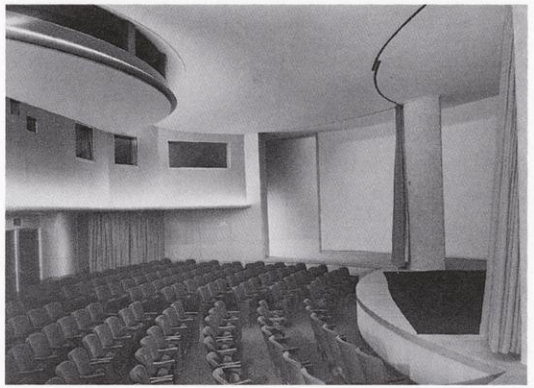
The gala opening on October 8, 1939 included a banquet and four sold-out formal-dress performances of the famous acting couple, Alfred Lunt and Lynne Fontaine, in *The Taming of the Shrew.*

The main theater was Art Moderne in style, simple with sleek lines. It could seat 1300, but could also be reduced into three other sizes by drawing curtains in the auditorium. The lighting designed by Simonson was state-of-the-art. A sweeping curve in the ceiling was developed for acoustical reasons, as were the scalloped walls. An outdoor deck allowed patrons to go outside and view the lake between acts.

There was another 168-seat experimental theater called the "Play Circle," which could also be used for radio broadcasting and showing movies. Local public radio WHA used the Play Circle for live broadcasts and there were also radio control rooms and studios. The Play Circle was designed to be flexible with removable front seats and different ways of arranging the stage. In 1971 the Play Circle was named for Fredric March, who had been an undergraduate at the University of Wisconsin; March had donated and raised money for the West Wing. There were also several craftshops for painting, poster design, weaving, clay modeling, metal work, wood work and dark rooms, not to mention the stage and costume shops. Other theater-related rooms included two large rehearsal rooms, a radio studio, a music room, a reception room, dressing rooms, a green room, which also could serve as a dressing room for large casts.

Here in the open spaces, where the cabs take one across town for a dime and where the railroads charge only a nickel for a coffee, has been built one of the finest legitimate theaters in America.... the Wisconsin Union Theater...is opening in a blaze of glory – The New York Times (October 8, 1939).

The Hoofers were given large facilities for their outing club. There was a bowling alley with an adjacent table tennis area, and a conference room called the Rosewood Room, complete with East Indian rosewood paneling and an Art Moderne fireplace. The theater was featured in the San Francisco World's Fair as one of the "25 best contemporary buildings in America." 29 *Architectural Record* praised it as "probably the most complete community center theater to date." 30



Image, bottom left: Play Circle, University of Wisconsin Collection, Image # UW.uwar00299.
Image, center: Union Theater at night, University of Wisconsin Collection, Image # UW.uwar006231.
Image, bottom right: Winkler Lounge, University of Wisconsin Collection, Image # UW.uwar00304t.

The Union Theater was the only true theater at the university for many years. In its first few years the theater was used an average of more than once a day. The theater was for several decades the heart of the City of Madison's cultural life. Except for occasional live acts at the Orpheum and the Capitol Theater, the Union Theater was the only good-sized stage in the City for music, theater, dance, and the occasional speech for decades. The Union was also the only venue in Madison for the showing of documentaries, and foreign and art films. Films were shown in the Play Circle, the main theater and in the Rathskeller. The West Wing is the least-altered section of the Union.

Union highlights to the present

On October 24, 1929, one year after the Union opened, the Stock Market crashed, beginning the Great Depression. Banks in Madison closed that day, leaving many students without cash for meals. The Union responded by issuing credit vouchers for meals; prices for meals were reduced and kept low throughout the Depression. The Union also expanded food service to cafeteria meals on the Terrace and added lunch to the food service for the Paul Bunyan room to give students with little money some low-cost alternatives.

As soon as the Union opened, women and men were complaining about the segregation of the sexes. The Union made several attempts to rearrange the spaces, but the arrangements were always unsatisfactory. In 1937 the women were first permitted to use the Rathskeller at certain times. This was the beginning of a gradual and informal claiming of all of the Union as women's domain. By the time the Union officially declared, ca. 1947, that women were welcome in the last male bastion - the Rathskeller - women were already using it whenever they wanted.

In 1934 the Union held its first Salon of Art, an exhibition of works by artists across the state. Butts and the student art gallery committee were to hold the Salon until the early 1970s. Also, in 1930 the Union was the first union in the country to establish a recreational crafts shop.

The Hoofers outing club was established in 1931. In 1919 students had built a ski jump on Muir Knoll. In 1930 the ski jump had been condemned and fed to the homecoming bonfire. But the skiers wanted to continue skiing so they approached the Union about starting an outing club. The club was established in 1931. Their first equipment was skis, poles, bindings, and ski boots, which were rented out of the Union's billiards room. Their first project was to replace the ski jump on Muir Knoll. Soon the Hoofers expanded into a myriad of other activities – canoeing, biking, hiking, archery camping, riding, ice-boating, and sailing. The club became one of the biggest outing clubs in the country.

During the Depression the Union took advantage of the Works Progress Administration's grants and used some of the funds to create more room. The original plans specified a seven foot height to the basement area, but, probably to save money, the original excavations only extended down about three feet. Workers were hired to crawl into the basement and dig it out another four feet so that the basement could be used for storage. An upholstery repair shop, a paint shop and a carpenter's shop were also added in the areas with better headroom.

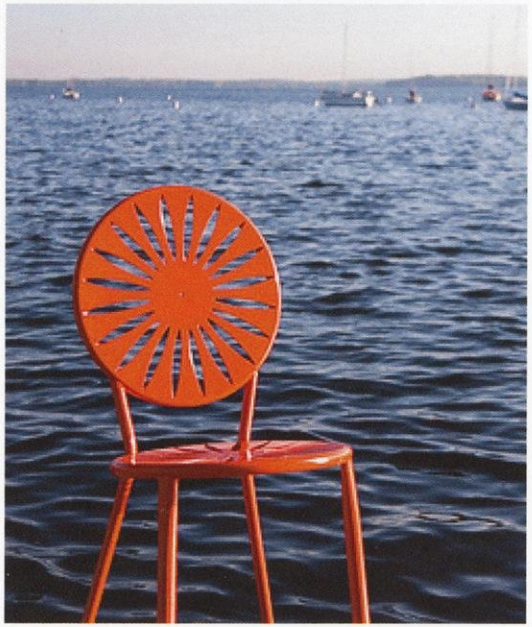
> ***For years, the Union dominated the arts pages and columns and reviews in the Madison...press... hardly a day went by without an announcement or story about a cultural happening at the Union – Porter Butts 31***

Prohibition ended in October, 1933 and within a short period of time the Union began to sell 3.2 beer in the Rathskeller. During this time the University was sued for offering food services that unfairly competed with the private cafes and restaurants. The Union prevailed with the argument that they were pro-

viding service to a membership organization. In 1940 the old Hausmann Brewery bar was replaced by a modern bar of laminate and stainless steel.

On the Terrace, it didn't take long for the wooden furniture to wear out. By the 1930s most of the furniture had been replaced with round metal tables and metal chairs. Several styles of metal chair were used, including a springy sunburst chair known as the "Carre" chair (named for its designer Francois Carre of France), which was more comfortable but rusts faster. But the flat sunburst chair eventually gained supremacy and is now a beloved symbol of the Terrace.

During World War II the Union was bursting at the seams. Two thousand navy personnel were served three times a day in the Union and all servicemen and women were given Union privileges, making the Union a popular destination for the service personnel at Truax Field. An average of 3244 service people visited the Union every day of the war. In the summer they had jukebox dances on the Terrace every Friday and Saturday night, on a dance floor they called the "Stardeck." In the winter, Tripp Commons became "Club 770" on weekend nights, the Union management doing its best to make the room like a nightclub. One Christmas the Union brought in Duke Ellington and his band to entertain the troops who couldn't go home for Christmas. The Union Theater was the scene for monthly Army and Navy graduation exercises; movies and talent shows entertained the troops. In 1944 there were almost four female students at the university to every man. But after the war, the ratio switched. The Union then had to accommodate the returning soldiers and their wives and children. Also coming back were many college-age young men who didn't go to school during the war because they thought they would be drafted, or were 4-F and went to work in war-related businesses. The lunch lines were so long that they stretched two blocks out the door and patrons often had to wait 40 minutes in line. The Union brought in high chairs, and wives of students were granted membership privilege. The Union had to set up a second food service in a mess hall moved from the Badger Munitions Works in Baraboo. They stationed it at the corner of Breese Terrace and University Avenue. The Union also used some of the ten used Quonset huts that the university temporarily installed in Library Mall.



Despite the pressures of high usage, the Union remained a great place to hang out. In 1948 *Time* magazine, speaking of the Union, said "It's almost impossible *not* to have a good time at Wisconsin." 32

During the influx of students and their families after World War II, the capacity at the Union was stretched to the limit for many of its programs. As many as 16,000 people used the Union every day. The furniture was the worse for wear and needed replacement. So in 1948-1949 the Union embarked on a major refurbishment and remodeling. Butts brought back Michael Hare, the architect of the theater, to oversee the remodeling, with the assistance of Robert McKelvey, a local architect. William Heth, a lighting engineer from Milwaukee advised on lighting treatments. Many rooms in the Union were painted in "colors that were more pleasing and which were

■ Image: "Carre" metal sunburst chair. Image courtesy of Wisconsin Union.

plain and simple colors aiming to hide the very ornate and not-too-good Renaissance moldings – egg and dart and so on – which were a distraction and were simply, as Frank Lloyd Wright called it…bad Renaissance." 33 Hare provided color schemes and the theater, private dining rooms and corridors were repainted. Corridors received acoustic tile ceilings to make the building quieter.

The Union management also looked for unused spaces in the building. While the lounge was two-stories in height, other rooms on that floor were only one-story with a full story attic above. Several of those spaces were finished off to provide another story of offices. Local architect William Kaeser did the planning for that work. Also, in some areas where the roofs were lower, an additional story was built to provide more office space. That's why the upper stories of the Union today seems a bit like a rabbit warren.

The Union kept up its ambitious programming. In the 1950-1951 school year, the Union hosted the Minneapolis Symphony, the Royal Philharmonic, the Jose Limon Dance Co., British pianist Dame Myra Hess, "Mr. Roberts" starring Henry Fonda, Isaac Stern, Lotte Lehmann, Ogden Nash and the First Drama Quartet (Charles Boyer, Charles Laughton, Cedric Hardwicke and Agnes Moorhead).

In 1952 the 2,000,000 visitor passed through the Union's doors.

As early as 1946, the Union started planning for a new cafeteria and kitchens, but lack of funds hindered the project. William Kaeser and his partner Arthur McLeod did the preliminary plans. In January 1956 the Regents approved a $300,000 expansion to double the square footage of the cafeteria. Madison architectural firm Weiler, Strang and McMillin won the project contract. In 1956 the Union cafeteria and kitchen were gutted and enlarged in the iconic 1950s modern style. The cafeteria was enlarged toward the lake. To take better advantage of the beautiful lake views it was decided that the new section should be in the modern style of the theater, with its expanses of picture windows toward the lake. The widely overhanging canopy of the theater was also reproduced.

In 1963 the Union planned to replace the flagstones on the Terrace with concrete. "Save the Stones!" became the rally cry of the *Daily Cardinal*, which began a petition drive against the concrete proposed. The Univer-

Image: Army mess hall service in Old Madison Room, 1942. Image courtesy of Wisconsin Union

sity responded by stopping the project temporarily while they studied the best materials for the Terrace. Then in the summer of 1964 the flagstones were removed and replaced by concrete with some smooth Kasota limestone pavers. In 1966 the University decided to turn its attention toward the lakeshore, which until then had basically been gravel, stone and broken up concrete. There was also a great interest in expanding the Terrace. Meanwhile, the Alumni House to the east was opened on May 1967 with a plaza behind it. The landscape architect for that project was Dan Kiley, who was then asked to look at renovation of the lakeshore from the Limnology Lab on the west, eastward to Lake Street. On the west end of the Union, local firm Weiler, Strang and McMillin were planning to expand the underground level of the Union Theater under Park Street, to provide more space for the Hoofers sailing operations. The first work involved filling in the lakeshore several feet behind the cafeteria. East of that, behind the old Red Gym, the lake shore was dug out to provide better mooring for boats. Kiley's plan had five courses of large limestone blocks forming steps all along the area in front of the Terrace. The boat dock section swept into the water and had no steps. East of the boat dock the steps continued. Pavement adjoined the steps to create a walkway along the lake shore.

Unfortunately, the lovely new lake front was pummeled almost yearly by strong storms and ice breakup in the spring. It seems the design was a trap for floating vegetation and debris. The Hoofers sailing piers also were seriously damaged. Some emergency repairs were made, but the issue wasn't seriously studied until 1982 when the receipt of some large donations made it possible to address the problem head-on. Union Director Ted Crabb and campus landscape architect Richard Tipple collaborated on the lakeshore work and expansion of the Terrace. The work lasted from 1985 to 1987. The renewed Terrace could seat two to three times as many patrons and have three levels, created in concrete. The grand opening celebration was held in June of 1987. The configuration of the Terrace is essentially the same today.

During the late 60s and early 70s, Union student leadership participated in many of the anti-Vietnam-war efforts. It was a time of political turmoil and college traditions took a back seat to civil rights, women's rights and the peace movement.

New Union enterprises in the 1970s included its first day care center and the first full-time union blood donor center in the country. In 1971 Union South opened to serve the agriculture, engineering and medical students on the west end of campus. In 1972 the Union

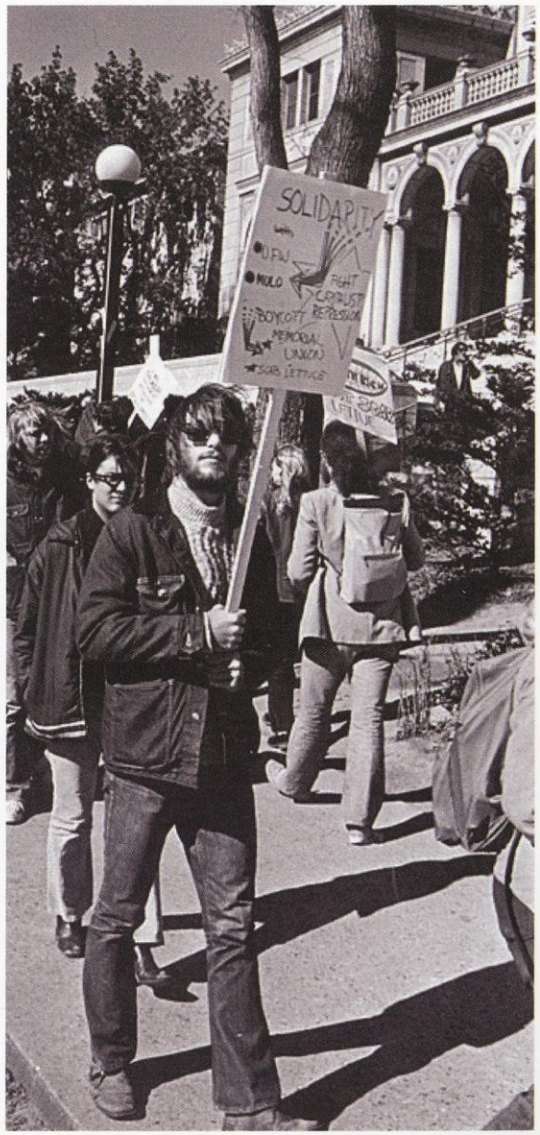


Image: Protest, 1971. University of Wisconsin Library, Archives & Oral History.

began its program of Mini Courses. In 1978 a total of 70-80 events were held in the two unions every day.

In 1979 the paper-mache Statue of Liberty poked the top of her head and her torch out of the ice of Lake Mendota behind the Union, courtesy of the jokesters voted to lead student government that year. In 1988 the University's Interim Multicultural Center opened in the Union's library.

> ***The culture was changing so much that every month felt like a different year... There was a sensibility among students that they could change the world. The student union was the cultural and political headquarters." - David Maraniss , 34***

In 1995 the Morgridge Center for Public Service opened as a department of the Wisconsin Union (it later moved to the Red Gym). In 1999 the Hoofers found a permanent riding stable southwest of Madison. In October 2006 the student Union initiative finally passed, permitting the demolition and rebuilding of Union South.

Most recently, the Main Lounge of the Union was renovated to reclaim the classic look of the original design, no longer considered "bad Italian," but now appreciated for its timeless elegance.

Endnotes

1. Porter Butts, *The College Union Idea*, Association of College Unions-International, Stanford, CA, 1971, p. 30.

2. "Inaugural Address of President Charles Richard Van Hise," *Science*, new series, v. 20, no. 502, August 12, 1904, p. 199.

3. Ibid., p. 198.

4. Ibid., p. 199.

5. University of Glasgow Union statement of purpose, quoted in *College Unions: Seventy-Five Years*, Stanford, CA, Association of College Unions – International, 1989.

6. *A Memorial Union Building for the University of Wisconsin, Madison*, Memorial Union Building Committee, 1921, no page numbers.

7. "Inaugural Address of President Charles Richard Van Hise," *Science*, new series, v. 20, no. 502, August 12, 1904, p. 196.

8. S. H. Goodnight, *A Memorial Union Building – Why?* 1921, no page numbers.

9. Ibid.

10. Quoted in *A Memorial Union Building – Why?* 1921, no page numbers.

11. *The Memorial Union: The University of Wisconsin, Madison*, Memorial Union Building Committee, 1922, p. 23.

12. Arthur Peabody, "The Memorial Union Building, University of Wisconsin, Madison, Wisconsin," *The American Architect* 1926, July 5, 1929, p. 6.

13. President Frank, quoted in *The Wisconsin Union, University of Wisconsin*, 1928, no page numbers.

14. Arthr Peabody"The Memorial Union Building, University of Wisconsin, Madison, Wisconsin," *The American Architect* 1926, July 5, 1929, p. 6.

15. Jim Feldman, *The Buildings of the University of Wisconsin, Madison*, University Archives, 1997, p. 207.

16. *The Wisconsin Union, University of Wisconsin*, 1928, no page numbers.

17. Sources vary on the amount needed to meet the lowest bid, from $70,000 to $100,000.

18. "Union is $80,000 Short; Work May be Interrupted," *Daily Cardinal*, Feb. 10, 1926.

19. President Glenn Frank, quoted in *The Opening Date*, October 5, 1928, flyer in the collections of the University of Wisconsin Archives.

20. Ibid.

21. Porter Butts, "The University Furnishes Its 'Living Room,'" *Alumni Magazine 29*, February 1, 1928, p. 162.

22. Porter Butts, interview by Donna T. Hartshorne, 1979 Tape Index 167, University of Wisconsin Madison Archives Oral History Project.

23. "University of Wisconsin Memorial Union Association, Executive Committee Minutes 2 (1926-1950), April 9, 1925, quoted in Susan Olsen Haswell, *The Memorial Union Terrace: A Landscape History*, January, 2008, p. 22.

24. Porter Butts, interview by Donna T. Hartshorne, 1979 Tape Index 167, University of Wisconsin Madison Archives Oral History Project.

25. Jim Feldman, *The Buildings of the University of Wisconsin, Madison*, University Archives, 1997, p. 209.

26. Bulletin of the University of Wisconsin, *For a Finer Wisconsin*, 1938, p. 16.

27. Porter Butts, interview by Donna T. Hartshorne, 1979, Tape Index 167, University of Wisconsin Madison Archives Oral History Project.

28. Porter Butts quoting Cret, interview by Donna T. Hartshorne, 1979 Tape Index 167, University of Wisconsin Madison Archives Oral History Project.

29. "New Theater Among Finest," 5-11-40 unlabeled clipping in Union scrapbook.

30. Porter Butts, quoting *Architectural Record*, interview by Donna T. Hartshorne, 1979, Tape Index 167, University of Wisconsin Madison Archives Oral History Project.

31. Porter Butts, interview by Donna T. Hartshorne, 1979 Tape Index 167, University of Wisconsin Madison Archives Oral History Project.

32. *Time Magazine* article in 1948, quoted by Porter Butts, interview by Donna T. Hartshorne, 1979 Tape Index 167, University of Wisconsin Madison Archives Oral History Project.

33. Porter Butts, interview by Donna T. Hartshorne, 1979 Tape Index 167, University of Wisconsin Madison Archives Oral History Project.

34. David Maraniss quoted in "The Wisconsin Union: The First 100 Years," T*errace Views*, Fall, 2007.

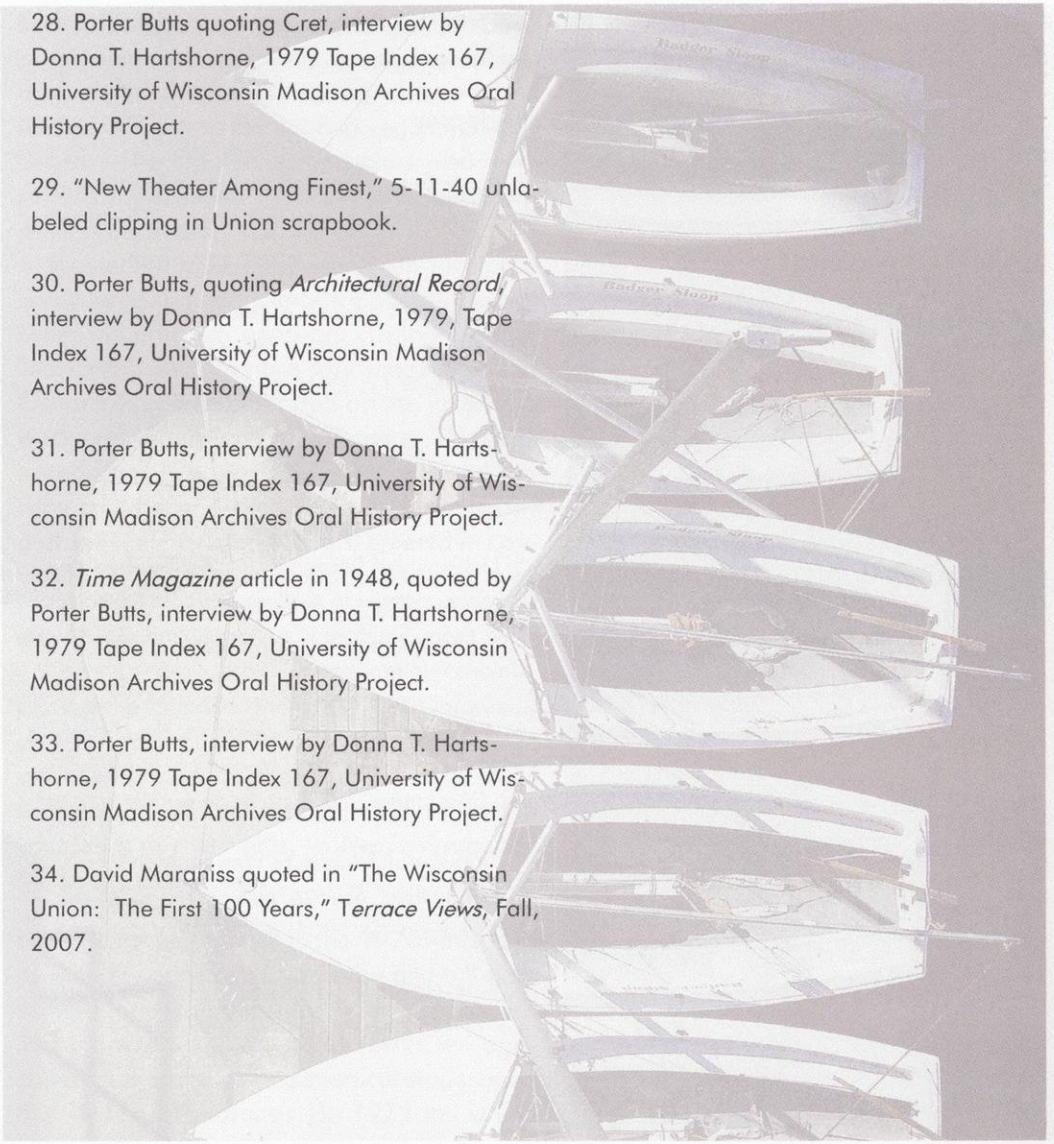


Image: Craig Wilson, Kite Aerial Photography.

Building Chronology

Introduction

The University of Wisconsin Union was constructed in two phases. The central core (housing Memorial Hall) and east (Commons) wing were begun February 1926 and completed in September 1928, funded largely through gifts. Arthur Peabody, then State Architect, developed the plans. The chief designer in Peabody's office, Frank Moulton, likely played a primary role in the design. Leon Pescheret, a French-born designer based in Chicago, decorated the interior. A terrace overlooking the lake was included in the plans as early as 1922. The final design for the Terrace was created by Charlotte Peabody, Arthur Peabody's daughter, who was a professional landscape architect. The Terrace was completed in 1929. Although a theater section was proposed initially, its construction was deferred due to insufficient funds. In September 1935, the Union and the University applied to the federal Public Works Administration (PWA) for funds to erect the theater wing. PWA funds paid for about one-third of the cost; loans and gifts supplied the remainder. Michael Hare, of the New York City architectural firm of Corbett and MacMurray, designed the theater section. Lee Simonson, nationally-prominent stage and set designer, consulted. Construction began in 1938 and was completed in October 1939.

Changes to the Wisconsin Union and its grounds since the completion of the theater wing reflect the need to accommodate ever-increasing numbers of patrons.

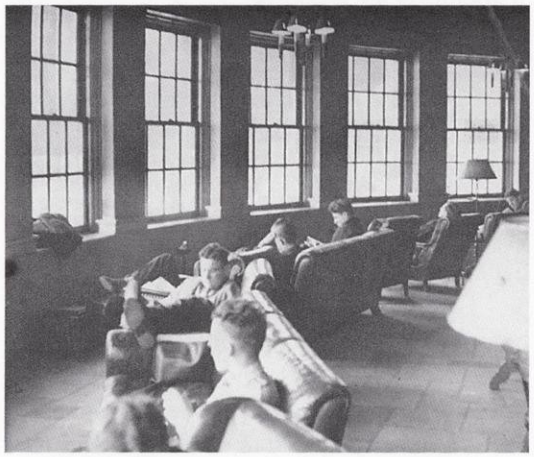
Transitions by Decade

1928-1940

The erection of the theater wing, completed in 1939, was the principal construction that took place during this decade. The most significant alteration occurred in 1934-1936 when James Watrous painted a series of murals in the Paul Bunyan Room depicting some of the myths of the legendary north woods character. One important change in use happened before the Union even opened. Although the Union was initially planned for men only, in part because Lathrop Hall served as the women's union, this was altered long before the building opened. Women students wanted space in the Union along with the men, and they were more successful fund-raisers then their male counterparts. When the Union opened, a portion of the first floor, including the Rathskeller and the game rooms, was designated for men. Both sexes were allowed on the second (Main Lounge) floor, and the fourth (Great Hall) floor was for women dur-

Image: Gathering at Union Theater Terrace, University of Wisconsin Collection, Image # 030825101.

ing the day. Gradually, the floors integrated. The Rathskeller was the last male-only domain; full access was granted to women in 1947. There were several other major changes in use. First, the music room was converted to an art gallery in 1929 (the first university union in the United States to have one). Porter Butts, an art history major and an officer on the board of the Madison Art Association at the time (which did not have its own



art gallery), came up with the idea. When the Memorial Union opened, the room briefly shared both uses, with a grand piano in one corner, but Porter Butts felt it was difficult to contemplate art seriously when someone was playing "Chopsticks" in the background, so the piano was moved out. The Tea Room did not get much business, so was renamed the Georgian Grill. And nine of the hotel rooms were converted to offices and meeting rooms (such as the Topflight Room) in 1938. The old wooden bar that had been in the Hausman brewery, installed in the Lunch Room (just east of the Rathskeller) was removed in 1940. 1

1941-1950

Following the end of World War II, the number of students at the University of Wisconsin increased dramatically as returning soldiers re-entered civilian life. As many as 16,000 students passed through the Union every day during the school year. The need to serve more students, and the wear and tear on the building in the years since it had opened led to a two-part renovation project, to be completed by 1948, in time to celebrate the centennial of the University of Wisconsin, the fortieth anniversary of the founding of the Wisconsin Union, and the twentieth anniversary of the opening of the Memorial Union. The first part was a redecoration of the interior of the public rooms in the central and east wings. Michael Hare planned the interior decorating, furnishing and lighting, with Robert McKelvey, a local architect, and William Heth, a lighting engineer in Milwaukee. The second part was an effort to maximize the space in the building; that is, carving out new rooms in voids and mezzanines in the central section. To this end, Porter Butts commissioned Madison architect William Kaeser to carry out planning studies. 2

The redecorating project involved replacing much of the original furniture with more practical, easier to care for models, and coordinating upholstery, carpet, and paint to match. Paint colors that were more subdued than the original palette of autumn foliage were selected, aimed at hiding the ornate classical moldings. As part of the lighting improvements, drop ceilings were installed in the Main Lounge and in Great Hall (covering the skylight). In the Main Lounge, for example, the original heavy, bronze-and-strap chandeliers with candle bulbs had not provided enough illumination to read by; these were replaced with fluorescent fixtures. Acoustical tile was applied to ceilings in the corridors and public rooms throughout the building. The stage in Great Hall was reduced slightly in size and carpeted. The geometric designs on the decorative plaster ceiling in the Library was covered with an acoustic plaster. The cork tile ceiling and south trophy room cases in the Rathskeller were installed at this time. The Trophy Room was converted into overflow seating for the Rathskeller. Hare also assembled a palette of colors that guided re-painting throughout the building for the next few years. The theater, private dining rooms, and corridors were repainted during that time. 3

William Kaeser's planning studies, completed

Image: Rathskeller seating area, University of Wisconsin Collection, Image # UW.dn030825291

in July 1946, identified various opportunities to create new rooms. Several of Kaeser's suggestions were carried out in 1947-49. By their 2010 designations, these included the creation of the accounting offices on the third floor (south of the east grand staircase), and the enclosure in glass of the Wisconsin Union Directorate and Mendota Room on the fifth floor of the central section. Recommendations carried out later involved filling in the space between the central and east wings, on the north façade, creating the Class of 1925 Gallery (1977) on the second floor, the Board Room (1959) and an expansion to the Beefeaters' Room (1977) on the third floor, and the Class of 1924 Reception Room (1977) on the fourth floor. Kaeser also suggested enclosed corridors connecting the east and central wings (1977) and the central and theater wings (1978) at the fourth floor on the Langdon Street side. Kaeser's most notable suggestion was the expansion of the cafeteria (1956-57), beyond the existing building envelope, to create a band of windows on three sides, overlooking terrace, lake and parking lot. 4

1951-1960

In 1953, the flagstone flooring in the Rathskeller was replaced with terrazzo. The expansion and remodeling of the cafeteria and kitchen was the next development in the history of the Memorial Union, and the only reconstruction that substantially altered the exterior appearance of the building. William Kaeser first proposed the idea in 1946, in response to the Union's pressing need to double their food service capacity. Kaeser's proposal was substantially similar to the plan that was eventually built, expanding beyond the envelope of the original building on three sides, with bands of windows providing broad views of the lake and the Terrace, and sheltered with a canopy, matching the lines of the theater wing. This expansion also provided a deck for Tripp Commons. William Kaeser and his partner, Arthur McLeod, produced plans for the cafeteria and kitchen expansion in November 1955. In 1956, for some reason as yet undetermined, the firm of Weiler and Strang replaced Kaeser and McLeod as the architects for the project. The drawings prepared by Weiler and Strang were essentially identical to those of Kaeser and McLeod. The cafeteria expansion was completed in 1957. Stone removed from the wall of the east wing was reused to rip-rap the lakeshore. The flagstones that had been adjacent to the east wing's east wall were set north of the expanded cafeteria, creating a new section for the terrace. Another suggestion of Kaeser's completed in 1959 created the Board Room from infilled space. (5)

1961-1962

In 1962, the Georgian Grill was remodeled to create the Inn Wisconsin. The former Billiards Room was converted into the present Stifstkeller in 1962. In 1963-1964, the bowling alleys in the basement of the theater wing are closed, and the space is reopened with billiards and other games. 6 In 1963, after much controversy, the flagstones on the Terrace were replaced with slabs of Kasota stone interspersed with sections of concrete; underground storage was excavated in the southwest corner of the terrace the same year. 7 Portions of the basement in the theater wing that had housed the games room area, and an archery range, were remodeled in 1964. 8 The Hoofers boathouse and storage, largely underground, were constructed north of the theater wing in 1966-1967. 9 The Terrace north of the theater wing was paved at this time, resting

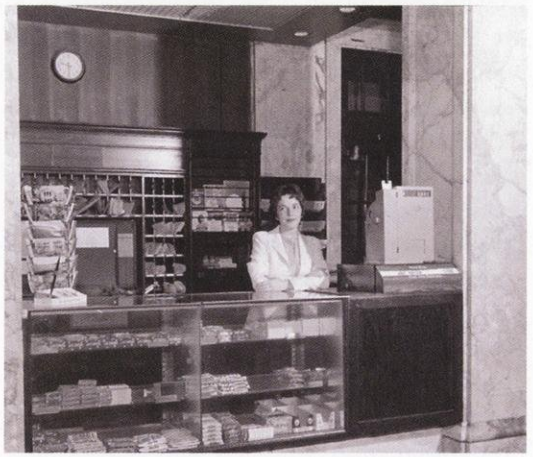


Image: Candy Counter, University of Wisconsin Collection, Image # uwar 006241.

in part on the roof of the new boathouse.

In 1966, planning began to improve the lakeshore east of the new Hoofers boathouse, as "the existing shoreline is a collection of broken concrete and abandoned materials." (10) The University consulted with the office of nationally-prominent landscape architect Lawrence Halprin, of San Francisco. Halprin's firm recommended that a wide pathway be constructed along the lakeshore from the Limnology Lab (west of the Union) eastward all the way to Tenney Park. (11) Peter Ker Walker, an associate of Dan Kiley, a landscape architect of national repute, produced a rehabilitation plan for the lakeshore, which was carried out in 1969-70. The design began just east of the Hoofers boathouse and consisted of five courses of stone steps that descended into the lake and ran eastward to the east wing of the Memorial Union. At that point, the stone steps curved sharply northward into the lake, following a pre-1947 breakwater, and terminated in a rectangular pier. Beyond the breakwater, north of the U.W. Armory (Red Gym), the steps reappeared, bordering a deep, rectangular basin for mooring boats. At the northeast corner of the mooring area was the Class of 1917 plaza. East of this plaza, behind the Below Alumni Center, the steps continued along the lakeshore to Lake Street. A concrete walkway followed the lakeshore along the edge of the steps all the way to Lake Street. The Walker/Kiley plan was confined to the lakeshore, and did not call for any alterations to the Terrace beyond the steps and the walkway. (12)

1971-1980

The Bike Circle at the corner of Park and Langdon streets was laid out in 1972. (13) The Langdon Street entrance into the east (Commons) wing was remodeled in 1973-74, creating the bank of inner doors into the lobby, and adding a accessible, ground-level entrance into the central section of the building. (14) The landscaping of the plaza in front of the east wing (Commons) entrance on Langdon Street was carried out at the same time. (15) In 1977, the smoke-proof stair tower visible on the lake side of the Union between the central core and the east wing was built from Great Hall to the Tripp Commons deck, and an outside stairway was installed from the deck down to the Terrace. Cmpleted in 1977 were the Class of 1925 Gallery on the second floor; an expansion to the Beefeaters' Room on the third floor (the mural in the room was painted at the same time; it is no longer extant); the Class of 1924 Reception Room on the fourth floor; and the enclosed corridor connecting the east and central wings on the Langdon Street side. The enclosed corridor between the central and theater wings at the fourth floor on the Langdon Street side followed in 1978. (16) On the interior, Kurt Schadlach restored the Rathskeller murals, and painted the Alte Deutsche style murals in Stiftskeller, in 1977. (17) A combination of weather conditions and settling had displaced sections of the steps and collapsed parts of the breakwater in the Walker/Kiley lakeshore rehabilitation plan, and extensive repairs were made in 1978. (18) In 1979, a beer cooler was erected on the Terrace just outside the Stiftskeller. (19)

1981-1990

The cafeteria was remodeled, and the configuration of the seating changed, in 1982-83. In 1983-84, fire safety doors were installed to isolate the stairwell in the east (Commons) wing. The Rathskeller serving line was remodeled in 1983-84. The access lift (for persons with disabilities) that descends from the corridor outside Great Hall to the floor of Great Hall was constructed in 1985. The same year, the information kiosk at Park and Langdon streets was erected. (20) Richard Tipple of the University's Department of Planning and Construction devised plans to expand the Terrace in 1986-87. A series of paved seating areas, plazas, and walkways were installed between the original upper terrace and the lakeshore walkway. A brat stand was erected in the new area in 1987, and a permanent stage followed in 1988. (21) Repainting of the theater and replacement of the carpeting took place in 1986, and the

seats were re-upholstered in 1987-88. The theater lobby was remodeled in 1988-89 with rubber tile flooring and baseboards, and upgraded lighting. (22) In 1988, the checkroom in the basement lounge of the theater was reduced in size. The Billiards Room was expanded the same year. A permanent stage was erected in the Rathskeller in 1990. (23)

1991-2000

In 1991-92, the lobby in the east (Commons) wing was remodeled to its current appearance, with a new information desk, convenience store, and ice cream/deli counter. In 1993-94, the Park Street entrance corridor and box office in the theater wing were remodeled; the exterior box office on the west wall of the theater wing was built; and a door was installed in the east wall of the east (Commons) wing to provide access from the Inn Wisconsin to the Tripp Commons deck. Other projects during this period include: the multicultural murals in the Trophy Room (1996); the remodeling of the Hoofers lounge and offices (1996-98); the conversion of the women's drawing on the fourth floor into the Capitol View meeting room (1998-1999); and the replacement of the original Travertine steps at the central entrance with concrete steps and landings (2000). (24)

2001-2010

A major kitchen remodel was completed in 2001. The Main Lounge was restored to much of its historic appearance in 2002. (25) The cafeteria was reconfigured in 2003-04. (26) The wooden floor in Great Hall was replaced in 2004. (27) In 2008, the area on the first floor east of the Trophy Room, under the stairs, was remodeled to create additional seating and a coffee bar. (28)

Endnotes

1. Porter Butts, Interview by Donna T. Hartshorne, August 1979, Tape Index 167, University of Wisconsin-Madison Archives Oral History Project, Steenbock Library, Madison, transcript, pp. 8, 23, 55, and 84; Newman Halverson, address, The Tenth Annual Conference of the Association of College and University Unions, held at the Wisconsin Union, December 5-7, 1929, pp. 58-59; and Porter Butts, "Story of the Wisconsin Union Decorations," 1948-49, p. 10, on file, History Binder, office of Theodore Crabb, Emeritus Director, Wisconsin Union, Madison.

2. Butts, Interview, pp. 64-66; and Butts, "Story of the Wisconsin Union Decorations," p. 1.

3. Butts, Interview, p. 64; and Butts, "Story of the Wisconsin Union Decorations," p. 7.

4. William Kaeser, "Planning Studies," July 1946, on file, Technical Maintenance Unit, Wis-

Image: Lower Terrace and stage at night. Courtesy Wisconsin Union.

consin Union, Madison; and Theodore Crabb, "Construction History: The Wisconsin Union," October 13, 2004, History Binder, office of Theodore Crabb.

5. Butts, Interview, pp. 66-67; Kaeser and McLeod, "Proposed Addition: Memorial Union," November 29, 1955, on file, Technical Maintenance Unit; Weiler and Strang, "Alterations and Additions to Memorial Union," August 27, 1956, finalized January 1, 1957, on file Technical Maintenance Unit; and Crabb, "Construction History: The Wisconsin Union," p. 1.

6. As of 2010, the bowling alleys remain intact under the current flooring. Source: Theodore Crabb, personal communication, February 8, 2010.

7. Crabb, "Construction History: The Wisconsi-Union," pp. 1-2.

8. Weiler and Strang, "Under Theater Remodel," series of plans, dated 1964, on file, Technial Maintenance Unit; and Crabb, "Construction History: The Wisconsin Union," p. 2.

9. Weiler & Strang, "Memorial Union Boat Rental and Storage Facility and Site Renovation," plans dated December 1964, on file, Technical Maintenance Unit.

10. R.H. Lorenz, Assistant Vice President and Business Manager of the University of Wisconsin, speaking to the Wisconsin State Building Commission, cited in Haswell, p. 49.

11. David Heldt, Lawrence Halprin & Associates, to James E. Galbraith, Wisconsin State Architect, October 13, 1966, cited in Haswell, p. 49.

12. Peter Ker Walker, Office of Dan Kiley, "Revised, Lakeshore Rehabilitation," plans dated August 26, 1968, reproduced in Haswell, p. 51.

13. University of Wisconsin Department of Planning and Construction, "Memorial Union South Side Site Rehabilitation-Phase One," plans dated August 13, 1971, on file, University of Wisconsin-Madison Division of Facilities Planning and Management Archives, 115 North Mills Street, Madison.

14. Previously, only one pair of doors had opened into the lobby. Strang Partners, "Memorial Union Remodeling," plans dated April 2, 1973, on file, Technical Maintenance Unit.

15. "Class Gifts to the Wisconsin Union," p. 2, on file, History Binder, office of Theodore Crabb, Emeritus Director, Wisconsin Union, Madison.

16. Crabb, "Construction History," p. 2; and Strang Partners, "Addition to and Remodeling of the Memorial Union," plans dated May 24, 1976, and "Memorial Union Remodeling #3," plans dated February 23, 1978, on file, Technical Maintenance Unit.

17. Butts, Interview, p. 73; and Crabb, "Construction History," p. 2.

18. Haswell, p. 53.

19. Crabb, "Construction History," p. 3.

20. Ibid.

21. University of Wisconsin Department of Planning and Construction, "Memorial Union Terrace Improvement," plans dated January 1986, on file, Technical Maintenance Unit.

22. Crabb, "Construction History," p. 3.

23. Ibid., p. 4.

24. Ibid., pp. 4-5.

25.Ibid., p. 5.

26. Strang Associates, "Lakefront Cafeteria Remodel" plans dated March 17, 2003, on file, Technical Maintenance Unit.

27.Crabb, p. 5.

28. Brownhouse Architects, "Memorial Union Coffeehouse Remodel," plans dated June 26, 2008, on file, Technical Maintenance Unit.

■ Image: Union Railing in Winter. Courtsey of Wisconisn Union.

Timeline of Alterations from 1928 to the present

1934-1936	Murals in Paul Bunyan Room painted; parts of basement excavated to allow for storage space and painters', carpenters', and upholsterers' shops.
1938	Nine of hotel rooms converted to offices and meeting rooms.
1938-1939	Theater wing constructed.
1940	Old Hausmann bar removed from food service section of Rathskeller and new tile and stainless steel food and bar service added.
1948-1949	Major refurbishment to celebrate of the Union's 20th anniversary and the University's 100th anniversary. Main Lounge, Great Hall, Library, Art Gallery, Trophy Room and Hallways refurbished with new paint, furniture, carpets, lighting, and drop ceilings.
1947-1949	Rooms added in unfinished spaces and glassed in rooms added onto roof, including office added to third floor, and two rooms enclosed in glass with penthouse and UW Student Services office on the fifth floor of central core.
1952-1953	Air conditioning added in Great Hall and Tripp Commons; in Rathskeller, stone flooring replaced with terrazzo and first floor men's room added; Round Table Room remodeled.
1956-1957	Kitchen and Cafeteria and adjoining service areas remodeled including new addition on north, east and west sides of Kitchen and Cafeteria and an outdoor deck for Tripp Commons.
1959	Board Room created in unfinished space.
1961	Georgian Grill remodeled to create the Inn Wisconsin. Lex Vobiscum Room redecorated and name changed to the Profile Room; Board Room expanded and remodeled.
1962	Bowling alleys replaced with billiards and game room. Former billiards room remodeled as the Stiftskeller.

Timeline of Alterations from 1928 to the present

1964	Terrace flagstone pavement replaced with concrete and Kasota stone; unfinished boat repair center and underground storage space created under the theater lobby and the southwest corner of Terrace. Portions of the west wing remodeled. Bowling and table tennis areas converted to billiards room, meeting room and costume workshop.
1966-1967	Area north of the west sing excavated and developed to provide Hoofer Boathouse and storage.
1969	Fifth floor student offices remodeled.
1969-1970	Shoreline from Lake Street to Park Street rehabilitated with courses of stone steps down to the water, including a breakwater.
1973-1974	Langdon Street entrance to Commons Wing remodeled creating an inner bank of vestibule doors and an accessible entrance; space remodeled to provide for deli and restrooms.
1976-1977	Smoke-proof stair tower constructed from Great Hall down to the Tripp Deck and exterior stair added from Tripp Deck to Terrace; Class of 1925 Gallery on the second floor created as infill between Central Core and the Commons Wing; corridor enclosed between the Commons Wing and the Central Core; Beefeaters Room expanded; Class of 1924 Reception Room added on the fourth floor; corridor added between the West Wing and the Central Core; extensive shoreline repair to steps and breakwater.
1977-1978	Play Circle refurbished. Rathskeller murals restored and Stiftskeller murals painted.
1978	Great Hall repainted.
1979	Beer cooler room added outside of the Stiftskeller; men's restroom added across from Great Hall
1982-1983	Cafeteria seating area remodeled.
1983-1984	Fire safety doors installed at stairwells in the Commons Wing and Central Core; enclosed corridor constructed to connect Great Hall and Craftshop; Rathskeller serving area remodeled; accessible elevator installed providing access from Great Hall corridor to the Great Hall floor level.
1986-1987	Terrace remodeled with new paved seating areas, plazas, and walkways; brat stand constructed. .

Image: Sunset on Lake Mendota. Courtesy of Wisconsin Union.

1988-1989	Terrace Stage constructed; theater repainted and auditorium carpet replaced; doors and windows of theater lobby replaced; new heating system installed; ceiling soffits installed over theater entrance and exit doors.
1990	Stage added in Rathskeller; door installed on east façade providing access to from Inn Wisconsin to Tripp Deck.
1991-1992	Commons Wing lobby remodeled with new information desk, convenience store, central men's room and ice-cream and deli counters. Great Hall repainted; air conditioning in Great Hall and Tripp Commons replaced; second floor information desk closed, area remodeled as office.
1993-1994	Park Street entrance corridor and box office in theater wing remodeled.
1995	Exterior box office built on the west wall of the West Wing.
1996	Multi-cultural murals painted in former Trophy Room.
1996-1998	Hoofer Lounge and office area remodeled
1998-1999	Former Women's Drawing Room on fourth floor converted to the Capitol View meeting room; new women's room constructed.
2000	Original travertine marble steps on front façade replaced with concrete.
2001	Major remodeling of kitchen.
2002	Main Lounge refurbished to restore much of original appearance; Rosewood Room remodeled.
2004	In Great Hall, wooden floor replaced by another wooden floor; Cafeteria remodeled.
2008	Former barbershop (or travel store) renovated as coffee bar with additional seating area in former electronic games room.

Existing Conditions

Introduction

The Memorial Union today encompasses approximately 224,500 gross square feet of space on six occupied floors, including the basement. There are several separate attic spaces that contain mechanical equipment. The original building was constructed between 1926 and 1928, with the Wisconsin Union Theater Wing added to the west in 1938-1939. In 1956 the original cafeteria in the Commons Wing was expanded outward and remodeled. Today, after a more recent remodeling, it is known as Lakefront on Langdon. The Hoofers recreational club addition was completed in 1965 on the lake side of the Union Theater. Its floor level aligns with the building basement level and it provides a terrace above. Over the years several other minor additions and revisions have been made that have in-filled recesses (hyphens) in the façade and built upon lower roofs.

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The original building is of an Italianate Revival style and was intended to look like the summer villas that were built by wealthy Italian families on the river between Venice and Padua during the Renaissance. The exterior features Madison sandstone for the walls with a gray Bedford stone for the architectural details. To reduce the apparent mass, the building was divided into three blocks: the Central Core, the Commons (Tripp) Wing, and the Theater Wing.

The architect's design for the Memorial Union was essentially symmetrical, typical of designs based on the architecture of Italy from ancient Rome and the Renaissance to the 20th century. The massing of the original building in 1928 consisted of a large, four-story main mass raised on a full basement story. The hip roof central section was flanked by two-story connectors. The Commons Wing and the Theater Wing were meant to be mirror images of each other but construction of the theater was delayed until more funds could be raised.

The Theater Wing (1939) as executed is a synthesis of the Art Moderne and International styles with the smooth limestone walls, glass block glazing and projecting canopies. The exception is the south facing façade (Langdon Street) which is a blend of styles in an attempt to relate to the original primary façade.

The Art Moderne-International style blend was continued, loosely, in the 1956 cafeteria addition and remodeling, bringing a degree of balance to the lake side façade of the building. At this time glass enclosed meeting rooms were added on the fifth level at the Commons Wing and Central Core.

The designation of Memorial Union as a contributing resource within the Bascom Hill Historic District recognizes this noteworthy and classically inspired early twentieth century building, and its additions, as important

Image: Union Theater exterior.

to the community, University, and State. The district reinforces the linkage of historical events, significant people, architecture and landscape elements that distinguish this as a unique place.

The Terrace is a significant landscape element and outdoor space on the lake side of Memorial Union. The designers originally provided a wide lawn on the lake side to serve "as an undergraduate playground." Balconies were added so that users of the building could enjoy the lake views and speeches could be made to the assembled crowds. The initial plans for the terrace comprised a large rectangular terrace centered on the Central Core and adjoining the cafeteria. The pavement was flagstone and low masonry walls enclosed the patio. The existing trees were surrounded by low stone walls. Leading toward the lake was a centered walk divided by linear rectangles of grass ending at a small overlook some ways away from the lake. As discussed in the next section of this report, the terrace has undergone significant changes in its 80-year history.

The original conception of the interior provided a generally cohesive design. Rich colors, decorative schemes and ethnic themes of Native Americans, early settlers and dominant immigrant groups connected Wisconsin heritage and culture to this University setting.

The basement of the Central Core and Commons Wing is comprised primarily of support space; including kitchens, service, lockers, shops and storage. In the Theater Wing support spaces for the theater are found as well as all offices, meeting rooms, work areas and storage for Hoofers.

The first floor provides the primary entrance points for patrons as well as direct access to the Terrace. On the first floor are two large rooms, the cafeteria in the Commons Wing and the Rathskeller in the Central Core. These are arranged along a central east-west corridor served by flanking stairways. Adjacent to the Rathskeller is the Stiftskeller (former

Image: Caption: Great Hall, Wisconsin Historical Society image ID Whi 0716001129.

billiards room). Just south of the Rathskeller is the Trophy Room (hall) originally used for displaying athletic trophies. The Paul Bunyan Room and several retail operations also occupy this level. The 1,300 seat Union Theater is also located on this level within the Theater Wing. To access the Theater one must traverse stairs to the second floor, use the north-south corridor and descend a second set of stairs.

The second floor, reached by the grand stairs and Loggia on Langdon Street, is the predominate floor of the building. This floor also features a central east-west corridor that ties to north-south corridors in the Commons and Theater Wings. Memorial Hall, which is the grand entrance foyer and hallway in front of the main lounge, is one of the primary spaces of this level. To the west of the main lounge is a library/reading room and to the east is the gallery. Above the cafeteria in the Commons Wing is Tripp Commons (main dining room) and several smaller meeting rooms (private dining rooms). Other small rooms on this floor were intended as offices of various student organizations. The 168-seat Play Circle is located on the first floor in the Theater Wing.

Third floor of the Commons Wing features meeting rooms including the Old Madison Room, Beefeaters, Round Table and Board Room. The Theater Wing has one meeting room, the Rosewood Room, and three small multipurpose rooms formerly studios linked to the Play Circle.

Fourth floor of the Central Core features the "alumni hall" or the ballroom (now called 'Great Hall"), the Langdon and Capitol meeting rooms and a reception room. The Commons Wing houses offices and guest rooms. The Theater Wing houses the Craftshop and the Campus Women's Center.

The fifth level is only found in the Central Core area and houses offices and small meeting rooms.

The investigations carried out by the architectural and engineering team in the early stages of the Wisconsin Union Reinvestment Project were intended to be middle ground in nature, that is they were not casual or cursory, yet they were not detailed in their analysis. The objective was to systematically identify and document the building construction types and systems and then identify and prioritize damage and deficiencies. The majority of the efforts focused on walking through and around the building to gather and record

Image: A view of the Memorial Union Commons Wing and Terrace from Lake Mendota on a busy summer evening.

information. Portions of the exterior façade observations did include use of a lift to gain access wall and roof surfaces. The team completed these observations in the summer and fall of 2010.

For additional information relative to the changes made to the building over time, please refer to the Chronology of Transitions and Timeline of Alterations in the preceding section of this report.

Site and Landscape Overview

Memorial Union resides in the Bascom Hill Historic District, the oldest area of campus. The cultural significance of the Union site is best described by Susan Haswell in "The Memorial Union Terrace: A Landscape History". Haswell outlines the site history from the Native American presence prior to the first American settlers in the early 1830s through present day (2008). During the University's infancy, the site was home to private residences of the Raymer's, Olin's and the UW President's house. UW President Van Hise, along with student supporters ushered the Union idea forward as early as 1904. State of Wisconsin architects Arthur Peabody and Frank Moulton drafted the final union design after reviewing design competition results in the mid-1920s and construction of the Central Core and Commons Wing took place from 1926-1928.

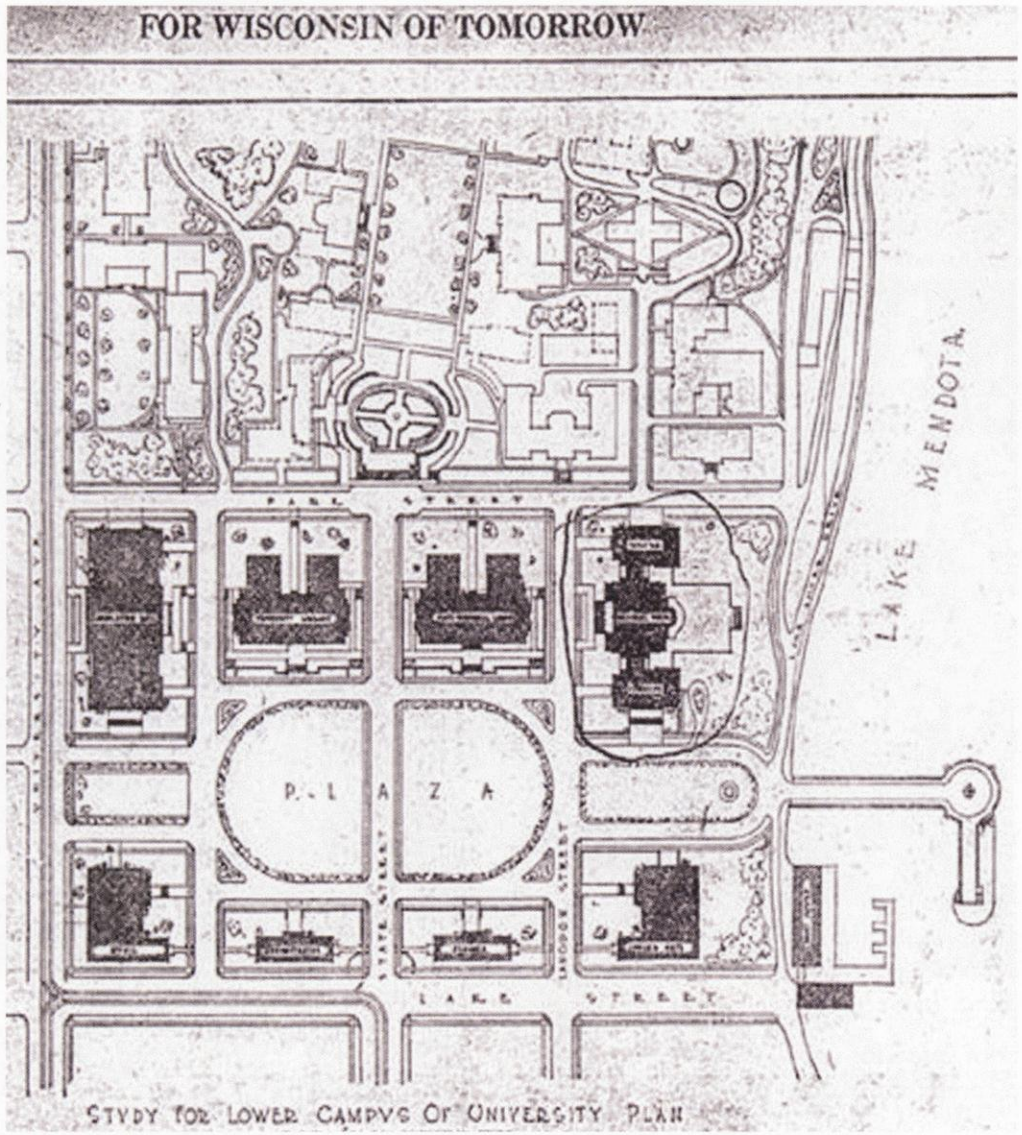


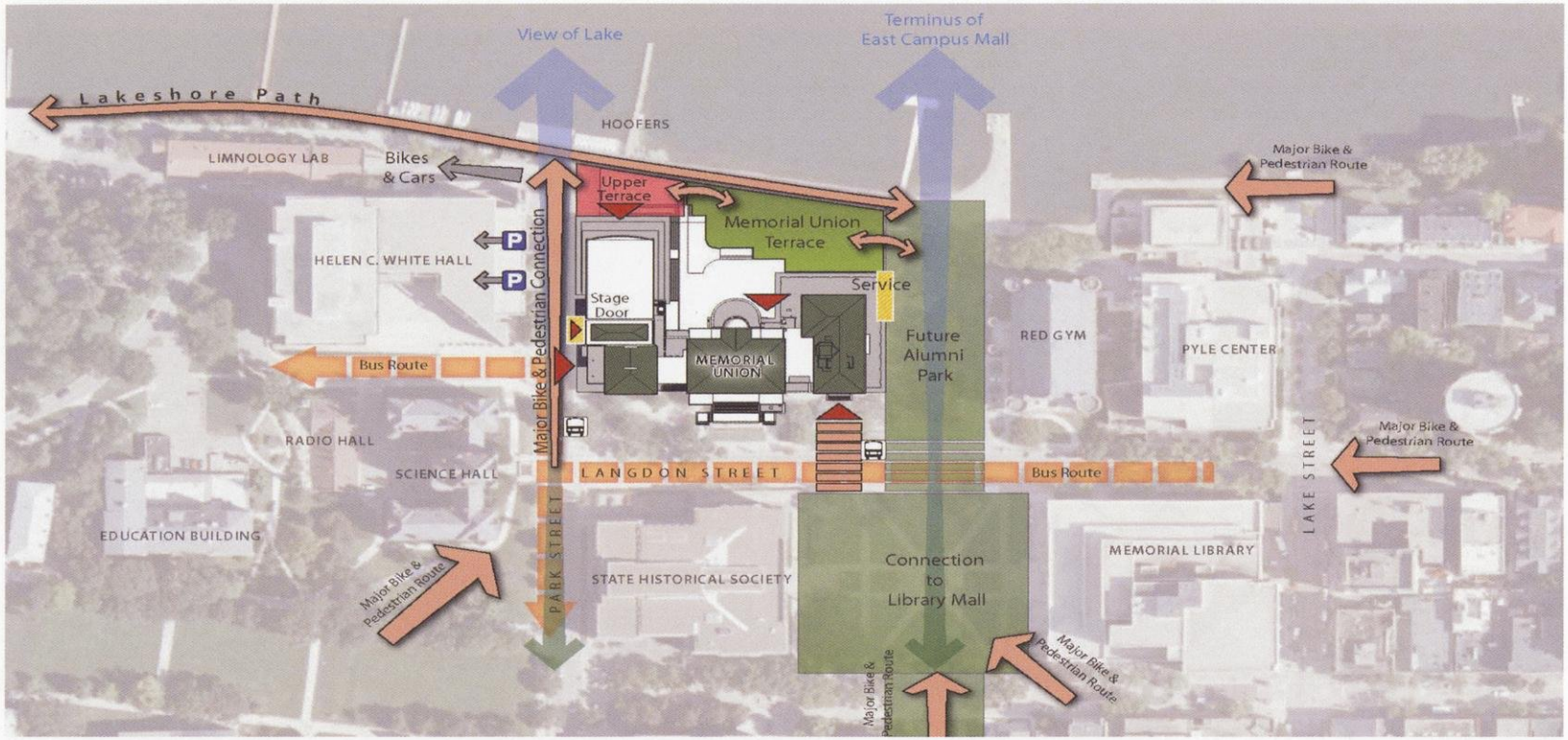
Image: Arthur Peabody's Plan for Lower Campus, including Memorial Union, 1920s.

Charlotte Peabody designed the original Terrace centered on the core portion of the building and Rathskeller. Longenecker's terrace was significantly smaller than the area referred to as the "Terrace" today but was still a large gathering space and reflected Van Hise's philosophy of providing a facility for communal life by expanding the building's functions to the outdoors; providing an outdoor space for social gathering; and creating a connection to Lake Mendota. The predominant link to the lake was the view shed and the Oak canopy preserved through construction. The design was simple featuring flagstone paving, low limestone walls and planters around trees and simple native landscape beds lining the periphery. The lakeshore retained a natural edge and the space between the lake and the Terrace was created as lawn.

G. William Longnecker developed a simple planting plan for the Terrace, using mostly nativeWisconsin plants. As the terrace and lakeshore matured with their new use they benefited from additional modifications and renovations with input and design from notable landscape architects Lawrence Halprin and the team of Dan Kiley and Peter Ker Walker. In 1966, Halprin provided general comments agreeing with William Hagenah's lower campus development plan (1940s) and the need to link the lower campus to the lake via an open green mall between the Union and Red Gym (an idea referenced in all master plans). Halprin also expressed desire to create a strong lakeshore link from the forested areas west of Limnology eastward all the way to Tenney Park, creating a strong contact with and use of the lakefront that would be unique to this campus. In 1969, the Kiley/Walker team designed the lakeshore edge treatment, the Alumni Pier and bay as it exists today. This shoreline was repaired in 1978 to correct failing sections. In the mid-1980s the terrace underwent its largest expansion in history. The effort was designed by campus landscape architect Richard Tipple whopulled strongly from the work of William H. Whyte's work identified basic elements to create successful spaces, including ample mobile seating capacity, exposure to sun and shade, access to water features and availability of food. The famous sunburst chairs and tables certainly fit Whyte's criteria and are clearly a beloved element of the terrace.

The Union site has matured with campus

■ Image: A view of Memorial Union Terrace circa 1940 showing the originally flagstone paving and limestone walls. University of Wisconsin Collection dn030825201.



developments and the demands of its users. Park and Langdon Street continue to serve as the predominant circulation avenues and traffic generators; the Commons entry at the southeast corner is clearly a hot spot of activity with under realized value. The Terrace and Lakeshore have grown into their present state and use. The defining character of these spaces dominates any physical transformation over the years. Lot 1 remains underutilized in its capacity to link Bascom Hill, State Street and East campus mall and provide the connection to the lake that the lower campus desperately needs.

The following analysis and review of conditions and site descriptions and use should be considered in tandem with the "Cultural landscape Inventory, Memorial Union Terrace" as prepared by Quinn Evans Architects.

Site Access

The Union site is heavily accessed by many modes of transportation including foot, bicycle, moped, car, buses and service/delivery vehicles. Volume varies in concentration by the area of the site but it is important to recognize the Union as a four sided building with no one side that calls out as the back of the building. All sides accommodate some form of service or loading in

Image: Site plan diagram illustrating Memorial Unions the key access points, circulation routes and views sheds.

Image: Aerial view of Memorial Union environs looking southwest.

conjunction with prominent building entries.

Although the Union is a membership organization, the facility is heavily used by the general public in addition to the student base it was intended to serve. The wide array of amenities including art galleries, theaters and food and beverage options, draws vast social and cultural populations on a day-to-day basis. Visitors do not approach from any predominant direction, though University Avenue and Johnson Street accommode the majority of inbound traffic. Bascom Hill and Park Street along with Langdon Street (east of Lake Street) are the other primary arrival routes for pedestrians and bicyclists.

Building access along Langdon is mixed. West of the grand stairs and just north is an entry below finish site grade leading to the first floor arcade and Rathskeller via the Trophy room. The grand stair itself leads to the second floor of the building and is rarely used other than exiting from the building. A generous landing is positioned halfway down the grand stairs behind a memorial wall where tables and chairs have been added to animate the space and draw in users. This effort has been marginally successful. The only universal access to the Union along Langdon is immediately east of the grand stairs linking the City sidewalk to the entry of Peet's Coffee and the Commons entrance. The Commons entry is the predominant entrance to the Union and is served by concrete stairs which wrap to the east toward Lot 1. This is the first door encountered by visitors approaching from Library Mall (State Street traffic and Lake Street parking ramp traffic) and Langdon Street.

Pedestrian Traffic

Pedestrian traffic is the predominant mode of access, streaming from all directions. The highest concentrations are from the Bascom Hill area via the Park Street and Langdon Street intersection, Library Mall and Langdon Street east of the site. Library Mall reaches out to State Street, the Lake Street parking ramp where most visitors park if they drive, and the East Campus Mall (currently under construction with the Chazen Art Museum) which extends south to Regent Street (6 blocks). Langdon Street fields traffic from State Street and the plethora of student housing for those residing east of campus proper. Lakeshore path also delivers pedestrians to the Union though in far fewer quantities. The crosswalk linking Library Mall to the Union site is a significant high traffic area often treated by pedestrians as the equivalent of State Street, where vehicular traffic is clearly second to the pedestrian. Pedestrians cross Langdon with reckless abandon at all angles from multiple sources. Sight lines are often compromised by regional buses queuing curbside and constant streams of vehicular traffic.

Although the Union is a membership organization, the facility is heavily used by the general public in addition to the student base it was intended to serve...Pedestrian traffic is the predominant mode of access, streaming from all directions.

Vehicular Traffic

Predominant vehicular traffic approaches the site from Lake Street via University Avenue and Johnson Street. Parking Lot 1 immediately east of the Union is predominantly metered parking and accessible parking stalls while accommodating parking for a few service vehicles just north of the Union loading dock. This parking mix is high turnover and the parking lot is very active. It is common to see vehicles circling the lot searching and waiting for parking spots to become available. Helen C. White Library also provides metered parking but quantities are also very limited. The nearest consistent parking opportunity is the Lake Street parking ramp one-half block south of State Street. The majority of visitors arriving by car park in the Lake Street ramp and walk in via State Street to Library Mall and across Langdon Street.

Service vehicles utilize multiple locations around the site. Theater loading and access

is on Park Street with a simple loading door directly off the sidewalk. Productions utilizing this loading facility generally park curbside and unload across the public sidewalk, into the door and down an interior ramp (the finish floor is 3' below sidewalk grade). This loading configuration is cumbersome, inadequate and lacks proper weather protection. Beer de-

liveries for the Union also occur curbside on Park Street. Kegs are wheeled on hand carts around the north side of the Theater Wing to the beer cooler located outside the Stiftskeller, resulting in a time consuming operation. In addition to Union needs, Park Street provides service, fire and vehicular access to Helen C. White, Water Sciences and Limnology buildings. The cul-de-sac is also highly utilized as a drop-off for theater goers and Hoofers equipment loading and unloading.

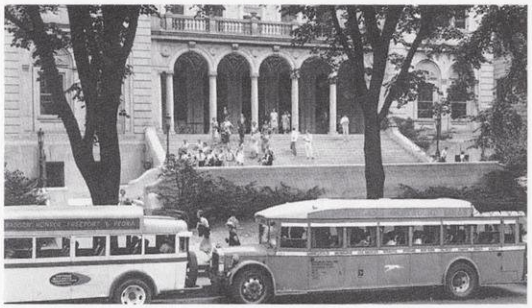
Lot 1 includes the main loading dock for the Union and also services the loading for Red Gym, Pyle Center and Alumni House. In addition to general parking traffic, the lot often is cluttered with delivery vehicles waiting for a turn at the Union dock. Trucks vary in size from 43' semi- trailer rigs to local vendor, panel vans. Food production activities , catering, miscellaneous shipping and receiving, trash, recycling and compost staging and pickup all occur at the loading dock. The above services independently occur at the Pyle Center loading door located near the northeast corner of the Red Gym. Lot 1 generally services ~360 trucks per week.

Bus Traffic

Bus traffic occurs on Park and Langdon Streets. Park Street caters to campus bus routes while Langdon accommodates city bus routes as well as regional connector buses. The city bus stop is located at the intersection of Park and Langdon while the regional buses generally queue south of the Commons Wing entry. This queuing often creates blind spots, hiding pedestrians from view of vehicular traffic, and creating a very dangerous crosswalk situation. Many people utilize the Commons entry as a bus shelter/lounge as it offers protection from the elements and clear sightlines. (image dn 03082508l)

Bike Traffic

Bike traffic sources from all sides with additional traffic generated by the lakeshore bike path. Lakeshore bike path technically begins at Park Street and heads west but many people bike the lakeshore path north of the Terrace to Lot 1 or Lake Street. Bike parking capacity for the Union site is insufficient resulting in bikes parked all over the site. The exception is the Terrace which remains mostly bicycle free. Dedicated parking is provided in a corral setting at the corner of Park and Langdon. Additional parking is provided near the Commons entrance at the southwest corner of Lot 1 and a small amount of additional parking sprinkled along the Lakeshore path near the terrace. The railings bordering the cul-de-sac sidewalk at Park Street



along with other site features (trees, bollards, anything that works) are often covered with bikes as a result of the insufficiencies. Moped parking is accommodated in conjunction with the bike corral at Park and Langdon and is also insufficient though moped parking demands are far less than bike parking.

Image, left: View of parking lot 1, loading dock and Alumni Park from Langdon Street.
Image, right: Bus queuing has a long association with Langdon Street as illustrated by this circa 1940 photo. University of Wisconsin Collection, Image # Dn03082508.

Site Topography and Drainage

Memorial Union maintains a prominent stance on the site with the exception of the West Wing where Park Street is above the Theater stage floor, and the main arcade serving the Union first floor, by 2 1/2'- 3'. The southwest Union entry features an open stairway down to the vestibule. The theater stage door opens at sidewalk grade and ramps down to the stage floor within the building creating difficult loading conditions for venues. Park Street adjacent to the Union drains north from the intersection of Langdon Street, picking up surface and subsurface drainage from Observatory Drive, Science Hall and Radio Hall where they intersect. Observatory's steep grade is a stormwater management challenge. The Park Street stormwater infrastructures appear to be undersized in this location and the potential torrent of storm runoff flowing to the intersection of Observatory and Park can overwhelm the inlets and pipes forcing water into the gutter and over the curb at times threatening to flood the West Wing.

Langdon Street drains east from Park Street to a low point immediately south of Lot 1 where it is conveyed to Lake Mendota via pipes through Lot 1. This network serves the south half of Lot 1 along with Red Gym drainage and a portion of Langdon to the east. Lot 1 is 2 1/2' to 4' lower than the Union finish floor elevation. The only public access along the east façade is a single door approximately 40' north of the south face; accessed by stairs and is not used regularly.

The Terrace and Lakeshore

The Terrace is split into 4 general levels: upper, main, mid and lower. The upper is the furthest removed from the main terrace functions and activities. It is located north of the Theater Wing and elevated 6' above the lower terrace. This area is actually roof deck over the Hoofer spaces and is paved with colored, stamped asphalt in poor condition. Seating is provided by wooden planters and benches as well as metal and wood picnic tables. The wood amenities are in

Image, top: View of the east area of the upper Terrace and the temporary accessible ramp.
Image, bottom: Main Terrace area under the canopy of large oak trees.

very poor shape. The location and perceptual separation from the main terrace spaces create an area generally used by "less active" patrons (those not desiring to be immediately interactive with formal entertainment on the terrace) and becomes overflow space during large events. The upper terrace is highly susceptible to lake driven winds and lacking any vegetation, leaves users completely exposed to the elements. The upper terrace is backed by stairs leading to the main Theater entrance providing access to the Theater as well as a connection to Park Street. A wood ramp was installed as a temporary means of universal access but has remained in operation as a permanent structure. This is far from inviting or convenient.

The main terrace is immediately adjacent and provides access to the Lakefront on Langdon (LOL), Rathskeller and various vendor stands (during warm months only). Circulation, food and beverage service and seating are the predominant functions of the main level. This level also provides a great vantage point for observing the rest of the Terrace, for searching out available seating opportunities and spotting acquaintances. Paving is mostly concrete with pockets of Kasota limestone generally in good condition. Seating is provided mainly by the sunburst table and chairs and a few low site walls. A narrow swath of pavement and stairs lead north along the theater wing providing informal seating opportunities on stair treads, seat walls and a collection of wood booths (most in poor condition) and leads to the upper terrace. A landscape bed with little understory and a few oak trees provides vegetative breaks in the pavement and separates this

area from the rest of the Terrace. This creates another space used by "less active" patrons and also becomes overflow space during large events. Oaks and honey locust trees, in conjunction with the building, provide consistent shade over most of the main terrace level and are instrumental in creating the green canopy, an inherent character element of the Terrace. A grand stair leads north to the lower terrace between the theater and mid-level terraces. At the base is the brat stand, an open grill area serving food and beverages behind a concrete "bar" style wall. The brat stand has water, gas, and electric service but lacks overhead protection and thus does not meet current food service code. The open nature aided by wisps of grill smoke lingering overhead creates ambiance and is considered a signature characteristic element of the terrace.

The mid level of the terrace is paved with brick pavers. Seating accommodations include the sunburst tables, chairs and site walls. The seating area was recently expanded by the renovation of a landscape area into additional patio space using brick pavers to match the existing pavers. The renovation provided additional seating and created a desperately needed connection to the grand stair linking the main, mid and lower terrace levels. The former landscape bed was badly abused by foot traffic from users seeking additional seating space or a short cut to the brat stand and other terrace levels. A sidewalk separates the mid-level terrace from the building providing a circulation route heavily used by patrons and service (trash collection). Circulation through the mid-level terrace remains undefined due to the ever-moving tables and chairs. The result can be a very crowded area where movement is severely compromised. The recent renovation does provide a circulation vent previously un-

■ Image: View of the mid Terrace looking east.

available but does not alleviate congestion.

The lower level is mostly seating and circulation combined with food and beverage service. The existing brat and beverage stand provide service at the northeast corner via a refrigeration trailer. Shade is almost non-existent in this area of the Terrace so it is a definite draw for those seeking warmth and color from the sun. Three seating nodes border the lakeshore path at this level. The west node is dual purpose as general seating at most times transitioning to the main performance stage during the evenings and events. The stage is an improved structure of wooden decks over the concrete node for elevation relief and a simple steel frame with canvas canopy. Minimal stage lighting is present and all sound equipment is set up space and taken down with each event. The stage is used for a variety of performances including all types of music, dance and speech. In general, the stage is too small and lacks proper supporting infrastructure including adequate access to a green room and security.

The lower terrace leads to the Lakeshore path by stairs at the west and east ends and blends into the lower grade of the path toward Alumni Pier. The Lakeshore path was defined and formalized with the Kiley/Walker plans and features exposed aggregate concrete on the path proper and brick paving in the 7′ to 10′ between the path and the shoreline protection. South of the path is a narrow sod panel leading to low landscape walls which are seat height but also feature commemorative donor benches. The landscaping is simple but elegant and features rose bushes. The path is heavily used by walkers, runners, students, visitors and bikers (though bikes are not allowed in the section north of the Terrace). Metal and wood picnic tables are scattered along the bricked area and are heavily used along with the stepped stone shoreline edge. The shoreline edge is failing in many areas and alumni pier is causing siltation and stale water problems on both sides.

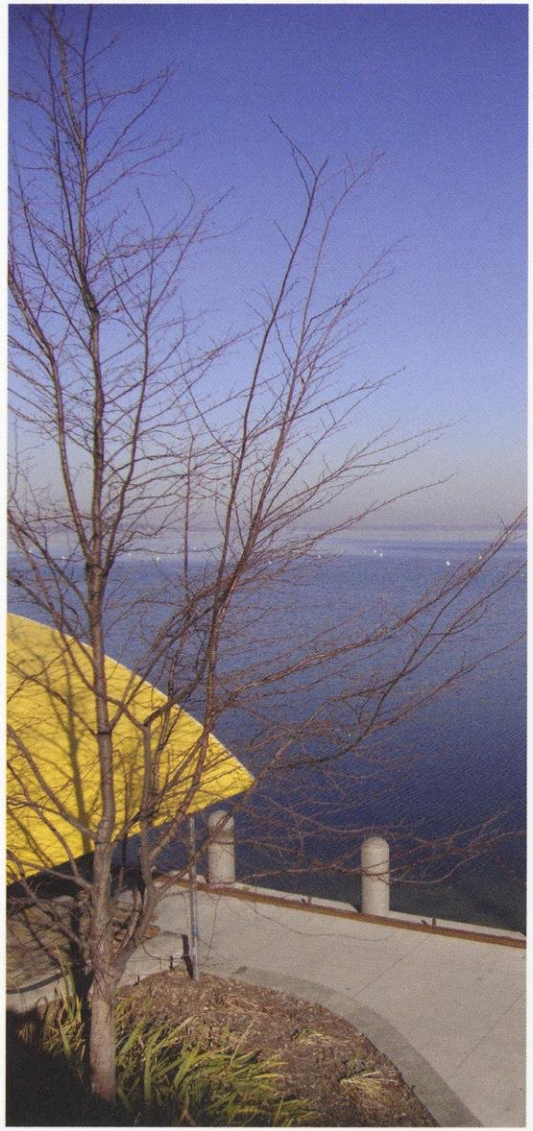
Image: Main Terrace area adjacent to the Union Theater.

Image, top left: View of the lower level Terrace, looking east towards the Red Gym.
Image, bottom left: View of the lower and mid level Terrace areas from the Tripp Commons deck.
Image, top right: Lakeshore Path looking west from in front of Hoofers boathouse.
Image, bottom right: Lakeshore Path looking west from the lake shore adjacent to parking lot 1.

Lakeshore Path west of the Terrace leads through an area heavily used by Hoofers. Hoofers operate sailing lessons, wind surfing, swimming, scuba activities and rentals. All equipment storage, including small boats ,is south of the path and, in many cases, the storage area or entry is immediately adjacent the path. This is a high traffic area mixing Hoofers patrons with general path users. Sight lines and maneuverability are cramped, obscured and nonexistent in some cases. The added conflict of bicycle users creates additional congestion and danger. There is a dire need for additional signage and organization to help correct the potentially dangerous situations and conflicts.

Access to the Terrace is from all sides and lacks any formal point of entry. The advantage is that the Terrace has come be everyone's backyard lakefront patio. The disadvantage is that some do not recognize the Terrace as a for-profit space resulting in carry-ins and theft.

Image: Evening view of memorial Union from the Alumni Pier.



The terrace has undergone numerous changes through its life. Those elements of significance are the green canopy and preservation of the Oak trees (including proactive succession plantings), the brat stand, the sunburst furniture and the relaxed atmosphere. It is evident success of William Whyte's philosophies. The terrace will continue to evolve and will remain successful as long as these elements and philosophies are preserved.

View Corridors

The stately and classical nature of the Union's architecture is the foundation of iconic images of the Union and the site itself. In addition, other notable views are defined by the prominence and proximity of Lake Mendota. Most notable are views to the lake and of the Union from the East Campus Mall/Library Mall, looking north through the North Park Street corridor and looking south from the tip of Alumni Pier.

The East Campus Mall's key attributes center around circulation and related viewsheds. The Mall concentrates activity and conveyance while providing a place to see and be seen. In addition, subtle elevation changes throughout the Mall provide opportunities to see "through" the east side of Campus including opportunities to see Lake Mendota from as far south as Dayton Street.

As users proceed north from Dayton Street, the lake view becomes clearer and commanding, ultimately opening up in a grand view as the Mall crosses State Street. The view from this vantage point focuses north on the lake and parking lot 1. The view includes the Wisconsin Historical Society, Memorial Library, the Red Gym and Memorial Union. The views to the lake are partially obstructed by the regional bus queuing area on Langdon Street and the Unions loading dock.

Future plans for lot 1 include the construction of an underground service area and enhancement to Alumni Park to create an urban park setting along the lake celebrating the Wisconsin Idea and commemorating the great people and discoveries of the University and State. The implementation of this park will be the completion of more than a century of master plan visions for the mall corridor.

North Park Street also captures a commanding view of Lake Mendota and creates an ideal place for the overlook of the lake and the lakeshore path. Presently this view is often obstructed by buses or delivery vehicles and bike parking on the N. Park Street guardrail. The view is framed by Science Hall and the Wisconsin Historical Society as one approaches from University Avenue. At Langdon Street the view is framed by Helen C. White Library and the Union Theater, with Langdon Street opening up to present a prominent

Image: View of Lake Mendota for the North Park Street overlook.

view of the entire Memorial Union south façade. The Union view from this vantage point is commanding and highlights the grand stair and entry loggia of the Central Core. The use of the corner as bikeand moped parking, however, leaves a desired opportunity for improvement. The view itself could be enhanced by repurposing the southwest site corner and creating a formal building entry and street presence.

Each area of the Terrace offers its own variation of the lake views by combining select pieces of adjacent architecture.

The north façade of Memorial Union can be viewed from multiple vantage points though most only provide sectional glimpses as it is difficult for users to gain access to full building perspectives unless the view is from the lake itself. One place in particular that does provide a more commanding view of the Union is from the tip of the Alumni Pier. This view offers a romantic perspective of memorial Union, the Terrace and the lakeshore as a whole. The lakeshore edge and skyline above frame the Union and Terrace creating a picturesque scene. Few buildings of not can offer this both day and night.

The lake itself and the view north from the Union and Terrace is unique characteristic feature of the site. Each area of the Terrace offers its own variation of the lake views by combining select pieces of adjacent architecture, tree lines, moored and mobile watercraft, swimmers and patrons enjoying the Terrace proper or the lakeshore path and lake edge. An additional view of the Terrace enjoyed by many is from the West Wing Hoffers looking east. The vantage point offers a commanding view of the lower and mid terrace levels as well as the lakeshore activity and Alumni House to the east.

Image, top: Early morning view of Memorial Union Terrace from the Alumni Pier.
Image, bottom: Early evening view of the Terrace from Helen C. White Library, looking east.

Structural

Central Core and Commons Wing

The original Commons Wing and Central Core were typically constructed with concrete pan joist floor systems with concrete encased steel girders on all levels except the ground floor which has concrete girders. The roof structures were designed using steel truss hipped roofs. The roof decking is wood deck boards. The basement columns are concrete columns. The upper level columns are typically steel columns encased in clay tile. The foundations vary in elevation. The Commons Wing and an area on the east portion of the Central Core have foundations fully below the basement slab-on-grade. The slab-on-grade in the west portion of the Central Core basement is five feet higher creating a head room problem with building utilities. In addition, the top of many of the foundations are several feet above the top of the slab-on-grade.

The majority of the exterior walls are non-bearing walls but a few on the south elevation support the floor system. The exterior walls are typically a multi-wythe brick walls with a stone exterior façade. The façade is held in place by interlocking the stone pieces with interior brick wythes of varying thickness. The wall openings are supported typically with stones shaped to form an arched load path with a center keystone. Some of the newer addition and renovations use steel lintels. The exterior terra cotta façade features are shown to be held on the building with steel brackets at the terra cotta head joints. The lateral system is assumed to have been designed using an empirical method that incorporates these exterior and interior walls for resistance.

Several additions and renovations have been made to these wings. The largest structural projects include the renovation of the kitchen and cafeteria in the Commons Wing and additions to the Commons connector between the Central Core and the Commons Wing. The 1956 kitchen and cafeteria remodel added a cooling tower penthouse to the Commons Wing roof and an approximately 27-foot wide basement, first floor interior space and second floor exterior terrace around the north, east and west elevations, framed with a concrete floor system and steel columns. The cooling tower required additional framing and concrete girders be added in the attic space of the Commons Wing. The connector remodel added an additional level and increased the connector's foot print to the north. This construction was completed with steel framing including steel columns, steel beams and steel open web joists with a metal deck and concrete slab.

Theater Wing

The Theater Wing was built similar to the Central Core and Commons wing with concrete pan joist floor systems with concrete encased steel girders in the south portion of the wing for the Play Circle Theater. The main theater seating is formed with sloped steel beam and a concrete slab. The main theater balcony seating area is formed with a steel cantilevered truss and a stepped concrete slab. The balcony has had past concerns of vibration during some concert events. The vibration concerns were previously studied by another structural engineering firm and were found to be only a serviceability problem. The lobbies and areas around the theater are typically framed with steel beam and columns and have a four-inch concrete slab. The south portion of the wing for the Play Circle Theater has a roof structure designed using steel truss hipped roofs and two inch gypsum planking. The roof of the main theater is constructed similarly with steel trusses and steel beams with two-inch gypsum planking between the steel beams. The trusses and the beams are sloped to form its defining shape.

The main theater center stage floor and orchestra pit were originally designed as a proprietary system. The stage floor is built using removable wood planking and rolled steel beams. The steel beams are supported by large steel rollers at each end. The deck is constructed of wood deck boards that form removable panels. The orchestra pit floor is constructed of wood decking

boards and framed with steel beams. The floor is then supported on large threaded rods that can raise and lower the floor.

The exterior walls of the theater wing are multi-wythe brick with the stone façade interlocking the stone pieces with varying thickness interior brick wythes. No control joints are present in the exterior walls. The lateral system is assumed to have been designed using an empirical method that incorporates these exterior and interior walls for resistance.

Hoofers and Terrace

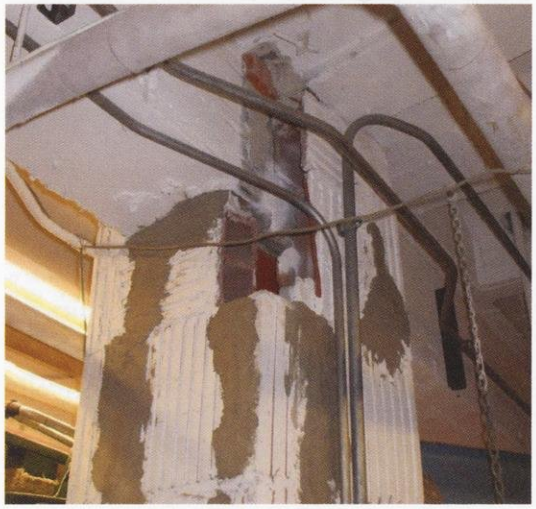
The Hoofers' storage and offices are located under portions of the Terrace just north of the Theater Wing and were originally constructed in 1965. The structure is built with concrete framing except in the tunnel walkway that connects to the Theater Wing which uses steel beams across the tunnel and a concrete slab.

Visual Examinations

The assessment of the building structural systems was performed in August 2010, during the same site visits as the building envelope distant visual examination. The assessment covered structural systems that are visually accessible from walking surfaces. The main areas accessed were mechanical, attic and storage spaces where architectural finishes do not cover the building structure. No areas of structural deterioration or defects were noted in areas covered by architectural fabric unless noted below. The structural examinations were documented by field notes and photographs.

Typical Conditions

Fireproofing standards have become much more stringent since the original construction of the Memorial Union and several items were noticed throughout the building. The floors have a minor deficiency due to damage caused by installation and removal of utilities and hangers into or through the concrete slab. These installations and removals have spalled areas of concrete exposing reinforcing and, more seriously, created gaps in smoke and fire stopping between floors and rooms. The current standards require fire-stopping sealant to be installed around the installations. Many of the penetrations where the utilities were removed appear to only have thin material installed back into the old penetration. Similarly, fire protection around the majority of the steel beams was originally provided by concrete encasement. Some areas of the concrete cover have since been damaged and should be repaired. The columns are primarily protected by clay tile wrapping the columns and this protection has also been damaged in some locations. The attic framing and the steel roof trusses in each wing are not protected by any fireproofing. These areas should be reviewed for code conformance related to fire protection. Fireproofing will further be discussed in the architectural and plumbing sections of the full building report.



The typical condition of the floor systems is in good condition. It was also noted that many of the pan joists had isolated locations of poor consolidation around the lower longitudinal reinforcing. This was a fairly typical problem when the Memorial Union was originally constructed and is only a minor deficiency. The condition of the reinforcing should be monitored anytime the ceilings are removed. It is not anticipated that any of the reinforcing will begin to show signs of deterioration as long as no moisture is introduced into the area by a leak and all exhaust fans are maintained in cooking and mechanical areas. During any major renovations in a

Image, bottom: Typical damaged or removed clay tile fireproofing around the pan-joist longitudinal bar.

room below the pan joist with poor consolidation, it is recommended that a repair patch be made to the area of concern to maintain the original fire protection of the steel reinforcing.

Central Core

The primary areas of the Central Core assessed included the mechanical and storage areas on the basement level, a few rooms with open dropped ceiling due to minor renovation that were in progress and the attic/mechanical space. All other areas had architectural fabric covering the structural systems. No signs of deterioration in the architectural elements were noticed that directly indicated any structural problems or deteriorations.

One of the most noticeable areas of deterioration on the building is the exterior grand stairs and stone walls. The stone veneer is in poor condition over all of the walls. Some of the steps have cracks and have been worn due to their age. There were no noticeable leaks from the inside of the building. The stair structure therefore appears to be intact. The walls do not appear to be showing any signs of major deterioration, but it is expected that some repairs will be required once the stone veneer is removed. At that time, a full inspection of the retaining walls and slabs should be completed.

During any major renovations in a room below the pan joist with poor consolidation, it is recommended that a repair patch be made to the area oF concern to maintain the original fire protection of the steel reinforcing.

The attic had several areas of past water leaks through the roof. (Image 4) The clay tile roof was just replaced earlier in the year. The water staining seen in the attic is therefore assumed to have been repaired or occurred during the roof replacement. The attic shall routinely be monitored for leaks and any leaks found should be repaired to prevent the deterioration to the structural and other building systems.

Commons Wing

The primary areas of the Commons Wing assessed included the mechanical and storage areas, a few rooms with open dropped ceiling due to minor renovation that were in progress and the attic/mechanical space. All other areas had architectural fabric covering the structural systems. No signs of deterioration in the architectural elements were noticed that directly indicated any structural problems or deteriorations. In addition, the basement kitchen manager was asked if he had ever noticed or remembered any leaks in the area. He stated that the only leaks that he has noticed were under the loading dock slab. The concrete slab shows signs of water leaks from efflorescence that appears on the underside of the slab.

During the building envelope survey several of the roof tiles over the Commons Wingwere broken or had moved out of place. Roof damage will lead to leaks and deterioration of the structural and other building systems in the Commons Wing attic space. No water staining was seen that would indicate leaks in the attic, but routine inspections by the maintenance staff should be performed for all roofs.

Inside the cooling tower, it was noticed that there was an area where water had ponded in the past. In addition some of the sheet metal flooring did not appear to be fully supported on the underside. These may indicate improper slope to the floor system and possible deterioration of the substructure. Further in-

■ Image: Water stains on wood deck boards and steel beam in central core attic.

vestigation by removing a portion of the flooring would be required to fully investigate this condition. The concrete masonry wall near the door to the attic also shows signs of water being blown into the open horizontal shaft and running over the concrete masonry. This masonry is not protected by a waterproofing membrane and shows sign of efflorescence.

Theater Wing – Union Theater

The Theater Wing assessment included the mechanical and storage areas, many of the storage and repair rooms for the Hoofers, the theater stage tower, and the attic space. All other areas had architectural fabric covering the structural systems. No signs of deterioration were noticed in the architectural fabric that directly indicated any structural problems or deteriorations. It was noticed that the Union Theater had a strong smell of moist, musty air. This is a sign of a continuous moisture problem in this wing. Moisture problems can lead to deterioration of all of the building systems including the structural framing.

At the top of the Union Theater stage tower is the rigging for the stage curtains and sets. According to the original drawings, the catwalk at this level was originally designed for 108 pounds per square foot (psf) live load. The catwalk loading appears very high, if not over this design capacity. The plates were approximately 4 inches thick at the end that could be reached, but appeared to be stacked several inches higher toward the center of the catwalk. There are no noticeable signs of distress in the framing but there was limited access to review the framing without walking on the catwalk. Per the original design load, the steel plates can be stacked a maximum of 2 1/2 inches thick which only gives 10 psf additional loading for access of

workers walking on the plates. Please note :in order to meet the standard catwalk live load requirements per the Wisconsin building code, the live load should be 40 psf, which only allows 1.75 inches of steel plate.

The most severe damage to the Theater wing is caused by trucks running into the canopy on the west elevation. It appears that this occurs fairly frequently due to the canopy being slightly lower than the modern delivery trucks. The most severe damage was made to the northwest corner where a truck has broken the soffit and appears to have ripped off and bent the bottom flange of the steel beam. A truck also hit the southern end of the canopy and caused the support beam to deflect and damage the stone façade on the main building.

In the tunnel between the Hoofers Boat Repair Center and the rental office, the ceiling or roof of the tunnel has several continual leaks. These leaks are at various places throughout the tunnel and are causing severe deterioration. Each of the steel w-section beams spanning across the tunnel is corroded. A few of the beams have severe corrosion and at least one has a critical level of corrosion that has caused approximately 30% section loss on

Image, middle: Truck damage to canopy beam and soffit at Park Street side.
Image, right: Critical corrosion and leaking on steel beam in Hoofers' tunnel.

the bottom flange and is losing section for its entire length and height. This beam needs to be closely monitored and replaced or shored if renovations to this area are not completed shortly. It is recommended that all of the beams be monitored and cleaned and painted until the renovations can be completed. A long term resolution must include the repair or replacement of the steel beams and the installation of new waterproofing over the tunnel.

Two long cracks were observed in the boat repair center. One crack started at and around a concrete encased steel beam and continued parallel to the pan joists. The other crack started at an interior column and cut diagonally across the floor and pan joists to another interior column embedded in a brick wall. The causes of these cracks are unknown, but appear to have been opened or enlarged since the last painting of the ceiling. The cracks may have been created by a heavy load placed on the floor of the lobby. Though the crack parallel to the pan joists is not a critical concern, the crack going diagonally across and through the pan joist may compromise the shear strength of the joist system. Further investigation should be scheduled and calculations ran on the cracked joists.

The stair wells around the theater are unfinished lath and plaster. These stair walls show sign of water infiltration. Efflorescence is present in several areas. The plaster is deteriorating and falling off in the stair wells. One location in the northeast stair well has a rust stain at the top of the beam location. The entire Union Theater also has strong musty smell. In addition it was noted that one of the main moisture problem areas is the plenum behind the Union Theater projector room on the North Elevation. These symptoms are a sign that the moisture in the walls is corroding the steel framing. It is also noted that the wall structure is primarily clay bricks. Clay brick absorbs and holds moisture when it is exposed to exterior moisture or from interior humidity. This moisture from either side of the wall can cause the steel to corrode especially when in constant contact with moist bricks. Further destructive investigation through the plaster would be required to understand the extent of the corrosion, but there are no signs of severe deficiencies.

The exterior retaining walls to the north of the Theater Wing have some typical cracking for a retaining wall and one large crack at one of the louver openings. These cracks are signs of past movement in the wall. It does not appear that there has been significant movement recently or enough to cause any problems other than aesthetic.

Theater Wing – Play Circle Theater

The Theater Wing – Play Circle Theater assessment was completed with the assessment of the entire Theater wing but it has been separated from the Union Theater throughout this report, because its design is more closely related to the other wings. Again the assessment included the mechanical and storage areas, the attic space, and the backstage storage. All other areas had architectural fabric covering the structural systems. No signs of deterioration were noticed in the architectural fabric that directly indicated any structural problems or deteriorations.

The backstage storage is full of theater supplies and equipment. In an attempt to help increase the storage space, a set of wood platforms were built along the glass block walls (west and south elevations). No documents have been received that show that these platforms have been designed by a professional engineer. One of the supports for the platform specifically is not traditional and creates a tripping hazard. This support holds up the platform on the west elevation by supporting one of its edges with a cable that is wrapped around a steel building column and then looped around one ¼" diameter anchor bolt in the platform. The rated loading for these platforms and supports is unknown.

The attic space of the Play Circle Theater had limited access due to the large amount of mechanical equipment. One area near the

junction between the Play Circle Theater's roof and the Union Theater stage tower's north wall was noticed to have light corrosion on some of the roof framing. This is a sign of possible seam or joint failures around the flashing. This area should be monitored and repaired during future renovations.

Code Implications

The Wisconsin building code has had several major revisions since the original construction of the Memorial Union that have changed the way today's buildings are designed and constructed. Today's buildings are designed per the 2008 Wisconsin Enrolled Commercial Building Code (WECBC). The current WECBC is based off of the International Building Code (IBC) 2006, but it has not adopted chapter 34, Existing Structures, of the IBC 2006. The WECBC has therefore not specifically addressed the additions or alterations of an existing building. Since the IBC is the basis of the WECBC and the IBC is used as the standard for many states, the following code review will address alterations to the Memorial Union per the IBC 2006 chapter 34. The IBC 2006 states in section 3403.2 "Additions or alterations to an existing structure shall not increase the force in any structural element by more than 5 percent, unless the increased forces on the element are still in compliance with the code for new structures, ..." In addition, per IBC 2006, section 3405, if the existing building or portion of the building changes use or occupancy the building needs to be updated to meet the current structural code requirements unless the governing building official gives approval and the occupancy category is lowered.

Gravity

In general, most of the design live loads for each occupancy type have not changed since the original construction. The building code also allows the alterations of the architectural layout without updates to the structure as long as the use or occupancy remains the same.

Snow

Loading due to drifting snow against buildings has changed but are not required to be considered unless the alterations to the building increases the drifting snow on an existing roof.

Lateral design

Wind design from the original construction considered a single wind pressure applied uniformly over the building and in many cases was designed only by empirical methods. The original construction documents also do not state the design wind load. Currently, the WECBC uses primary wind pressures that vary with the height of the building and higher wind pressures for building components and cladding that vary with the location of the component on the building. In addition, the current code increases the wind pressures for buildings near open landscapes such as Lake Mendota adjacent to the Memorial Union. The new wind loading for these reasons may increase from the original design loads but will need to be evaluated.

Seismic design was not adopted by the WECBC until recently and was not considered in the design of the original construction or the majority of the renovations to the Memorial Union. The heavy structural and wall systems used in the construction of the Memorial Union may result in lateral forces that control over the wind design.

Image: Questionable cable support hanger bottom attachment in backstage area.

Fire

Protection of the structural systems from fire is reviewed under the architectural life safety, but will briefly be noted here for the general items that should be considered. Current fire codes are much stricter than during the original construction. In addition, small modifications and maintenance throughout the building can and have damaged existing fire protection around structural elements and have damaged smoke and fire stopping between floors and occupancy areas. Many areas were noted where utilities have been added or removed through floor slabs and where clay tile have been damaged around steel columns. The steel in the attic mechanical spaces are bare steel without a fire suppression system. Revisions to the fire protection in these areas should be evaluated during the proposed renovations.

Critical Deficiencies

- ***Fireproofing and fire stopping.***
- ***Hoofer tunnel corroded steel beams with section loss.***
- ***Damaged beam on Theater Wing canopy at northwest corner due to regular truck collisions.***
- ***Diagonal crack in the Union Theater first floor pan joist system lobby.***

Severe Deficiencies

- ***Consistent moisture problems in the Theater Wing.***
- ***Exterior south elevation grand stair stone veneer.***

Conclusions

This structural assessment investigated the visually accessible areas of the Memorial Union. The structural assessment determined that overall the Memorial Union is in good condition and can remain in this condition with continued routine maintenance. A summary list of the critical and severe structural deficiencies noted is provided at left.

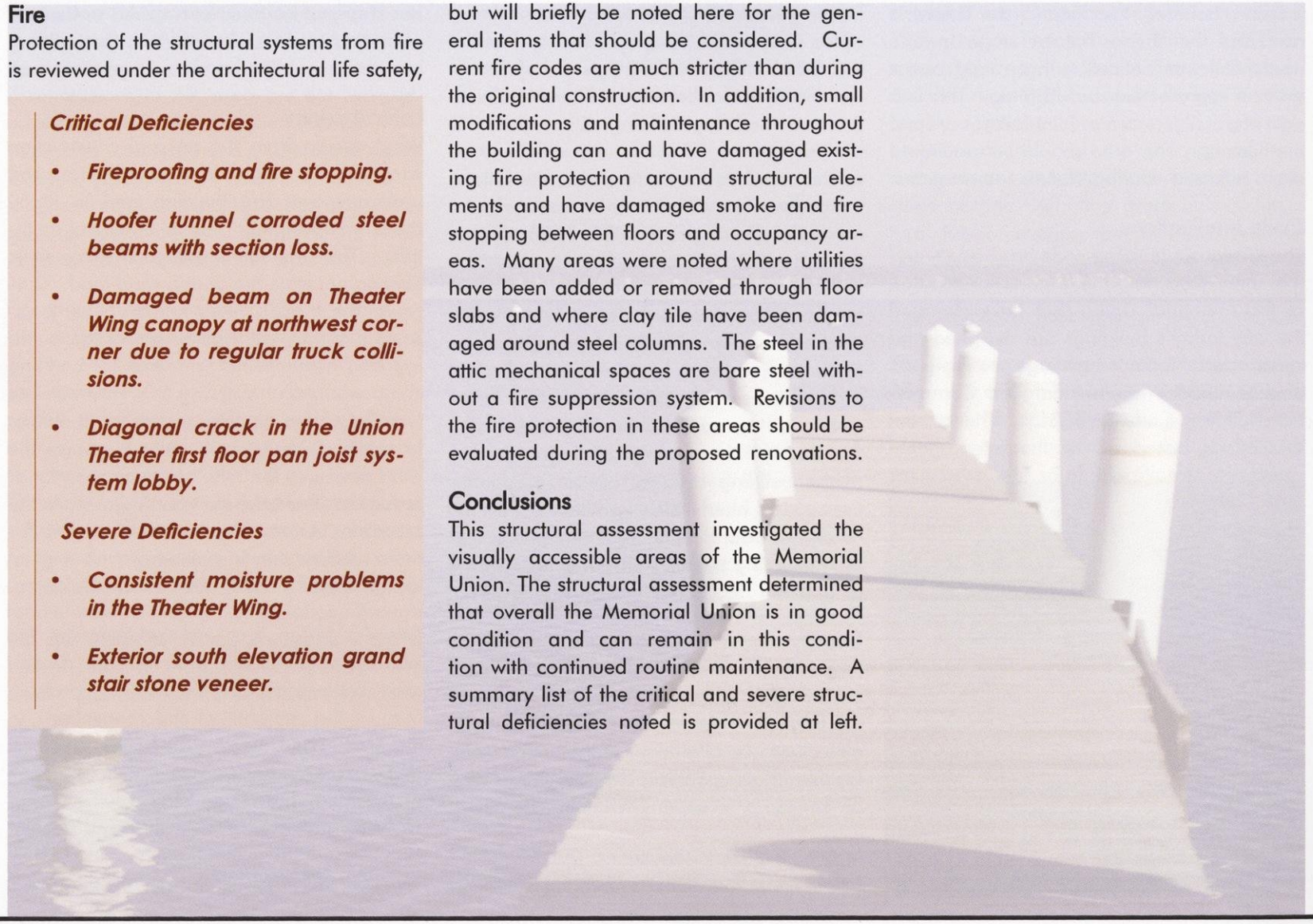


Image: Summer Morning, Hoofer dock.

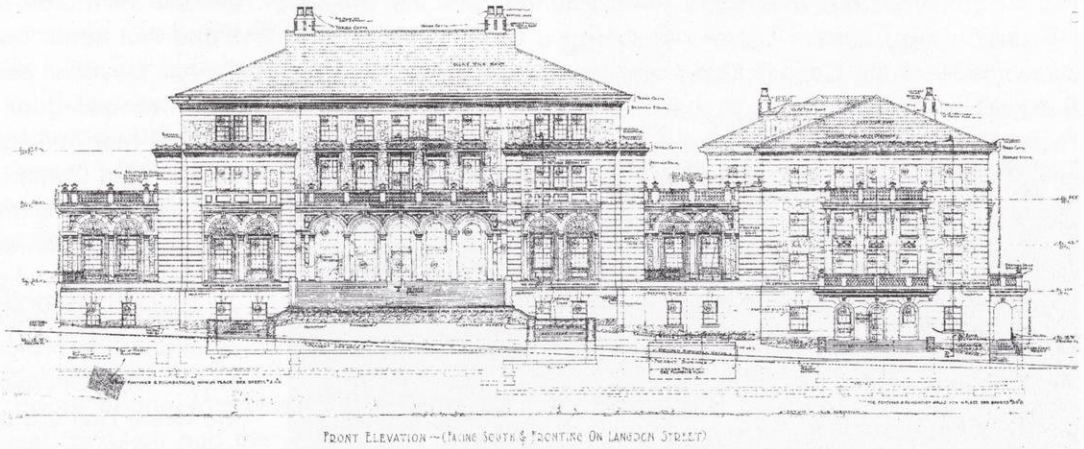
Architectural Introduction

Architectural evaluations of the Memorial Union focused on two primary aspects: the original conditions, and the existing conditions. The original conditions are discussed within the preceding Historical Overview and Chronology of Transitions sections of this report.

The existing condition investigations focused on the primary interior features and spaces of the Memorial Union. This survey work was accomplished in the spring and summer of 2010 and 2011. Related architectural aspects of the exterior can be found in the Memorial Union Preservation Plan of July 2010. The exterior walls and roof (envelope) will be discussed later in this chapter.

Architectural Character

The exterior is typically the main element when assessing and defining the character of an historic property. It is important to look at distinguishing physical aspects without focusing on details. The major contributors to a building's overall character are embodied in the general aspects of its setting; the shape of the building; its roof and roof features; the various projections on the building, such as porches or bay windows; the recesses or voids in a building, such as open galleries, arcades, or recessed balconies; the openings for windows and doorways; and finally the various exterior materials that contribute to the building's character.



FRONT ELEVATION — (FACING SOUTH & FRONTING ON LANGDON STREET)

The character defining features of the Memorial Union are complex and interrelated and may be best described in relationship to the buildings sections.

The Arthur Peabody plan, influenced by classical architecture, was originally composed of a main block flanked by symmetrical pavilions, separated by hyphens. The main block (Central Core) and the east pavilion (Commons Wing) were erected in 1926-28; construction on what would have been the west pavilion (the Theater Wing) was deferred. There are various character-defining features visible on the exterior. The first is the hierarchical massing and setback, in which the Central Core is the largest and farthest projecting section. The Commons Wing is somewhat smaller and is set back very slightly from the Central Core. The hyphens are the smallest sections and are set well back from the Commons Wing. The smooth, pale limestone that frames the rougher, darker sandstone and the green tile roof are the defining materials. The symmetrical fenestration pattern with multi-pane windows and doors, and the abundant classical ornament are additional, character-defining features.

Other exterior elements that define the character of the Peabody plan are the monumental staircase and the arcaded loggia on the Langdon Street façade of

Image: Arthur Peabody's final front elevation (Langdon Street) drawing for Memorial Union, August 12, 1926. Image courtesy of Memorial Union.

the Central Core; the balcony on the Langdon Street façade of the Commons Wing; the round tower/rotunda and the projecting section that forms a balcony at the base of the tower on the lake façade of the Central Core; and the Terrace. Although the Terrace has expanded and changed over time, it began with the Peabody plan and is a significant feature of the Memorial Union.

On the interior, defining features of the Peabody plan include the concentration of dining and guest accommodations in the Commons Wing and the placement of grand public spaces, such as Memorial Hall, the Lounge, and Great Hall, in the Central Core. The two-story volume of the Lounge and Great Hall are significant aspects of these spaces.

The two interior grand staircases that rise on either side of the Central Core are also significant. Defining features of the interior decoration are the murals and other design details that predate World War II and that honor and teach the history of Wisconsin. These include the Alte Deutsche paintings in the Rathskeller and Stiftskeller; the murals, wall and door trim in the Paul Bunyan Room; the murals in the Old Madison Room; the paneled wood finish and painted details in Tripp Commons; and the painted Wisconsin wildflower friezes in the Main Lounge. Also of note are the plaques in Memorial Hall that commemorate the sacrifice of the University of Wisconsin alumni veterans who have died in combat and the ornament that recognizes the contribution of the Ho-Chunk who, as in the words of interior decorator Leon Pescheret, were "Wisconsin's first warriors." The Georgian Revival influenced woodwork and details in the Great Hall are a significant aspect of that space. The paneling and built-in woodwork in the library also help define its character.

Michael Hare's plan represents a compromise that attempted to complete the symmetrical composition of Peabody's plan, while providing a transition between the classical influenced Central Core and Commons Wing and the modernist Theater Wing. One important exterior feature that defines the character of the Theater Wing is the way in which the Langdon Street facade conforms to the setback, massing, materials, and roof shape of the Commons Wing, while displaying minimal ornamentation (a Modernist influence).

Other defining features of the Theater Wing include the orientation of the Theater Wing placing the front façade toward Lake Mendota; the wall of glass beneath the flat roofed, metal canopy and the wall of glass beneath it, both of which extend across the front façade and wrap around the sides; and the flat roofed, metal canopy and glass block walls on the Park Street façade that wrap around the Langdon Street facade. On the interior, minimal ornamentation, the views of the lake, and the Modernist form and feel

■ Image: Aerial view from the north of Memorial Union, Circa 1950. The Michael Hare designed "modernist" Theater Wing is at the right edge of the Union. University of Wisconsin Archives, Image # dn030825171.bib.

of the theater itself are the defining features.

William Kaeser prepared a remodeling plan for the cafeteria that expanded the envelope of the Commons Wing, a design that echoed the lakeside appearance of the Theater Wing. The defining features of the Kaeser proposal are the expanded envelope; the wall of glass that wraps around three sides of the Commons Wing; and the metal-edged, flat roof with wide eaves that creates a second floor deck for the Tripp Commons. The defining feature of the interior is the view of the lake from inside the cafeteria.

In January 1956 the Regents approved a $300,000 expansion to double the square footage of the cafeteria. Madison architectural firm Weiler, Strang and McMillin won the project contract. In 1956 the union cafeteria and kitchen were gutted and enlarged in the iconic 1950s modern style following Kaesers concepts. The cafeteria was enlarged toward the lake. To take better advantage of the beautiful lake views it was decided that the new section should be in the modern style of the theater, with its expanses of picture windows toward the lake. The widely overhanging canopy of the theater was also reproduced.

Image: the William Kaeser inspired design, 1956 addition and remodeling of the Memorial Union cafeteria.

Primary Spaces

The architectural interior condition investigations focused on the primary and secondary spaces of the Memorial Union, their current condition and the potential for restoration and rehabilitation. Utilitarian, support and mechanical spaces were not reviewed.

Historic elements may be evaluated as either primary or secondary. Primary elements are those that are important in defining the historic character of a building and should be retained or only minimally altered. Primary spaces are those that are essential in conveying the historic and architectural character of a building. They are most often associated with the primary use or purpose for which the building was designed or used during its period of significance. Most public spaces will usually be the primary spaces.

The Memorial Union includes these primary spaces: Rathskeller, Paul Bunyan's Bunkhouse, Memorial Hall, Tripp Commons, Main Lounge, Great Hall, Library, Union Theater, Winkler Lounge, Play Circle, Capitol View Room and Langdon Room. These were all identified in the Memorial Union Preservation Plan as significant.

The architectural interior condition investigations focused on the primary and secondary spaces of the Memorial Union, their current condition and the potential for restoration and rehabilitation.

Primary spaces, including entrance halls, parlors, or living rooms, assembly rooms and lobbies, are defined not only by their features and finishes but by the size and proportion of the rooms themselves which are purposely created to be the visual attraction or functioning "core" of the building. Care should be taken to retain the essential proportions of primary interior spaces and not to damage, obscure, or destroy distinctive features and finishes.

Further information concerning the artwork and decorative finishes of the primary spaces may be found in the Artwork and Decorative Finish of this chapter.

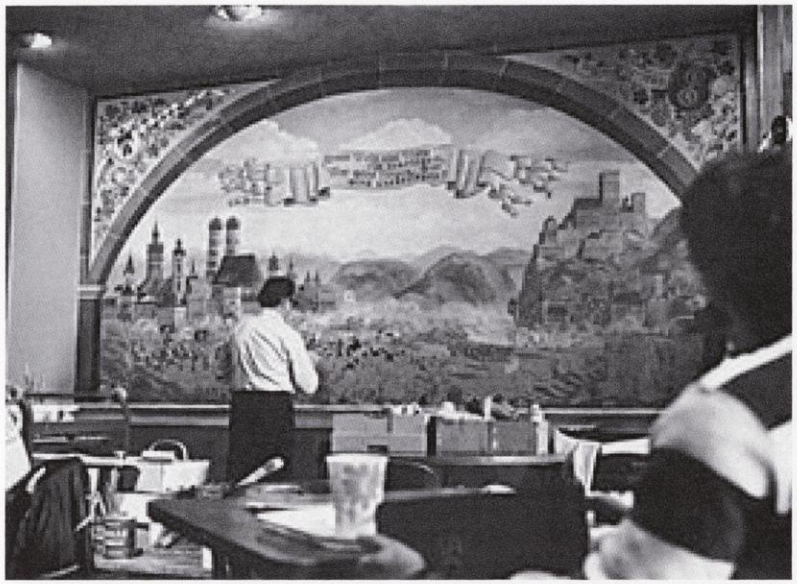
The "tap room" was envisioned to be "the heart of the building" for the men and is the most distinctive of the union spaces. It is

also the room that has changed the least of any of the rooms in the union. Included in the architectural design were the capitals on the columns (the decoration at the top of the columns) adorned on four sides with raised "W" crests. The room was furnished with heavy plain oak tables and chairs, massive leather settees and chairs, and booths between the columns. Two fireplaces warmed the south side of the room (now converted to gas) and the floor was of irregular slabs of slate. Pescheret chose rustic strap iron chandeliers with shaded electric candles. Where the food service is now, there was originally a long mahogany bar from the old Hausmann Brewery on State Street. A round table top hangs in the Rathskeller, a gift from Dad Morgan who ran a soda fountain on State Street that had been a popular hang-out for UW athletes. Names carved on the table read as a who's who of athletes from the turn of the last century. Pescheret found a painter, German immigrant Eugene Hausler, to paint Alte Deusche (old German) scenes and mottoes on the walls and spandrels between the arches. The painter used stencils on the beams. The scene over the east fireplace represents the youthful exuberance of college life, the scene over the west fireplace shows the serious, studious side. The six spandrels between the arches represent athletics, government, journalism, music, forensics and drama.

The only change in the Ratshkeller during the late 1940s remodeling was the addition of cork tile on the ceilings to absorb some of the noise in the room. In that remodeling the adjacent trophy room to the south was reconfigured to serve as an extension to the Rathskeller. The walls were painted a dark chocolate with fabric wall panels (no doubt for sound absorption). Banquette seating ran along both side walls and lighted glass cases above, showcased the trophies. Small, beige laminate tables were pushed up to the banquettes and accessory chairs were a light color of molded plywood. In 1953 the slate floor in the Rathskeller was replaced with terrazzo.

Adjacent to the Rathskeller on the west was the billiards room. It was originally named for Ole Bull, a world famous violinist who lived in a house on Mansion Hill with his in-laws after he married the daughter of the family. The house would later become the state executive residence and the table was used by several governors. When the Union opened, Governor Zimmerman gave the billiards table to the Union. In 1962 the billiards room adjacent to the Rathskeller to the west was remodeled as the Stiftskeller, named after the Stiftskeller

Image: View of the Rathskeller, circa. 1930. Wisconsin Historical Society, Image # WHi-3198.

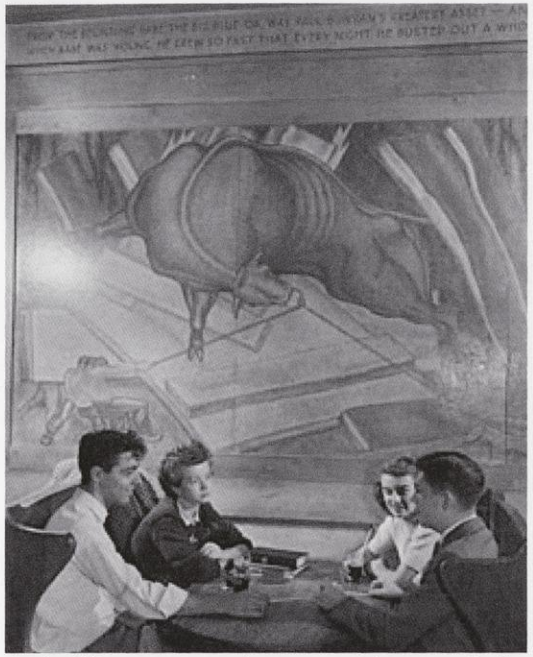


St. Peter in Salzburg, which claims it is the oldest restaurant in Europe, tracing its history back to 803. In 1978, a painter named Kurt Schaldach of Milwaukee, created a new Alte Deutsche mural in the Stiftskeller, called the Battle Between Beer and Wine. An army of beer steins fights gnomes firing cork cannons out of wine bottles. The old billiards tables were moved into the former bowling alley area.

The room shown as a "card room" on the original plans reminded the union committee and Pescheret of the "rugged card players of the north woods" so they decided to decorate it like a lumber shanty, Paul Bunyan's to be exact. Pescheret planned a flagstone floor and rough-sawn oak beams on the walls and ceiling. Small pegs in the woodwork imitated the look of old pegged-together wood frame buildings. Perscheret designed the original simple oak furniture, wooden settees that could be set up back-to-back to make booths, decorated with cutouts of items prominent in the Paul Bunyan stories; the two-edged axe, the bean pot, the cook shanty, the reversible dog, and Babe, the blue ox. Freestanding tables with bar style chairs were painted with checker boards. Some of the tables had chess boards painted on them. Lanterns that looked like oil lamps hung from the ceiling. Rustic doors with wrought iron strap hinges add to the rusticity of the room. The room became a dining area, probably for people, like couples, who didn't want quite the level of Gemutlichkeit that probably reigned in the Rathskeller on a Friday night.

In 1934 the Union received a grant from the Public Works of Art Project, another depression program, this one to give work to struggling artists. Graduate student James Watrous was hired to paint murals depicting Paul Bunyan's exploits in the Paul Bunyan room. He used the social realism style popular in the Depression, which depicted strong working class people (or legends, in this case) at their labors. The murals were finished in 1936.

Image, left: The Stiftskeller mural, 1978. University of Wisconsin Archives, Image # UW.uwar00288
Image, right: Early view of Paul Bunyan's Bunkhouse. The Wisconsin Union, University of Wisconsin, 1928, Pamphlet in the University of Wisconsin Archives. Image #uwar.007971.



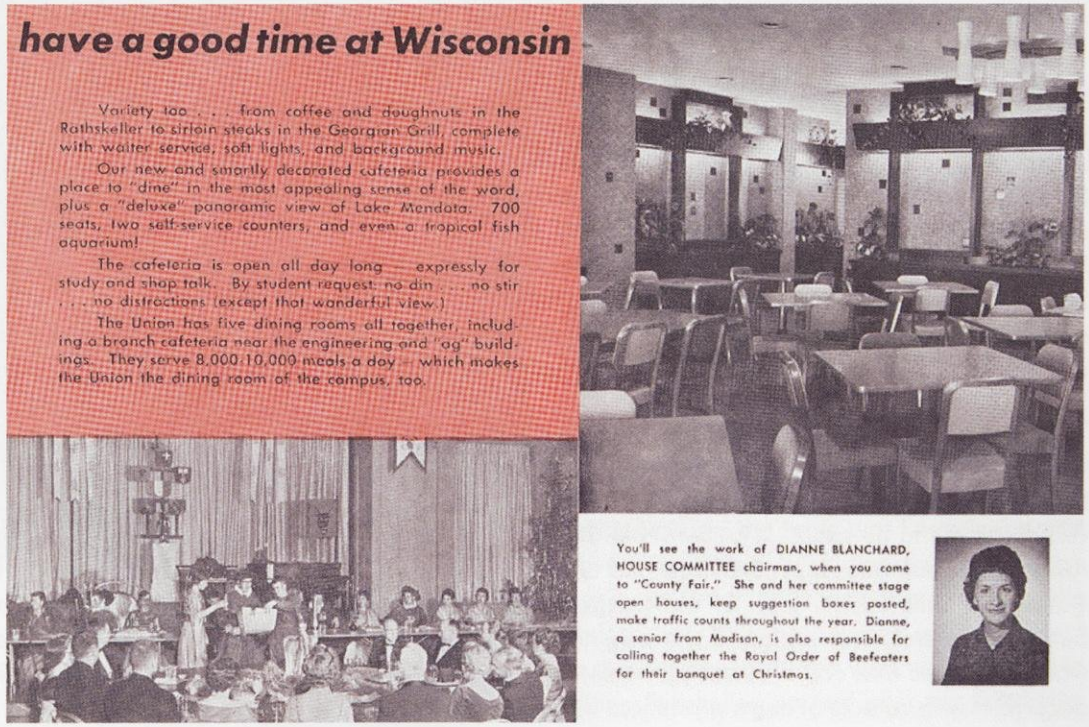
A significant recent change to this space is the addition of acoustic ceiling tile and recessed down lights.

The cafeteria had exposed brick piers supporting a network of decorative beams. The beams were trimmed with painted designs said to reflect the art and symbols of the local Ho-Chunk tribe. Ceiling fixtures were parchment paper shaped like inverted teepees (the designer probably didn't know that the Ho-Chunk lived in birch bark houses, not teepees). Furniture consisted of dark-stained Windsor chairs and tables.

In 1956 the cafeteria was gutted and enlarged. The interior was exceedingly plain to reflect the modern style. Panels of multicolored, small, square tiles decorated the walls with planters above. A large fish tank was installed in the entrance area and decorative modern chandeliers with stars lit the large room. Furniture was astylistic and institutional in design.

The café was renamed "Lakefront on Langdon" after a significant remodeling in 2004 that included multiple food venue stations within the serving area.

The architects' design for Memorial Hall called for a groin vaulted ceiling (meaning barrel vaults crossing each other) supported by rectangular piers covered in expensive silvery Sienna marble. It was to be "hall of beauty, stateliness and inspiration." The floor was marble. Four walnut tablets were affixed to the two sides of the room. One listed UW-connected men who had died in the Civil War



Image, left: Mural in Paul Bunyan room. Circa 1950; University of Wisconsin Collection, Image # UW.uwar00286.
Image, right: the cafeteria after the 1956 remodeling. *If You Want to be a Badger*, 1960-1961, Pamphlet in the University of Wisconsin Archives.

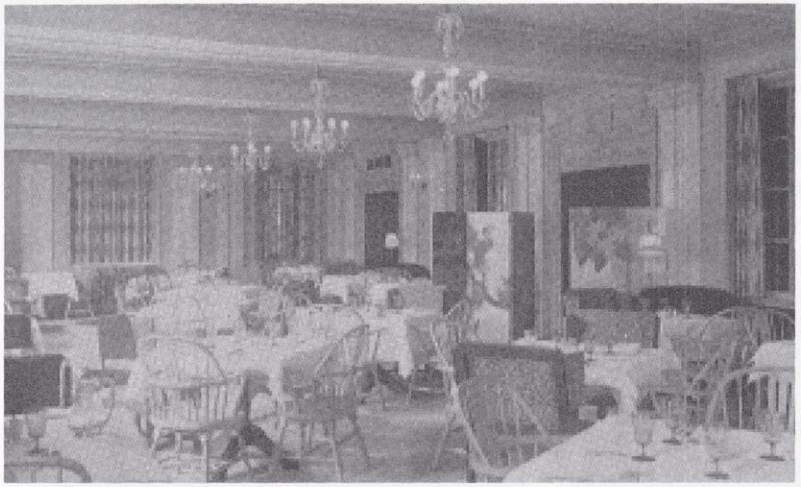
and three listed the World War I Gold Star Roll of service people connected with the UW who had died in the war. Underneath each tablet sat a carved high-backed Italianate chair with a seat of red velvet. Pescheret specified the vaulted ceilings to be hand-painted with delicate Florentine neo-classical scrolls in rich colors, reflecting the Northern Italian Renaissance style of the exterior and displaying leaves and plants native to Wisconsin. But to introduce another touch of Wisconsin heritage, in the center of each vault are somewhat incongruous but beautiful portraits of Indian chiefs (note – the headdresses are of Plains Indians, not our local Ho-Chunk). Hanging from the ceiling are large frosted glass bird cage style chandeliers. In the southeast corner of the hall was the original main desk ,now partitioned off and used for offices. The original bronze mailbox, so typical of the finest buildings of the era, graces the hall.

Private Dining Rooms

Two of the private dining rooms were named the Beefeater's Room and the Roundtable Room, but the only thing written about the décor was that the Beefeater Room was decorated in red and gold and that it had a fireplace, while the Roundtable room had round tables. Both of these spaces have been heavily altered.

The private dining room on the same level as the Great Hall was called the "Old Madison Room." Old photographs and drawings of Madison were used to paint Madison's most well-known scenes; a steel engraving copied of an old view of Bascom Hill with Ladies' Hall in the foreground, a lithograph of Camp Randall when it was a Civil War camp, a crayon sketch of the "the drive" (probably Observatory Drive), an old post card of railroad tracks near the old West depot on W. Washington Avenue, a sketch of the Capitol from the 1840s, pictures of the Langdon Street area and a view of downtown Madison from across the lake, State Street to the Capitol, Bascom Hill, the relatively new Agriculture campus, Camp Randall, and Lake Mendota. The painter was a man named Curt Drewes. The room was used for meetings, banquets, private dinners, dances and bridge parties. The murals have been retained but an "original" room divider negatively impacts the historic space as does the loss of the original ceiling.

Image, left: The cafeteria today, now called Lakefront on Langdon.
Image, middle: Memorial Hall, 1928. Wisconsin Historical Society, Image# WHi-21525.
Image, right: Tripp Commons, circa late 1940s; University of Wisconsin Collection, Image # UW.uwar00279.



From old Madison residents came the photographs, drawings and engravings which have been reproduced on these walls in their approximate geographic relation to one another so that the whole presents a reasonably faithful picture of Madison in the [18]60's and 70's.

Another private dining room near Tripp Commons had the name "Lex Vobiscum" because it was papered entirely with pages from a 17th century law treatise once owned by "Fighting Bob" La Follette, one of Wisconsin's most famous politicians. This room was significantly altered and became the current Profile Room.

Tripp Commons

Tripp Commons was planned as a grand two-story space. Following what by then was a tradition for union banquet halls across the country, the room was designed in the English style, with two-toned oak paneling on the walls, crowned with what appear to be small wooden urns. Details within the painted oak-vine scrollwork on the heavy ceiling beams included pictorial references to the departments of the university. Coats of arms on the ceiling are the crests of universities that were connected with the UW: Oxford and Cambridge (which had the first unions), the alma maters of the past presidents of the university, the Big Ten universities, and Hart House at the University of Toronto, which was considered a model of what a union should be. The drapes were red and gold. A richly carved oak clock piece dominates the entrance, which has leaded glass doors and a transom.

On special occasions the room would be used as a full service dining room and banquet hall. During the day it was used as a study and reading room for the men. Tripp Commons was the only room in the Union that was named for an individual until 1971, when the Play Circle was named in honor of Fredric March.

Georgian Grill

The room remains very intact. The ceiling hung lighting fixtures are

Image, top: Georgian Grill, 1928. The Wisconsin Union, University of Wisconsin, 1928, Pamphlet in the University of Wisconsin Archives. Image #uwar007981.
Image, bottom: Main Lounge, circa 1930.University of Wisconsin Collection, Image # UW.uwar00303.

not original.

Currently known as the Inn Wisconsin Room, the "tea room" shown on the plans was meant to be a genteel version of the Rathskeller for women. But the first female users of the Union were uninterested in a tea room. The room soon was reborn as the Georgian Grill, named that because the architects had designed the room with Georgian marble pilasters and beams and a Georgian fireplace. The walls were glazed in light blue with a subtle stria design (fine irregular vertical lines), a fashionable painting technique of the time. Silver and crystal chandeliers were patterned after Colonial examples and blue-green Windsor chairs and upholstered wing chairs finished off the colonial flavor. The floor appears to have been covered with carpet squares. The room was used as a white-tablecloth, full-service restaurant. This space has been heavily altered.

Main Lounge

The main lounge on the "first" floor was meant to "have a quiet and dignified atmosphere for reading, casual meetings and lounging." Dignified it certainly was. Columns of silver marble with spiral rope trim supported heavy beams decorated with multiple moldings, included denticulation (small blocks of wood in a row like teeth). The floor was terrazzo covered with large area carpets.

The main lounge on the "first" floor was meant to "have a quiet and dignified atmosphere for reading, casual meetings and lounging." Columns of silver marble with spiral rope trim supported heavy beams decorated with multiple moldings, included denticulation (small blocks of wood in a row like teeth). The floor was a parquet of black and white oak, covered with large carpets. The seating was upholstered in bright colors...

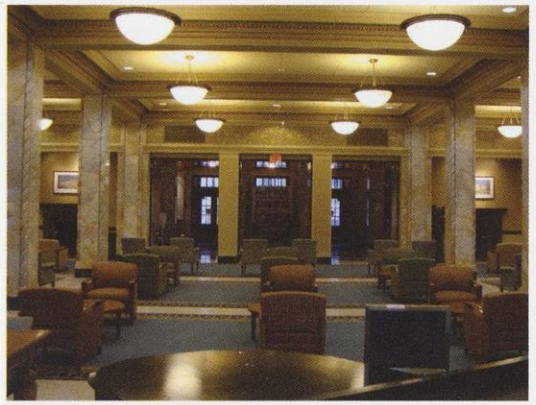
The seating was upholstered in bright colors, some patterned, as were the draperies. Tables were of the heavy Renaissance style with turned legs and hand carved trim. Enormous bird cage style chandeliers hung from the ceiling, each an encrustation of foliar ornament wrought in metal, ringed by projecting stalks holding clusters of electric candles. Table lamps and floor lamps added a domestic touch. Frieze panels at the top of the walls circling the room were stenciled with a scrollwork of flowers and foliage, said to represent native Wisconsin flowers. Two fireplaces on the south wall had renaissance surrounds of side columns and a heavy mantel trimmed with heraldic shields. At the northwest and northeast corner were leaded glass enclosed vestibules leading onto the rear balcony.

In the major remodeling of 1948-1949, the new furniture in the main lounge had wooden arms and lower backs so that when men relaxed, their hair dressing would not mar the upholstery. New silver gray carpeting was laid. To control noise and provide more light for reading, the ceiling in the main lounge was dropped and covered with acoustic ceiling tiles with fluorescent lights. Some incandescent lights in the ceiling provided warmth. The color scheme was quite toned down compared to the original, with various colors of soft greens with slate green walls. Some furniture was upholstered in yellow or gray for variety. Wood pieces were of light-colored birch and table tops were a dark gray laminate. Furniture was sectional to allow for flexibility in arranging it. Curving free standing birch screens were added to make fur-

Image: Main lounge after 1948-1949 alterations. *If You Want to Be a Badger*, 1960-1961, Pamphlet in the University of Wisconsin Archives.

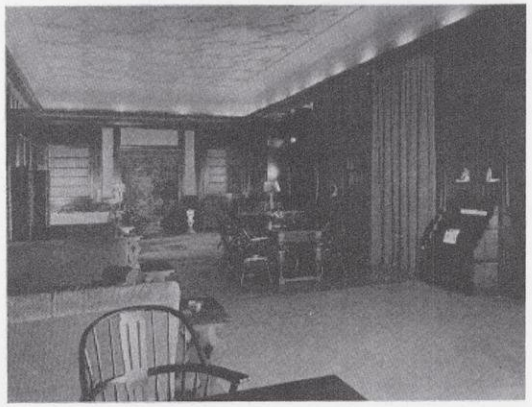
niture groupings cozier. The two fireplaces received new steel and light-toned wood surrounds. The curtains were natural in color with a pattern of green and yellow leaves.

In the early 2000s the Main Lounge was once again remodeled with some of the historic decorative features returned.



Hamel Family Browsing Library

The reading room/library, adjacent to the main lounge to the west, had dark oak paneling and bookshelves, and looked very similar to the interiors of English style men's clubs all over the United States. The frieze over the bookcases was glazed in stria style in colors to harmonize with the bookcases. The ceiling was a flat surface of ornamental plaster in a strapwork design which blended into the walls with rounded coves. The ceiling was to be painted gold-bronze and red, but it appears that it was left a light color.



The rounded coves were lit from hidden fixtures on top of the bookcases. The walls were hung with maps and tapestries, the curtains were of green wool damask and the floor was covered by heavy green rugs. A special Union committee furnished the library with the most outstanding books of the year and fiction classics. There was also an extensive library of phonographic records with a player.

In the 1948-1949 remodeling, the library's elaborate plaster ceiling was covered with

Image, top left: Main lounge today.
Image, top center: Browsing Library, University of Wisconsin Archives. Image #uwar.007961.
Image, bottom: Great Hall, 1928 Wisconsin Historical Society, Image # 3466.

acoustic plaster and fluorescent and incandescent lights installed.

Great Hall

The "Alumni Hall" on the plans would become known as "Great Hall." The architects designed this room, which Peabody described as "quite restrained, following the Georgian period." To our modern eyes it looks anything but restrained. Marble steps lead down into the hall. Marble fluted (vertical grooves) pilasters trimmed with composite capitals (capitals with both foliage and scrolls at the corners) ringed the hall, even in the stage area. Classical moldings in several different designs, including egg-and-dart and twisted rope, adorn the walls and ceiling. To each side of the main entry and to each side of the stage is a panel of white plaster trimmed with neoclassical, scrolling foliage ornament in bas (shallow) relief. The rest of the wall surfaces were covered in wool that was meant to soften the acoustics of the room. The floor was hard maple and suitable for dancing. The ceiling was ornamented plaster, painted in several pastel shades. Moldings in a chain of circles enriches the ceiling.

The stage was a half-round shape slightly raised under a shallow half dome. The piece de resistance was a majestic oval skylight made of multicolored hammered cathedral glass (i.e. translucent glass with a textured surface). Three-tiered chandeliers and matching wall sconces lit the room. This room was to be used for several functions: dances, banquets and, during the day, the women's lounge. It could be set up as an area for reading, chatting or relaxing, like the men's main lounge. It could also be set up with tea tables for the women to have light lunches or for dancers to rest and have a bite. Just outside of Great Hall was a wood floored lobby that received a wall treatment similar to that of the Great Hall.

The 1947-1948 remodeling saw major changes to the Great Hall. The elaborate domed skylight made areas of the room too bright as the sun moved during the day. The brightness of the hall made it difficult to have film or slide lectures so both the skylight and the ceiling were covered over. Butts said that part of the reason they added the false ceiling was to make the hall less austere and monumental (Butts had never been comfortable with the Renaissance style. He

Image: Great Hall today.

was a modernist through and through). At the same time, the lighting system in the hall was overhauled and modernized with a theater-type system. New laminate doors could be extended across the front of the Great Hall to shelter it from the noise of the rest of the union. The new furnishings were low cherry red banquets with light blue draperies and soft gray walls. Kidney shaped coffee tables of gray laminate provided surfaces for dancers to put ashtrays and drinks.

A person lift was added to Great Hall to provide accessibility from the main corridor on fourth floor.

Women's Drawing Room

Across the hall from the Great Hall in the 1970's was a drawing room for women with seating for relaxing, dressing tables and mirrors. It had a fireplace, landscape wallpaper and apple green trim.

Art Gallery

The space called the "music room" on the plans was supposed to be decorated like a French salon. It had brocade wall covering, small crystal chandeliers and a simple curved cove molding similar to that in the Great Hall. Director Butts was, at the time, going to graduate school in art history and was keenly interested in art, so instead of a music room, he made the room into an art gallery. He had the walls redone in soft pine covered with cloth suitable for hanging pictures. As a bow to the original designation as a music room, the room was furnished with a grand piano and a few settees. Later the piano was removed because, according to Butts, it wasn't the best experience to be gazing at art while someone was playing "chopsticks" on the piano. The room was the first union art gallery in the United States. Later it would become the first union in the country to establish its own permanent art collection.

In the remodeling of the art gallery in the late 1940s, the windows were blocked off with beige plaid curtains drawn across them so that

Image: Union Theater.

the natural light would not interfere with lighting the paintings. The walls were stained dark umber. The crystal light fixtures were replaced by cove lighting with movable flood lights.

The Theater

The theater as designed was composed of the 1300-seat main auditorium, the stage, the elevator forestage (orchestra pit), the seats, and two foyers, one for the main floor and one for the balcony.

The dominant form of the theater was the curving form of the ceiling. Starting just at the top of the proscenium it curved up to the topmost row of seats in the balcony. The exact shape of the ceiling was determined to be the best for the even distribution of sound in the room. Tests showed that the sound at the stage only lost four decibels by the time it reached the top row of seats. Centered on the ceiling was a long panel that hid indirect lights behind it. A cove along the side walls also hid lighting. The curving shape of the walls of the auditorium were also shaped by acoustical considerations. The walls were divided into curving vertical panels to reflect sound from the stage into the orchestra pit.

The auditorium could be changed in size for different presentations. Curtains curving just under the outside edge of the balcony could close off the seats behind it. Other curtains closed off other parts of the seating. Chairs could be put on the elevator forestage to achieve added capacity.

The rear wall of the auditorium was curved, following the line of the last row of seats. The building carried through on that shape in the north wall of the foyers and the exterior wall of the lobby. At the rear of the auditorium was a section of seats which could be blocked off from the main auditorium by glass windows. Loudspeakers carried the sounds of the performance into the room. In this way students could discuss dramatic presentations with their teachers, or, at other times, the space could be used for parents and their children.

Walls in the auditorium were painted a rust color, to convey repose and warmth. The seats were upholstered in rust color mohair. Carpets were in two tones of green.

The foyers were wide passages behind the balcony and main floor seating. Walls in the foyers were veneered in an African wood, known as Kewazinga. The simple stair railings were of horizontal brass members gently curved at changes of direction. The walls on the back face of the foyers were covered in acoustical materials, as were the ceilings. Dark green marble columns provide another hint of elegance. Some of these columns had indented vertical grooves with indirect lighting concealed behind narrow vertical panels. Circular lighting was recessed into the ceilings. The cloakroom in the lower level had a long opening cut out with rounded ends. This is one of the Art Moderne features. Art Moderne is very similar to the slightly later International Style, but with artistic elements meant to convey modernity, such as metal streamlining, port hole windows, and curved shapes.

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Think the Emerald Palace in the Wizard of Oz.

The Theater Lobby and Art Gallery

The main lobby was the space looking out onto Lake Mendota. The lobby also had Kewazinga veneered walls, with all of the exterior walls being floor-to-ceiling windows or doors. Glass block filled in some of the exterior wall on the east and were installed to add insulation from the north winds off the lake. The lobby had the curving walls of the Art Moderne style and dark green marble

pillars. The existing floor appears to be the original gray and red rubber tiles. The plaster walls were originally painted beige and yellow and gray herringbone curtains hung in front of the glass east wall. The wide hallway along the east side had glass fronted display cabinets for art installations. Along the glass wall were simple metal columns.

The flow of the space was enhanced by slightly dropped ceiling sections along the inside walls, which curved out in semicircles to mark the entrances to the auditorium. In 1987 the Theater was repainted and carpeting in the auditorium was replaced. In addition, the original ceiling in the Theater lobby was replaced; doors and window walls on the west, north and east walls replaced, heating system replaced, including slightly dropped soffits in lobby/gallery.

The Play Circle

The smaller theater was designed to seat 168. It is a simple space with plain walls and no stylistic details. The stage jutted into the seating area in a segment of a circle, and at the back of the space was another segment of a circle jutting into the room near the ceiling and housing an observation/crying room. The seats followed the convex curve of the stage. The Play Circle was meant to house experimental drama presentations in which the stage could be sectioned into more than one scene or the actors could partially surround the audience. The space was also built to permit live radio performances for WHA and to show movies. The lobby outside of the Play Circle had the same green marble columns and brass stair railings as the other lobbies and foyers. In this case, though, the wall paneling was Makore wood veneer and the original rubber floor tiles were green and gray (now black). This room retains a high degree of original fabric.

Secondary Spaces

Secondary elements are less critical in contributing to the historic character and may be able to undergo greater change without substantially impacting the building's overall historic character. It should be recognized that these elements are more likely to lie on a continuum of most to least important, rather than simply falling into one category or the other, and the amount of acceptable change will have an inverse relationship to that importance, depend-

■ Image: Union Theater Lobby.

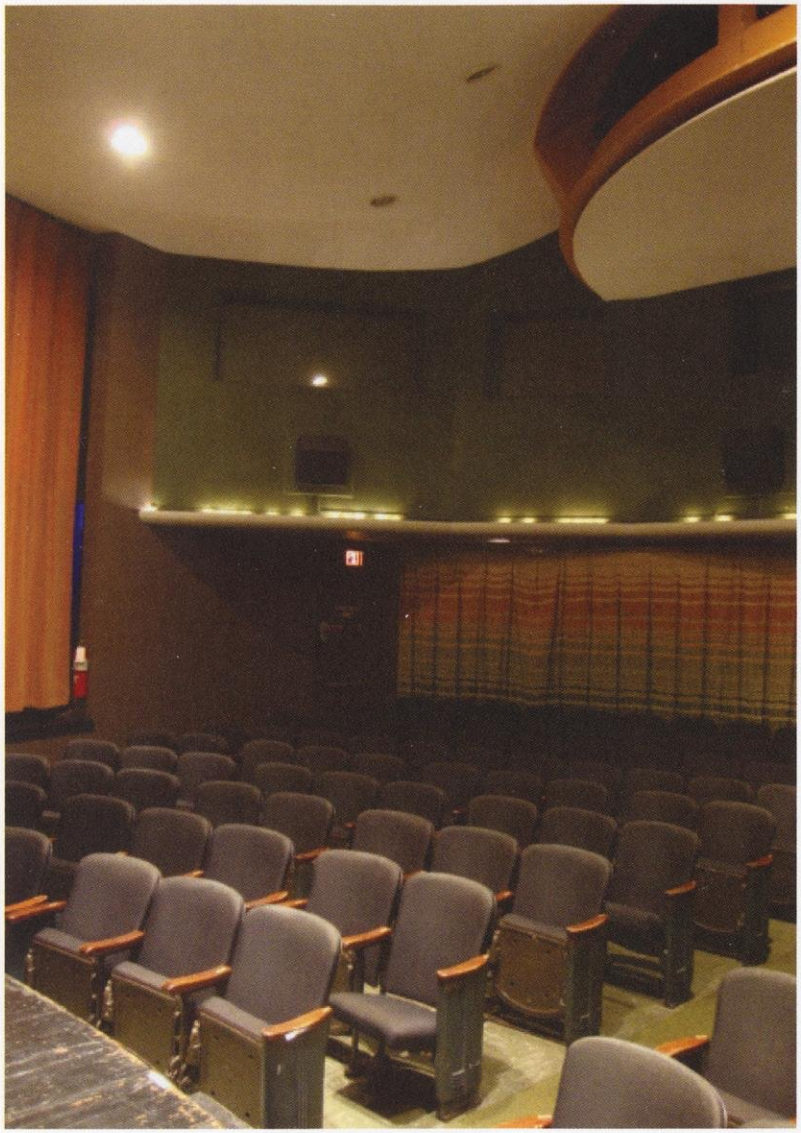


Image: Play Circle.

ing on other factors such as physical condition. For more information see page 7 of the Memorial Union Preservation Plan, July 2010.

Secondary spaces are less critical in defining a building's importance within its period of significance. They often still help define the building's significance and character, but because of their size, location, or function, their impact is not felt as strongly when progressing through the building. Thus, altering these spaces may not significantly impair the ability of the overall building to convey its primary historic significance.

A secondary space is usually a more simply detailed space and may have restricted access; such as an office, hotel guestroom, or a bedroom. Generally, these spaces are less architecturally detailed and subordinate in character to the primary spaces to which they relate.

Secondary spaces include areas and rooms, such as; Bradley Lounge, Stiftskeller, Trophy Room, Theater Gallery, Porter Butts gallery, Hanel Family Browsing Library, Old Madison Room, Beefeaters Room and the Reception Room.

Support Spaces

As noted previously, tertiary spaces or support spaces that "service" the primary and secondary spaces and may include kitchens, bathrooms, mail rooms, utility spaces, secondary hallways, fire stairs and office cubicles. These spaces are acknowledged but were not investigated here. Extensive changes can often be made in these less important areas without having a detrimental effect on the overall historic character.

Transitions

As illustrated in the Chronology of Transitions found earlier in this document, Memorial Union has undergone an evolution since original construction was completed in 1928. Beginning in 1938 with the conversion of some hotel rooms into offices, the building has seen incremental, but almost constant, alteration to accommodate the ever

changing needs of members and patrons.

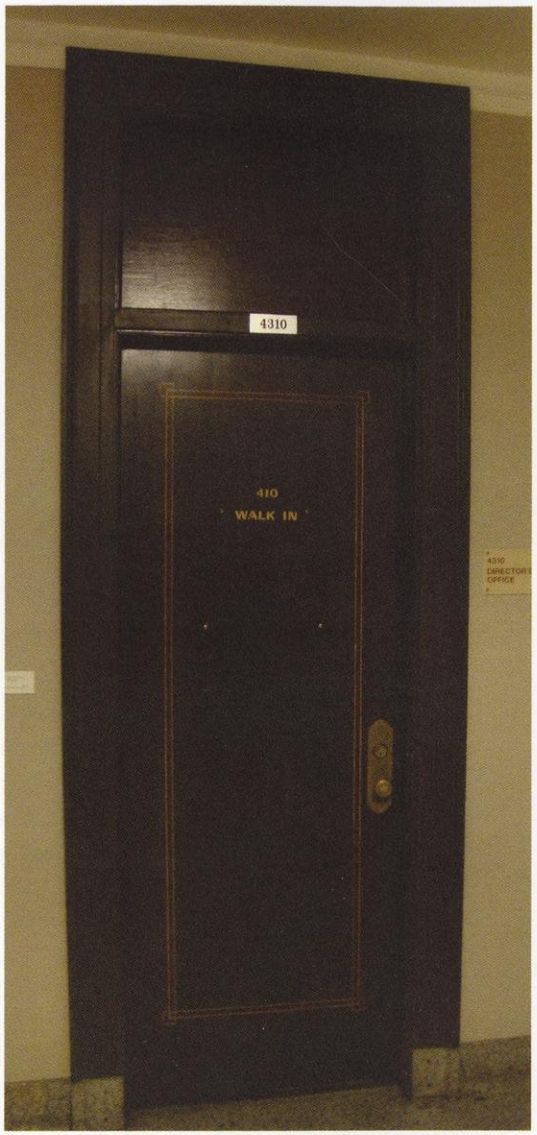
Many spaces, such as the original cafeteria, Beefeaters Room and private dining rooms, have been heavily remodeled and/or expanded to accommodate more contemporary use.

Constant small remodeling efforts created a changing rearrangement and reassignment of space to accommodate the changing needs of patrons and increasing numbers of users as the student population grew. These remodeling efforts, although necessary and purposeful, were widely inconsistent, typically adhering to current trends in design features, materials and furnishings. The result was a conglomeration of different treatments, lighting and furnishings.

Small additions were constructed at the hyphens to accommodate new systems, improve egress or to gain small increments of usable space. One of the top priorities for facility managers was adapting the building to accommodate the needs of disabled patrons or to keep pace with evolving building code requirements.

Interior Architectural Elements

Architectural elements were not extensively surveyed as part of the scope of work for this portion of the project. Cursory surveys to identify and document types of components and their general overall condition were undertaken in the summer and fall of 2011. Due to the large number of variations of all components, only those of an historic nature were documented.



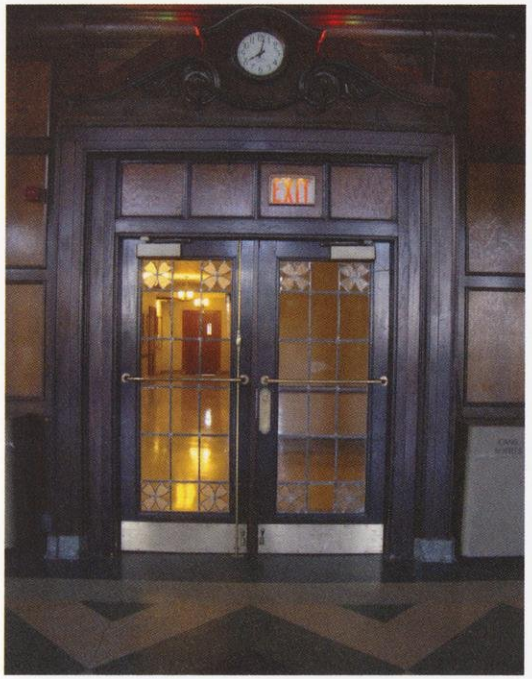
Doors and casings

Within the Central Core and the Commons Wing, the historic wood door assemblies generally consist of ornamental profiled frames with wood panel doors. Many historic wood doors remain in the public corridors on the upper floors. These doors are generally flush panel, quarter sawn oak

Image, left: Typical door and casing found on the upper floors in the Commons Wing.
Image, right: Detail of wood inlay found on doors of the upper floors.

on the first through the third floors and are flush mahogany on fourth floor. Third floor corridor door openings generally have transom panels with textured glass above.

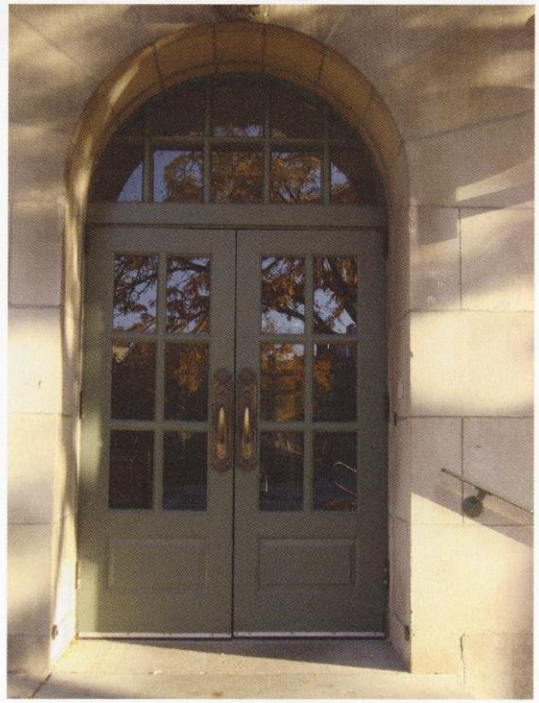
The veneer on the historic wood doors is 3/16″ thick in flitches of approximately 8 ½″ in width. The doors have a double inlay design at the perimeter of each door face. This is found on both the interior and exterior face. These 7′-0″ high doors are 1 ¾″thick and range in width from 32″ to 40″. Door frames and casings are stained on floors one through three. Fourth floor frames are painted.



Pairs of historic wood doors with glass panels are found in areas such as the Main Lounge and Tripp Commons. These are generally quarter sawn white oak with a stained finish and clear glass. Many of these pairs of doors have transoms and side lights with decorative wood surrounds. Pairs of doors are typically found in larger entrances to primary spaces.

Doors and frames at the fifth floor are birch with a stained finish. Most of the doors on this floor are two panels with textured glass in the upper panel.

Most of the historic wood doors and surrounds are in good condition with minor scratches, chips and gouges.



Image, left: Wood entry doors to Tripp Commons.
Image, middle: Typical wood door and casing at fifth floor Central core.
Image, right: Wood entry doors of the ground floor Commons Wing at Langdon Street.

The type and configuration of hardware on historic doors varies widely with very few doors having intact original components. Original hardware consisted of brass components including hinges, escutcheon plates, knobs and strike plates. The mortice lock set with the key above knob. All of the brass has been cleaned improperly to a point that the features and highlights of the pieces are greatly diminished.

Exterior doors are painted wood with painted wood frames and transoms above. The hardware is brass consisting of kick plates, hinges, decorative escutcheon plates, deadbolt locks and weather stripping. These doors are kept in generally good repair as they are heavily used on a daily basis.

Within the Theater Wing the historic doors and frames are painted hollow metal. A custom curved profile metal door frame, flush with the adjacent wall surface, is used throughout this wing. Doors are generally of a flush design but some do accommodate small louvered grilles or glass panels. Door hardware is generally simple brass components, including: hinges, kick plates, push and pull plates, deadbolts, simple knob and circular escutcheon sets with brass strike plates. Doors leading into primary or secondary spaces have elongated pull handles.

Pairs of doors are found at entrances to larger spaces such as the Play Circle.

Doorways leading into the Union Theater have aluminum frames with glass transom panels and pairs of aluminum doors with ¾ height glass panels. Hardware is com-

Image, left: Typical flush hollow metal door of the Theater Wing.
Image, middle: Aluminum and glass doors at the Union Theater lobby.
Image, right: Exterior entry doors to the Union Theater lobby.

posed of stainless steel hinges and aluminum panic hardware and elongated pulls.

Exterior doors of the Theater Wing are primarily single aluminum doors within an aluminum and glass storefront system. On the north and west this glass wall is relatively and in very good condition, having been replaced in the late 1980s.

A detailed survey of doors will be required to determine those that have potential for reuse.

Windows

The windows of Memorial Union are significant exterior and interior features of the building. At most locations, original windows remain and these contribute to the overall architectural character and integrity of the building, as well as providing daylight and an opportunity for fresh air.

Many of the original double and triple hung wood windows and frames of the Central Core and Commons Wing are protected by aluminum storm/screen windows that were installed in the 1970s. Although detrimental to the overall appearance of the Memorial Union, these storms have provided protection to the wood components and as a result these

Image, left: Historic wood window of the Central Core protected by an aluminum storm window.
Image, top: Typical original aluminum window of the Theater Wing/Craftshop.
Image, bottom right: Typical wood window of the Central Core.

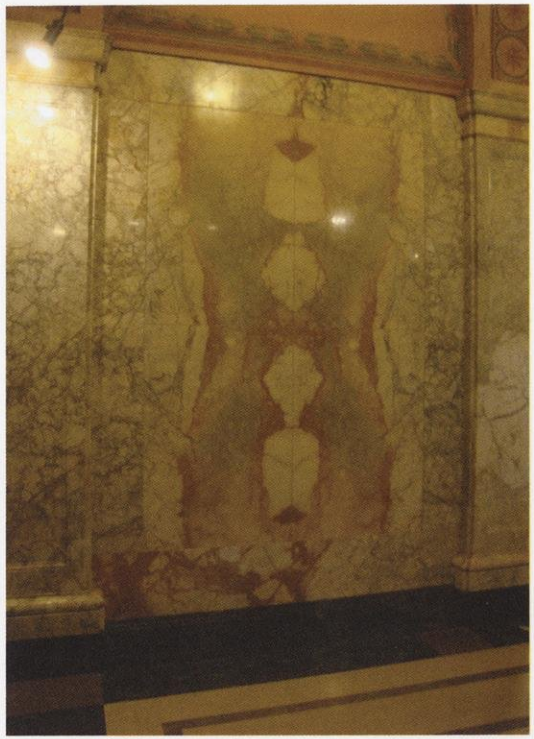
wood windows are in good condition. In general, rails, stiles and muntins are in good condition and structurally sound. Almost all historic wood windows remain operable.

The interior components of these windows are also in good condition. Interior finish of the casings, trim, stops and stools are generally free of significant damage such as gouges, cracks and chips. The finish of some stools has been damaged by rainwater and moisture when windows have been left open. Ropes and counterweights remain functional on most windows. Few windows are missing any hardware components, such as pulls or locking mechanisms.

Other historic wood windows that have remained exposed to the elements are in generally fair to poor condition. Moisture penetration and direct sun exposure has deteriorated window components. Deferred maintenance related to paint and sealant failure is evident. Glazing putty deterioration and sill damage are also evident. No broken or missing glazing was observed. Some stiles, rails and muntins are no longer structurally sound. Window air conditioners are prevalent.

The original aluminum double hung windows of the Union Theater Wing are in very good condition. Although approaching 75 years in service, these windows remain generally intact and serviceable. The aluminum components are in very good condition with minor surface pitting evident. Sealant joints at the juncture of the aluminum frames and limestone surrounds are in need of replacement. Sills are in good condition. Glazing and glazing sealants remain serviceable.

The storefront window and door systems of the Union Theater (north and east walls) are in very good condition. This system was replaced in the 1980's with a replica of the original but with insulated glass and thermally broken frames. The entrance at the corner of Langdon and Park Streets is the original aluminum system. The components here are worn yet remain serviceable.



The storefront window wall of the Craftshop is in good condition. All windows and doors are operable in this area.

Stonework

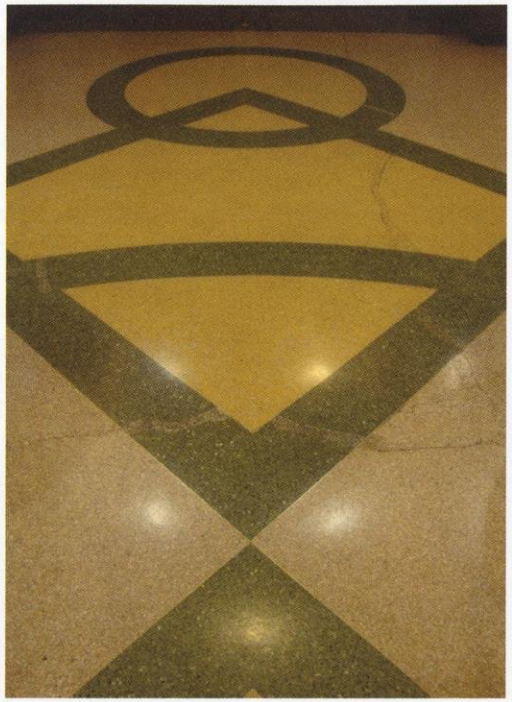
Stone was a popular building element in 20th century public buildings to convey the image of durability, strength and stability. Stone used within Memorial Union is found primarily in three areas. These are floors and base, pilasters, columns and walls, and stairs.

Image, left: Stone detailing at the floor in Memorial Hall.
Image, right: Book matched stone panels in Memorial Hall.

Stone is used extensively in the Central Core portion of Memorial Union in the areas of Memorial Hall and the Main Lounge. Here we find marble for base, floor border and field, and for columns and wall panels. All of the stone is well maintained and little significant damage, beyond scratches and minor chips, is apparent.

Within the Main Lounge stone is used for pilasters, columns and for fireplace surrounds. The columns feature decorative carved rope molding at the four corners

Marble is also used on the fourth floor in the area of the Great Hall lobby. Here columns and pilasters of stone are used to provide a feeling of grandeur at the entrance to the Great Hall. Stone steps also provide an elegant entrance to Great Hall.



The two main stairways within the Central Core, that connect all floors, also feature extensive use of marble. A simple uniform marble is utilized for all risers, treads and landings. The stone in the stairways is in very good condition.

Terra Cotta

Terra cotta is a fire clay product usually hollow cast in "light weight" blocks which open to the back, like boxes, with internal compartment-like stiffeners called webbing. Terra cotta blocks are finished with a glaze that is brushed on the air-dried block before firing. Glazing adds color and texture to the face of the final product. Terra cotta is not used extensively within Memorial Union but is found as a decorative interior treatment in The Rathskeller and Stiftskeller spaces. It is used for chair rail elements and fireplace surrounds as a substitute for stone. Terra cotta is also used for the decorative polychromatic "W" column capitals in the Rathskeller.

Due to the location of the terra cotta chair rail, these pieces have a substantial amount of damage resulting from frequent impact of people and chairs. This includes cracks, chips and worn surfaces. The fireplace surrounds are in good condition. Many of the grout joints within the terra cotta areas are in need of repointing. The column capitals have some deterioration as outlined in the Artwork and Decorative Finishes section of this chapter.

Terrazzo

Terrazzo was used for floor and stairs as part of the original design in the Commons Wing and Central Core. The material is a composite consisting of marble, quartz, granite, glass or other suitable chips, sprinkled upon or mixed in with a binder that is cementitious, chemical or a combination of both. Terrazzo is cured, ground and polished to a smooth surface or otherwise finished

Image, left: Terra Cotta curved surround of the Rathskeller fireplace.
Image, middle: Terrazzo floor in the Trophy Room.

to produce a uniformly textured surface. It is very durable but susceptible to cracking in large areas without control joints.

Originally most public corridors and stair on the upper floors were finished in terrazzo with a light tan/cream field color and a darker brown/gray border color. These floors had integral terrazzo base and door plinths. As remodeling, renovations and addition took place within Memorial Union, original floors of slate and flagstone were replaced with smooth terrazzo surfaces. This includes rooms such as the Rathskeller and Tripp Commons.

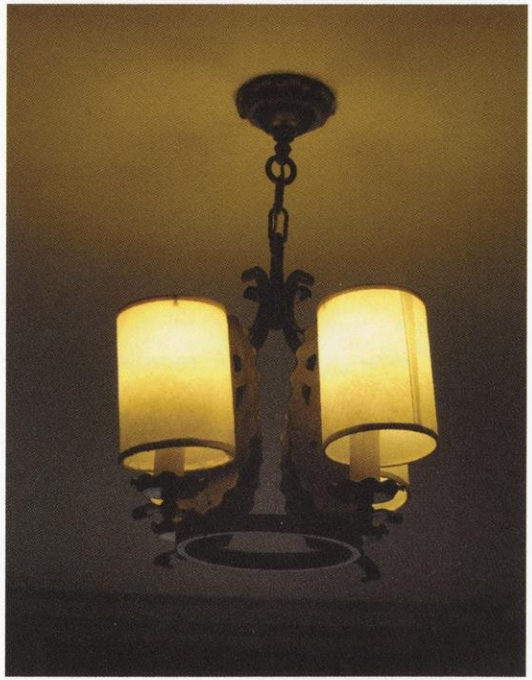
Overall the terrazzo floors within Memorial Union are in good condition with some minor cosmetic cracking, especially in the Main Lounge.

Lighting

A full survey of historic lighting fixtures was undertaken during the summer of 2011. After a general on-site review of fixtures, a computer based survey tool was developed to record the type of fixture and condition. A photographic image was also inserted in the survey form. The survey was conducted over a period of two weeks with a total of 85 extant fixtures surveyed. The goal of the inventory was to identify historic fixtures and identify candidates for possible rehabilitation and reuse.

Generally, historic fixtures remain in public spaces on all floors and in all wings, although some have been altered with different shades and lamp types. Few historic fixtures remain in private offices, meeting rooms or support areas within the Central Core or Commons Wing. In the Theater Wing many rooms retain original lighting.

For more information, see the full report. University of Wisconsin-Madison, Memorial Union Redevelopment, Historic Light Fixture Survey, September 2011.



Reuse

Detailed assessment of stonework, grilles, doors, frames and hardware shall be made in advance of the proposed rehabilitation work with the goal of identifying, retaining and reusing as many doors as possible and in original locations where practical.

Endnotes

Porter Butts, "The University Furnishes Its 'Living Room,'" Alumni Magazine 29, February 1, 1928, p. 162.

Image, bottom: Typical corridor ceiling mounted original light fixture in the Commons Wing.
Image, right: Original hanging pendant light fixture of the Langdon Street exterior Loggia.

Porter Butts, interview by Donna T. Hartshorne, 1979 Tape Index 167, University of Wisconsin Madison Archives Oral History Project.

Porter Butts, "The University Furnishes Its 'Living Room,'" Alumni Magazine 29, February 1, 1928, p. 162.

The Wisconsin Union, University of Wisconsin, 1928, no page numbers.

Porter Butts, "The University Furnishes Its 'Living Room,'" Alumni Magazine 29, February 1, 1928, p. 162.

Arthur Peabody, "The Memorial Union Building, University of Wisconsin, Madison, Wisconsin," The American Architect 1926, July 5, 1929, p. 6.

Porter Butts, interview by Donna T. Hartshorne, 1979 Tape Index 167, University of Wisconsin Madison Archives Oral History Project

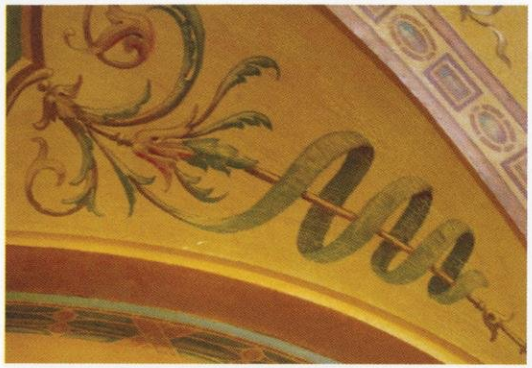
Artwork and Decorative Surfaces

Introduction

Elaborate murals and decorative painting can be found in a number of primary spaces in Memorial Union. Decorative detailing in a variety of artistic styles contributes significantly to the historic character of the building. The Memorial Union offers public and student amenities and therefore experiences high pedestrian traffic. The murals and decorative painting are common property and are not protected from human touch and environmental conditions.

It is evident upon examination that over the years, alterations and repairs have affected the condition of the artwork and decorative finishes, in some instances obscuring original colors and design schemes. Changes such as these, along with natural deterioration of painted surfaces, are to be expected in a public setting.

Image: Memorial Hall on the second floor of the Central Core.



Artwork and Decorative Elements

Conrad Schmitt Studios Inc. of Milwaukee conducted a detailed condition assessment of the artwork and decorative elements in seven distinct areas of the Memorial Union. The investigation was completed by an experienced team of artists, conservators, and historic preservation professionals, and included historical research, structural analysis, and surface conditions testing. The goal of the investigation was to develop a full understanding of the current conditions of each element and the factors affecting the condition and longevity of the artwork. An overview of findings and recommendations are presented here. Detailed results of the investigation, as well as recommendations for conservation treatment and maintenance procedures are presented in the University of Wisconsin-Madison, Memorial Union, Conditions Assessment and Conservation Treatment Recommendations for Murals and Decorative Painting, April 2011.

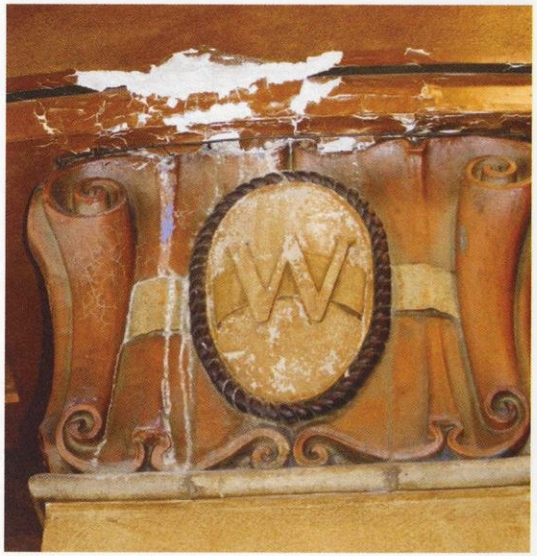
Methodology

The areas included in this work are Rathskeller, Siftskeller, Paul Bunyan Room, Memorial Hall, Old Madison Room, Beefeaters Room and the Exterior Loggia. Each space was examined in detail by experienced artists and conservation professionals. Existing conditions were analyzed from both artistic and historical perspectives. The analysis included historical research and photography, documentation of decorative surfaces, visual examination of the exterior building structure, visual examination of surface conditions, and non-destructive testing.

Non-destructive testing was conducted in specific areas of each room, as deemed appropriate and necessary based on findings from historical research and visual examination. Tests included sounding to determine substrate and structural conditions; examination of visible surface layers with a 10x handheld microscope; and testing of dirt and varnish layers with water and mild detergents.

Destructive and intrusive investigation, sample removal, and laboratory testing and analysis of materials were not conducted during the course of this assessment. The rooms in question are in regular active use by students, faculty, and staff of the University; and therefore intrusive testing would have jeopardized the feasibility of continued use in some areas. Additional testing and analysis is recommended in several rooms, based on current conditions and results of this investigation. Details are included within the full report.

Documentation of the rooms, murals, and decorative surfaces was conducted using a Canon S 3-15 6 megapixel camera in natural lighting and with onboard flash as needed. Digital manipulation of the images, including color adjustment, perspective correction, and photo-merging was conducted in Adobe Elements 9 as needed. These types of changes were conducted to provide the most accurate representation of the artwork.



Image, left: View of a lunette panel in the Memorial Hall vaulted ceiling.
Image, right: Rathskeller column capitol and arch deterioration.

Guiding Principles for Treatment

The conservator should apply some simple, ethical guidelines such as:

Minimal intervention.

Appropriate materials and methods that aim to be reversible to reduce possible problems with future treatment, investigation, and use.

Full documentation of all work undertaken in both detailed reports on treatment and photo documentation of before and after treatment.

In order for the conservators to apply their professional expertise and decide upon an appropriate conservation strategy, they must take into account the views of the stakeholder, the values and meaning of the object, and the physical needs of the material.

Interventive Conservation refers to any act by a conservator that involves a direct interaction between the conservator and the cultural material. These interventive treatments could involve cleaning, stabilizing, repair, or even replacement of parts of the original object. It is essential that the conservator should fully justify any such work. Complete documentation of the work, carried out before, during, and after the treatment, rules out chances of later doubts.

The principal goal of a conservator is to nullify or at least reduce the rate of deterioration of an object, this can be achieved through either non-interventive or interventive methodologies. Interventive methodologies include all those actions taken by the conservator to directly intervene with the material fabric of the object. Such actions include surface cleaning such as varnish removal, or consolidation such as securing flaking paint. Such interventive actions are carried out for a variety of reasons including; aesthetic choices, stabilization needs for structural integrity, or for cultural requirements for intangible continuity.

One of the guiding principles of conservation has traditionally been the idea of reversibility, that all interventions with the object should be fully reversible in a manner safe to the object. The object should be able to be returned to the state in which it was prior to the conservator's intervention. Another important principle of conservation is that all alterations should be well documented and should be clearly distinguishable from the original object.

General Findings and Recommendations
Findings and recommendations for all seven areas are centered on common themes of stabilization, conservation and potential restoration of the artwork and decorative finishes. These activities could be sequenced in phases.

In several rooms, immediate action is needed to stabilize artwork and preserve the historic integrity of the painting. These include the decorative finishes in the Old Madison, Paul Bunyan and Memorial Hall areas.

In other areas, such as the Rathskeller and Siftskeller, cleaning and repairs are necessary to maintain useable conditions in the building and to prevent further damage.

Phase I. Stabilize Active Damage
Minimum immediate action necessary to stabilize the conditions of existing historic material. Recommendations included in this section are necessary to prevent loss of historic fabric and, in some cases, to ensure stability of the substrate and structural support of the artwork and long-term viability of the existing architecture.

Stabilization in most instances is accomplished in such a manner that it detracts as little as possible from the decorative finish appearance or significance. The work is generally concealed so as not to detract from the aesthetic or historical qualities. The work consists of activities such as patching and reattachment or securing the finish carrying surface to its substrate. This may also include reinforcement to retain structural stability. The artwork should be carefully monitored following stabilization.

Phase II. Conserve Existing Material:
Treatment procedures necessary for preservation of the historic character of the building. Recommendations in this section include procedures for preserving the visual continuity of each space, and procedures for maintaining the viability of sensitive areas in active use by the University population.

Conservation efforts typically begin with a thorough yet gentle cleaning. Previous dam-

Image, left: Old Madison Room mural with repeated impact damage at the chair rail level.
Image, right: Image of the Madison Geology Club (March 7, 1930) meeting in the Beefeaters Room. This will assist in the future restoration of the space. Wisconsin Historical Society Image #whs20599.

age and non-sympathetic repairs or modifications are removed where possible. Inpainting areas of loss or spalling are undertaken and finally a new protective reversible coating may be applied.

Phase III. Decorative Restoration:
Recommended treatment procedures for the restoration of historic material, based on best practices from the National Park Service's Preservation Briefs and the American Institute for the Conservation of Historic & Artistic Works. The ideal treatment scenarios for preserving the historic integrity of the artwork include restoration to accurately depict the form and character of the artwork as it appeared at a particular period of time. This may include removal of features or repairs from other periods in its history and replication of missing features from the restoration period.

Careful restoration by experienced artists and conservation professionals is recommended to preserve the historic character of the murals and decorative painting in each space.

Additional research and analysis may be necessary prior to the beginning of conservation efforts.

All methods of analysis, documentation, and recommendations for treatment are based on guidelines established by the American Institute for the Conservation of Historic and Artistic works and the Secretary of the Interior's Standards for the Preservation of Historic Structures.

Regular Maintenance: In addition to specific repairs, a schedule of regular maintenance is necessary for the continued care of historic resources. Specific recommendations for each space and a program of regular maintenance are provided within the full report to ensure proper stewardship of the artwork.

Appendices to the full report include digital copies of the photographic documentation conducted during the survey and analysis of March 2011. Photographs in the Appendix include specific issues noted within the body of the report as well as additional images which may prove useful to the University for future analysis or historical research.

Decorative Finishes

Conrad Schmitt Studios also conducted investigations of interior finishes in several rooms of the Memorial Union with the primary goal of identifying historic paint colors used in each space.

Research into the history of the building provided context for analysis of individual paint samples. In accordance with historical records, an effort was made to establish the sequence of decorative finishes in each room of the building. Detailed information gathered during the study provides an accurate historic record of interior finishes within the Memorial Union, and will be useful in maintaining the authentic historic character of the building during future building renovations.

The final full report, University of Wisconsin-Madison, Memorial Union, Historic Investigations and Analysis, July 2011 includes interpretation of the interior finishes that were discovered during the investigation.

Areas examined included the following: Rathskeller, Browsing Library Ceiling, Annex Room, Langdon Room, Wisconsin Union Theater (Main and Balcony levels), and Theater Lobby (Basement, First, and Second levels).

Methodology

Historical research was collected first to establish a timeline for the history of the Memorial Union. Historic photographs from the University of Wisconsin archives and the Wisconsin Historical Society were gathered and examined for information on previous decorative schemes. The Historical Outline provided in the full report provides a detailed narrative timeline for the dates of construction and uses of some of the spaces in question during this investigation. Historic photographs were not available for all rooms within

the scope of work, but did provide helpful information for the Browsing Library, Rathskeller, and Wisconsin Union Theater.

On-site investigation and documentation of interior finishes on all painted surfaces was conducted by taking samples from characteristic elements in each room. Laboratory analysis and photographic documentation of the samples occurred at Conrad Schmitt Studios facility in New Berlin, WI. On-site documentation was performed in July of 2011. The first step involved establishing the areas where sampling of the interior finishes should occur. Using the existing building map, the rooms to be examined were assigned numbers as follows based on the name of each room and the level on which it can be found.

Rathskeller	R100
Browsing Library Ceiling	BL200
Annex Room	A200
Langdon Room	L400
Wisconsin Union Theater Lobby First Floor	T100
Wisconsin Union Theater Lobby Second Floor (Balcony)	T200
Theater Lobby Basement	TL000
Theater Lobby First Floor	TL100
Theater Lobby Second Floor	TL200

Within each room, areas to be sampled were chosen based on the following criteria:

Substrate appeared to be original material.

No obvious voids indicating missing paint layers.

Existing cracks were addressed when the above two conditions were met, in order to prevent unnecessary damage to the substrate.

Whenever possible, samples were taken in unobtrusive locations: above or below eye-level, behind railings, above light fixtures, or other areas. This was done to prevent unsightly damage to the current conditions.

Photographs were taken of each wall in each room and labeled with the room number and compass directions, i.e. east, south, north, west.

Using a scalpel or utility knife, samples were taken in discreet locations from the walls and other painted elements in each room and placed into secure envelopes labeled with the room and sample number. Samples were assigned numbers that included the room number, sample number, and compass direction. (For example, the first sample taken from the western wall of the Annex Room is numbered A201-W.) The location and number of each sample was recorded on the photograph of the wall at the time it was removed from the site.

In order to ensure procurement of samples that were both complete and representative of existing conditions, multiple samples were taken of each element. In the interest of brevity, only one representative sample for each element is included in this report.

After initial microscopic analysis of each sample, the most representative samples of each element were photographed. Specific paint colors in each sample were identified using the Munsell System of Universal Col-

ors. It is important to note that color analysis was performed directly on the samples. Printed or digital images should not be used for color analysis, due to variations in printer and display settings. Stratigraphy sheets were completed for all photographed samples. These sheets are included in the report appendices, and include the layer description (paint, dirt, glaze, primer, etc.), color, sample number, corresponding Munsell number, and photomicrograph.

Rathskeller

One of the primary spaces examined was the Rathskeller. This is one of the most decorated rooms in the Memorial Union and indicative of the relationship between architecture and decoration in the early twentieth century. A synopsis of the analysis for the Rathskeller is included here as an example of the work undertaken and the conclusions reached. Analysis of other spaces may be found in the full report.

Historic photographs suggest that the Rathskeller has not undergone a major redecoration since it was completed in 1932. The characteristic murals on each wall appear, based on photographic evidence, to be original artwork. However, physical examination of the space indicates that a number of minor repairs have been completed over the years in various parts of the room. Spot-repairs, patched plaster, and overpainting are all visible on the walls and columns. Paint sample analysis revealed information about early color schemes and identified several areas where color has been changed from the original.

The earliest colors used for the main walls appear to be a pale yellow paint (Munsell 5Y 9/6), a medium brown glaze (Munsell 10YR 5/6), and a darker brown glaze (2.5Y 3/4). The base yellow seems quite light in comparison to the current wall color, but is evident in samples, and its brightness is toned down considerably by additional glazing.

Samples taken from the south and north walls in the main section of the room show evidence of only one layer of decorative finishes on top of the rough plaster substrate. Since

Image: Historic image of the Rathskeller just after completion, circa 1932. Note the slate floor and plaster ceilings. These are no longer extant. Wisconsin Historical Society, Image whs 3198.

the samples on these walls were taken near to the original murals, it is logical to conclude that these finishes are original to the room, and represent the historic paint colors originally applied in the space. The finish includes a thick yellow base coat, a thin layer of light brown glaze, and a thin layer of darker brown glaze. The thickness of each layer and the physical appearance of the walls suggest that these three layers were applied in succession in order to give the wall its current mottled appearance. The base yellow seems quite light in comparison to the current wall color, but is evident in samples, and its brightness is toned down considerably by additional glazing.

In contrast to simple samples found near historic mural art, this sample taken from the side of a column in the northwest area of the room shows ten layers of paint and glaze above the plaster substrate. These layers, though similar in color, indicate as many as five separate painting campaigns. Since this area of the room has been prone to water damage, it is possible that repeated repairs have been necessary here over the years, requiring repeated painting of the surface.

Samples from below the chair rail on both the outer walls and columns reveal evidence of previous color schemes similar to the original yellow and brown glazes found in other areas of the room. The sections in question are currently painted a deep red color. Though most samples cleaved at the red layer, they consistently revealed evidence of brown and yellow beneath the surface. This theory is supported by historic photographs and first hand accounts which confirm that the lower wall and column bases were originally painted to match other areas of the wall. Since these areas were subject to near constant use by the student population, the change of color may have been an effort to camouflage the dirt and grime resulting from daily foot traffic in the room.

Analysis of the column capitals in the Rathskeller indicates that the colors visible today are the original colors. There are consistently only one or two layers of paint on each of the elements of the capital, including the crest, rope detailing, scrollwork, and central monogram. Samples show only the layers of paint and glaze used to achieve the current design scheme, and historic photographs give no indication that the columns were ever decorated in another manner.

Several capitals in the north end of the room suffer from peeling paint and plaster deterioration caused by water infiltration. On several of these capitals, a bright blue color is visible below the red painted scrollwork surrounding the central crest on each capital. This blue material is not evidence of an earli-

■ Image: View of the arch where sample R-101-S was taken.

Exterior

Introduction

The Memorial Union, like many buildings constructed during the first half of the 20th century, has a building envelope composed of varying materials and methods of construction. While each building material is important in conveying a particular architectural idea, the building envelope is equally essential for the protection and sustainability of the structure inside. Therefore, careful consideration should be made while analyzing a facility such as this in order to ensure that the form and the function are adequately addressed.

The exterior walls are typically faced with stone interlocked with a multi-wythe brick wall. The Central Core and Commons Wing are constructed using various stone and terra cotta facade elements. Terra cotta was also used for the chimneys, cornices, and Wisconsin cheneaus, an ornamental cresting along some cornices. Select Buff Indiana Limestone was also used on the Central Core and Commons Wing everywhere below the second floor, at each corner of the building, for the dental band under the cornice, around many of the windows, at decorative carvings above the window, and along the balustrades. The stone infill between the Indiana Limestone was known as Madison Dolomitic Limestone. The limestone finishes vary at the different locations around the buildings. Bedford Limestone is used exclusively on the entire Theater Wing except at the Play Circle Theater where Madison Dolomitic Limestone is employed in a similar manner to the original facades. It should also be noted that the original construction design drawings for the Theater Wing called for large amounts of Madison Sandstone to wrap the building, but was changed prior to construction to be limestone on all elevations except on the Play Circle Theater building. Prior to performing visual examinations of the Memorial Union, documentation of the original

While each building material is important in conveying a particular architectural idea, the building envelope is equally essential for the protection and sustainability of the structure inside. Therefore, careful consideration should be made while analyzing a facility such as this in order to ensure that the form and the function are adequately addressed.

Image: Close-up visual investigation of the Theater Wing from a platform lift.

building construction, and subsequent renovation and building maintenance work was reviewed. Studying this information was helpful in ascertaining the original construction and ongoing renovations in the building. Original construction documentation was equally helpful in identifying specific locations to conduct close-up examinations.

Visual Examinations

The investigation of the building envelope included a variety of visual examinations performed in August and October of 2010. The assessment covered all applicable building elevations, including all facade components and a general overlook of the window and the roofing conditions. Two general visual assessments were performed, one distant visual investigation of the entire building in August 2010 and one close-up visual investigation of approximately 15% of the building elevations from a platform lift in October 2010.

Examinations were documented by field notes and photographs that may be found in the consultant's original report appendix materials.

The distant visual investigation was performed in August of 2010. The entire facade was examined remotely from ground and/or roof levels using binoculars and spotting scopes. The distant investigation is useful in determining the general condition of the surface of the exterior wall. Efforts are made to detect wall areas with external visible distress, as evidenced by suspicious bowing, bulging, leaning, displacement, or discoloration of materials. Building geometry, lighting conditions, time of day, viewing distance and angles are limiting factors of detecting these defects. Specifically, there are several large trees surrounding the Memorial Union that made some areas mostly inaccessible for viewing.

Close-up or "arms-length" visual examinations were performed in early October of 2010. The close-up investigation was performed

from an 85-foot straight boom lift. The lift was located at 6 different locations over 3 days. These locations allowed review of at least 15% of the building facade. Due to access restrictions caused by limited plaza load capacity and access width, only specific areas were reviewed from the platform lift during the close-up investigation. The areas that were accessible by the lift generally included portions of the north, south, and west elevations of the Theater Wing, portions of the north, south, and east elevations of the Commons Wing, and a small area of the east elevation of the Central Core. Portions of the Central Core's east and west were also viewed from the connector roofs. These areas provided a good representation of typical and worst conditions and deteriorated conditions. Specific attention was given to the areas noticed to have severe deterioration includ-

■ Image: Fallen terra cotta section at the Craftshop.

ing the terra cotta elements, the corners of the buildings, and the north elevations of the Theater Wing and the Commons Wing.

Observations

The masonry wall construction is a compos-

ite multi-wythe design with an exterior wythe of either limestone or terra cotta and inner wythes of common brick or clay tile. The typical wall appears to be solid but the original drawings show that there may be a void space inside portions of the Theater Stage Tower walls. The walls at architecturally finished spaces have clay tile and lath and plaster on the inside surface of the wall. The masonry walls lack internal water drainage systems capable of diverting water infiltration comprehensively to the exterior of the building. Though this would be considered a design deficiency by today's standards, it is fairly typical for its vintage, but with obvious shortcomings that make it necessary to maintain the building by standards that exceed that of more recent masonry construction.

The main objective of any future repair of the Memorial Union should be to make the exterior surface of all cladding as watertight as possible and also allow the wall to breath appropriately. Please note that watertight does not mean vapor tight. Exterior masonry cladding and mortar should be "breathable" to water vapor, but should not allow the free infiltration of liquid water. Where feasible, provisions to drain walls should be incorporated where wa-

Image, left: Typical Cheneau deterioration above Great Hall.
Image, right: Typical critical terra cotta cornice cracks.

ter may collect, such as at masonry lintels and relief angles, and at window heads and sills.

Terra Cotta

The terra cotta is in critically poor condition in several locations on the Theater Wing and the Commons Wing. One approximately 4 ft long piece of the terra cotta on the west elevation of the Play Circle Theater fell down to the roof below when it was tapped only a few times with a rubber mallet. As a result of this incidence, it was decided to remove any loose terra cotta found to be an imminent falling hazard during the close-up investigation. Only one other piece of terra cotta was removed. Additional sections were noted as being very loose and could deteriorate and fall due to weather and thermal changes without notice.

The Central Core terra cotta is in good condition with only one area of noticeable cracking on the upper guttered cornice of the south elevation. The upper guttered cornice is composed of two courses of terra cotta instead of the one that is used on the lower roofs and at other wings. The Wisconsin cheneau terra cotta pieces along cornices on each wing are in fair condition, small detail elements are cracked or have fallen off and the majority of the glaze is crazed or flaked off. There is also a corner terra cotta piece missing at the southeast corner of the west chimney of the Central Core.

The work on the terra cotta over the Great Hall curved roof (north elevation of the Central Core) is part of a separate project that is currently in progress. Portions of the terra cotta scroll and cheneau have been removed on the west side of the dome roof to create replacement terra cotta sections. One replacement terra cotta section of the two piece cheneau is sitting on the Tripp Connector roof. These two pieces already have a few shrinkage cracks in them. The fabrication of these sections and possible repairs should be investigated prior to the installation of these replacement sections.

Structural Support

The failure of the one section of terra cotta allowed assessment of the steel anchorage and interior conditions of the terra cotta. From these observations, the terra cotta failure was determined to result from the rust jacking or deterioration of the support steel at the head joints. This rust jacking induced a

■ Image: Typical hard mortar spall damage to stone.

vertical stress on the terra cotta, splitting the terra cotta horizontally down the center. This horizontal crack forms and then allows additional moisture infiltration. The lower terra cotta portion cantilevers out from the supporting wall. The deterioration continues and eventually forms a crack along the underside of the lower terra cotta piece. Once this detrimental crack widens, the horizontal and underside crack join and then the complete failure of the section of terra cotta is imminent.

Terra Cotta Cracking

The majority of the cracks in the terra cotta appear to be due to the rust jacking of the steel support mentioned above. Therefore the steel support bracket must be resolved prior to permanently fixing the cracks in the terra cotta. There is also approximately 60 feet in the center of the east elevation and all of the cornice on the south elevations of the Commons Wing that are showing signs of critical cracking and deterioration. There are also dispersed cracks in the terra cotta throughout the Commons Wing and the Central Core that should be injected with consolidant.

Spalls

Most of the spalls that have occurred in the terra cotta have occurred in the cornice cheneau sections. These spalls are not detrimental to the failure of the section, but will continue to deteriorate the sections by directly exposing the softer clay body to the weather.

Finish

The terra cotta finish is deteriorated on nearly all of the pieces. This is however considered a minor deficiency. Most of the finish deterioration is only crazing of the glaze and therefore only small isolated areas will require any finish repair to the terra cotta.

Masonry Joints

The water tightness of the building envelope is highly dependent on the integrity of the masonry joints. When material failures occur in either the masonry materials or joints, water enters into the wall, and with no drainage system, migrates into the wall structure and possibly to interior finishes. The terra cotta masonry is more susceptible to joint damage caused by the natural swelling of clay materials and the lack of control joints in the original structure. Stone masonry, limestone being better than sandstone, has a lower ratio of joint to surface area, is more dimensionally stable and compatible with the steel superstructure, and has a lower rate of water absorption. As such, the stone masonry performs better and has been less susceptible to joint damage. However, the repointing mortar currently on the Memorial Union is too hard for the stone on the building.

The mortar joints throughout the building have been repointed with hard mortars with high amounts of portland cement. What is believed to be the original mortar was found deep in the joint. The original mortar was noticeably much softer and appeared to be rich with lime even in the field. The hard repointing mortars do not bond as well as soft mortars and have debonded from the stone on approximately 70 percent of the joints on the Theater Wing. The mortar has debonded from the stone on approximately 40 percent of the joints throughout the remainder of the building. The hard mortar is also cracking and spalling off the edges of many stones, especially on the softer Madison Dolomitic Limestone. The original mortar was analyzed and determined to be a lime and sand mortar with sand that was "very fine compared to typical sand" per the mortar analysis report by Speweik Preservation Consultants, Inc. dated November 19, 2010.

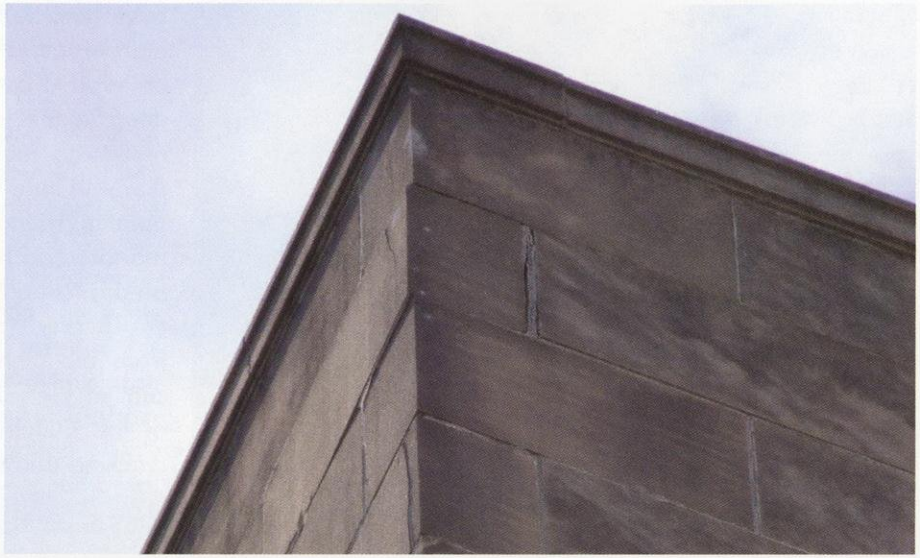
> ***Second only to the masonry joints, the water tightness of the building envelope is highly dependant on the integrity of the sealant joints, most commonly located at windows, doors, parapet capstones, and at junctions between differing materials...***

The hard mortars further compound the water

infiltration issue by restricting the joints from "breathing." Softer lime rich mortars allow for more vapor "breathing" and higher thermal movement. The build up of moisture in the clay brick backup will continue to increase and could be one of the main causes to the musty air in the Union Theater and can eventually damage interior finishes.

The mortar joints behind the balustrades on the east elevation of the Commons Wing are protected by the balustrades and appear to have original mortar and the original tooling. This area was tooled with a flush joint and the repointed areas are all concaved.

The terra cotta joints are in poor condition. Many of the joints are open and allowing water to freely enter the terra cotta. This additional moisture and the freezing and thawing of the water further accelerates the deterioration of the steel supports, the terra cotta glaze, and the cracking.



These joints should have sealant along the skyward joint and mortar installed below. The gutter seams are mostly in good condition but should be thoroughly inspected during the repair construction. Repairs to the gutter are expected in isolated areas and where the terra cotta is repaired or replaced. Specifically one area of concern is over the section of terra cotta that fell during the assessment. It appears that water may be ponding due to improper slope to the gutter. The poor slope may be a result of the terracotta shifting downward due to the deterioration or it may be a sign that water is going through the gutter and entering the terra cotta partially causing the critical level of deterioration in the area.

In addition, inappropriate surface preparation and application of repointing mortar materials into the joint were noted in multiple areas where the repointing mortar had failed and started

Image, top: Displaced corner stones on Union Theater stage tower.
Image, bottom: Surface deterioration of limestone along the Park Street sidewalk.

to bulge out. Improper repointing often results in ineffective performance and premature failure of the mortar or masonry.

Sealant Joints

Second only to the masonry joints, the water tightness of the building envelope is highly dependant on the integrity of the sealant joints, most commonly located at windows, doors, parapet capstones, and at junctions between differing materials such as metal louvers. In general, the condition of the sealant joints on the Theater Wing, are in poor condition, being either deteriorated due to their age or substandard in their remediation. The condition of the sealant joints on the Central Core and Commons Wing are in fair condition. The scope of work includes the perimeter of all building windows, doors, louvers, storefronts, and all skyward joints at parapets and washes including horizontal surfaces at both projecting masonry courses and window sills. As noted in the mortar joint section, many masonry joints have sealant applied over mortar in an ineffective attempt to seal a joint.

Limestone

The overall condition of the limestone is in good. There are a few isolated areas of deterioration due to weathering of a softer stone area on all of the wings, but no major repairs on the Central Core or Commons Wing. The Theater Wing has a few more severe areas of deteriorated stone due to the architectural design, HVAC pressurization, the lack of control joints, and the use of the wrong mortar.

Cracks

The building was built without control joints to allow for thermal movement of the stone cladding and the backup supporting wall system. Though this would be considered a design deficiency today, it was common practice when the Theater Wing was constructed. The Central Core and the Commons Wing do not have the severe cracking problems caused by thermal movement because the elevations are much more ornate with varying planes of stone.

Several of the limestone panels are cracked vertically on the Theater Wing due to the thermal movement of the limestone, the differential thermal movement, and movement due to varying absorptions rates of moisture between the brick supporting wall and the limestone.

Displacements

Many of the stones at the corners of the Theater Wing are cracked due to the differential movement of the different building elevations, and in some locations are even shifted out of plane.

Spalls

There were only a few isolated limestone spalls noted by the assessment.

Surface Deterioration

It was noted that the limestone on the north elevation of the Union Theater had higher levels of surface deterioration, or exfoliation. It is believed that this deterioration is a result of multiple factors. The north elevation receives higher abuse from the wind, rain, and organic pollutants that blow off Lake Mendota, and minimal direct sunlight all year long. In addition, the limestone on the north elevation appears to have been textured horizontally which is different from other elevations. The horizontal texture allows water, wind, snow, and pollutants to be retained by the stone. This elevation also appears to be a softer stone with a higher porosity as shown by the large number of shells and small pits that are clearly identifiable in the surface of most of the stones. To compound these issues, the theater mechanical HVAC equipment appears to apply a negative pressure to the inside of the exterior wall, thus pulling in more moisture. The negative pressure is believed to be in the louver intake area and the plenum area.

Typical surface deterioration is also occurring to the limestone by the plowing and salting of the sidewalks. The gashes are not very deep and are primarily aesthetic issues at this time.

Madison Dolomitic Limestone

The Madison Dolomitic Limestone masonry is in fair to good condition overall. The pri-

mary deterioration currently occurring is due to the improper hard repointing mortar that has been installed. As previously stated, the hard repointing mortars are spalling and cracking the edges of the stone. The stone is also a much softer and a more porous than other limestone. These characteristics allow damaged areas, or areas holding moisture, to deteriorate at an accelerated rate, as compared to the other limestone masonry.

The north elevation of the Commons Wing has the greatest deterioration. Constant moisture without the direct sunlight to dry the stone surface has allowed pitting, etching, and organic growth to deteriorate the stone and mortar joints. Several areas on the north elevation have had one square foot stone spalls form at corroding steel anchors.

Cracks

Only isolated stones were noticed to be cracked, but no pattern was apparent.

Spalls

In addition to the Commons Wing north elevation, other isolated areas were found with large spalls in the sandstone. These spalls can form from delaminations of the stone. One spall, that was previously discussed, was not seen from the distant survey or from 3 feet away on the lift until we moved to a different angle. This spall was found to be loose and was easily removed. The scope of this assessment could not locate each of these hard to detect spalls. In addition, several loose sandstone spalls were noted on the south elevation of the Memorial Union but were out of the reach of the platform lift. The only method to find all of these hard to see spalls and delaminations would be to complete hammer testing from lifts or scaffolding on the entire facade.

Surface Deterioration

Surface deterioration is occurring on various limestone surfaces throughout the building. The deterioration is typically in the form of pitting and etching of the stone on the Central Core and Commons Wing. Generally the pitting is only minor but some are becoming deep. Deep pits are considered a minor deficiency and should be filled with stone repair grout to match the stone material.

Glass Block

The glass block are typically located on the Theater Wing and are in good to fair condition with the joints in fair to poor condition. The mortar and sealant joints should be replaced. There is considerable cracking of glass block units, only noticeable from the interior. Currently there are glass block that have been replaced and are a noticeably different block type.

Brick

The only area of brick masonry is located on the backside of the parapet on the Play Circle Theater. The mortar joints are at the end of their life expectancy and some bricks are spalling off their faces.

Masonry Lintels

Given that the original masonry wall construction lacks a water drainage system, water has migrated into the wall where it has caused deterioration to internal steel supports. This

Image, left: Non-matching glass block at Union Theater.
Image, right: Dropped stone arch along north wall of Central Core.

rust causes significant force within the wall assembly that can result in extensive damage to both cladding materials and their support systems. The damage is similar to the damage to the terra cotta cornice. The majority of the steel lintels that are in the Theater Wing are in fair condition. The lintels on the Play Circle Theater are the most deteriorated and are starting to crack and damage the stone around the lintel bearing locations. The lintels in the Central Core and the Commons Wing are primarily stone arches and may have some concealed steel support. One stone arch lintel on the south elevation of the Commons Wing appears to have dropped approximately a quarter of an inch. There was also one stone lintel that was cracked and drooped approximately a quarter of an inch on the upper level of the west elevation of the Central Core over the Theater Connector. This situation is considered a minor deficiency and should be repaired during the renovation phases of the Commons Wing and Central Core. It is very critical that the mortar above the stone arch openings remain in good condition and during the repointing work the condition of the bed mortar should be verified.

Masonry Cleaning

Multiple areas around the building have pollution and organic growth, discoloring and deteriorating the stone. In addition to the undesirable aesthetics, pollution and organic growth retains moisture against the stone which then absorbs into the stone and accelerates the deterioration of the stone and joints. Cleaning studies were not within the scope of this work and were not performed. Tests should be performed to determine the mildest cleaning procedure that will remove the various unwanted surface contaminates. Tests areas should be made on each of the different materials to be cleaned. It should also be noted that if only a small area is cleaned, this area may stand out from the remaining stone surface. It is therefore recommended that the entire building be cleaned.

In several locations around the building, vines are growing up the stone masonry. The look of the vines gives an historical appearance that

Image, left: Wood window with failing paint, glazing putty, and a cracked glass pane.

is appealing to some individuals. From the standpoint of maintenance however, organic growth can damage the building envelope.

Windows and Doors

Most of the windows in the Memorial Union appear to be original to the building and have been maintained by replacing broken components and repainting the wood windows. The Central Core and Commons Wing have wood windows, while the Theater Wing has aluminum windows. Many of the wood windows have aluminum storm windows protecting them.

Finish

The cleaning and refinishing of the original wood doors and window frames is considered a serious deficiency if the wood components are going to be retained. The type of paint present on the doors and windows has not been tested for possible lead content as part of this report. It is recommended that a lead inspector test for the lead content if the tests have not already been performed. Several of the windows have the paint peeling off, exposing bare wood.

The condition of the paint is the worst on the Central Core and specifically on the Central Core windows that do not have storm windows on the south elevation. The windows on the north elevation of the Central Core are

Image: General view of the Theater Wing and Central Core south roof areas, photo courtesy of Specialty Engineering Group, LLC.

covered by storm windows or are located on the Great Hall's and Main Lounge's curved exterior wall. The paint on the windows of the curved wall is in good to fair condition with only isolated failing paint primarily on the window sills. The windows on east and west elevations do not have storm windows and have paint in fair to poor condition. The 10 doors and windows on the south elevation are not covered by a storm window. These windows are in the worst condition.

All of the windows of the Commons Wing are covered by aluminum storm windows except the lowest level on the south elevation, the man doors, and two windows on the west elevation near the Commons Connector's south elevation. Typically, all of the windows with storm windows are in good to fair condition.

Window Panes

A few windows in each of the three wings had broken panes. These panes should be replaced. All of the windows and most of the doors in all of the three wings have single pane glass except those on the Main Lounge's curved exterior wall and those where doors have been replaced.

Glazing Putty Repair and Sealants

The glazing putty of the wood windows is in fair to poor condition. Most of the wood windows have cracked glazing putty around the window panes and approximately 25% have failed glazing putty. If the putty fully fails around the majority of the perimeter the window panes may fall out. All putty should be checked for hazardous materials content.

Aluminum Storefront Systems

Aluminum storefront systems with aluminum mullions, fixed window glazing, glazed doors, thin aluminum spandrels, trim, and base flashing are at the first and second levels of the Union Theater and a plaza level addition to the Commons Wing. These aluminum storefront systems are in good to fair condition.

At the Union Theater, the second level storefront appears to be original and is in fair condition, while the first level storefront appears to have been replaced and is in good condition. The plaza level aluminum storefront system at the Commons Wing appears to be similar to that at the first level of the Union Theater and is in good condition. Many of the thin aluminum spandrel are heavily dented. All aluminum storefront spandrel panels should be replaced with impact resistance aluminum plate with integral insulation and the base flashing and splice covers resealed.

Membrane and Ballasted Roofs

The roof inspections were limited to a quick walk-through of what was visible from an accessible adjacent roof. The membrane roofs of the Theater Wing are reaching the end of their life expectancy, but the repair is considered a minor deficiency as no signs of current leaks were noticed. During a major remodel it is recommended that the roofing materials be replaced. This replacement will also allow for the installation of new insulation. The lower roof to the northeast of the Play Circle Theater and east of the Theater Stage Tower is in poor condition with standing water and heavy organic growth over the ballast. This roof is in critical condition and should be replaced with the Theater Wing renovation. The other membrane and ballasted roofs on the Theater Wing are in fair condition due to their life expectancy and signs of organic growth.

Several of the smaller roofs on the Commons Wing and Central Core have been recently replaced. The two front lower roofs of the Central Core are in good to fair condition. The ballasted roof of the Commons Wing Connector is in good condition.

Clay Tile Roofs

The clay tile roof over the Play Circle Theater building has several broken tiles and the mortar under the ridge tiles is cracked and deteriorating. The broken tiles should be replaced and the corner caps be reset with new mortar or the entire roof should be replaced similar to the recent replacement of the clay tile roof on the Central Core. The

flashing between the Play Circle Theater and the Union Theater Stage Tower should be re-sealed and replaced or repaired as it appears that there may be leaks at this intersection. These leaks appear to have caused light corrosion of some steel roof membranes in the attic. The Commons Wing clay tile roof is in similar condition to the Play Circle's roof.

Metal Roofs and Gutters

The standing seam roof on top of the Theater stage appears to be in good condition but was only accessible from the west elevation on the platform lift. While work is being performed, the roof should be thoroughly inspected, specifically the seams and junctions. The gutter around the Theater appears to be in fair condition. Several areas were noted to have inadequate slope causing water to pond. Some of the horizontal seams were noticed to be cracked and could be leaking into the wall system. Some of the seams just above the gutter do not appear to have been soldered or lapped per today's standards. No signs of deterioration were noted directly due to these joints but this should be noted for future monitoring.

The metal gutter seams over the terra cotta are mostly in good condition but should be thoroughly inspected during the repair construction. Repairs to the gutter are expected in isolated areas and where the terra cotta is repaired or replaced. One area of concern is over the section of terra cotta that fell during the assessment. It appears that water may be ponding due to improper slope to the gutter. The poor slope may be a result of the terra cotta shifting downward due to the deterioration or may be a sign that water is going through the gutter and entering the terra cotta partially causing the critical level of deterioration in the area. Another area that needs inspection is over the Great Hall curved gutter. Access for inspection of this gutter was difficult and outside the scope of this project. Observations made from adjacent roofs showed tree sapling growing out of the gutter from what appears to be small penetrations in the copper sheet metal. Restoration to this gutter is a serious repair priority.

Raised Terraces

The concrete walking surface of the Tripp Deck and Theater Deck are cracking and showing signs of their age. They are currently in good to fair condition. The Theater Wing terrace has drains that slope back toward the storefront where water has built-up and entered under the doors. This has caused severe damage in the past to the interior architectural finishes. To attempt to limit this possible infiltration, several of the doors have been sealed shut. It is recommended that if possible, the terrace be redesigned to slope away from the building. The asphalt walking surface over the Rathskeller is in fair condition and has several locations of possible tripping hazards where the asphalt has bulged up and is ponding in some areas. No review was completed on the drainage membrane under the walking surfaces due to inaccessibility.

Stone Stairs and Exterior Grand Stairs

The limestone on the grand stair's balustrade walls on the south side of the Central Core is in poor condition and likely beyond serviceable life.

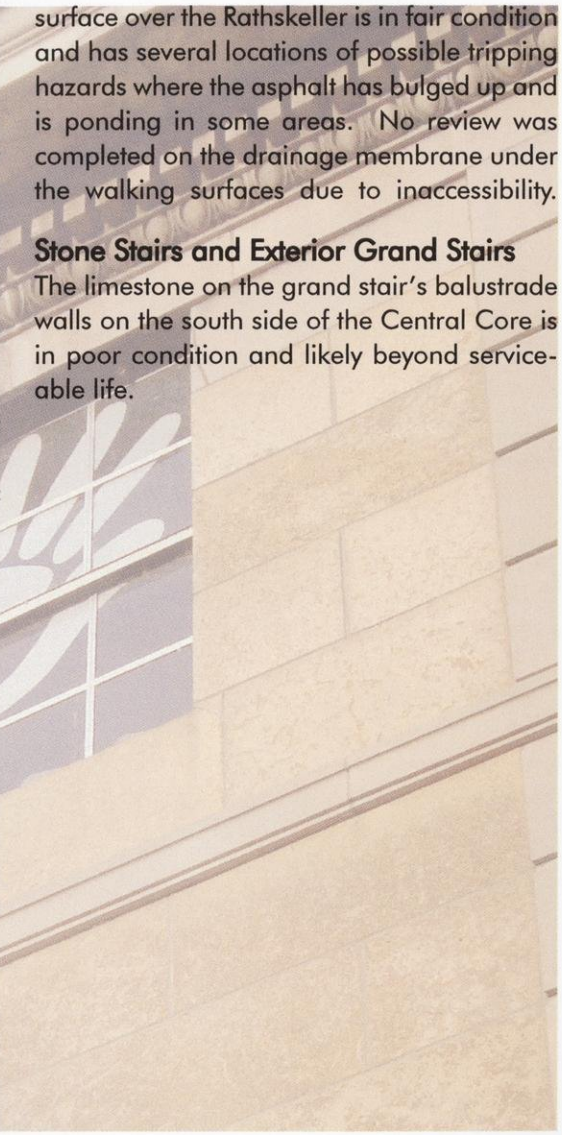
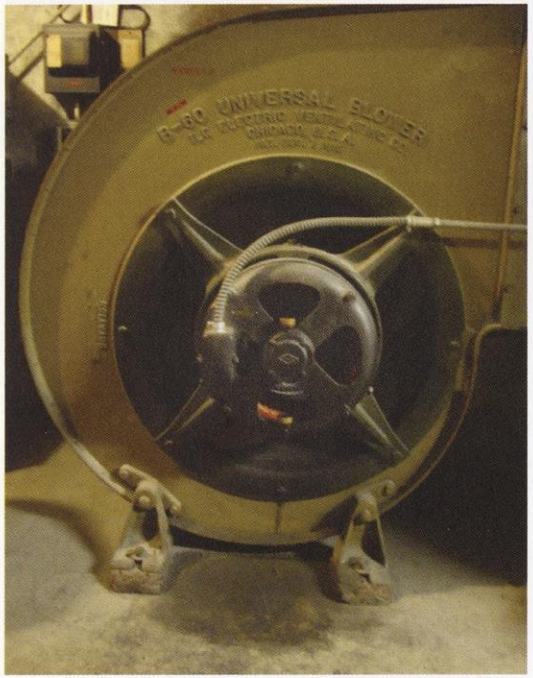


Image: Craftshop windows.

Building Systems Overview

The Memorial Union building is composed of three distinct areas. They include the Central Core and Tripp Commons (East Wing) constructed in 1928 and the 1939 Theater Addition (West Wing). The total square footage of the existing building is approximately 220,500 GSF.

Since the original construction of each area there has not been a comprehensive renovation or modernization of systems.



Many small isolated interior remodeling efforts have taken place and affected systems modified to accommodate these changes.

The original building was not designed for air conditioning and/or mechanical ventilation. As a result, many small air handling systems have been retrofitted into the building over the years. Most of the systems do not meet today's ventilation codes and do not use the most energy efficient technologies. The lighting systems in the building use many different types of fixtures and do not use the most energy efficient technologies. The plumbing systems in the building have

a variety of different fixture types that do not meet today's standards for water efficiency.

This building is on the National Historic Register and is exempt from the International Energy Conservation Code requirements per IECC Section 101.4.2. The energy code requirements will need to be

Image, left: Original Universal Blower still functioning in attic of Central Core.
Image, middle: Maze of mechanical and plumbing piping with electrical conduit in the basement kitchen area.
Image, right: Original steam radiator in a second floor office.

reviewed as it applies to HVAC on a unit by unit basis during the schematic design phase.

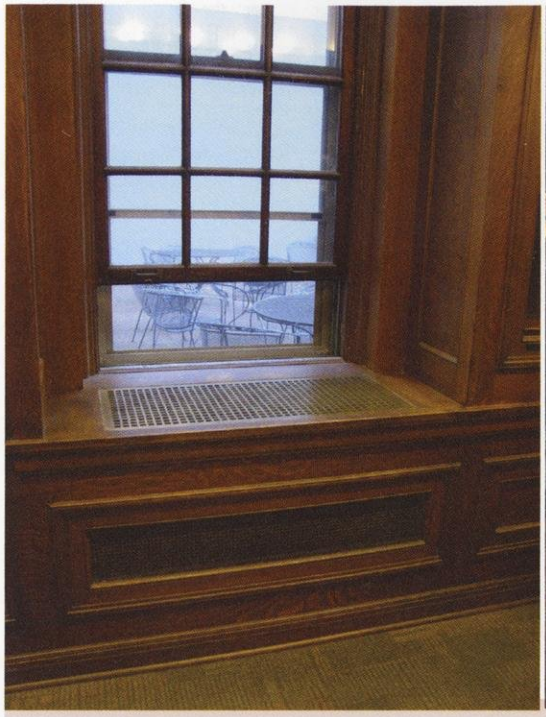
Air Handling Units

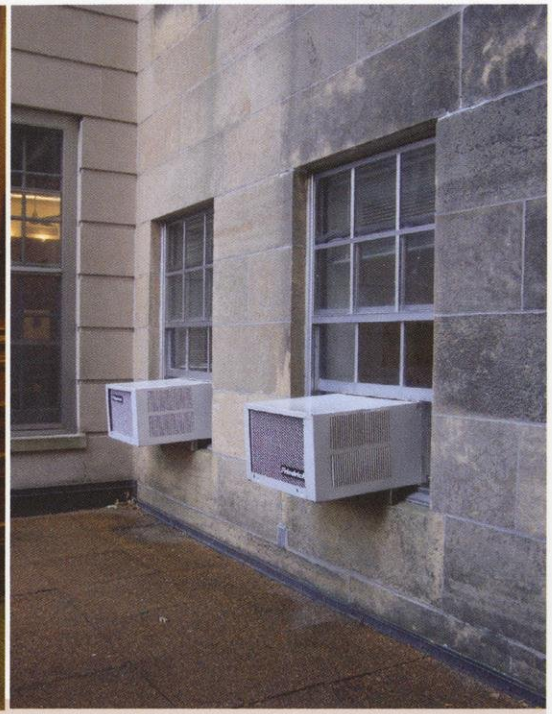
The original 1928 building used steam perimeter cast iron radiator heating, operable windows for natural ventilation and limited gravity exhaust shafts and was not designed to include air conditioning or mechanical ventilation. Over the years many small HVAC systems have been retrofitted in the building. The systems have been installed in attic spaces, isolated basement and storage rooms and other small rooms adjacent to rooms requiring cooling. Most of the Air Handling Units (AHU) are small and have been installed in inaccessible spaces.

Equipment access for service and maintenance is generally inadequate. Access for removal and replacement of air handling unit components is inadequate.

The mechanical spaces created are very restricted with little aisle space and head room and limited access for service/maintenance. Locations are not sound isolated from the areas served.

The current mechanical spaces make replacement options almost impossible without major structural modifications including revisions to roof trusses, increased head room space





AHU noise was noted to be an issue in several spaces (per occupants). The generation of this noise can be a result of any or all of the following conditions:

- ***Distribution systems are undersized for the current level of airflow.***
- ***Acoustical silencers are not in place to control noise emitted from the air handling equipment.***
- ***Duct lining is not used extensively or has deteriorated and is no longer effective in absorbing noise.***
- ***External insulation, which provides sound control as well as insulation value, has fallen off the ductwork.***
- ***AHU and ductwork is not sound isolated from occupied spaces.***

Image, left: Wood radiator enclosure at the Hamel Family Browsing Library.
Image, right: Window air conditioners at second floor Theater Wing offices. Typical of conditions for most offices.

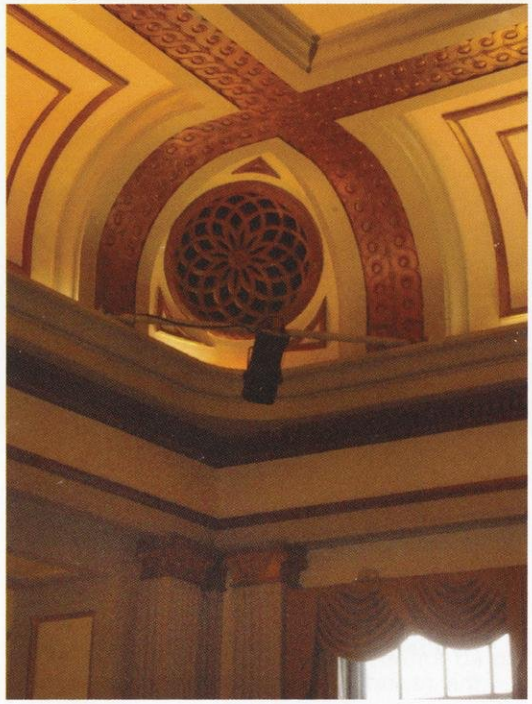
excavations, sound proofing of wall /floor and improved access for service and maintenance. The HVAC systems range in age from one to more than 70 years of age and operate 24/7 year-round to maintain conditions.

The 1939 Theater Wing was originally designed with central heating, ventilating and city water cooling. Over the years these systems have been retrofitted with Campus Chilled Water cooling, new heat/cooling coils and motor upgrades. For the most part, these systems , except for air conditioning, are the same as originally constructed and operate 24/7 year-round to maintain conditions.

Heating Systems

The original 1928 building is heated with Campus Steam using Pressure Reducing Stations and a two-pipe perimeter, low pressure, steam-heating system. Heating units range from cast iron radiators (original) to commercial steel-cover radiation to decorative enclosures. Steam is also distributed to air handling and make-up air units. Heating is controlled by pneumatic valves and thermostats and some original hand valves. The building's Low Pressure Steam is shut-off during the summer since control valves do not seal because of valve wire channel, scale and corrosion problems. The heating system operates 24/7 in the winter to maintain temperature. High pressure steam is provided to the food service equipment.

The 1939 Theater Wing is heated by a second Campus Steam Service with Pressure Reducing Station and perimeter low pressure steam heat in entry areas. The majority of the large spaces are heated with supply air systems using steam coils that operate 24/7. The low pressure steam is shut off during the summer since control valves and manual valves do not seal because of valve wire channel, scale and corrosion problems.



Air Conditioning Systems

The original 1928 building is primarily air conditioned by Campus chilled water service. There are some city water cooled units; other areas are cooled by more than 45 window air conditioners. Numerous areas are not air conditioned, including main lobbies and corridors on all floors, basement Central Core and Trophy and dining areas on first floor.

Window air conditioning units are utilized in many spaces and city water cooled is also used (office spaces, meeting rooms and guest rooms). These spaces do not have any mechanical ventilation, which does not meet current code.

The 1939 Theater Wing is primarily air conditioned by a second Campus chilled water service. There are some water cooled units and a few with window air conditioners. Numerous areas are not air conditioned including main lobbies and corridors on all levels, stage, theater shop/storage basement, first floor stage shops and fourth floor crafts.

Building Humidification

Steam humidifiers are provided to three AHUs in the building (Great Hall, Tripp Commons and fifth floor offices). It appears that the building envelope is not insulated, there is not a vapor barrier and many glass areas are single glazed. We recommend humidification

Image: Original air delivery grille still in use in the Great Hall ceiling area.

not be considered in the building remodeling unless envelope insulation, vapor barrier, thermal breaks and insulated glass are added.

The lack of insulation, vapor barrier and single glazing causes condensation issues in the envelope, excess humidity migration and freeze/thaw envelope deterioration. It will be costly to humidify a building with no insulation or vapor barrier.

Temperature Control Systems

The building temperature systems have evolved over the years. System controls prior to 1990 were pneumatic only. Controls installed after 1990 were Direct Digital Control (DDC) initiated with pneumatic actuation. The DDC system is an early generation of Johnson Controls (JCI) Metasys System except for the last AHU installed in 2009 and is complete DDC Web Based with electric actuation. Current temperature control zoning (multiple rooms per zone or dividable spaces i.e. offices, conference rooms) is inadequate to maintain comfort conditions in many spaces.

General Recommendations

- Window air conditioning units and city water cooled units should be removed and unitary or central AHUs used. Where possible, replacement with air handling units will provide the required ventilation air, improve energy efficiency and reduce maintenance.
- Electric heating equipment should be replaced with steam or hot water heating.
- In general, indoor air quality is poor and we recommend increasing the volume of outdoor air to meet current code requirements.
- Building perimeter heating systems are in poor condition and valves and traps do not hold, causing local overheating. Energy savings can be obtained by replacing existing heating systems. This includes new piping, improved insulation, reducing overheating and providing controls with night setback.
- Building negative pressure will be addressed by the proper balancing and control of the air handling systems to provide adequate make-up air for exhaust systems and replacement of air distribution ductwork.
- Where equipment is replaced, accessible mechanical rooms should be planned to provide adequate service clearances, access and sound isolation. Providing access may include the addition/reconfiguration of catwalks to access ducts and dampers in the attic space.
- As identified in the summary portion of this report, several of the existing air handling units after 1990 are in fair condition and could potentially be reused with some modifications. However, during the design phase it may be determined that replacement of multiple air handling systems with a single larger unit will provide economy of construction and operation. Available floor space and head room may restrict this and will be evaluated based on potential equipment size.

Air distribution system noise issues should be addressed with appropriate air distribution system sizing, sound isolated mechanical rooms and addition of sound attenuators and duct lagging where required. New air handling units should be specified with integral sound attenuation.

Primary Heating System (Basement Mechanical Rooms)

There are two steam services to the building. A 6" high pressure steam service (175 psi) enters the building in room B208 and a 6" high pressure steam line (175 psi) enters the building in room B180. Central plant steam at 5 to 7 psi is utilized in air handling unit heating coils, radiators, unit heaters, wall fin and convectors and reheats coils. There are two steam-to-water domestic storage tank heaters. There are no steam-to-water heating converters in the building. All building heating is steam. Steam at 50 psi is provided for basement food service equipment. A 2"

HPS interconnects the two steam services for some redundancy.

The steam services appear original to the facility construction. Building steam distribution has been added to many times over the years as remodeling has occurred. . Much of the observable piping has missing or deteriorated sections of insulation. Steam pressure reducing stations have been changed or rebuilt over the years and are poorly insulated.

The two services' piping is more than 70 years old. Steam service piping may be direct buried and condensate returns piping has not been pressure tested for integrity.

There are no steam or condensate meters on the piping system, so demand cannot be assessed.

Sections of underground condensate and steam/condensate are buried in walls and above plaster ceilings and are not accessible to review.

Pipe insulation needs to be assessed for hazards. The steam service from the west is served from Helen C. White Library. When the library steam is shut down, the west service is shut down.

Image: Steam service entrance to Central Core in room B139.

The low pressure steam is shutdown during the summer since control and shut-off valves do not seat or close. Many valves are original.

The remodeled building will have a significantly higher design steam capacity over the current load. This is caused by several factors:

- ***Building envelope improvements are not anticipated at this time, so envelope load will not change.***
- ***Building ventilation air loads will increase dramatically. There are many areas without mechanical ventilation.***
- ***Natural ventilation cannot be used in current code. The current code ventilation air rates for assembly occupancies is more than double what rates were 20 years ago or earlier.***
- ***If all assembly areas are considered simultaneous use, there cannot be any diversity factor applied. Union personnel response is required.***

The existing steam and condensate piping, valves and controls have exceeded normal life expectancy.

UW campus is replacing underground box conduit in Langdon Street.

Steam condensate receivers and pump assemblies are original to the facility construction and are at or past their useful life, based on industry standards.

Primary Cooling System

There are two campus chilled water services to the building. Each service is 6" CWS/CWR piping in mechanical rooms B319 and B180. The services provide cooling for building air handling units and some water cooled condensing units for food service cooler/freezers.

Chilled water services were provided for cooling in the early 1960s it appears. There are building tertiary pumps that boost pressure 40 psi.

The two chilled water services are more than 40 years old. Piping is direct buried and there have been no pressure tests or determinations that the valves hold.

Chilled water coils in AHU's are drained down for the winter season to minimize freeze potential.

There is no chilled-water metering on the services.

Pipe insulation needs to be assessed for hazards; many sections have poor insulation and lack vapor barriers. Chilled water enters the building at 140 psi normally and building tertiary pumps boost 40 psi. It has not been verified that building pumps are required.

The remodeled building will have a significantly higher design cooling capacity over the current load. This is due to several factors:

- ***Building envelope improvements are not anticipated at this time, so envelope load will not change.***
- ***Building ventilation air loads will increase. Many areas use natural ventilation not acceptable by ventilation code.***
- ***Assembly occupancy ventilation air rates are higher than codes from 20 years ago and earlier.***
- ***Many areas use window air conditioning which may be replaced with central systems.***

The existing services are not large enough for the anticipated loads.

UW campus is replacing underground chilled water in Park and Langdon.

Kitchen Exhaust Fan

Up blast fans exhausting air from kitchen grease hoods are mounted in a vented penthouse on the east wing. These serve basement food service, Rathskeller and Lakeshore food service. There are many other food service condensate, locker room and dishwasher exhaust fans in the penthouse or attic space with discharge to the penthouse or separate louvers.

There are many existing exhaust fan systems. Many are original equipment or installed as part of a remodel with air handling and are then that age.

Food service areas are located in the basement east wing, first floor Rathskeller and first floor Lakeshore. Exhaust systems are provided at Great Hall and Tripp Commons prep rooms.

Fan systems operate 24/7 in all areas. Air flows and balance data were not available for the fans. The 2004 project, remodeled exhaust systems in the east wing, but balance data is not available to assess operation or conditions.

Many fan systems are more than 25 years old and are considered to be near the end of their useful life expectancy. Older fans run, but at reduced speed and cannot meet current code exhaust rates. Before any fan systems are considered for reuse, extensive inspection, air flow testing and duct testing is recommended and required.

General Exhaust Fans

General building exhaust fans are located in attic spaces except for basement area wells. Fans discharge to exhaust louvers installed around the perimeter of the facility. Fans typically are centrifugal type utility sets. Toilet spaces have make-up air transferred from adjacent rooms or corridors.

There is a menagerie of exhaust fan systems. Many are original equipment or installed as part of a retrofit with air handling and are the associated retrofit age.

Fan systems operate 24/7 in all areas. Air flow and balance performance data has not been done in recent times.

Fan systems more than 30 years old are considered to be near the end of their useful life expectancy. Older fans are running, but at a reduced speed; they do not meet the current code exhaust rate. Before any fans are considered for reuse, extensive inspections, air flow balance checks and existing ductwork inspections are required.

Dust Collection/Hazardous Exhaust Systems

There are several independent exhaust systems in the building serving flammable vapors, kilns, wood dust, fiberglass dust, paint spray booth and paint rooms. These areas and systems include:

B236: Woodworking and paint shop

B236: Mechanical shop and welding and grinding

B140: Hoofer's wood and fiberglass shop

B142: Hoofer's paint spray booth

A110: Crafts shoop, ceramics, kilns, wood shop, crafts/art and darkroom use.

It was reported that these areas and occupancies have been here since before 1960. They are public accessible spaces. There is a significant amount of wood dust present in the shops and other hazards which are a concern. Hazardous emissions include flammable vapors, gases, fumes, mist or dust and volatile or airborne materials posing a health hazard using NFPA 704 ratings.

Temperature Control Systems

The control systems in the building are a mix of manual, pneumatic and DDC. Most of the existing controls are pneumatic, in poor condition and components have not been replaced as they fail. Building systems operate continuously due to the lack of control. Building controls prior to 1990 are pneumatic type. In 1991 remodeling and subsequent projects,

JCI DDC initiated with pneumatic actuation has been used. Several older versions of JCI DDC exist in the building based on year of install. The last project, Peet's Coffee, used web based DDC with electric actuation. The DDC is monitored by campus building and police.

Building temperature control systems for systems installed in 1957 and before are in poor condition due to age and non- replaced parts. The units operate 24/7 and are more or less manually controlled. For instance, the theater does not have a thermostat; maintenance must be called for an adjustment.

Building temperature control systems installed in 1991 and later have DDC initiated controls. No trends exist on how these control or operate.

Building controls that are pneumatic have exceeded normal life expectancy. Complete replacement in any retrofit or remodel is recommended. DDC Systems require trend logs for operation review and assessment.

Building Outdoor Air Intakes/Exhausts

Building outdoor intakes are provided for existing air handling systems. The intakes consist of gable end louvers, gravity roof ventilators and air shafts with sidewall or roof intakes. The air intakes have generally been installed when the AHUs were retrofitted in the building. Most of the intakes are old and in marginal condition. The minimum ventilation has not been verified and AHUs may not meet current code resulting in stale building areas, lack of humidity control and lack of proper ventilation.

Minimum ventilation may need to be modified to meet current codes. Energy Code requires economizer cycles with 100% ventilation for free cooling in all AHUs. This will require larger outdoor intakes and exhausts to properly handle air delivery without moisture and snow entry.

Building Fireplaces

There are four open gas fireplaces in occupied areas. Three other fireplaces have glass doors and are not used. The fireplace chimneys appear to be original construction. The active fireplaces are in Rathskeller and Main Lounge. Inactive fireplaces are in Hoofer's Lounge and guest rooms. Negative building pressure will cause down drafting of carbon monoxide and is a health concern.

Open fireplaces are not recommended in commercial buildings because of safety and health concerns. Down drafts can be caused by temperature change, winds, doors opening, building pressure and traffic in area.

Refrigeration Condensing Units

Food and beverage coolers and freezers have numerous remote condensing units in storage, mechanical and service rooms. These systems are city water cooled, air cooled or campus chilled water cooled.

Units range in age from two years to more than 20 years.

Units that are city water cooled dump water

down the drain wasting water. Air cooled units dump heat locally in mechanical and storage rooms causing overheating and

■ Image: Building outdoor air intake within air shaft on the north wall of the Central Core.

ventilation issues. Chilled water cooled units use campus chilled water which is returned, but operation creates double compression (plant and condensing unit) thus is not energy efficient.

The Food Service Design Team needs to inventory and sum the amount and types of units. This will help in determining recommendations.

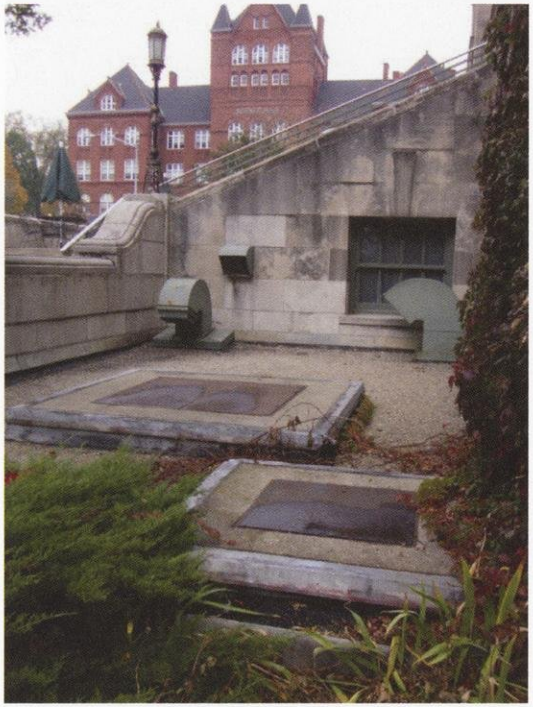
Electrical Systems Overview

This Electrical System report will summarize an assessment of the existing utility services, power distribution, lighting and other special systems at the UW Madison Memorial Union. Floor plans attached are based on field observations and numerous existing documents (Exhibit C) and show electrical equipment on a floor-by-floor basis. This report will also provide a summary of recommendations for remodeling and the building addition electrical systems.

The original building was constructed in 1929 and consists of the Central portion of the building and the Tripp Commons wing. Memorial Union Theater was added in 1938. The Lakefront Cafeteria addition was constructed in 1957. A number of small to medium size remodeling projects were constructed between 1970 and the present date. The following report documents existing connections of the electrical system and provides recommendations for the system upgrades.

Building Entrance Power Distribution

Primary voltage serves the building at 4160 volts from the existing campus utilities duct bank located on Langdon Street. Medium voltage feeder numbers 4439 and



4214 serve an underground vault located west of the south main entrance. This vault houses a total of six, single phase, 100 kVA, oil-filled step-down transformers, and two medium voltage switchgear lineups.

There appears to be oil leakage on the floor of this room, which suggests oil spillage at some time from one or more of the installed transformers. One of the switchgear lineups consists of two 5 kV loop feed switches and a fused load switch serving three 100 kVA transformers located at the southwest of the vault. These transformers provide 240V, 3 phase, 3 wire (delta) secondary distribution to a main disconnect located in basement Electric Shop B202.

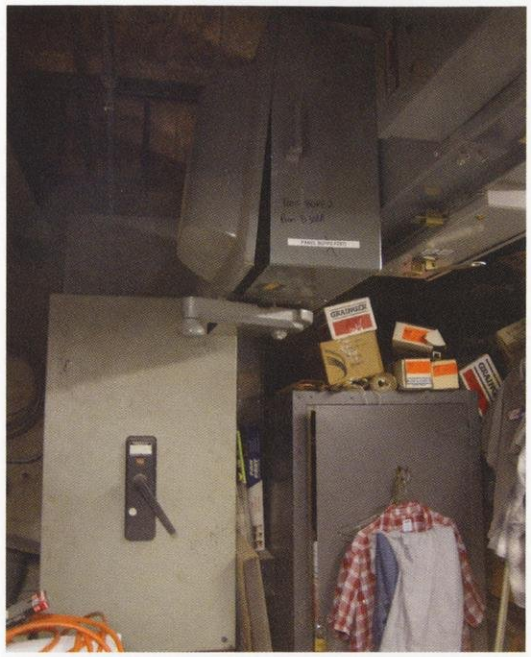
The second switch lineup consists of two fused load switches on the north side of this vault and is connected from an unprotected cable cross-tie. One 5 kV fused switch serves the remaining three (3) transformers in the vault to provide 208Y/120V secondary service to a second main disconnect located in Electric Shop B202. The other 5 kV fused switch serves a medium voltage feeder that was routed under the basement floor to electrical vault B312 as part of the Lakefront Terrace Renovation project. The 4160 volt feeder is then run overhead to the unit substation lineup in the vault consisting of a 5 kV switch, a 300/400 kVA dry type transformer, and a 1200A/3P secondary distribution circuit breaker. In turn, this breaker serves a secondary feeder routed in cable tray to the

Image: Main electrical transformer vault on the Langdon Street side of the Central Core.

main distribution panel in the adjacent room.

The Memorial Union Theater is served by a unit substation located in the west basement electrical room B182. This substation consists of two medium voltage switches served by feeders #5730 and #4214, one metering bay, and an ABB 750/1125 kVA dry-type transformer that steps down voltage from 4160 to 208Y/120, 3 phase 4 wire. The secondary distribution system is then fed directly from the transformer via 600V cabling routed in cable tray to distribution equipment in the next room. The transformer was manufactured in 1991 and its general condition is fair to poor, due to room conditions, which has severe water problems. The roof hatch has deteriorated to a point where pieces of metal have fallen into the room and onto the medium voltage equipment. The hatch condition also allows water to enter the room as evidenced by the substation transformer and TVSS rusted enclosures. Another observation was the highly oxidized condition of room perimeter copper ground bus, resulting in poor quality ground connections.

As with this vault, each of the three medium voltage electrical rooms was noted with deficiencies related to fire resistance and working space, as well as entrance to and egress from working space. Examples include insufficient clear working space based



on having only one entry into the room.

A combined building entrance at a dual voltage of 5kV/15kV should be provided for future transition to the 15 kV Campus utility system. Locate the medium voltage switches in a central location of the basement in the Union. Consider two medium voltage unit substations to provide 480Y/277 volt for large mechanical and plumbing loads, and 208Y/120 volt for lighting, plug loads and other miscellaneous equipment. Step down transformers with dual voltage ratings of 4,160V X 13,800V would allow future transition to the Campus standard for 15kV utility entrances for major renovations and new facilities.

New primary distribution equipment will be required in the facility and will require a large electrical service room when compared to the existing installations. If the required area is not able to be accommodated by the program, then maintaining separate services to the Theater and Union is recommended.

Either a combined or separate service approach will require a complete system of new dual voltage rated equipment in rooms of sufficient size to meet code requirements.

Secondary Power Distribution

Electric Shop B202 contains main disconnecting means on the south wall for the 240 volt, 3 phase, 3 wire delta service and 208Y/120 volt, 3 phase, 4 wire service. There are also separate busways served by the two secondary voltages located in this room which then distribute power to the facility, except for first floor Food Service areas and the Theater. The busway installation does not meet NEC requirements for working space.

Mechanical B310 contains General Electric main distribution panel boards, as well as a number of branch circuit panel boards. This equipment is served from multiple locations, including the unit sub-

Image: Main electrical service feeds a secondary disconnect located in the basement Electrical Shop.

station in Electrical Room B312, the emergency generator located in the same room, and vintage busway located in B202.

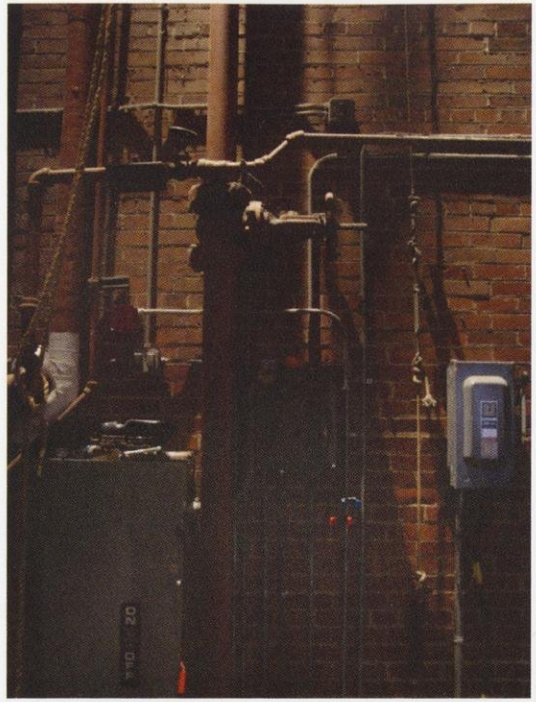
First floor and basement areas at the northeast, that were included in a food service renovation project, also contain a number of GE panel boards observed to be good physical condition. Working space, however, was observed to be less than the minimum required by the National Electrical Code due to stored materials.

The Theater's main 208Y/120V secondary distribution equipment is located in Electrical Room B186 and consists of two GE 800 amp switchboards and a 400/3 disconnect. This room also contains a 225/3 disconnect associated with an Onan automatic transfer switch (ATS) mounted next to it.

Panel boards through the rest of the facility are no longer manufactured or replacement parts are not available.

In summary, the majority of panel boards and load centers installed in this facility, except those in the northeast basement and first floor areas, are at end of life.

Likewise, feeders serving vintage panel boards are estimated at end of life, but likely have significant salvage value.



Duplex receptacles and other wiring devices in most areas of the facility were observed to be at the end of useful life. Only those areas that have been remodeled in the last couple years were noted to have wiring devices that could be considered for salvage and reuse.

Replace all existing secondary distribution panel boards and wiring devices with new. Consider reuse of panel boards observed in good condition in the northeast areas of the basement and first floor.

Emergency Distribution

A Kohler 100 kW/125kVA, 208Y/120 volt, 3 phase, 4 wire natural gas water-cooled generator set is located in the basement room B310. This generator was installed in 1995 and is in good condition. The capacity of the generator, however, is insufficient for emergency lighting and power requirements of current codes. This emergency generator serves egress lighting, fire alarm system and fire suppression systems. Minor mechanical loads are also supplied with emergency power. Two automatic transfer switches (ATSs) are installed in the same room as the generator set. One serves Life Safety emergency loads (NEC Article 700) and a second transfer switch serves other legally required and optional standby loads (NEC Article 701 and 702). This type of segregation is no longer acceptable to meet the NEC. Each of the three

Image, top: Vintage electrical panel board and disconnects at the Union Theater stage area.
Image, bottom: Multiple electrical outlets, disconnect switch and overhead door switch in the loading dock area.

branches of the emergency standby power systems for NEC Articles 700, 701 and 702 shall be completely segregated and served by separate ATSs. It is anticipated that the existing emergency distribution system will require replacement and an additional transfer switch to meet current NEC requirements.

The emergency power supply (EPS), or generator set room, will also require modifications to meet NFPA 110 fire rating requirements for the Essential Power Supply System (EPSS) room. The EPSS consists of the generator set and auto transfer switches and is to be completely separated from all normal power system equipment. Currently, the generator set and associated distribution equipment is installed in the same space as the normal power panel boards.

The two emergency branch panels in Room B310 are Cutler Hammer and are in good condition. A 100 amp, 3 phase branch feeder is extended from the emergency branch at the load side of ATS/1 to feed an Onan Automatic Transfer Switch located in the Theater Wing electrical room B186. Normal power to this transfer switch is served from the Theater Main Distribution equipment located in the same room. This design created double transfer, which exceeds Code allowance for maximum time delay to transfer emergency loads.

During field observation, a number of feeder conduits were indicated to carry both emergency and normal power circuitry. This violates NEC Article 700, which requires all emergency circuits to be installed in completely separate raceways system; no other branch circuit conductor shall occupy same raceways as emergency circuits.

There is no metering on the load side of the facility's ATSs, so it is not possible to establish demand loads on the existing generator. However, based on current code requirements and the anticipated HVAC and plumbing loads necessary for a major renovation, as well as provisions for future growth, the generator capacity will be significantly larger than the current 100 kW system.

Replace the entire emergency standby system with a completely segregated system sized to accommodate all loads required to meet NEC Articles 700, 701 and 702. Locate the EPSS in a dedicated room.

> ***It is anticipated that the existing emergency distribution system will require replacement and an additional transfer switch to meet current NEC requirements.***

Metering

Metering in the facility consists of GE Multilin PQMII meters and ABB FT-10 test switches housed in common wall mounted enclosures in B202 and B312. These components are consistent with current UW Madison standards and substitute manufacturers are not acceptable for top level distribution equipment.

Meters to monitor electrical energy usage at levels downstream of main distribution disconnecting means do not exist in the facility.

Provide meters to accommodate detailed monitoring and usage evaluation for potential LEED measurement and verification implementation.

Interior Lighting

Existing interior lighting uses many different lighting sources. Most of the fluorescent fixtures have been retrofitted with T8 lamps and electronic ballasts. There are number of various size incandescent lamp fixtures, halogen source and low voltage, and even LED linear accent lighting. There are number of fixtures with Metal Halide lamps. There are countless numbers of fixtures types. With every additional/ renovation project new fixtures and light sources have been added. Union electricians keep a good stock of lamps and ballast in their shop/storage. Existing decorative pendants and wall scones

in the Rathskeller's might be refurbished, relamped and reused in the new construction.

Large decorative pendants in front of the Great Hall have historical significance and should be considered for refurbishing. In general, lighting in the offices is comprised of various types of fluorescent fixtures, in many instances surface-mounted wrap-arounds are used for general illumination. Considering that all of the offices are computer based workstations, this type of lighting is produces glare and is unattractive.

Some most recently renovated offices have linear direct/indirect pendants in very good condition. These fixtures may be reused. Wall mounted decorative sconces in the theater lobby are not ADA acceptable at the height they are installed.

The Hotel lighting is completely outdated, fixtures are beyond their life span, some diffusers are damaged and most of the acrylic diffusers have completely yellowed over time.

Main Lounge lighting on the second floor is one of the late renovations. Decorative bowl type pendant fixtures are in good shape, supplemental fluorescent downlights have newer lamps/ballasts.

Accent lighting primarily consists of incandesce PAR lamps track and/or monopoint mounted fixtures which are a constant maintenance issue. The recently renovated Lakefront Terrace Cafeteria has various lighting sources from fluorescent downlighting to decorative Metal Halide fixtures and low voltage MR16 sources. Most of these fixtures are in very good condition however some are no longer manufactured and replacements parts may not be available. Metal Halide (MH) fixtures are on Daylighting sensor control which should not be used in conjunction with MH lamping, staff mentioned that lamps are burning out due to frequent on/off switching.

Many incandescent downlights in the Great Hall and Ballrooms have outlived their use. Fixtures have been relamped too many times, some sockets are completely worn and some

Image: Historic view of the Rathskeller showing original lighting, including ceiling chandeliers, wall sconces and cover lighting at columns. University of Wisconsin Archives, Image dn.030825361.

were fitted with higher wattage lamps than labeled which most likely damaged branch wiring. There are a number of overloaded circuits, overheated branch wiring conductors in the building. Much of the branch circuitry is original to its installation and insulation on the conductors is worn and brittle.

There are many existing fixtures that could be utilized for new construction however; consideration should be given to the most up-to-date energy efficient sources and whether fixtures can be easily retrofitted to accommodate these sources.

Egress lighting in the building is inconsistent and doesn't comply with the current IBC Code requirements for an average of 1 FC at the passes of egress. In the Coffee Shop emergency battery units (EBU) have been installed, which means that emergency branch circuit wiring was not available within that space or there is not sufficient ampacity on the current emergency generator. Some emergency branch wiring shares the same raceways as normal branch wiring—a violation of the NEC Article 700 which requires all emergency wiring to be installed in its own raceway system.

It will be very difficult to trace all lighting branch circuits. Considering that a good portion of the building still has original wiring, it is expected that the conductor insulation is at the end of its life expectancy.

Lighting controls in the Memorial Union consist of several schemes. Some lighting is controlled by local switching; some areas are controlled by multiple dimmers and switches installed in secured closets; some areas have dimming controls; and exterior lighting is on time of the day basis (thru BAS and or local time clock). There are very few areas that implement occupancy sensors. During the survey we did not notice daylight sensors in any of the spaces. The Lakefront Cafeteria has newer low voltage lighting controls with a built-in photocell/ time-clock. It was noticed that a photocell in the space has not been calibrated well and the majority of the lighting remains "on" even when sufficient daylight is present.

New lighting in the Memorial Union should reflect the nature and character of the historical building and at the same time should represent the best lighting technologies available today as well as new technologies.

The primary light source for downlighting should be LED, and linear pendant direct/ indirect fixtures utilized in the offices, conference and meeting spaces if the ceiling heights are 9 ft 6 in or higher. In areas where ceilings are 9 ft or lower, recessed direct/indirect volu-

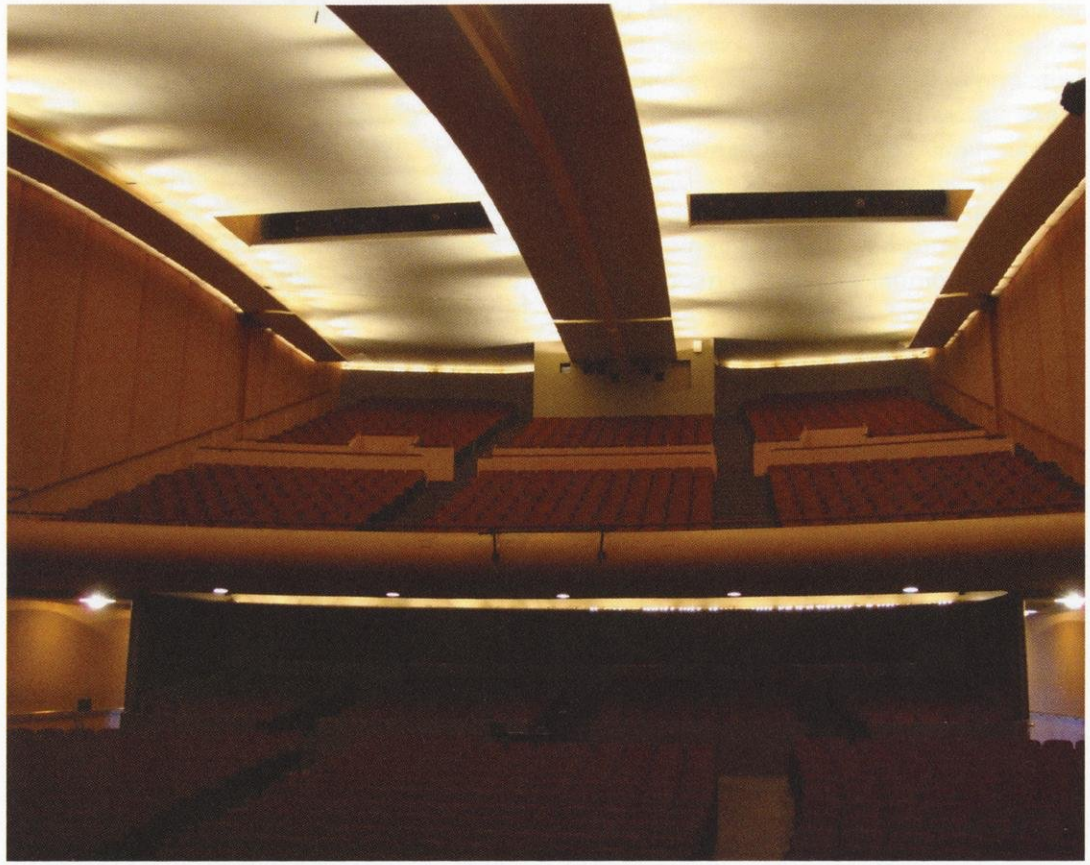
■ Image: Main Lounge with new decorative bowl pendant fixtures and supplemental down lighting.

metric troffers are recommended.

Decorative lighting shall be implemented in the recreational type spaces; accent lighting consisting of LED type sources shall be implemented throughout the entire facility to accentuate building elements and create a welcoming, relaxing and playful atmosphere. The historical character of the building should be retained through the use of some of the original fixtures which will be refurbished and retrofitted or duplicated utilizing energy efficient sources.

Great Hall and Ballroom lighting should be upgraded to include state-of-the art dimmingsystem controls. New theatrical instruments should be added upon full inventory of the existing fixtures. New lighting should be a combination of halogen and LED sources, possible color changing techniques and multi-level/multi-purpose lighting systems that include architectural and theatrical dimming controls. Company switch panels should be considered in the vicinity of the stage for large venue productions.

Occupancy sensors should be incorporated into lighting in the small offices, conference rooms, restrooms and locker rooms. Ceiling mounted sensors with an auxiliary set of contacts should be provided for HVAC load control.



The intent for lighting controls in large open spaces and other common use areas shall be building wide, low-voltage, programmable lighting control systems that will tie all low voltage relay cabinets throughout the building via two wire bus and be integrated into the building automation system for time-of-day scheduling.

All lighting within daylight areas will have separate controls consisting of the daylight harvesting sensors in conjunction with low voltage lighting controls

To emphasize energy savings, emergency

Image: Union Theater with original indirect central cove lighting, perimeter wall washing lighting and down lights.

power transfer (EPT) devices should be installed so that egress lighting can be switched with normal lighting in corridors and other large spaces and lighting can be automatically brought "on" upon loss of normal power.

All branch lighting circuitry should be replaced, with exceptions being recently remodeled areas that remain untouched during construction.

Consideration should be given to segregate all lighting loads from plug-in loads for potential LEED metering requirements.

Exterior Lighting

Exterior lighting consists of recently refurbished, historic post mounted and pendant mounted fixtures at the west entrance as well as outdated old "globe" type fixtures, wall and post mounted, that are not dark sky compliant. Light sources used in outdoor fixtures are Metal Halide and incandescent (Lakefront Terrace).

Lakefront Terrace outdoor lighting consists of several types of fixtures, post mounted globes, wall pack and some "sparkle" string lights. Lakefront stage lighting has incandescent fixtures (removable). The Theater entry has recessed HID downlights at the canopy; fixtures are old, with rusted trims and yellowed diffusers.

Re-use and refurbish existing fixtures at the west entrance given the possibility they can be retrofitted with LED sources.

Utilize LED and Induction type lamping on new exterior lighting.

Provide code-required egress lighting at each building's entry/exit doors.

Use site lighting that preserves the historical image of the Memorial Union and at the same time highlights element(s) of the façade. Choose Lakefront Terrace outdoor lighting that is low key and warm, playful and functional at the same time.

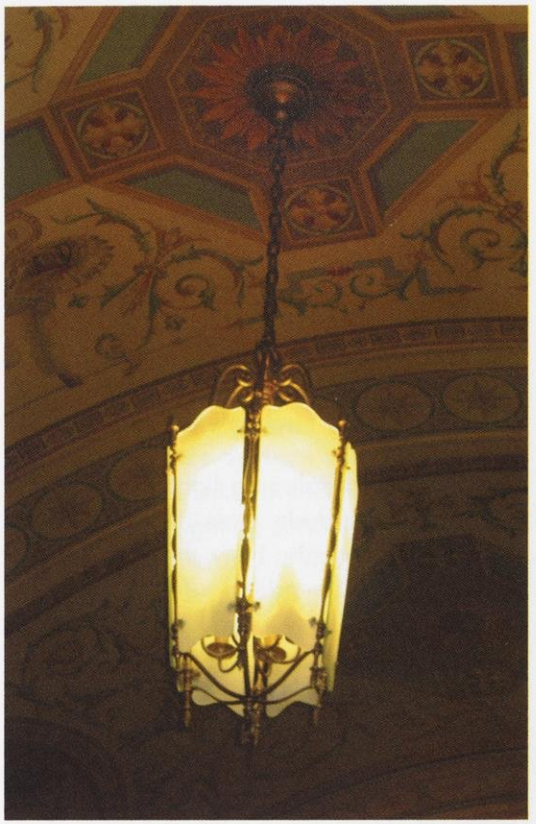
Upgrade stage lighting to new, state-of-the-art, high-end LED theatrical fixtures in conjunction with upgraded dimming system controls. Consider company switches to allow large venue productions. Integrate installation of company switches with outdoor elements of the terrace.

Control exterior lighting via building automation system with manual override switches at the Lakefront Terrace during performances.

Lightning Protection System

A lightning protection system does not exist for the facility based on field observed conditions. The Historical Society will be consulted to determine requirements for the overall building.

Provide lightning protection in compliance with provisions of the latest "Code for Protection against Lightning" for buildings as adopted by the National Fire Protection Association (NFPA 780) and UL for a master label system.



Fire Detection and Alarm System

Several systems by different manufacturers and of various vintage were observed in the facility. All but one of the fire alarm control panels (FACP) are conventional, hard-wired types that annunciate by area or zone. These

■ Image: Original hanging pendant fixture of Memorial Hall.

types do not meet current code requirements for the occupancy type or occupant quantities.

A Simplex FACP was noted in the Theater basement electrical room B186; a Notifier FACP is installed north of Stair 1100A; and a Simplex 4208 system in located east of Electric Shop B202. The most recent fire alarm control panel, a Notifier NFS-3030, is located near the east vestibule on first floor. Although this system is an intelligent type designed for large facilities, it has been discontinued by the manufacturer.

System components observed in the facility for detection and notifications include a similar mixture with respect to vintage and manufacturer. Several remote power supplies and battery boxes were located in the facility, and provide power to the limited number of audible/visual (horn/strobe) and visual only (strobe) devices. Likewise, few smoke detectors, either area or duct-mounted detectors were observed in the facility. The same non-code compliant condition exists for the lack of observed manual pull stations.

Furnish and install a new, code compliant fire detection and alarm system, including intelligent and addressable FACP(s) and all necessary components, such as smoke detection, initiation devices and notification appliances. Also include digital voice communications to meet the occupancy load and classification. Fully integrate the new system to the existing campus wide Johnson Controls Metasys reporting system.

Building Automation System Interface

Monitoring and control of selected electrical building systems from the campus Building Automation System (BAS) do not appear to function to current standards.

Monitor electrical meters, emergency standby generator status, and fire alarm control panel(s). Control time clock functions for interior lighting relay panels, exterior lighting contactors, and building card access system.

Telecommunications

Some of the data communications cable infrastructure in the building is legacy Category 3 (Cat 3), limiting the throughput performance of the workstations wired with it to 10 Megabits per second (Mbps.). By comparison, the current DSF standard for station cabling is an "improved performance" Category 6 (Cat 6 ip) which allows throughput of up to 1 gigabit per second (Gbps.) or 100 times the throughput of the legacy Cat 3.

Cat 3 cable was widely installed in the 1990s and 2000s without strict adherence to cable length limitations, allowing more indirect routing between workstations and termination in telecommunications spaces. This indirect routing was used in order to avoid paths made difficult or impossible because of the construction methods used in the building in 1926 and 1939, and the current and recent past need to preserve the historical architecture and decorations on the walls and ceilings along a more direct route.

The predominant factor limiting the replacement of the existing Cat 3 cable is the availability of an adequately accessible pathway for the Cat 6 cable. The full-scale replacement of Cat 3 data cabling may require costly additional pathways, telecom spaces, optical fiber and electronic equipment.

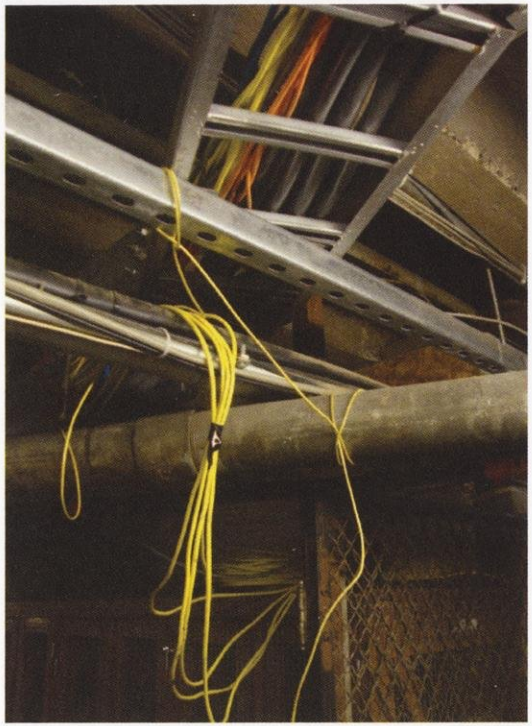
Wireless access availability in the building is generally good.

Much of the station cabling was upgraded as part of Phase I of the 21st Century project in 2007.

Telecommunications spaces were upgraded as part of Phase I of the 21st Century project in 2007.

There are several cabling consolidation points lying outside of established Telecommunications Rooms. These consolidation points could be eliminated, and the station cabling replaced with cabling routed directly to the nearest Telecommunications Room.

Voice demarcation occurs in Basement closet B300C.



Multi-mode optical fiber backbone cable is spliced at B300C, and terminated in Server Room B343C.

Data station cable terminated in B300C includes some legacy workstation cables, public workstation kiosk cables and "Wiscard" debit card system readers used in the building. These cables could be replaced with cabling routed directly to the Server Room B343C.

Server Room B343C is the Main Distribution Frame (MDF) for the building. Entry is by key lock, and there is no dedicated video surveillance of the doorway. Consequently, there is no record of entry.

Available space to mount new electronic equipment in the existing two post equipment racks in Server Room B343C is limited.

Single-mode optical fiber originating in the Helen C. White building is routed directly to Server Room B343C.

There are Acoustical Ceiling Tiles in Server Room B343C that could be removed.

The Digital Video Recorders (DVR) for the building Video Surveillance System are located in Server Room B343C.

The server and peripheral equipment running the "Wiscard" system for the entire campus is located in a cabinet equipment rack in Server Room B343C. Some consideration could be given to moving the 'Wiscard" server to a location that is better protected and more logically located with respect to other servers with a similar campus-wide function. Space for at least two additional two post equipment racks would be available upon the removal of the cabinet rack housing the "Wiscard" system equipment.

The floors in rooms 1340 and 1343, directly above Server Room B343C, are not sealed and consequently leak into the Server Room. An ad hoc drip pan and drain system has been contrived to protect the electronic equipment. The floors in rooms 1340 and 1343 could be sealed and an engineered drip pan and drain system should be installed.

Cooling in Server Room B343C consists of split-system cooling augmented with residential-style oscillating fans to move the cool air through the space. An engineered cooling system could be planned for the space.

The length of the west wall in Server Room B343C may be used for wall-field equipment mounting, perhaps Andover access control enclosures. Three 30" wide enclosures may be located on the wall with 30" clearance in front.

Security Systems (Access Control and Video Surveillance)

Electronic Access Control is not present in the building. Implementation of an Access Control System in the building could be considered for the usual reasons of lower cost of ownership, greater security due to the elimination of a great degree of key control and management, and the ability to document access to the building or its spaces.

■ Image: Multiple layers of communication and data cables crossing electrical conduits in the basement.

The installation of an Electronic Access Control system on existing doors is limited predominantly by the original construction methods and the need to preserve the walls, door frames and doors for historical reasons. Electronic Access Control should, however, be planned for new and remodeled doorways as well as for existing doorways in areas that require secure access but do not have a historical significance such as cash handling, alcohol dispensing and storage, art display and storage and telecommunications.

The Video Surveillance System is used to record transaction activity at retail Point of Sale (POS) locations. Images can be reviewed at a later time in conjunction with investigations into cash or merchandise losses. The Video Surveillance System is also used to record general activity in high traffic common areas.

The existing Video Surveillance System uses analog cameras wired to centrally located Digital Video Recorders (DVR) using Unshielded Twisted Pair (UTP) Category 5e cable. The cameras are powered using Power Over Ethernet (POE) power supplies and the same UTP cable. The system is capable of being monitored in real time via Internet connection to the DVRs and client software installed at remote workstations. The Video Surveillance System is current with respect to campus standards and is completely operational. Potential upgrades to the system include adding cameras and corresponding DVRs to areas of need targeted by UW Police and Union personnel.

The Digital Video Recorders (DVR) for the building Video Surveillance System are located in Server Room B343C. As video surveillance cameras are added to the existing system, additional DVRs will be required, and space for additional two post equipment racks will need to be found.

Plumbing Systems - Domestic Water Supply/Distribution System

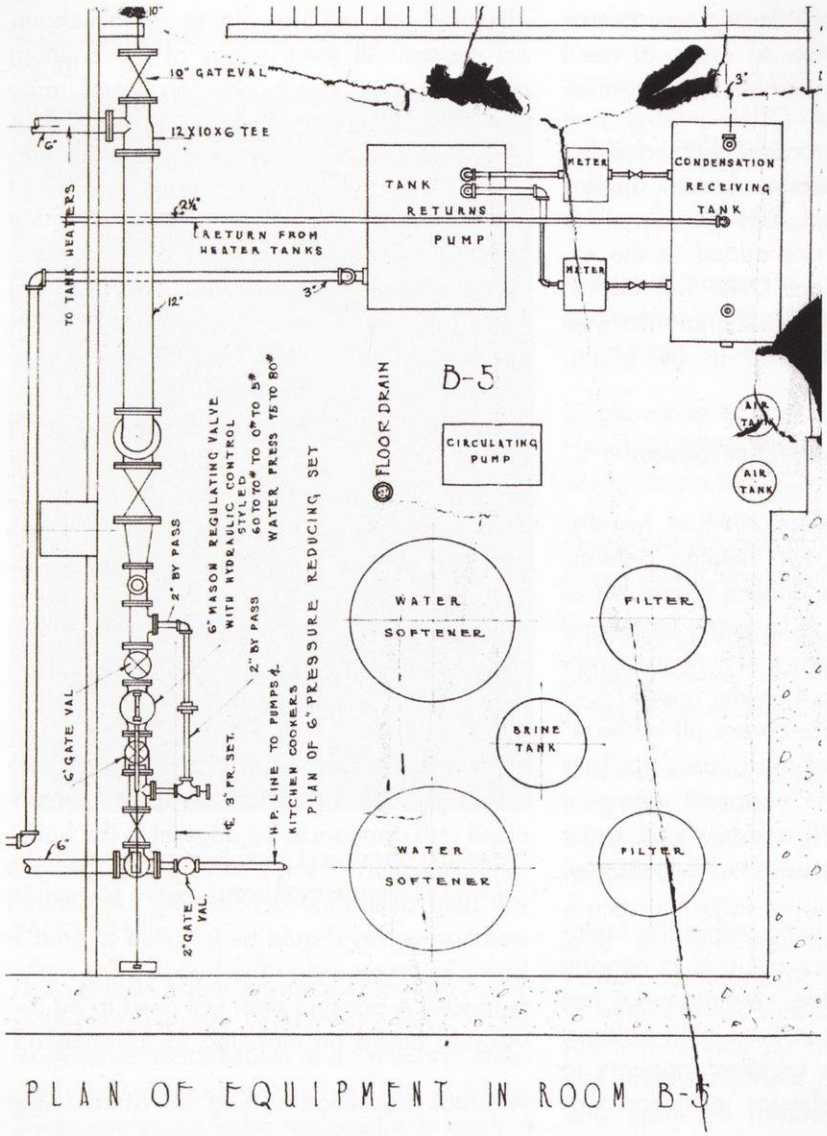
The building has two water services, two distribution systems and two heating systems. A 3" galvanized water service comes off of the 6" university main in Langdon Street and enters mechanical room B319 of the original building and has a 4" water meter. A 4" galvanized water service comes off of the 4" city main in Park Street and enters the Theater (West wing) in the northeast corner of mechanical room B180 and has a 2" water meter. Static water pressure is 75 to 80 psi.

Original galvanized piping within the building is at least 70 years old and is nearing the end of its useful life. Maintenance has reported several leaks in the piping systems. Piping that has been replaced appears to be copper piping. Asbestos insulation was observed on visible piping in mechanical spaces. All three wings of the building are lacking in branch isolation valves making it difficult to make repairs without shutting down major portions of the system.

The two existing water services entering the building will be adequate to support a remodeled building, provided that there is not a large increase in the number of additional plumbing fixtures. Installation of new water conserving fixtures will help further decrease total water demand. However, it is likely a new water service will be needed for new fire protection systems. The water services should be consolidated into one 8" water service to supply the entire building, including the fire protection systems. A phasing plan will need to be developed based on planning for remodeling. Options will be considered in schematic design.

Most water distribution piping within the building should be replaced since it is galvanized and appears to be original to the building. Inspection of samples of piping sections will help determine deficiencies. Additional isolation valves should be installed to enable better isolation within the building for maintenance. A phasing plan will need to be developed based on planning for remodeling.

Asbestos insulation should be abated and



PLAN OF EQUIPMENT IN ROOM B-5

replaced with new insulation. A phasing plan will need to be developed based on planning for remodeling.

Water Heating System

The Memorial Union and Tripp Commons are served by two instantaneous water heaters located in mechanical room B208. An Ace Buehler heater installed in 1993 provides 60-80 gpm of hot water at 140 degrees F throughout the original building. There is also a Patterson Kelly heater that is approximately ten years old which provides 180 degree F water to the kitchen. Both heaters were operating and looked to be well maintained.

The Theater Wing has its own water heater located in mechanical room B172. This water heater is in poor condition.

The maintenance staff have explained that there is a cross flow between hot water and cold water somewhere within the system making it difficult to maintain desired hot water temperatures. Further investigation will be required to determine possible sources of cross flow. Cross flow is likely a contributor to fluctuating hot water temperatures in the guest rooms.

The existing water heaters serving the main building are well maintained and should be adequate for reuse in any remodeling project providing that there is not a substantial increase in hot water demand. With proper maintenance, they should remain useful for 15 to 20 years. Additional water heaters should be added to provide redundancy so shutdown of the hot water system is not required for maintenance of one of the water heaters.

The water heater in the Theater Wing should be replaced. Redundant water heaters should be considered. Options will be considered in schematic design.

Image: Plan of original plumbing equipment room.

Separate water heaters for the guest rooms should be considered to maintain proper hot water temperature. Redundant water heaters should also be considered. Options will be considered in schematic design.

Water Softening System

Current water hardness is 25 grains. Two Hellenbrand resin tanks and two brine tanks are located in mechanical room B319 of Memorial Union. The softeners were installed in 2000 and are currently alternating to soften hot water in the main building and some cold water for the coffee house. There is a reverse osmosis water system installed in 2008 in mechanical room B319 which treats the soft cold water supplying the Coffee house.

There is one resin tank and one brine tank located in mechanical room B172 of the Theater Wing which is no longer operational.

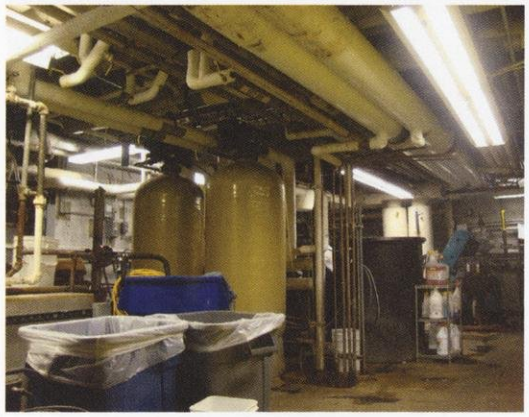
Currently, only hot water and some cold water for Memorial Union and Tripp Commons are softened. The existing water softeners will be able to remain for any remodeling of the building. If it is decided that all water should be softened, additional capacity will be required.

A new water softener will be needed in the Theater Wing to soften hot water.

Plumbing Fixtures

There are a wide variety of plumbing fixtures of various ages, styles and conditions located throughout the building. Some fixtures on the basement level appear to be original. Most fixtures are non-ADA and non-water conserving but are in working order.

Water closets are flush valve type with about 50% wall hung and 50% floor set. Older urinals are stall type with flush tanks while urinals in more recently remodeled areas are wall hung with flush valves. Lavatories and lavatory faucets vary from floor to floor with Chicago brand manual faucets appearing to be in the majority of toilet rooms. The mop service basins and service sinks we observed did not have vacuum breakers, which is a code violation since they are a possible source of cross connection. One service sink in the basement had condensate lines discharging to it which is also a code violation. Drinking fountains and electric water coolers were in working order but most were not ADA compliant. The showers we observed were functional but in poor condition and do not meet ADA requirements.



The newest plumbing fixtures are located in men's room 1343 and women's room 1340 on the first floor of the Commons Wing and consist of wall hung manual flush valve water closets, wall hung sensor flush valve urinals and integral counter lavatories with low flow sensor faucets.

The kitchen has been remodeled within the last 10 years and all plumbing fixtures appear to be in good condition.

All toilet rooms that have not been recently remodeled will require replacement of all plumbing fixtures to conform to ADA requirements, LEED requirements and increase life expectancy. New water-conserving low flow fixtures should be utilized to increase water efficiency. Additional toilet room fixtures may be required based on occupant load and current codes. Mop service basins and service sinks should be replaced and provided with faucet tip vacuum breakers to conform to code. Drinking fountains and electric water coolers need to be replaced to meet ADA requirements, including the use of dual height units. Options will be considered in schematic design.

Image: Water softening system located in room B319.

Sanitary Drain and Vent Piping

The drain piping beneath the basement floor is cast iron, the age of the respective buildings. Above floor piping is also cast iron hub and spigot and appears to be in fair condition but may be brittle due to its age. The maintenance staff has indicated that cast iron piping hubs on sanitary stacks are cracking which is typical for the age of the piping. Previous studies have indicated the cast iron piping is in poor condition, including underground piping.

There are duplex sewage air ejectors in mechanical rooms B172 and B320. The pumps are old but in working order and well maintained. Parts are no longer available for the equipment. However, building maintenance has expressed a desire for the sewage ejectors to remain, based on good luck with the equipment over the years.

There are several sanitary laterals from the street to the building. Maintenance has indicted there have been several backups in the sanitary laterals in recent years. The piping is likely in poor condition.

Vertical and horizontal drain and vent piping above the basement floor on all levels should be replaced due to its age and brittle condition. The condition of under floor piping should be verified by camera and piping replaced as necessary.

The sanitary laterals should be replaced if other utility work is being done in the areas.

Storm Drainage Piping

The storm drain systems within the building are original and consist of roof drains, deck drains and vertical rain conductor piping to the basement level. This piping is also cast iron hub and spigot in fair condition. However, due to the age of the piping, it is likely brittle. Maintenance has indicated some leaks are occurring in the storm piping.

All toilet rooms that have not been recently remodeled will require replacement of all plumbing fixtures to conform to ADA requirements, LEED requirements and to increase life expectancy.

Clearwater drains are not evident for receiving condensate from HVAC equipment. Clearwater drains are required by code so that condensate does not go into the sanitary drain system.

Existing roof drains should be inspected and replaced if damaged. Vertical and horizontal rain conductor piping above the basement floor on all levels should be replaced due to its age and brittle condition. The condition of under floor piping should be verified by camera and piping replaced as necessary.

Clearwater drains and vents will need to be added for HVAC equipment condensate. These drains will connect into the existing storm piping systems. Clearwater vents will run separately from sanitary vents and terminate through the roof.

Miscellaneous Plumbing

The maintenance department has indicated that water from a source under the floor has been seeping through a crack in the side of a condensate pit in mechanical room B318. The water has been tested and determined to be city water, likely from leaking water mains.

Several food service condensing units are city water cooled. The city water passes through them to collect rejected heat and is dumped down the drain. These units are very inefficient.

Existing water laterals to the building should be removed and replaced.

Fire Protection

The fire protection system is limited and consists of a 4" service entering mechanical room B319 of Memorial Union and a 4" service entering mechanical room B180 of the Theater Wing. These services supply fire hose cabinets and a small

amount of sprinklers in various locations.

A new water service should be installed to supply new fire protection systems. Standpipe should be installed in all existing stairways. As areas of the building are remodeled they should be fully sprinklered per the requirements of NFPA 13 and the local authority having jurisdiction, including elevator shafts. Pre-action sprinklers systems should be installed in medium voltage electrical rooms and telecom rooms. As remodeled areas are sprinklered, piping stubs should be provided for unprotected areas that will be remodeled in the future. A phasing plan will need to be developed based on planning for remodeling. Options will be considered in schematic design.

Gas Piping

The existing gas meter is located in mechanical room B319 of the Memorial Union and provides the building with 4 psi natural gas. The gas piping that was observed was in satisfactory condition.

The existing gas service should be adequate for a remodeled building. Some gas distribution piping may need to be replaced for increased demand.

Theater Systems
Wisconsin Union Theater

The Wisconsin Union Theater provides a fully functional multi-purpose theater for tours, dance, theater, music, and special events. Constructed in 1938-1939, the facility has retained many of its originally design elements and features.

The Theater systems were reviewed with an eye toward the future. There is a desire to provide greater patron amenities and comfort with the re-design of the lobby and the update to the hall. Improved circulation, sightlines, and ADA accommodations are necessary. These should be sensitively detailed in order to preserve the historic architectural characteristics

of the audience chamber. In addition to possible public area improvements to the facility, there are a variety of back of house and technical system upgrades that would allow the Union Theater to better serve the diverse program demands.

The technical theater systems are described in greater detail within the Wisconsin Union Redevelopment Project, Theater Wing Renovation, Schematic Design Narrative dated April19, 2011 by Schuler Shook.

Stagehouse Loading and Access

The existing stagehouse is small for the University's program, with limited depth and wing space. The loading doors are above the stage floor level and enter directly onstage via a steep sloped ramp. There is no exterior dock or weather covering. Loading and truck access is accommodated in the adjacent street (North Park Street) in a less than desirable situation for service and for vehicle traffic. It is likely that the loading doors will be repositioned to load into the scene shop/handling area. The stage loading doors will be abandoned and modified to provide better acoustic and thermal isolation. Sheltered dock-height access is preferred but may not be practical on this site. Shore power and access sleeves for tour busses and broadcast trucks do not currently exist but are needed. Elevator access at the handling area is deficient.

Lighting Systems

The lighting systems for the theater are comprised of: Auditorium House Lighting, In-House Production Lighting and Tour Produc-

Image: Original Theater Wing environmental control panel still in use.

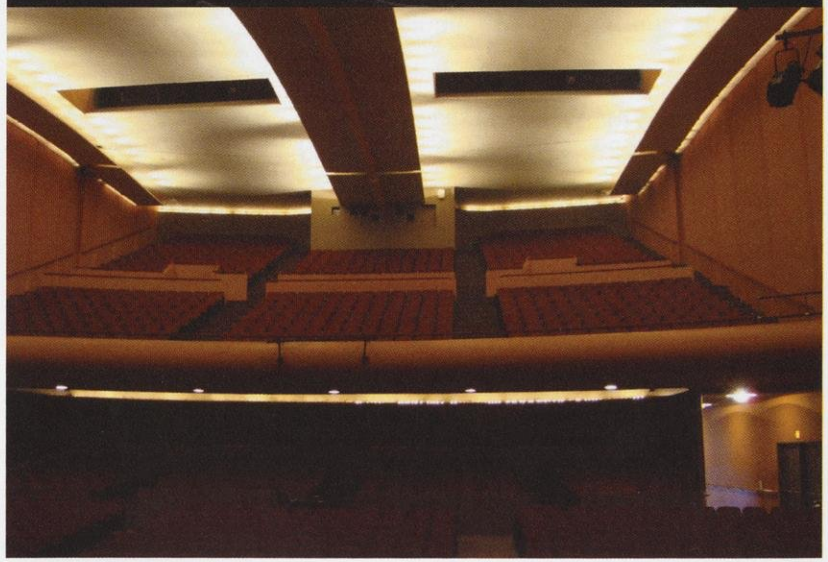
tion Lighting accommodations.

Auditorium House Lighting

The architectural lighting within the hall is currently comprised of incandescent light coves and light slots that accentuate the Modernist Design lines of the hall. These lighting features should be maintained, but new light sources should be utilized to better facilitate maintenance, energy, and access issues. The lobby and side aisles ceilings have recessed circular light fixtures. Step lights and aisle lights are currently provided with the seating but are inadequate to assure safe circulation with an emphasis on the aisle stairs. Work lighting, lighting to facilitate maintenance and production set up, are typically inadequate. Egress lighting does not meet current code requirements.

In-House Production Lighting System

The current stage rigging system and the stage dimming system are in good condition. Both systems will require will require improvements and modifications during the renovation.



Image, top left: Eleanor Roosevelt January 19, 1953 Press Interview before a talk in the Union Theater. Wisconsin Historical Society Image ID #35830.
Image, top right: View from the balcony of the Union Theater, circa 1947. University of Wisconsin Archives. Image uwar.00299.bib.
Image, bottom right: View of the Union Theater from the stage. Ceiling cove lighting, down lights and recessed ceiling fixtures are all visible.

The existing box booms and balcony rail lighting are antiquated and should be replaced with more carefully detailed assemblies that are integrated with the existing architecture. Front of house fixtures should be located at the light cove, box booms, and balcony rail. Circuits and lighting control are old will need to be updated.

The current inventory of theatrical lighting fixtures is good and should be supplemented with additional equipment to complete the required inventory. Additional lighting fixtures should also include intelligent automated fixtures and energy saving LED theatrical luminaires.

There are currently two follow spots that are in good condition, but are a low wattage for the required distance. The follow spots are located within the rear lighting cove position. Additional locations for follow lights, and an increased number of follow lights, are necessary. The rear lighting cove will require further study with the architects and acoustical consultants.

Tour Production Lighting

Accommodations for touring equipment including auxiliary power, rigging points, front of house control locations, etc. is currently below standard for an auditorium of this type. The in-house stage lighting dimmers should be accessible to the touring companies via Ethernet / DMX control interfaces. Cable sleeves and access points are minimal and must be improved to facilitate the installation and routing of temporary cables.

Stage Rigging, Curtains and Tracks

The stagehouse currently contains a manual counterweight rigging system in good condition. There are two line sets which need to be added to the lock rail and a motorized 1st electric is recommended for the heavy lighting load.

Accommodations for portable temporary trusses for stage scenery, audio and lighting over the stage apron and auditorium are not currently provided. A new anteproscenium structure should be designed to provide "strong points" for the connection of these portable units. Locations for left, center, and right speaker clusters will also be provided over the stage apron.

Stage masking curtains are currently provided for standard configurations of the stage area. This consists of older black legs, borders, and traveler curtains. A new front curtain and valence will be needed and should be coordinated with the historic attributes of the space.

Presently there are inadequate acoustic curtains. The need for acoustical curtains and panels will be defined by the acoustical consultants. Vertical and/or horizontal retracting curtains may be utilized. Close collaboration of all disciplines will be required to aesthetically and acoustically integrate the curtains.

Audio System Rigging

A stereo array loudspeaker system is provided and is suspended from forestage rigging points via chain motors. The ar-

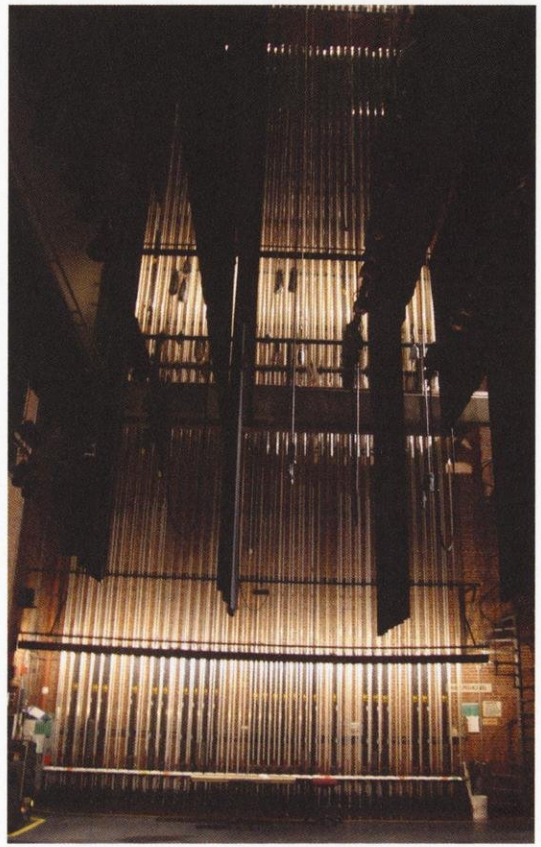


Image: View of the stage looking east with the manual counterweight rigging system visible in the background.

rays may be dropped and removed when not needed. The intent of this array design is to accommodate the majority of technical riders the Union Theater encounters.

Front fill loudspeakers are located at the stage apron to provide improved clarity and intelligibility to the first couple rows of seating.

Underbalcony loudspeakers provide coverage to those rows that do not have line-of-site to the main arrays, and to provide additional clarity and intelligibility to this area.

Orchestra Pit

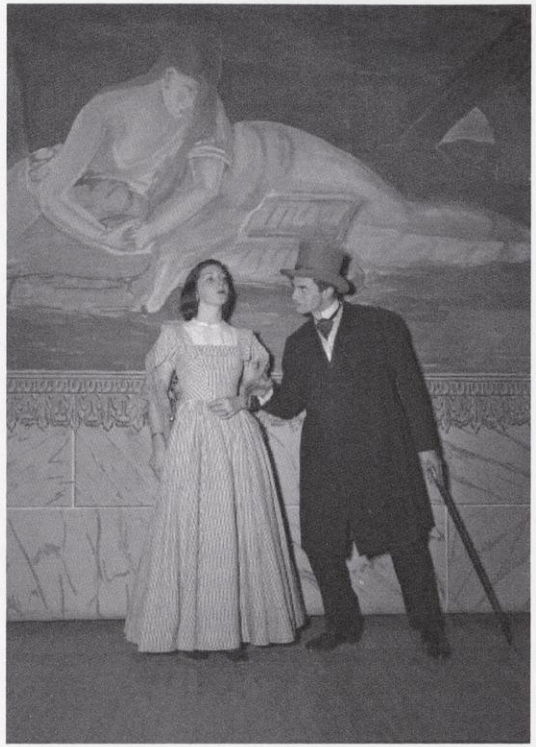
The existing orchestra pit lift is operational, but lacks the current controls and safety devices that are necessary. These elements will be added to the renovated lift. The physical size of the lift and the motor systems will be evaluated in future phases of the project.

Stage Floor

The stage floor is functional but the wearing surface is thin and can no longer be re-finished. It should be replaced with a new tongue and groove resilient floor with a dark matte finish. The existing traps should be reconfigured to reduce the quantity and allow easier use.

Audience Seating

It is time to either refurbish the existing chairs, replacing all foam and seat structure as well as the upholstery, or replace the existing



chairs. Serious consideration to a new chair should be given to meet patron expectations for appearance and comfort. The quantity and configuration of accessible wheelchair locations will require further study. The finished project will be designed to meet or exceed ADA regulations. The handrails and guardrails in the audience must be reviewed and upgraded to meet code requirements. Removable audience chairs are provided at the orchestra pit and wheel chair locations.

Production Control Area

The primary audio mix area is located along the rear aisle of the orchestra area, below the edge of the balcony. Portable equipment is used by both in house and tour productions. There is limited ability to connect to the lighting network from this location. Auxiliary sound control receptacle panels are not currently provided. The existing control room, located at the balcony level, is unused at this time. In recent history it was used for 35mm movie projection. This room will be evaluated and potentially reduced or omitted to gain seating if the current functions can be relocated to a better position.

Plug Boxes and Cabling System

A complete cabling system provides connection points throughout the theater including the Stage, Catwalks, House Mix, Control Booth, etc. Exact locations will be determined in the design development phase and shown on the Audio and Video Systems Device Location Drawings.

Backstage Furnishings

Backstage technical and production support equipment such as a personnel lifts, ladders, musician chairs, music stands, a "Marley" dance floor, etc. are less than ideal. The existing dressing room, green room, produc-

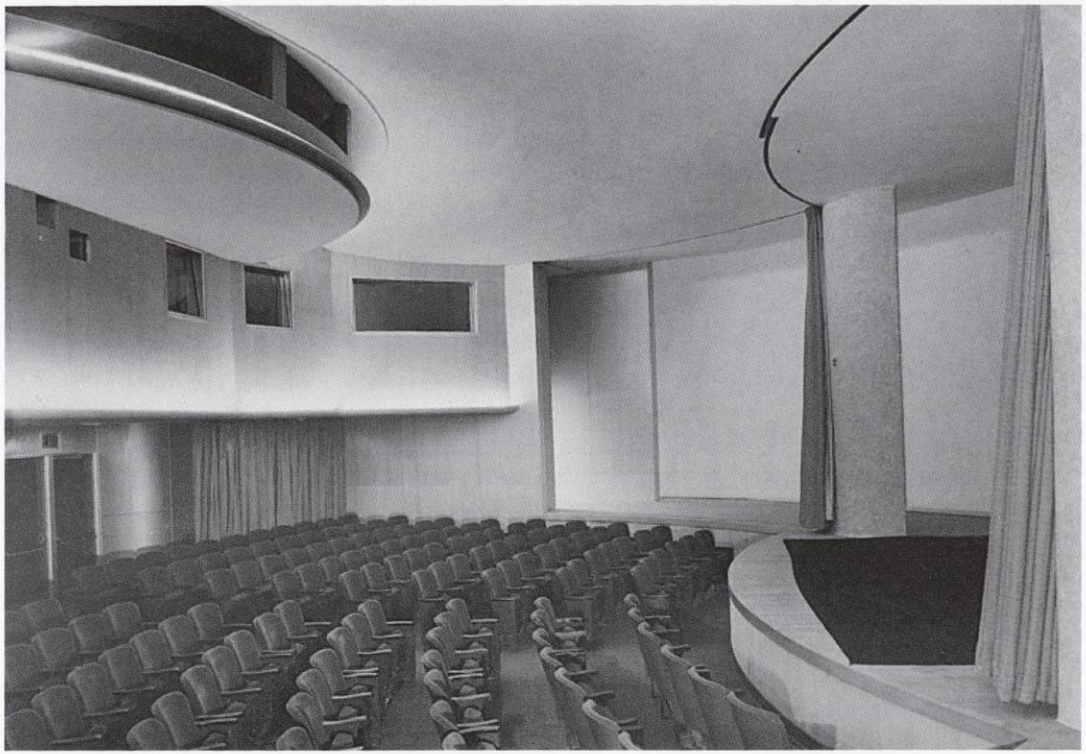
■ Image: Wisconsin Union Theater Centennial Play "River Boat", February 2. 1949. Wisconsin Historical Society, Image ID #58227.

tion office and box office are adequate but will require upgrades and new furnishings.

Play Circle Theater

The Play Circle Theater is a 168 seat mulit-purpose room that is used for small drama, music, and lecture purposes; however, it does not serve any of those functions particularly well. The original plan was for a larger theater with a more functional stage. The current space utilizes a shallow platform with a primary center stage location and awkward side stages to increase the playing areas. Two large proscenium columns divide the space. A trapped stage floor with a manual lift provides minimal access to the room; it is generally not used and is problematic for the stage floor.

An upstage large footlight trough provides a good up light location for the back wall; however it greatly reduces the stage space and provides a hazard for the staff and performers. At one end it has been filled in to increase the minimal backstage space. There is no overhead theatrical lighting or rigging possibilities in the stage area, which greatly limits the value of the space.



A compromised front light position is nested above the control room and the upper roof deck, which provides some limited front light capability. There are two sets of adjacent doors for the audience to enter; a sound and light lock is necessary to better isolate the theater from the lobby and circulation corridor. The second floor contains the control room and adjacent studios that over-look the Play Circle. All theatrical lighting, architectural lighting, rigging positions, audience seating, curtains and finishes need to be replaced.

Loudspeakers

A selection of portable powered loudspeakers is provided with appropriate rigging to allow flexible placement based on the particular production demands.

Plug Boxes and Cabling System There is a lack of pathways and connection points for cabling systems throughout the theater including the main floor, ceiling, Control Booth, etc.

Acoustics

The Union Theater represents a good ex-

Image: View of the Frederick March Play Circle Theater circa 1939; University of Wisconsin Archives, Image#uwar.00298.bib.

ample of multi-purpose theater design from the period in which it was conceived. Over the decades the facility has served University of Wisconsin well for many types of assembly and performance events. However, performance methods have evolved and many design features of the existing Union Theater do not meet contemporary needs.

The following represents a global summary of the major acoustical topics of discussion during meetings with user organizations and the Union Theater administration. For detailed information please see the October 15, 2010 University of Wisconsin Memorial Union Building Audio and Video Programming Report, by Talaske.

Historic preservation is a major consideration. Based on the direction delivered to the design team, the desire for the Union Theater to look similar to or the same as it was when constructed initially may be more important to the University than optimizing the capabilities of the facility to meet contemporary needs for a defined set of uses.

The select and limited seating area at the forward section of the balcony contributes largely to the overall favorable acoustic reputation of the Union Theater. While this reputation for these seats is generally substantiated by prevailing opinion and acoustic analysis, many other seating areas suffer from less than optimal acoustic conditions due to poor clarity and/or excessive noise.

Many aspects of the Union Theater audience chamber have been sized due to space constraints imposed by the site and design traditions of the era. Some of these dimensional considerations offer acoustic benefits, some offer hindrances. Favorably, the modest width of the audience chamber helps support beneficial timing of sound reflections. As a detriment, the limited parcel size caused an excessively small stage which resulted in a proscenium opening width that is considerably smaller than is needed for many types of uses. The modest parcel size and the theater design methods of the day resulted in a very deep underbalcony condition and subsequent marginal hearing conditions. These factors negatively influence the quality of the acoustic environment and the overall performer and patron experience.

The small stage size and the associated very small proscenium opening significantly restrict the accommodation of many events.

While the hall is rarely filled to capacity, the client wishes to maintain the seat count to a figure as close to existing as is possible.

The current staff requested that the separated seating areas deep under the balcony be accessed via the normal arrival/exiting paths typical of all other patrons. The dedicated doors to these seating areas are deemed undesirable.

While the audio system is in need of a major upgrade, the acoustic environment during amplified events is best described as somewhat reverberant. Generally the acoustic environment is supportive, and with few exceptions, serves the needs of users. The moderately large size of the Union Theater necessarily means that most events rely on the use of audio reinforcement. Audio systems, equipment, and infrastructure considerations are addressed in a separate report.

The orchestra pit is acceptable for some events but access and safety considerations limit its use. The open design of the existing orchestra pit offers lesser opportunity to balance the loudness of musicians and voices on stage. Traditional orchestra pits offer the means for accommodating musicians beneath a stage overhang, thereby offering the means for balancing the loudness between instrumentalists and singers. The Union Theater lacks this overhang feature.

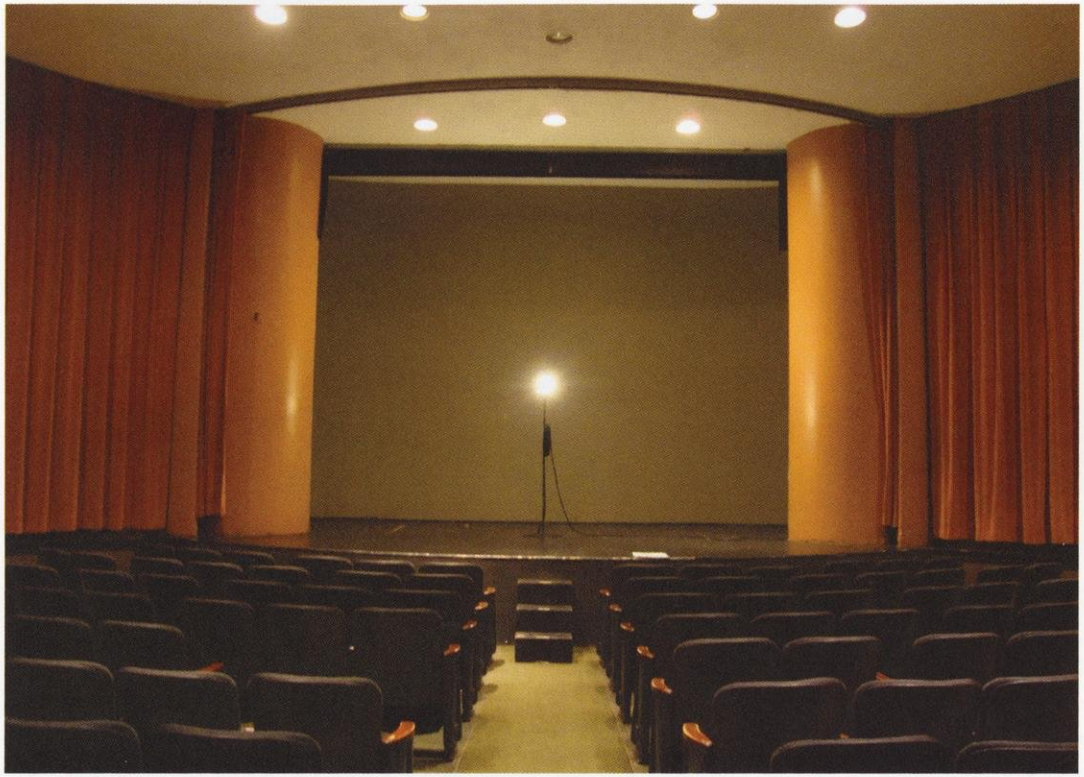
The current condition of the Union Theater is well suited for very modest amplified and unamplified music events, variety shows, general assembly and other events which could

best be described as non-demanding. Accommodation of symphony orchestra, choral, opera, ballet and other performance events which (generally) rely on an unamplified, acoustic environment optimized for these uses and significant space and back-of-house support requirements are not well served by the Union Theater. Some users have abandoned the Union Theater because of limited stage size, functional limitations of the hall, and/or modest sound quality.

The "scalability" of the hall to accommodate small audience groups comfortably was raised and discussed. The room was designed with an operable screen material to track across the room but this feature has been non-functional for a considerable period of time. This device encumbers some of the technical features of the hall. The current staff wishes to have the means for the accommodation of smaller audience sizes without an empty feeling to the room, but the accommodation of this feature need not be based on a retractable screen material.

Play Circle Theater

The Play Circle Theater represents a very unique design that, to our knowledge, is unlike any other existing theater. Based on historical information, the three proscenium opening configuration appears to be a reaction to a requirement established by the Trustees that the space be reduced in size due to site limitations. The excessively small size of the stage was supplemented by two additional proscenium openings as a means for set changes, in spite of the fact that some patrons must turn 90+ degrees in their seat to see the performance.



Acoustic isolation to the Union Theater is moderately acceptable, if all existing controls (doors) are properly managed. Very loud events can be marginally heard between the theaters, understanding that much sound is masked by excessive heating and air conditioning noise. If/when proper ambient noise conditions are provided; acoustic isolation between theaters would be considered sub-par. Excessive noise infiltration from the Craftshop spaces above the Play Circle results in significant disruption.

Image: View of the Play Circle stage from the back of the theater.

Image: View of the Union Theater Wing from the corner of North Park and Langdon Streets, January 2, 1940. Wisconsin Historical Society, Image ID #14305.

Building Code Overview

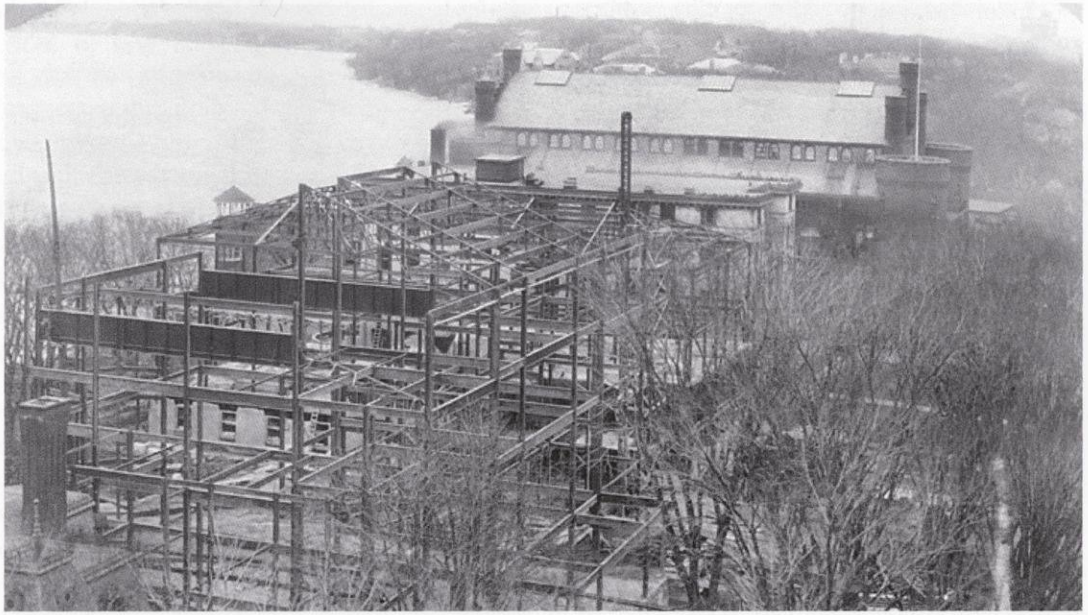
Introduction

Construction of the original portion of Memorial Union began in 1926 and was completed in 1928. This building consisted of the Rathskeller, Main Lounge and Great Hall area (Central Core) with the Commons Wing to the east. This building was approximately 97,000 square feet. The structural system is a concrete pan joist floor system with concrete encased steel girders on all levels except the ground floor has concrete girders. The exterior wall is of brick and clay tile masonry wall with a limestone veneer. The roof system is composed of steel trusses.

The first major addition was the 1939 Theater Wing. This addition houses a 1,300-seat theater on the first floor and a 168-seat theater on the second floor. The Theater Wing is approximately 68,150 square feet and its construction is similar that of the original building.

Several smaller additions and modifications have been made since 1939 to accommodate expanded functions, including a 1956 addition to the cafeteria and a 1967 lake side addition to house Hoofers. Over the years other small areas of infill were accomplished to connect previously disconnected areas and improve egress.

The present Memorial Union is approximately 224,450 square feet in area and five stories in height plus a full basement level. The building houses dining and food preparation facilities, recreation facilities, storage rooms, repair shops, offices, meeting rooms, lounges, theaters and a few guest hotel rooms. The Memorial Union does have a detection and alarm system but is not equipped with fire sprinklers.



The purpose of this analysis is to examine the Memorial Union and note the major life safety and accessibility issues that should be addressed when evaluating future rehabilitation and additions. At this time the concept is to undertake the rehabilitation and additions in two phases starting with the Theater Wing and progressing to the Central Core and Commons Wing. The analysis was done by comparing the building with the requirements of Chapter 66 (Existing Buildings) of the 2006 Wisconsin Commercial Building Code.

After determination of construction type and use classification for the building, the following key code issues were examined:

- Vertical Openings
- Fire Sprinklers
- Means of Egress
- Accessibility

Image: View of original central core steel frame under construction, 1926. University of Wisconsin Archives. Image dn # 0382209.

- Toilet Facilities
- Building Additions

Type of Construction

Based on the structural materials used throughout Memorial Union, the building generally qualifies as construction Type IIB. Type IIB construction consists of non-combustible structural materials that do not have a specific fire resistive rating. The following represents the majority of the building systems:

Exterior Walls: Typical exterior walls are load-bearing masonry, consisting of 12-inch clay masonry behind a 4-inch exterior veneer of limestone.

Structural Frame: The structural frame consists of reinforced concrete beams and columns (mostly, wide flange steel encased in concrete).

Floor Framing: Floors are constructed of a reinforced concrete joist/slab system ranging from six to eight inches in depth.

Interior Partitions: Original partitions were constructed of 4" hollow clay masonry units with ¾" gypsum plaster on each side. Many newer partitions consist of steel studs and gypsum wall board.

Roof: The original building has a roof system consisting of clay tiles over a wood deck supported by steel trusses and purlins. The Theater Wing also has a steel truss roof which supports a combination of clay tile, metal and membrane roof materials. A number of smaller infill areas have flat membrane roofs, particularly between the major wings of the building.

There are deficiencies in some locations that would require correction for the building to fully comply with present day Type IIB standards. These include the fire ratings of vertical shafts, the combustible roof sheathing, and combustible floor framing in infill areas.

In order to maintain the openness of the building and construct the building additions proposed by the Union's Program, the Design Team and Campus decided it was best to petition the Building Code to have the existing building and proposed additions classified as Type 1B construction. Type 1B allows for an unlimited area building with unlimited height for Group A-3 (assembly) occupancy. A Conditional Approval of the Petition for Variance was granted by the State of Wisconsin in October of 2011 to consider the phased rehabilitation and additions as Type 1B construction.

Use and Occupancy

The 1928 portion of the building consists primarily of meeting and assembly spaces although classrooms, restaurant and hotel uses are present. This portion of the building can be considered an Assembly Occupancy with both A-2 (Banquet Halls) and A-3 (Community Halls) uses.

The Theater Wing can also be considered an Assembly Occupancy with an A-1 (Theaters, Symphony and Concert Halls).

Several incidental uses are present throughout the building that would require fire separations if the building was being constructed today. These uses include mechanical rooms, storage rooms, and guest rooms. In order to meet the criteria of the Type 1B unlimited area building, the building must be classified as an A-3.

Building Alterations

The building code classifies alterations of existing buildings into three categories:

Alteration – Level 1: Removal/replacement of materials, fixtures or equipment using new materials that serve the same purpose.

Alteration – Level 2: Reconfiguration of the space, the addition of any door or window, the reconfiguration or extension of any system or the installation of any additional equipment.

Alteration – Level 3: Where the work area (all reconfigured spaces excluding portion of the building where work not initially intended by the owner is specifically required by the code) exceeds 50% of the aggregate area of the building.

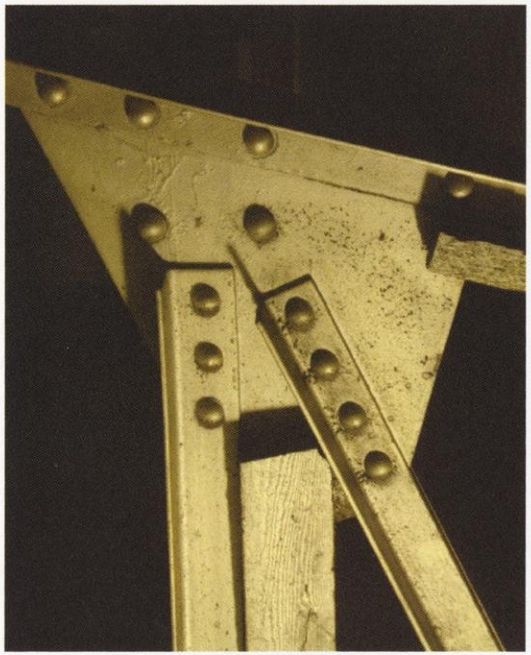
Anticipating a large-scale building rehabilitation, it is likely that the work would be classified as a Level 2 Alteration and possibly Level 3.

Therefore, the following issues will need to be addressed:

Vertical openings connecting two or more floors (stairs, elevators, duct shafts) shall be enclosed by assemblies having a minimum fire rating of 1-hour. This has implications at the two main staircases in the Central Wing where the wire glass enclosures may need to be upgraded. The stairs connecting the first and second floors in the Theater Wing would also require enclosures.

Fire Sprinklers are required for work areas that include exits and corridors serving an occupant load of greater than 30 persons and where the work area exceeds 50% of any floor. Sprinklers are also required in work areas located in windowless stories. There is a strong likelihood that a major rehabilitation of the Memorial Union will include sprinklers throughout the entire building. Fire sprinklers will increase the allowable occupancy of the building by 10%.

In keeping with the Conditional Approval for Type 1B construction, the entire Phase 1 and Phase 2 renovated areas and new additions will be protected by automatic sprinklers. Pre-action systems will be implemented in sensitive spaces such as electrical rooms, server rooms, and telecom rooms, as well as the exterior canopies of the building that are subject to freeze/thaw temperature swings. Standpipes will be installed in the renovated egress stairwells and new egress stairwells.



Means of Egress improvements may be required for the building. In general, there is presently an adequate number of exists and sufficient exit widths in the building. However, any proposed increase in occupant loads will require a reevaluation of the exit capacity. The Existing Building Code will permit the continued use of the Tripp Commons 2nd floor plaza deck to serve as an exit path. Any new vertical exits constructed within the building would be required to exit directly to the exterior of the building.

Some areas of concern to be addressed include:

- The north basement exit in the Theater Wing requires occupants to walk through the Hoofer's boat repair and storage area. A corridor and/or new exit should be established here. The proposed plan for Phase 1 creates a new code-compliant egress path through Hoofers.
- There is a dead-end corridor at the north side of the basement kitchen (where the

Image: The Central Code roof is constructed with unprotected steel trusses and a wood deck supporting clay tile roof surface. The steel members may need to be fireproofed in a comprehensive rehabilitation project to meet current code standards.

walk-in refrigerators and freezers are located). The Existing Building Code limits dead end corridors to 35 feet. The proposed schematic plan for Phase 2 eliminates this dead-end corridor condition.

- There are a number of exiting deficiencies on the third floor meeting rooms on the west side of the building. The Rosewood room exits directly into two stairwells (not permitted by present code standards, but allowable per the Existing Building Code) and the stair serving the Studio meeting rooms is not separated from the second floor. The current Rosewood Room is being demolished as the west connector is reconstructed in Phase 1. This condition will no longer be an issue.

The posted occupancy capacity in Great Hall is 684 people. Assuming that capacity includes the Reception Room, the occupant load for the Great Hall main room is 598 people, which requires 180 inches of stair width. The three stairs serving Great hall provide a total of 150 inches of exit width. Fire sprinklers would permit the occupancy to be increased to 750 using the present stair widths. Fire sprinklers are planned to be implemented in Phase 2.

Life safety improvements made in the 1980s enclosed stair wells that were originally open and connected several floors. As a result, some rooms presently exit directly into enclosed stairs. While the Existing Building Code may permit this condition, it would not comply with standards for new construction. This issue will be addressed in Phase 2.

Accessibility improvements required by the Existing Building Code are limited to Work Areas being altered, new toilet facilities and life safety elements that may be required. In addition, a minimum of 20% of the construction budget shall be spent on features that include accessibility improvements, beginning with Primary Routes.

The Memorial Union has made continued efforts to improve accessibility within the building. Unfortunately, there are still areas of the building that remain totally inaccessible to persons in wheelchairs. In addition, the lack of alignment of floors between the building's main wings creates a complicated path for disabled persons moving east-west. Particular areas of concern include:

■ Image: View of the west grand stairs at the second floor level. The two main stairs are enclosed at first and fifth floors but open at second and fourth floors.

The Theater Wing does not have an accessible entrance at the bus stop near the corner of Park & Langdon Streets. An accessible route should be established that allows visitors to enter the building near Park & Langdon, use the box office and move to the theater seating areas without leaving the building. The proposed reconstruction of the west connector in Phase 1 creates a new accessible entrance off Langdon Street.

Several of the elevators are not large enough to meet the requirements of ANSI 117.1. New elevators are planned in Phase 1 and 2.

Few of the multi-stall toilet rooms have adequate space to permit disable maneuvering (without the loss of fixtures). New toilet facilities should be built that provide the additional fixtures, better distribution throughout the building and improved accessibility. As an alternative, the Existing Building Code will permit accessible unisex toilet rooms to be added where enlarged multi-stall rooms are not feasible. Toilet rooms will be renovated and made accessible in Phases 1 and 2.

Toilet Facilities are not well distributed throughout the building and do not provide adequate fixtures for men and women. Based on a maximum A-1 occupant load of 1,468, an A-2 occupant load of 1,690, an A-3 occupant load of 1,472 and a B occupant load of 274, the minimum numbers of water closets required are 33 for men and 45 for women (the number for men can be reduced by 67% by substituting urinals).

Currently there are 27 men's and 30 women's water closets. Seasonal occupants using the Terrace and the Tripp Deck are not included in the occupant counts and contribute increased demand for additional toilet rooms.

The toilet room fixture counts are planned to be revised as follows, following the completion of the two construction phases, not including six new unisex toilet rooms added: Men: -38 Women: 49.

Building Additions must comply with Wisconsin Commercial Building Code standards for new building. In addition, they may not increase the area or height limitations of the existing building beyond that permitted by the code for new buildings. Given Memorial Union's use and construction classification, two approaches (or a combination) may be considered when planning new additions to the building:

Complete fire separation between new and existing construction. Fire separations must have vertical continuity between new and existing areas that extends from the foundation to the roof and must provide a fire rating of 3-hrs. Existing fire doors within the building do not completely compartmentalize the building.

Upgrade the construction classification of the building. Adding fire-resistive materials (spray fireproofing, gypsum wall board, plaster) to exposed steel framing and roof trusses could improve the building's construction classification to Type IA or Type IB, which would permit unlimited area for the improved areas. Fireproofing the Theater Wing and providing a fire wall between that wing and the Central Wing, for example, would permit contiguous, open additions for that wing.

The proposed building additions will be constructed as Type 1B construction, and the building is now considered an unlimited area building per the Conditional Approval of the Petition for Variance. No rated separations will be required between the existing building and the proposed additions.

Historic Buildings

Chapter 11 – Historic Buildings – of the Existing Building Code allows for a controlled departure from the foregoing requirements, without compromising the minimum standards for fire prevention and life safety features of the building.

An Automatic Fire-Extinguishing System

Image: 1948 Senior Convocation entering the Union Theater. Multiple interior off set floor levels and grand exterior entrance stairs provide challenges relative to universal accessibility goals.
University of Wisconsin Archives. Image uwar008831.

(such as fire sprinklers) is required where the building does not conform entirely to the code requirements. Some degree of variance in egress components, such as exit door swing and egress path width and height may be accepted; reduction in the number of exits, however, is not permitted. Historic finishes that may not conform to flame spread requirements will be accepted, and existing lath and plaster will be accepted as 1-hour-rated construction. Existing railings at grand stairways, and guards, may remain so long as they maintain the original code-compliant level of protection. In general, where the building cannot be made to conform to the construction requirements of the Building Code, such as height and area limitations, construction type, and fire resistance, the building will be deemed to be in compliance where an approved automatic fire-extinguishing system is provided.

Alterations/Accessibility: Where compliance with the aforementioned requirements for accessibility are technically infeasible without threatening or destroying the historic significance of the building, certain provisions are relaxed. At least one main entrance must be accessible, and an accessible route from that entrance to public spaces on the level is required. One accessible toilet room for each sex, or a unisex accessible toilet room is required.

Performance Compliance

Another alternative means of code compliance for the existing building involves evaluating and scoring 19 different safety parameters critical to a minimum degree of life safety and property protection. Additions must comply with requirements for new construction. The 19 parameters are applied across three categories: Fire Safety, Means of Egress, and General Safety. Aggregate scores in each category must demonstrate that there are enough positive parameters to overcome the negative parameters. The 19 safety parameters are:

- Building height
- Building area
- Compartmentalization
- Tenant and dwelling unit separations
- Corridor walls
- Vertical openings
- HVAC systems
- Automatic fire detection
- Fire alarm systems
- Smoke control
- Means of egress capacity and number
- Dead ends
- Maximum travel distance to an exit
- Elevator control
- Means of egress emergency lighting
- Mixed occupancies
- Automatic sprinklers
- Standpipes
- Incidental use

Summary

The ideal rehabilitation solution for a historical resource is to retain historic materials, character and features that qualify the property for inclusion on the National Register of Historic Places while simultaneously exceeding minimum life-safety standards.

> ***Given Memorial Union's use and construction classification, two approaches (or a combination) may be considered when planning new additions to the building...***

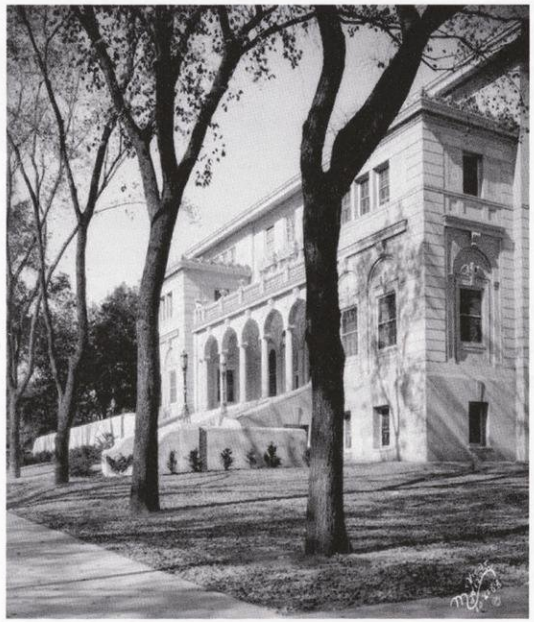
The intent should be to protect the unique historic and architectural heritage by recognizing the unique construction problems inherent in historic buildings and to develop and implement alternatives to provided significant life safety and fire protection improvements through the rehabilitation process.

The analysis provided here is very preliminary and intended as an overview of the major issues. A detailed analysis and subsequent creative design solutions by the professional Design Team, in concert with code officials, will be necessary to provide significant life safety and code improvements for this historic property.

Preservation Plan

The Preservation Plan for Memorial Union was developed February through July of 2010 by a multidisciplinary committee of professionals with a vested interest in the Memorial Union Redevelopment Project. The plan represented the committee's collective analysis, evaluation and opinion at that point in time based in part on the documents produced by the consultant team and also the discussion and evaluation at a series of work sessions.

The complete version of "University of Wisconsin, Memorial Union Preservation Plan, July of 2010, may be found in the Memorial Union archives.



The Preservation Plan had been prepared as a planning tool for decision-making about preservation, rehabilitation and restoration treatments and infill/additions for the Memorial Union. The project design team used the plan as a guide as they conceived and articulated the overall rehabilitation scope of work for Memorial Union during 2011. The Preservation Plan provided a description and rationale for the recommended treatments and how these treatments coordinate with the overall project goal of balancing the needs of a significant historic structure with those of a contemporary functioning university union and university performing arts facility.

The committee acknowledged that future programming work undertaken for the Memorial Union would identify issues or design alternatives that potentially produced an adverse effect (such as not meeting the Secretary of the Interior's Standards for the Treatment of Historic Properties) upon the property. This proved to be true and the design team faced several significant challenges related to adverse effects.

Summary

Historic properties provide substantial links to our past. They contribute to our understanding of the aesthetic, cultural and social values

Image: View of Memorial Union Grand Stair. Wisconsin Historical Society image ID WHi 21517.

of a particular time period. We find importance in buildings and places that convey historic information about architecture, history, historical figures and historical events. Significant landscapes also provide a sense of the past and are integral to the preservation of the cultural resource as a whole.

The Memorial Union is a significant cultural resource containing historical, architectural, cultural and landscape resources worthy of preservation.

The plan looked at several key aspects related to the preservation of Memorial Union. These included significance, character-defining features, primary spaces, rehabilitation as the preferred overall treatment and the potential need for alteration/infill/additions.

In determining the overall evaluation of significance for each individual space four co-dependent factors were evaluated, each composed of complex ingredients. The four factors included architectural significance, historical significance, architectural integrity and context.

Architectural significance relates to the manner in which the finishes, details, materials and special configuration were originally designed and implemented to make the space unique for its intended public use. Historical significance addresses the history of important events or individuals that occupied the space. Architectural integrity examines the retention of historic and transitional building fabric. Context refers to the each space's significance in relation to its original setting or recognizability to the original building in terms of use and features.

Character-defining features of both the exterior and interior were explored and documented. The exterior features related to hierarchical massing, proportion, set back and fenestration were valuable in helping to define guidelines for future alteration/infill/additions. Interior features, including space volume and placement, finishes, detailing and decorative finishes help define the primary spaces, those most significant to the overall building.

Key primary spaces were noted as including: Union Theater, Great Hall, Tripp Commons, Memorial Hall, Rathsskeller, Paul Bunyan Room, Winkler Lounge, Play Circle and the Langdon Room.

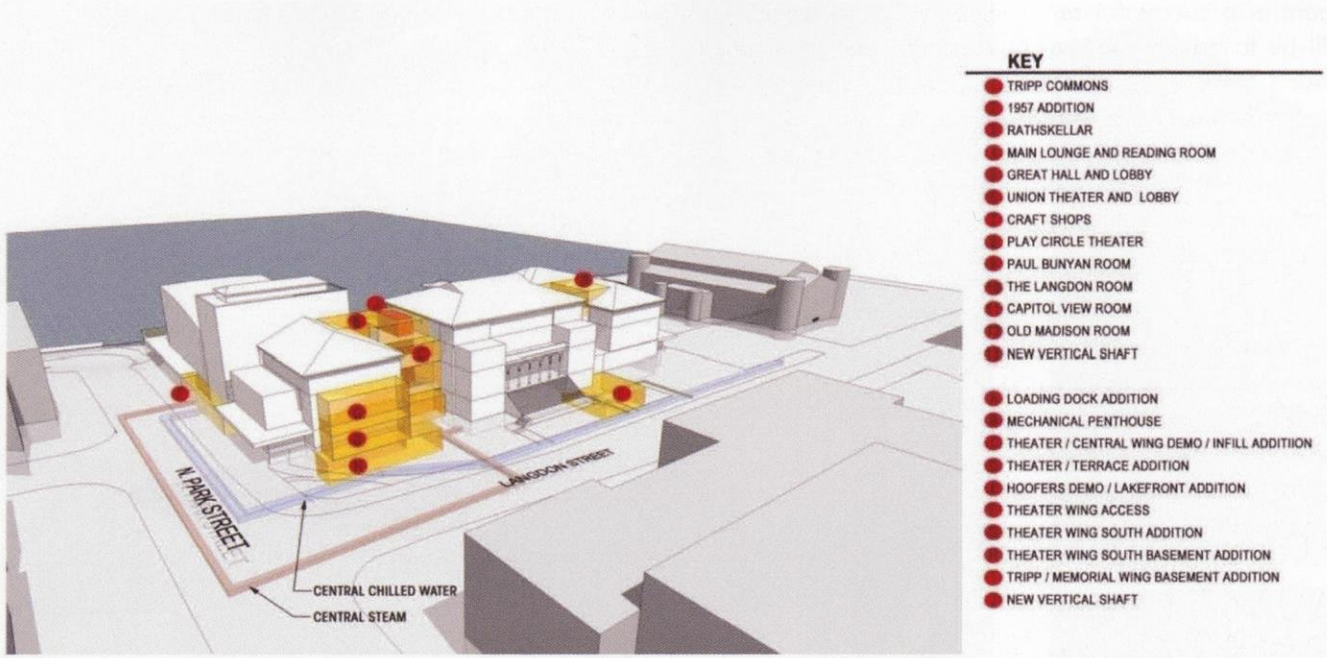
Other primary spaces include:

- Capitol View Room, Great Hall Lobby, Main Lounge, Porter Butts Gallery,
- Hamel Family Browsing Library, Grand Stairs, Theater Gallery, Trophy Room, Old Madison Room, Stiftskeller and the Bradley Lounge.

Although rehabilitation is the suggested overall treatment, individual spaces were assigned specific suggested treatments suited to their degree of integrity, original design and significance. These treatments have been revised and included in recommendations section of this report.

The possible need for infill and/or an addition was acknowledged in the preservation plan. The primary axiom for the design of infill or additions is that "the integrity of the Memorial Union as an historic entity is maintained. The primary goal is to protect the qualities and character defining elements that made the property eligible for the National Register of Historic Places." The infill or addition should minimize the loss of historic materials and el-

■ Image: Election watch in the Rathskeller, June 12, 2009. Image courtesy of Wisconsin Union.



ements. Character defining features should not be damaged, destroyed or obscured.

The preservation plan suggests that interventions should be clear, obvious, recognizable and reversible. These designs should be "of their time" and should be distinguishable from the older work. The new infill should be harmonious with the older work in scale, proportion, materials and color. The new should also be compatible with the older work and the immediate environment. This is achieved through careful consideration and implementation of setback, orientation, scale, rhythm, massing, height and roof shape.

General recommendations took the form of three dimensional computer generated images depicting the areas of significance and suggesting areas where infill was appropriate in terms of meeting the Secretary of the Interior's standards.

Preservation Philosophy

The overall preservation philosophy for the property is focused on the preservation of the building and site in a manner that is consistent with the historic character and existing fabric of the property. The property should be considered as a whole; each wing and the open spaces in and around it are essential to the overall aesthetic of a total composition.

Image: Preservation Plan three dimensional illustration.

Treatment and Use

The paramount element in a successful re-investment project will be to adhere to the Secretary of the Interior's Standards for the Treatment of Historic Properties (The Standard of Care) to help guide the work and ensure that rehabilitation and new construction will not adversely impact the historic context, character defining features or landscape of Memorial Union.

Although the Memorial Union has served students, faculty and the public well during its 80+ year history, rehabilitation of the facility is necessary to provide for its continued contemporary use. The Historic Structure Report should inform the design efforts for all phases of the proposed rehabilitation providing guidance and prescribing specific recommendations.

Recommendations adhere to the generally accepted maxim that buildings which retain a high degree of historic fabric more effectively communicate historical significance. At the same time, however, it is critical that the needs of a significant historic structure be balanced with those of a modern functioning union. Therefore the Memorial Union should retain as much of its historic fabric as possible while allowing it to perform its contemporary purpose in an effective manner.

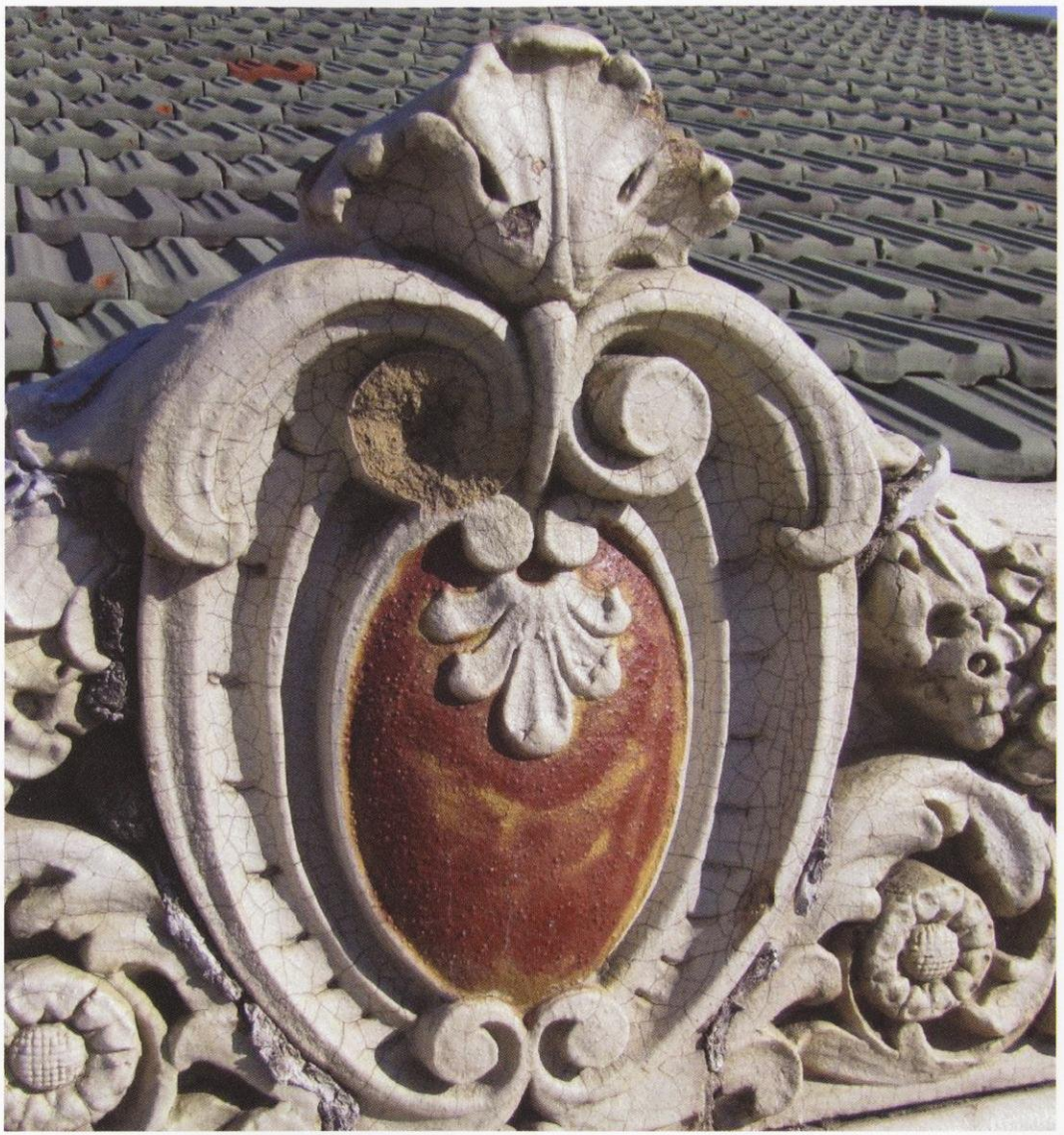


Image: Close up view of ornamented cresting at Central Core cornice.

Major Project Challenges and Proposed Solutions

Nine months of intensive programming and design effort identified numerous challenges to be solved by the Memorial Union Reinvestment project. A summary of the major challenges that impact the character- defining features of Memorial Union is presented here as a prelude to help the reader understand the recommendations and treatments prescribed later in this chapter. A synopsis of the design team's proposed solution is also provided.

Maintaining Historic Character

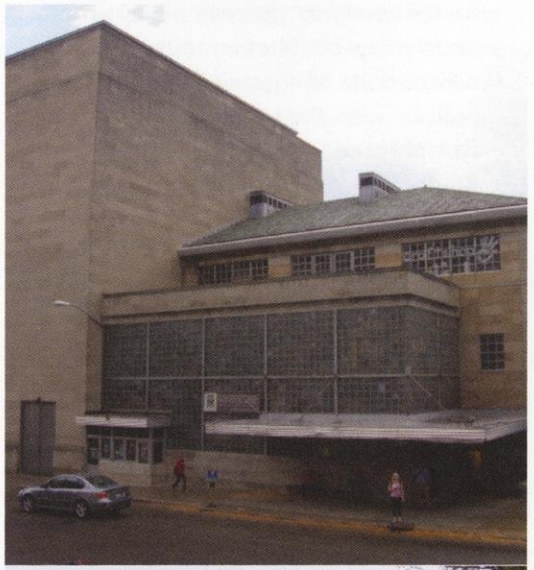
The Memorial Union is an historic structure, both legally and emotionally. The building is a contributing structure to the Bascom Hill Historic District. There is a deep, community-wide attachment to the Memorial Union. Not only is the building held dear, but so is the Terrace, the outdoor space between the building and lake. Making the programmatic and mechanical upgrades necessary to sustain the building in the 21st century without diminishing Memorial Union's historic integrity and character is a significant challenge.

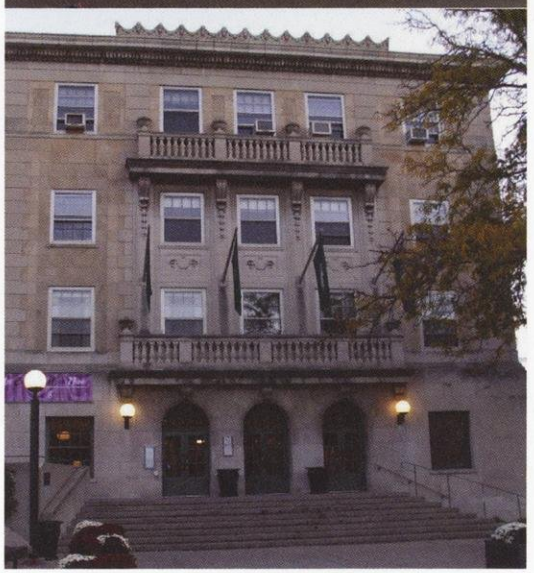
- Solution: This Historic Structure Report (HSR) is being prepared to help guide the preservation aspects of the proposed multi-phase rehabilitation (or reinvestment in) the facility. The HSR is intended to serve as the primary preservation guide for the property as the various phases are designed and implemented. In addition, the team has maintained a continual dialog with the Wisconsin Historical Society discussing and resolving issues related to the proposed modifications, alterations and additions.

Integration of New Infrastructure

The need for modern mechanical systems is one of the most common reasons to undertake work on historic buildings. Such work includes upgrading or replacing older mechanical systems, improving the energy efficiency of existing buildings and installing new heating, ventilation or air conditioning (HVAC) systems. Systems within Memorial Union are generally antiquated and difficult to maintain.

- Solution: The successful integration of new systems in a historic structure like Memorial Union is complex and challenging. Meeting modern HVAC requirements for human comfort and installing new equipment should minimize any visual and physical damage to the historic features. New below grade and roof level mechanical rooms will





Image, top: The west entry into the Theater Wing.
Image, bottom: The east entry into the Commons Wing.

be necessary as well as new horizontal and vertical distribution routes. All must be carefully integrated into and compatible with the existing architecture. Paraphrased from NPS Preservation Brief 24.

Provide Equal Balance to the East and West Entries

Memorial Union has two major entries, neither of which are the formal and obvious points of entry. This is the entry at the grand stair. The two heavily used entries are located at east and west corners closest to the flow of pedestrians and provide more convenient access to the building and thus draw the most pedestrian traffic. Usage of the two is approximately equal, but the west entrance lacks a clear sense of arrival into the building and does not accommodate the disabled.

Providing a new west entry that is better connected to the activity areas of the Memorial Union is a clear design challenge, as are improvements to the east entry and preservation of the historic, formal second floor entrance.

- Solution: The proposed design provides a new west entry facing Langdon Street located at the juncture of the Theater Wing and Central Core. This new entrance will lead directly to a visitor information counter and box office. It will also feature a space for students waiting for campus busses and provide clear visibility and access to the remainder of the building. A new exterior plaza will connect the new entry to both Langdon Street and the intersection of Langdon and Park Streets. This new entry will be in balance with the east, or Common's entry, which itself will be improved both inside and out with a new entry plaza and more direct access to the Union's food service options. The central exterior grand stair and second floor entry will be maintained while recognizing that most visitors will continue to use the on-grade entrances.

Solve Horizontal and Vertical Circulation Problems

Finding one's way around the Memorial Union can be challenging. While the original formal circulation may have been clear, multiple and inconsistent additions and alterations have created confusion at best and absolute obstacles at worst. Making the building more navigable is a major design challenge, especially at the juncture of the Theater Wing and the Central Core.

- Solution: The design proposes deconstruction demolition of the linkage connecting the Central Core to the Theater Wing. Many of the building's circulation problems occur in this location. The design provides construction of a new linkage with better aligned floors and a new two-sided elevator serving the offset floors that meet in this location.

Improve Access to the Union Theater

A case could be made that the Union Theater was built backwards with its lobby facing the lake and its back turned to both the attached Memorial Union and the locations from which the public approaches. A challenge to the designers is to create a clear pathway through the Memorial Union to the theater lobby and to improve the integration of the theater into the overall Union facility.

- Solution: The design proposes a new access corridor that connects the the-

■ Image: View of the Theater Gallery and the multiple floor levels.

ater to the new west entry, which itself is better connected to the building's central core. Visitors will no longer need to enter the Union and ascend one floor just to descend back down a floor to reach the Union Theater.

Theater Lobby and Rehearsal Space

Two significant physical limitations to the Union Theater are the undersized lobby and lack of a place for performers to warm up or rehearse before having access to the stage. Programming established a need for a lobby addition that will double as a pre-function space and as a lounge when not in use by the theater. After reviewing multiple options the location selected was directly north of the theater facing the lake.

Functionally the best location for the rehearsal space was determined to be at the back of house, or adjacent to the stage of the theater. A double height rehearsal room of a size similar to the width of the proscenium and depth of the stage is proposed along the Langdon Street side of the theater.

- Solution: The proposed design creates a new theater lounge that stands as a small pavilion structure attached to the front of the existing theater lobby. On the stage end of the theater a new addition towards Langdon Street fulfills the need for rehearsal space. The added room will also provide other benefits to both the theater and the Union as it will itself be available for events, including small performances and reserved functions.

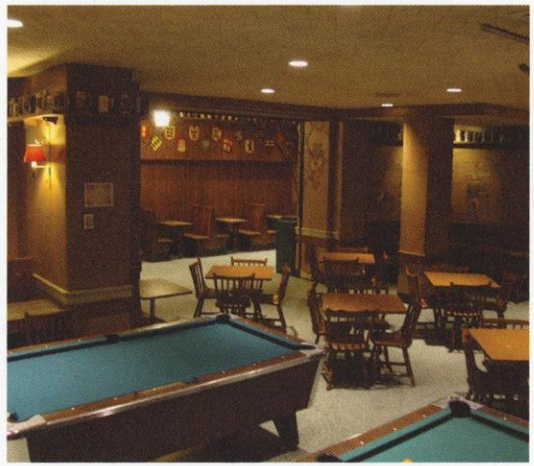
Union Theater

The Wisconsin Union Theater has received minimal physical upgrading since it opened in 1939. Today the mechanical and electrical systems are truly archaic. The acoustics no longer meet contemporary expectations and standards, and the lighting and sound systems need to be modernized. The house itself requires new finishes, which provides an opportunity to return more closely to the original look. Service facilities, such as toilets and concessions, must be improved.

- Solution: The proposed design will bring the Union Theater up to today's theatrical standards. New seating, including ADA provisions, will be installed and the space restored more closely to its original look. Entirely new mechanical and lighting systems will be installed to improve comfort and acoustics. The dock doors will be removed from the stage house, and all doors will be replaced to better seal against sound infiltration. New control rooms will replace the non-functional chair circle seating, and an in-house sound station created. Separate male and female accessible toilets will be provided at the lobby level.

Play Circle Theater

The Play Circle Theater has historical and architectural significance because of its uniqueness as an experimental theater with capabilities for radio broadcasting and showing movies. The Play Circle was designed to be flexible with removable front seats and multiple ways of arranging the stage. As with many multipurpose spaces, it does some things adequately but does not work well as a theater. The space is considered dysfunctional.



- Solution: The design takes a radical approach and completely removes origi-

Image: The Stiftskeller.

nal elements and expands the space to the south. By removing columns and extending the back stage service elevator, a flexible and useable house with retractable seating and level floor is created. The new theater space can host small theatrical, musical and cultural events, and can also serve as a meeting or event space.

Stiftskeller and Games Room

The existing service counter in the Stiftskeller is inadequate for the quantity of patrons served; circulation in and around it is poor. There is a desire to return some of the game room functions that were lost in previous renovations and improve the visual connection between the Rathskeller and the Stiftskeller.

- Solution: The proposed design reduces the size of the games area to accommodate an elevator at the crucial linkage between the Theater Wing and the Central Core. A small storage/support space which obstructs the view into the Stiftskeller will be removed, and the west wall of the games area will be rebuilt. The beer storage room will also be removed from valuable first floor space and placed in the basement, allowing the creation of an outdoor ramp connecting the terrace with the new west entry level.

Craftshop

While the Craftshop has its loyal users and supporters, a student survey showed it is not a priority among members. It is clear that the fourth floor location keeps the Craftshop from being more visible and may have negatively impacted its popularity. A more visible location with easier access to materials and supplies is desired.

- Solution: To provide more public visibility the Craftshop will be relocated to the west basement where it will be only half a flight down from the main corridor or "Main Street" of the Union. In its new location the Craftshop will have two general use and one pottery studio with a glass wall showcasing the facility. The space previously occupied by the Craftshop will be renovated for administrative offices for the Union.

Hoofers

The current Hoofers' space was found to be inadequate in terms of life safety, reception counter location, public visibility and meeting/storage space. The shop was found to be particularly problematic as it lacks adequate fire suppression and ventilation for the type of functions it houses, and because there is public egress through the space.

- Solution: To provide more space for the Hoofers within the same location, the proposed design deconstructs the 1967 addition and within the same footprint provides a larger and better configured addition that utilizes previously unexcavated space. The existing Bradley Lounge with its wood paneling and fireplace is of sentimental value to the club. It is partly maintained and serves as a marker of the entry into the club. General improvements to the West Wing circulation corridors improve access and visibility to the club.

Universal Accessibility

The Memorial Union was constructed at a time when universal accessibility was not a consideration. This problem is exacerbated by the numerous additions and modifications the building has undergone that connect various levels not originally aligned. The result is multiple and necessary circulation routes interrupted by steps.

- Solution: The key attribute of the design related to improved accessibility includes a two-sided elevator at the new connector between the Theater Wing and Central Core. This elevator connects the split levels at this end of the building permitting easy access to all levels. Other areas such as Great

Hall and the Stiftskeller will receive improved access through lifts or ramps. It must be acknowledged that some spaces, such as the Union Theater balcony, cannot reasonably be modified to accommodate the disabled.

Loading Dock

The existing loading dock is inadequate in size and occupies land proposed to become the new Alumni Park, an important connection of the East Campus Mall to the lakefront. In addition to this problem, the current adjacent parking lot and drive provides service access to the Red Gym, the Pyle Center and the Alumni House.

- Solution: The design proposes an underground loading dock facility, accessed from Langdon Street. This design offers the least costly option with the least impact on the surface above. It utilizes a novel approach of a turntable that enables a truck to maneuver g within a tight underground space. This allows the truck dock to be immediately adjacent to the Memorial Union basement level production kitchen. The proposed park above would be unencumbered except for a single drive into a retained cut out in the landscape. This underground dock also will serve the Red Gym and Pyle Center, including catering access from the Union itself.

Guest Rooms

The design suggests retaining a total of six guest rooms. Previous studies had set aside the space occupied by the guest rooms for other program uses, such as administrative offices or meeting rooms. The guest rooms as they exist are dated, and bathrooms are tiny. The location, however, was found to be sentimentally important.

- Solution: The guest rooms are maintained in place; the one now used as an office is converted back to a guest room. The south wall of the three center rooms is shifted outward to allow larger bathrooms. A much wider guest room corridor is created which will double as an informal sitting room and potential breakfast room. Two guest rooms will be accessible. The existing fireplaces will be preserved in the two corner suites.

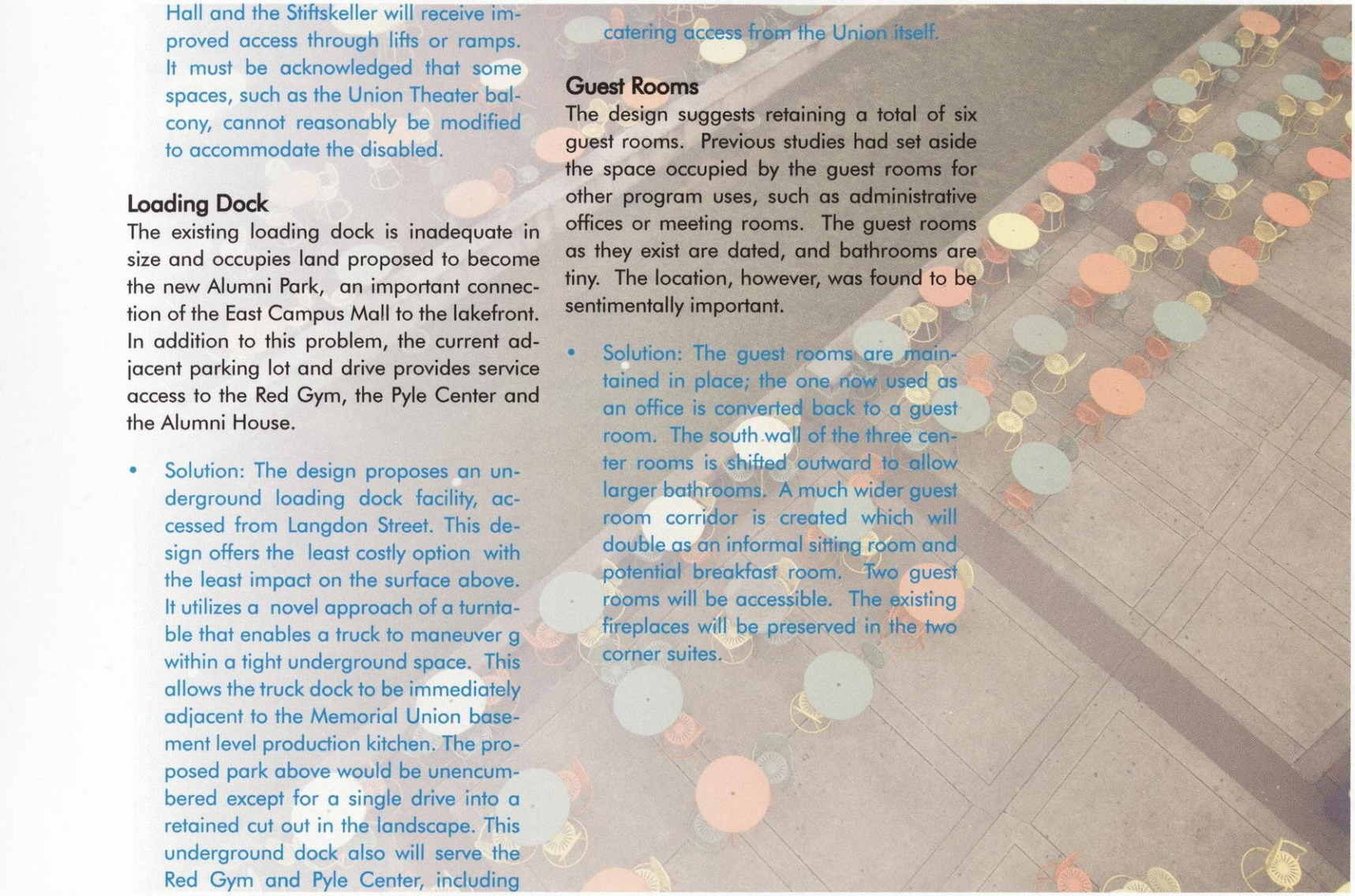


Image: Craig Wilson, Kite Aerial Photography.

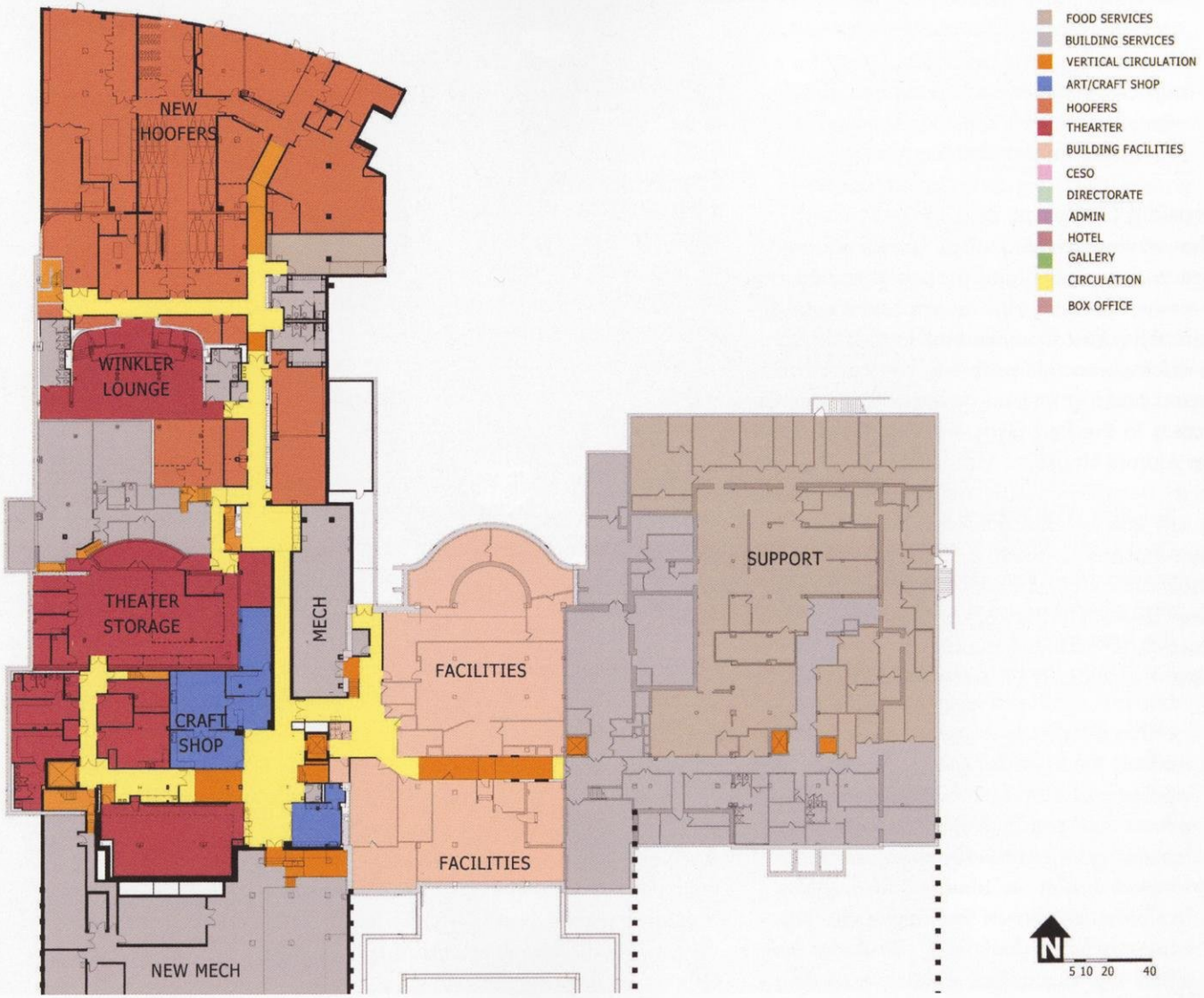


Image: Proposed Basement Plan

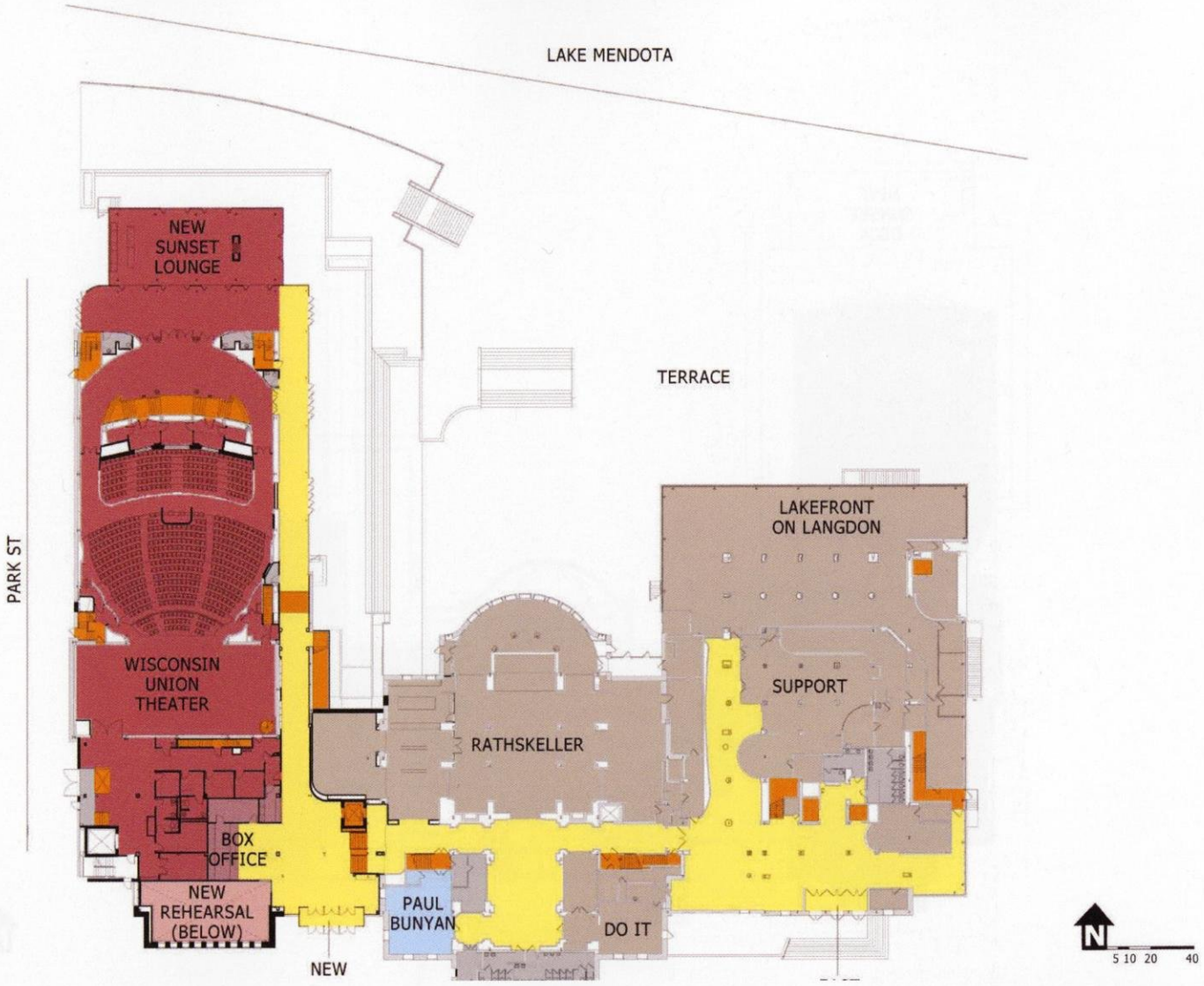


Image: Proposed First Floor Plan.

Image: Proposed Second Floor Plan.

Image: Proposed Third Floor Plan.

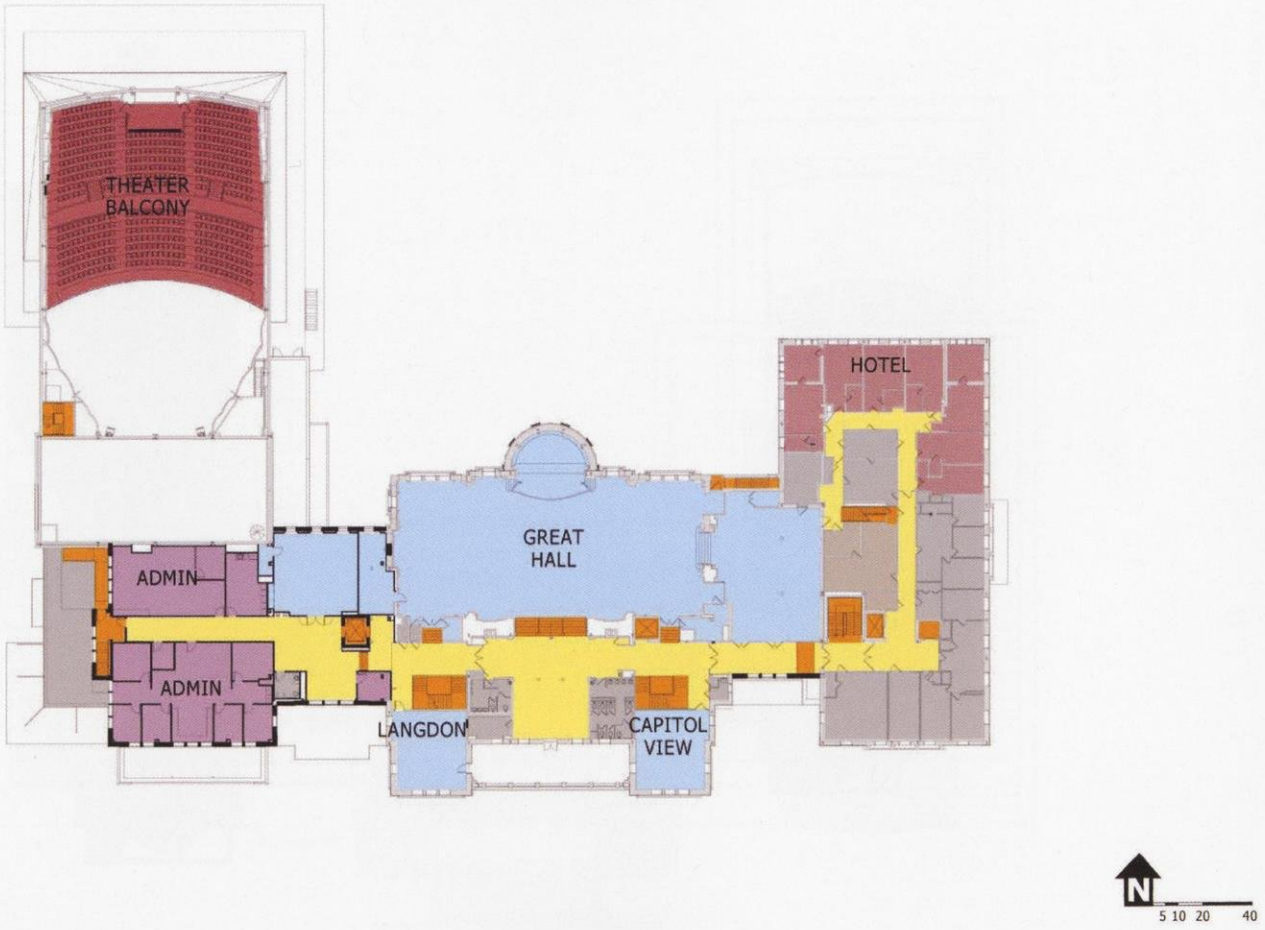


Image: Proposed Fourth Floor Plan.

Image: Proposed Fifth Floor Plan.

Recommendations

General Recommendations

Recommendations presented here build upon those outlined in the 2010 Preservation Plan. In recognition of the historic and architectural significance and integrity of Memorial Union, the best course of overall action will be rehabilitation of the building. Rehabilitation is the act or process of making an efficient contemporary use of a building or space through alterations, repair and/or additions while preserving those portions or features that convey historical, cultural or architectural values. Other treatments, such as preservation and restoration, will be applied to specific rooms and features throughout the building. These are outlined in the specific recommendations found later in this chapter.

Stabilized Structure

Typically the first priority with an historic building is to stabilize the structure and protect it from further deterioration. In the case of the Memorial Union, the structure appears very stable and only remedial work is of any structural concern. Minor modifications and alterations to the structural system will be undertaken to create larger mechanical spaces and provide for column free space in a few key areas.

Weather Tight Building Envelope

Rehabilitation to secure the building envelop against the elements should also be a primary focus. This includes the roof, exterior walls, windows and doors. Roofs will be replaced, masonry exterior walls repointed and repaired, terra cotta cornices repaired or replaced and windows and doors rehabilitated and reused.

Flexible Infrastructure

Once the building envelope has been secured, the next priority will be the installation of an improved infrastructure to include mechanical, electrical, telecommunication/data and security systems. Because it is likely the building will experience evolving uses for community purposes, the new infrastructure must be installed with flexibility and adaptability in mind. These systems also need to be designed so that they may be implemented in phases.

Historic Integrity

In performing the proposed work, it will be important to preserve original fabric to the greatest extent possible and bring existing historic elements into good working condition or provide an appropriate replacement. Careful disassembly of fabric and components should be accomplished in advance of comprehensive rehabilitation work so that original and transitional elements may be identified and documented. The use of appropriate rehabilitation methods and materials will extend the useful life of the building significantly. All works should comply with the National Park Service, Secretary of the Interior's Standards for the Treatment of Historic Properties.

Primary Facade

The preservation of Memorial Union's primary façade, the Langdon Street elevation, is an important element to the overall preservation of the building. This façade contains the key character-defining features of massing, setbacks, historic windows and doors. Their distinctive arrangement establishes the building's unique historical and visual character. To preserve this façade, the building's character-defining features should be retained while incompatible new elements or treatments must be avoided. Careful consideration must be given to contemplated changes to landscape, terraces, steps and pathways in relationship to original features and grade changes so that

■ Image: Detail of typical cracked and deteriorated Terra Cotta Cornice.

the visual importance of the building's character-defining features are not diminished.

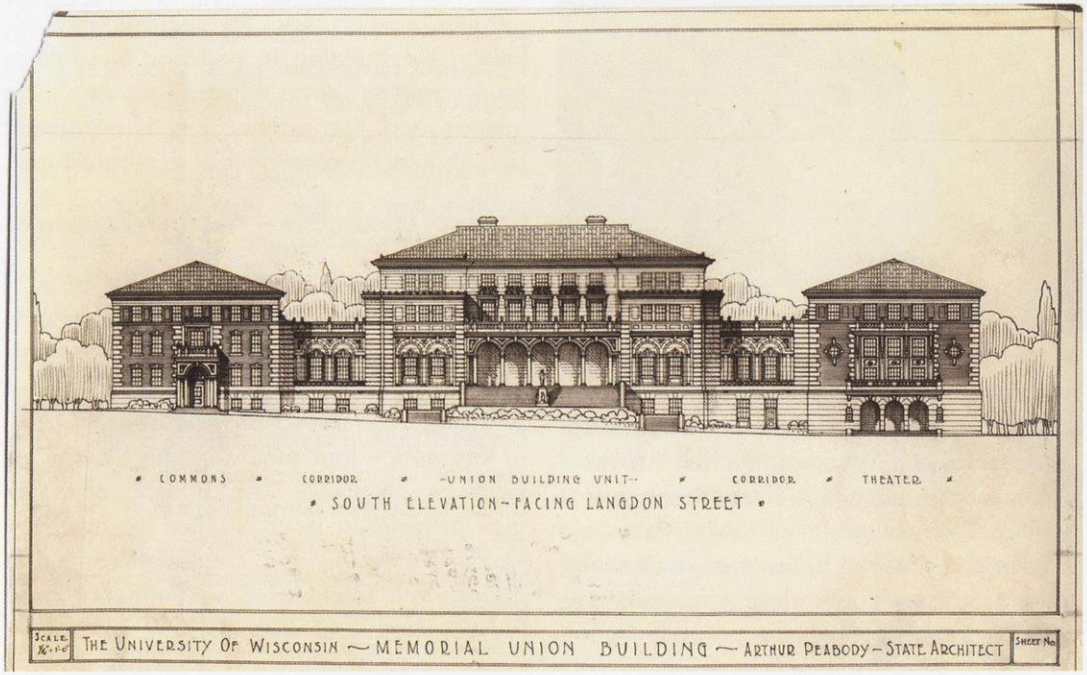
Decorative finishes

A return to original decorative schemes (paint colors, stencils patterns and decorative finishes) is appropriate for the key primary spaces of Memorial Union. These spaces include the Rathskeller, the Paul Bunyan Room, Memorial Hall, the Main Lounge, Tripp Commons, Great Hall and the Wisconsin Union Theater. Original paint colors may also be desired in corridors, stairs and other public spaces that link the key spaces within Memorial Union.

Although some documentation of decorative finishes was completed as part of the existing conditions survey, it is anticipated that during this rehabilitation process many additional historic features currently concealed will be uncovered as previous remodeling efforts are removed.

Repair rather than replace

Deteriorated historic features should be reused and repaired rather than replaced. For example, original interior doors, hardware and wood frames are generally reusable. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture and, where possible, materials.



Documentation

A record of treatment should be prepared as the rehabilitation project is implemented and completed. This may be as simple as Memorial Union compiling and retaining a comprehensive set of chronological and item-specific records. This should include how the work/project was accomplished; identification of key individuals and firms involved; identification of the various phases, costs and results; identification of discoveries or confirmations of assumptions through progress of the work; and a detailed photographic record of work before, during and after.

Environmentally Responsible Design

Preservation is inherently sustainable through the reuse of buildings, components and materials and wise utilization of resources. The final design should provide practical design criteria and develop realistic strategies for implementing sustainable design that can be used to direct environmental and economic decisions within the everyday operations. Recycled and reused materials should be incorporated into the rehabilita-

Image: Original drawing of Memorial Union Primary façade. University of Wisconsin Archive, Image #dn04112065.

tion work. The overall goal should be to meet the property's short term need-based objectives while maintaining a long-term, environmentally responsible perspective.

Accessible Design

Historically, most buildings and landscapes were not designed to be readily accessible by people with disabilities. In recent years, however, emphasis has been placed on preserving historically significant properties and making these properties and the activities within them more accessible. A major goal of the Memorial Union rehabilitation is to increase the accessibility of the facilities for all. Solutions should provide the greatest amount of accessibility without threatening or destroying materials and features that make the property significant. Paraphrased from Preservation Brief 32.

Role of Memorial Union

Significant structures like the Memorial Union provide a tangible link to our past and a connection to the people, culture and society of a bygone era. The resource is important not only to the University but also to the City of Madison. We save resources like this because the community and the State of Wisconsin would be less interesting and attractive without them.

The guiding principal of the rehabilitation should be to retain as much of the historic original building fabric as possible while allowing the building to perform its contemporary mission in an effective manner. The interior and the exterior are highly intact and should be preserved and rehabilitated.

Cultural Landscape – Heritage Resources

How the building relates to the larger context of the overall site, Lake Mendota shoreline and adjacent "neighborhood" is important. The cultural landscape studies previously completed provide a good body of knowledge that should inform the site alterations proposed. This base information also provides a good starting point from which to develop and create a strong and appropriate relationship with the proposed Alumni Park and lakeshore rehabilitation.

■ Image: Memorial Hall.

Building Systems

Effective coordination between preservation, sustainability, architecture and engineering disciplines helps to ensure that preservation issues are appropriately addressed in de¬sign scopes of work and construction budgets. The proposed new infrastructure should make the most of the building's original, passive climate con¬trol features. This may reduce system requirements and the impact of the installation on historically significant spaces.

Previously installed alterations that conceal significant spaces and ornamental features should be re¬moved so that compromised primary spaces can be restored. Sensitively installing ductwork and sprinkler piping in buildings originally designed to ac¬commodate only heating and natural ventilation presents one of the greatest challenges in upgrading historic buildings to meet current codes and comfort standards.

Thoughtful routing, configuration and concealment of duct-work play a major role in the aesthetic success of retrofitting building systems within historic buildings. Flattened ductwork or architecturally integrated soffits need to be provided to route ducts across corridors and large spaces. Vertical routing is often the best solution for preserving vaulted ceilings where little or no space is available above the ceiling.

In rehabilitation and renovation zone spaces where new ceil¬ings are being installed, suspended ceilings should be no lower than necessary in order to conceal ductwork and maintain full window clearance. The goal should be to maintain interior daylight and preserve the appearance of the window from the outside.

The size and impacts of modern roof-mounted equipment should be minimized. Roof-mounted equipment should be recessed from the edge of the roof where it will not be visible from accessible locations at grade. Alternatively, vaults can be explored as a way to provide access to large mechanical equipment. If equipment cannot be concealed, equipment housing can be painted in a color that will blend with the historic façade. Paraphrased from U. S general Services Administration, Center for Historic Buildings, P100 Facilities Standards.

Implementation Strategy

The proposed rehabilitation will require a substantial investment of capital, resources and time on the part of Wisconsin Union, members, students, supporters and stakeholders. The investment is motivated by their collective desire to preserve and rehabilitate the property.

One of the basic axioms of preservation work is that good planning leads to successful projects. The most influential factors that affect the ultimate outcome of a project often exist at the early stages of planning. Taking adequate time to plan, cultivate support and build consensus with stakeholders paves the way for successful fundraising, rehabilitation and business operations.

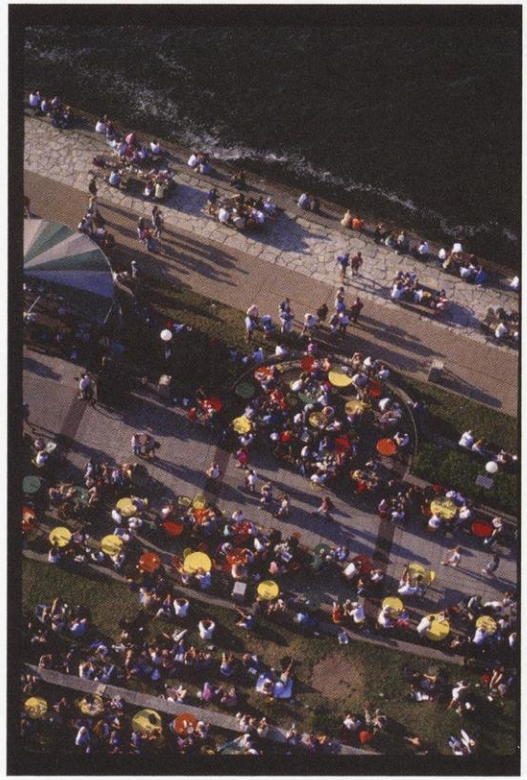


Image: Union Terrace viewed from above. Craig Wilson, Kite Aerial Photography.

Image: Winkler Lounge. University of Wisconsin Collection, Image UW.uwar00304t.

As part of the initial project planning, the team recognizes and will capitalize on the opportunity to establish a project framework for the preservation and rehabilitation of Memorial Union in a logical and sequential manner. This is presently envisioned to be accomplished in the form of a two phased project.

Because of funding flow and the need to maintain some degree of operation at the Memorial Union, the work is anticipated to be completed in phases. Phasing will allow substantial areas of the Union and related programs to remain functional while other areas are being rehabilitated. Phasing should also minimize the projected impacts from the project as described in the Environmental Impact Assessment.

The two phases include Phase I: Theater Wing Rehabilitation and Phase II: Rehabilitation of the Central Core and Commons Wing. Accomplishment of this preservation project is envisioned as a comprehensive effort between two distinct but almost continuous activities implemented through a period of approximately 5 years. The Alumni Park and Lakeshore Rehabilitation Projects are also anticipated to be completed within this time frame.

Specific Interior Recommendations

This space retains a high degree of integrity. Preservation/Rehabilitation is the recommended treatment, including:

- Repair and cleaning of wood veneer paneling.
- Integration of new MEP/FP systems with the least intervention possible.
- Return floor material to original or appropriate to the period.
- Integration of new lighting sympathetic to original design of the space.
- Restore original decorative paint scheme.

Union Theater

This is one of the primary spaces of the building. It retains a high degree of integrity and has architectural and historical significance. Rehabilitation is the recommended treatment, including:

- Maintain key design elements and general lighting.
- Integration of new MEP/FP systems with the least intervention possible.
- Improve accessible seating.
- Provide greater flexibility for performance lighting and sound systems.
- Repair and clean of wood veneer paneling at lobbies.
- Restore original decorative paint scheme.
- Replace seating with modern replica seats.
- Replace stage floor.
- Modify orchestra pit to meet contemporary needs.
- Improve load in/load out access.
- Modify house to provide location for contemporary technical control spaces.

Union Theater Lobby (glass enclosed hallway)

This space retains a moderate degree of integrity. Preservation is the recommended treatment, including:

- Maintain key design elements and general lighting.

- Modify to meet contemporary patron control and management standards.
- Modify to provide contemporary audience conveniences.
- Integrate new MEP/FP systems with the least intervention possible.
- Restore original decorative paint scheme.

Play Circle
The scope of work is inconsistent with the Preservation Plan. The space will be demolished.

Play Circle Gallery
This space will be lost in the deconstruction of the Theater Wing-Central Core link. The art deco stair rails should be salvaged and re-used.

Craftshop
The scope of work is inconsistent with the Preservation Plan. The space will be substantially altered.

Studios A & B
The scope of work is inconsistent with the Preservation Plan. The space will be substantially altered.

Campus Women's Center
This space will be lost in the deconstruction of the Theater Wing-Central Core link.

Great Hall
This space retains a high degree of integrity. Preservation/Rehabilitation is the recommended treatment, including:

- Restore the interior glass skylight.
- Improve accessibility and service without adversely affecting the historic integrity of the space.
- Integrate new MEP/FP systems with the least intervention possible.
- Integrate new lighting and sound systems sympathetic to design of the space.
- Restore original decorative paint scheme.
- Explore alternatives for adding movable dividing wall system.

Great Hall Lobby/Foyer

This space retains a high degree of integrity. Preservation treatment is recommended, including:

- Integrate new MEP/FP systems with the least intervention possible.
- Provide new floor material in character with historic character
- Integrate new lighting sympathetic to design of the space.
- Restore original decorative paint scheme.
- Maintain access to exterior balcony.
- Restore ceiling of corridor.

Reception Room

This space retains a high degree of integrity. Renovation is the suggested treatment.

- Renovate area to meet current and future needs.

Main Lounge

This space retains a moderate degree of integrity. Preservation is the recommended treatment.

- Integrate new MEP/FP systems with the least intervention possible.
- Integrate new lighting sympathetic to design of the space.

Memorial Hall

This space retains a high degree of integrity. Preservation is the recommended treatment.

- Integrate new MEP/FP systems with the least intervention possible.
- Conserve original art work.

Hamel Family Browsing Library

This space retains a high degree of integrity. Preservation is the recommended treatment, including:

- Repair and clean wood paneling.

- Integrate new MEP/FP systems with the least intervention possible.
- Restore original wood floor.
- Integrate new lighting sympathetic to design of the space.
- Restore original decorative paint scheme.
- Retain one west wall window and backlight.

Porter Butts Gallery (upper area)

This space retains a high degree of integrity. Preservation is the recommended treatment.

- Integrate new MEP/FP systems with the least intervention possible.
- Integrate modern museum/gallery lighting.

Tripp Commons

This space retains a high degree of integrity. Preservation treatment is recommended, including:

- Repair and clean wood paneling.
- Integrate new MEP/FP systems with the least intervention possible.
- Integrate new lighting sympathetic to design of the space.
- Confirm and restore original decorative paint scheme.
- Provide appropriate decorative acoustic banners.

Old Madison Room

This space retains a moderate degree of integrity. Restoration is the recommended treatment, including:

- Conserve original art work and restore original decorative paint scheme.
- Integrate new MEP/FP systems with the least intervention possible.
- Return floor and ceiling to material to original.
- Integrate new lighting sympathetic to design of the space.
- Restore original decorative paint scheme.

Rathskeller

This space retains a high degree of integrity. Preservation is the recommended treatment, including:

- Conserve integral artwork.
- Integrate new MEP/FP systems with the least intervention possible.
- Integrate new support attributes for user flexibility.
- Restore original decorative paint scheme.

Stiftskeller
This eastern half of this space retains a high degree of integrity. Preservation is the recommended treatment, including:

- Conserve integral artwork.
- Integrate new MEP/FP systems with the least intervention possible.
- Restore original decorative paint scheme.
- Document all murals. (Completed)

Trophy Room
This space retains a high degree of integrity. Rehabilitation is the recommended treatment:

- Integrate new MEP/FP systems with the least intervention possible.
- Integrate new lighting sympathetic to design of the space.
- Restore original decorative paint scheme.
- Restore ceiling.
- Retain murals and evaluate level of conservation required for multicultural murals.

Paul Bunyan Room
This space retains a high degree of integrity. Preservation is the recommended treatment.

- Integrate new MEP/FP systems with the least intervention possible. .
- Conserve original art work as necessary.
- Provide appropriate sympathetic lighting.

Lakefront on Langdon
This space has been heavily remodeled multiple times. Renovation is the treatment recmended.

Grand Stairs

These two spaces retain a high degree of integrity. Preservation/Rehabilitation is the recommended treatment.

- Integrate new MEP/FP systems with the least intervention possible.
- Integrate new lighting sympathetic to design of the spaces.
- Restore original decorative paint scheme.

Bradley Lounge

The scope of work is inconsistent with the Preservation Plan. The space will be substantially altered.

Capitol View Room

This space retains a high degree of integrity. Preservation/Rehabilitation is the recommended treatment.

- Integrate new MEP/FP systems with the least intervention possible.
- Return floor and ceiling to material to original.
- Integrate new lighting sympathetic to design of the spaces.
- Implement decorative paint schemes sympathetic to original building character.

Langdon Room

This space retains a high degree of integrity. Preservation/Rehabilitation is the recommended treatment.

- Integrate new MEP/FP systems with the least intervention possible.
- Return floor and ceiling to material to original.
- Integrate new lighting sympathetic to design of the spaces.

Specific Exterior Recommendations

Park Street/Langdon Street Corner

An addition to the back entrance (south facade) of the Theater Wing is possible to accommodate new functions or expand existing programs. This would be done in conjunction with closure of the existing building entrance at this location with the possible addition of a new entrance in the near vicinity and rehabilitation of the adjacent interior space. The existing canopy, stairs, entrance and building wall forms should be retained at the corner. The appearance of the historic door openings should be respected.

Image: Illustration of proposed new South Addition.

Key features include: set back from the south wall of the south west corner mass of the Central Core. The massing should provide a transition from the classical and symmetrical design of the original Union to the modern design of the Theater Wing utilizing predominantly stone masonry and clear glass.

Theater Wing/Central Core Connector

An addition and infill in this area removes much of the existing structure and building fabric. The new addition and infill could solve many vertical and horizontal circulation and service issues for the building. A portion of this addition will extend to the north to about the edge of the Theater Wing canopy. Existing stone should be salvaged and reused.

Key features include setback and alignment with the present south wall with the primary facade stepping back as it progresses higher and a setback minimum of one window bay at the fifth level. The entry along Langdon Street should not visually compete with the historic building. The major portion of the addition/infill may extend to the fifth floor roof line. At the lower floors this addition/infill may be best served by glass providing transparency and allowing views through the building.

The north side of the infill should be primarily of glass and present a simple yet elegant solution.

Theater Wing/Central Wing Juncture-Below Ground

An addition below grade in the bike circle area could greatly benefit the basement level by providing additional mechanical space. Existing chilled water and steam lines run through this area.

- Key features: The roof should support a terrace above and not protrude above current grade. Any mechanical access or intakes should be in area wells or flush with grade. No mechanical equipment or louvers should be visible from ground level.

Theater Wing Mechanical – Roof Level.

The attic of the Theater Wing (above the former Craftshop) will be reconstructed to provide adequate room for mechanical systems.

- Key features: The roof should be rebuilt to the exact proportions, dimensions and style as existing, including the mechanical air intake penthouse.

Commons Wing Mechanical – Roof Level.

The attic of the Commons Wing will be reconstructed to provide adequate room for mechanical systems.

■ Image: Ilustration of proposed Hoofers and Theater Lobby addition.

Image: Illustration of proposed new West entrance.

- Key features: The roof should be rebuilt to the exact proportions, dimensions and style as existing.

East Campus Mall

The proposed design of the new loading dock is completely underground and will have little impact upon the east side of the building.

Commons Wing/Central Core Connector

Infill at this location could also solve significant vertical service issues for the building and add usable square footage at the fifth level. It is likely much of the existing structure would remain but with some rearrangement of interior space and shafts.

- Key features: The south face of the addition/infill should align with the present second floor south wall. The primary facade should step back as it progresses higher and should set back a minimum of one window bay at the fifth level. The upper floors should feature stone and glass in an arrangement with a symmetrical window opening.

Commons Wing/Central Core Juncture-Below Ground

An addition below grade in this area could benefit the basement level by providing additional mechanical space. This proposed addition will not be impacted by the location of existing underground utilities.

- Key features: The roof should support a terrace above and not protrude above current grade. Any mechanical access or intakes should be in area wells. No mechanical equipment or louver should be visible from ground level. The height of the roof should not obscure the Commons Wing plinth.

Replacement of Hoofers

A new addition that replaces the current Hoofers boat repair and storage will provide much improved and appropriate space for Hoffers functions.

- Key features: The footprint of this addition should maintain the setback from the lake as it currently exists. The footprint should not be expanded further to the east than the existing building wall. The addition roof should not be higher than the level of the first floor of the Union Theater. This may provide a level walk out terrace. The predominate material on the lake side should be glass to capture views of the lake.

North Side (Lake Side) of the Union Theater

An addition that provides space for event pre-function activities is proposed on the lake side of the present theater lobby.

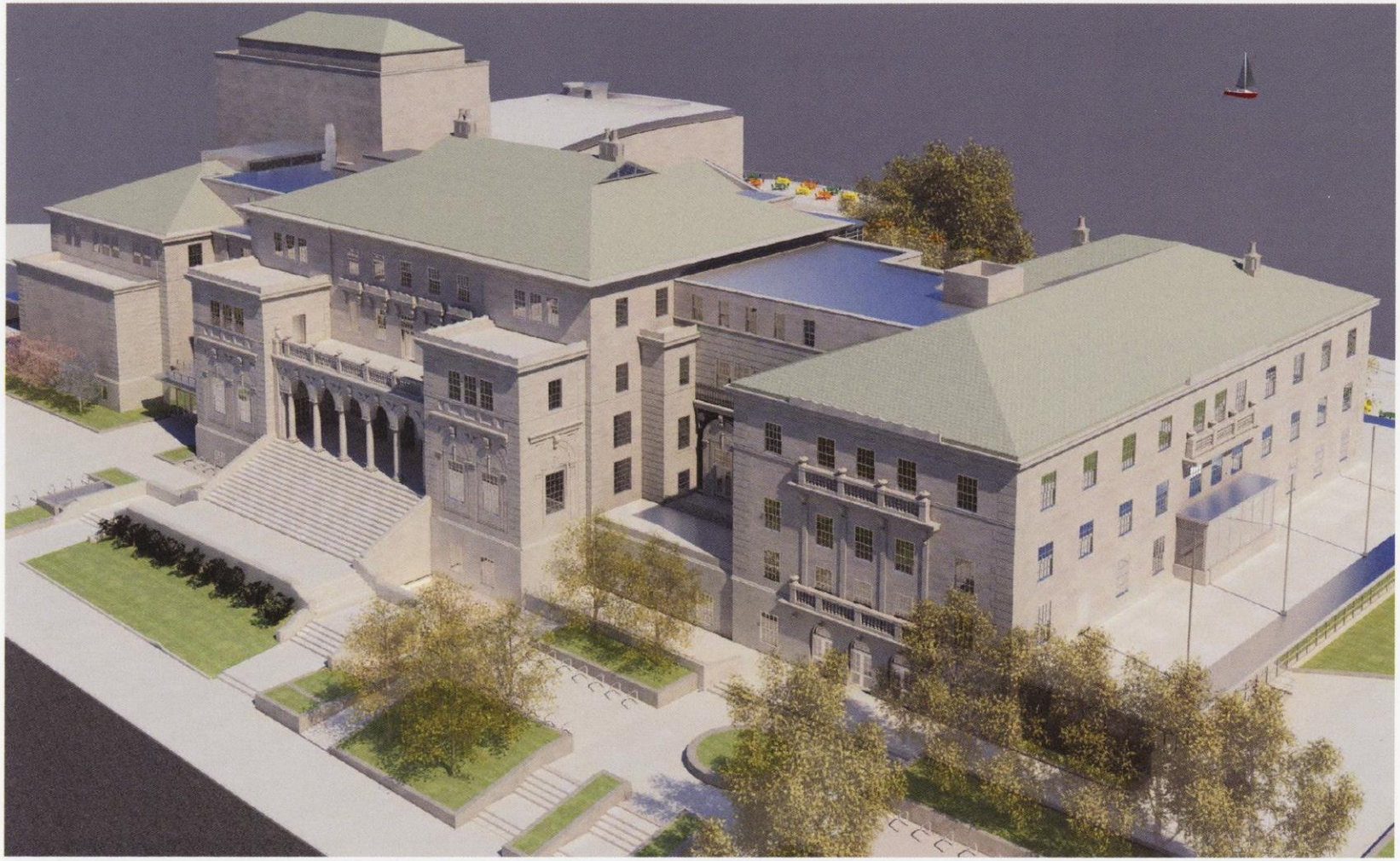


Image: Illustration of proposed Commons Wing infill addition and east plaza.

- Key features: The size of this addition should be kept under 2,000 gsf, single story, flat roof, glass walls, narrower (E to W) than the present theater lobby. It should consist of a design that reflects the simplicity of the original lobby but is contemporary in terms of details and materials.

Terrace

The Terrace is arguably the most important and best-loved social space at the Memorial Union and at the University of Wisconsin-Madison. The Terrace has undergone several renovations since its original creation in 1929 especially in the late 1960s and mid-1980s when significant alterations were made.

At this time the modifications being planned for the Terrace are limited to those associated with the new Hoofers addition, the newTheater Lobby and replacement of the brat stand. The key elements that define the Terrace should be retained. These include the wide panoramic views of the lake, the sense of "enclosure" (provided by the tree canopy, the main building on the south, Lot 1 and the Class of 1941 walkway on the east and the Theater Wing and Hoofers on the west), spatial organization (defined by the multiple terrace levels and circulation paths), mature white oak trees, green space (grass areas and planting areas) and remnants of the original stone walls and paving.

Bike Circle

The Bike Circle at the corner of Park and Langdon Streets was constructed in 1972. This area will be completely replaced as a new underground mechanical room is constructed below. The new design should balance current needs of pedestrian access, bike and moped parking with pragmatic concerns related to view corridors to and from the Memorial Union as well as landscape that is harmonious with the adjacent grand stair.

Grand Stairs

The primary façade of the Memorial Union is the Langdon Street elevation, especially the Central Core portion. This façade meets the street with a prominent grand stair surmounted by an entry loggia. The stair should be restored and the landscape returned to a design more sympathetic to the original design intent.

Langdon Plaza

The landscaping of the Plaza in front of the Commons Wing entrance on Langdon Street was constructed in 1973-74 when the entrance into the east wing was remodeled. The primary character defining elements here are the steps leading up to the Commons Wing entrance and the plinth of the Commons Wing. Both features should be retained in any new design.

Image: Illustration of proposed Hoofers and Theater Lobby addition.

Image: Illustration view of the proposed Theater Lobby addition.

Image: View of the front of the Union Theater. Image courtesy of Wisconsin Union.

Adverse Effects

In the United States, the policies, guidelines, standards and standard-of-care for historic properties are established and promulgated by the National Park Service under the auspices of the 1966 National Preservation Act (NHPA). The National Historic Preservation Act, Section 106, requires federal agencies to take into account the effects that their federally funded activities and programs have on significant historic properties.

The purpose of Section 106 is to balance historic preservation concerns with the needs of federal undertakings. This review process ensures that federal agencies identify any potential conflicts between their undertakings and historic preservation and resolve any conflicts in the public interest.

Wisconsin has a parallel set of regulations. Per State Statute 44.40, State of Wisconsin funded projects shall consider whether any proposed action of the state agency will affect any historic property. If the state agency determines that its proposed action will affect any historic property, it shall notify the State Historic Preservation Officer (SHPO).

If the SHPO determines that the proposed action will have an adverse effect on the historic property, he may require negotiations with the state agency to reduce such effects. If the negotiations result in an agreement (a Memorandum of Agreement) as to the means of reducing such effects (mitigation), the agreement shall be incorporated into the state agency's proposed action.

A project adversely affects an historic property if it alters the characteristics that qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property. An "Adverse Effect" finding results when the historic characteristics of a resource are altered such that the resource's ability for inclusion on the National Register of Historic Places is compromised. When this finding is established, a Memorandum of Agreement is created. This document outlines the details of mitigation measures that must be followed.

The key issue in determining adverse effect is "Will anything that is planned in the proposed project diminish – not just alter, but diminish – the integrity of the property in question?"

Preservation policies recognize that any proposed project has some influence or impact on the historic resource. The standards allow for a balance between the needs of the historic property and a proposed contemporary use or development.

It should be noted that the policies do not negate the possibility of any adverse effect. They do provide for mitigation in the event of adverse effect.

SHPO has determined that portions of the proposed Memorial Union Reinvestment Project do pose an Adverse Effect.

Through a series of work sessions held in the fall of 2011, the design team and SHPO reviewed and discussed the rehabilitation, alteration, infill and addition designs. Compromises were forged, revisions made and general agreement was reached. As anticipated, even with design revisions some adverse effects remained. These adverse effects were noted and a mutually agreeable mitigation plan developed that relates to all of the proposed phases of the project.

Summary of Phase I Adverse Effects

Theater Lounge Addition

- Adverse effect: Constructing a new addition at the historic building's front facade does not meet the Secretary of Interior's Standards.

Play Circle

- Adverse effect: This space will be demolished. The original will not be distinguishable.

Bus Stop Lounge Entry

Adverse effect: Constructing a new addition at the historic building's front facade does not meet the Secretary of Interior's Standards.

West connector link

Adverse effect: Constructing a new addition at the historic building's front facade does not meet the Secretary of Interior's Standards.

Craftshop

- Adverse effect: Renovation will completely alter the original space.

Hamel Family Browsing Library

Conditional no adverse effect: The existing west wall windows should not be removed, in filled and covered over. At least one window should be retained and back lit.

Historic Preservation Mitigation Plan

The mitigation plan takes the form of a Memorandum of Understanding between the Memorial Union, UW-Madison campus and the Wisconsin Historical Society, Division of Historic Preservation. This is a formal and binding agreement under state law. The plan is summarized here.

Part A: Specific Elements Comprising the Mitigation of Adverse Effects

The University of Wisconsin is developing a two phase rehabilitation project at the Memorial Union, a building listed on the National Register of Historic Places as a contributing building in the Bascom Hill Historic District. The proposed reinvestment project (phase 1 and 2), as currently conceived, has known adverse effects on the historic building and therefore mitigation of those adverse effects is necessary.

The following is a list of proposed mitigation efforts developed by the University that were reviewed and accepted by the Wisconsin Historical Society on December 20, 2011 for phase 1 of the overall project that together comprise The proposed Historic Preservation Mitigation Plan.

Although this list has implications for phase 2, a further mitigation plan must to be drafted and approved for work related to phase 2 development at the Memorial Union. We agree that a separate mitigation plan for Phase 2 will be needed and have indicated areas below where it makes sense to campus and the Union to split items per Phase.

1. HABS & HALS quality photos of existing building & landscape – The University will work with a professional photographer to document the existing condition of the Memorial Union building and its surrounding landscape using standards defined by the Historic American Buildings Survey and the Historic American Landscapes Survey process established by the US National Park Service. Digital copies of all photo documentation shall be delivered to the UW Archive and the WHS Archive. This documentation will include approximately 200 photographs meeting the defined standards.

2. Archival photos of Wisconsin Union – The Wisconsin Union will share their archival photographic collection with the Wisconsin Historical Society for scanning and inclusion in the WHS collection of historic photographs, and similarly shall be offered to the UW Archive for its use and incorporation.

3. Exterior utilities along Langdon Street – The University agrees to not introduce

Image: The Crafts Shop. Image courtesy of Wisconsin Union.

new campus utilities along the south face of the Memorial Union building, along Langdon Street, unless they are blended visually into the architecture and/or site landscape design so that they are not visually intrusive. The term "Utilities" includes items such as steam, water & sewer, electrical, data/telephone, and venting for tunnels or building equipment. Any such proposal will be reviewed in detail with the Wisconsin Historical Society prior to implementation.

4. Play Circle Theater History – The Wisconsin Union will research and document the history of the Play Circle Theater and create a permanent display in or near the existing Play Circle lobby. This mitigation element shall include a final written report.

5. Wisconsin Union Theater History – The Wisconsin Union will research and document the history of the Union Theater and create a permanent public display. This mitigation element shall include a final written report.

6. Wisconsin Union History – The Wisconsin Union will research and document the history of the Wisconsin Union and create a permanent display

7. National Register Nomination A National Register of Historic Places nomination will be submitted for the Memorial Union, recognizing its significance nationally in the development of the student union movement around the country.

8. National Landmark nomination – A National Park Service National Historic Landmark nomination will be submitted for the Memorial Union facility.

9. Interior paint study – The Wisconsin Union, and/or a private consultant, will conduct a paint study of interior spaces within the Memorial Union to guide future paint color selections. Paint study to document prior colors used historically over time and what was used for original colors. The results of this study shall be incorporated into the Historic Structure Report and any Master Planning document for the Memorial Union facility.

10. Reusing existing building stone – The University and Wisconsin Union, along with the design team, will reuse existing exterior building stone in select areas under remodeling, renovation and reconstruction. Reuse plans will be shared with WHS staff.

11. Vegetation management plan – The University and Wisconsin Union will undertake an assessment of the ivy growing on the building. This assessment shall be carried out by a professional historic building conservator. If ivy is determined to be damaging the building, then it shall be removed from the building. If the study is inconclusive, then a vegetation management plan for the ivy on the exterior of the Memorial Union building shall be developed in an effort to minimize potential damage to the exterior building surfaces. The University will conduct this assessment in two phases, one for the Theater Wing and its associated work, and one with the phase 2 renovation project at the Memorial Union.

12. Original Building Furniture – The Wisconsin Union will catalogue and reuse appropriate historically significant building furniture in select locations throughout the building. This mitigation element shall include a final written report.

13. Art Deco Staircase/handrails – The University and Wisconsin Union shall retain and reuse elements of the Art Deco Staircase/handrails as appropriate to be lost in the redevelopment of the March Play

Circle lobby.

14. West Façade Glass Block – The University and Wisconsin Union shall salvage and retain for future use all undamaged original glass block. Creation of a stockpile of glass will allow the University to replace damaged glass in the future with original, matching glass block.

15. Record of Treatment – At the conclusion of the Memorial Union Reinvestment, Phase 1 project, the University and Wisconsin Union shall complete a Record of Treatment detailing all changes, modifications, rehabilitation activities, etc., in response to the Historic Structure Report proposal and the project plan as finally constructed, as consistent with guidance in National Park Service Preservation Brief 43.

Part B: Non-Mitigation Required Memorial Union Reinvestment Phase 1 Plan Elements.

The following items are not part of the Mitigation Plan Part A. These items were agreed upon at the outset of planning this project or are otherwise required elements for review within the broader proposed Memorial Union Reinvestment Phase 1 Plan.

1. Preservation Plan: The University worked with a preservation architect team and completed an historic preservation plan for the entire Memorial Union building which has guided the current project and will help guide future phases of renovations/additions to the building. The preservation plan was developed with oversight from historic preservation staff at the Wisconsin Historical Society (WHS).

2. Implementation of the Preservation Plan for the following rooms:
   Langdon Room
   Hamel Family Browsing Library
   (new) Rosewood Room (currently known as the Founders Room)

3. Historic Structure Report: The University worked with a preservation architect team to complete an historic structure report to further guide renovation efforts and redevelopment. The document is currently in draft form and will be presented to the WHS for final review.

4. Wisconsin Union Theater Exterior Building Canopies: The University will repair, rebuild and/or renovate the existing exterior building canopies on the Union Theater and protect them from future damage.

5. Original Building Roof: The University will replace the existing clay roof tiles with in-kind materials when doing any kind of replacement or repair work to the roofing system as part of Phase 1 on the original Memorial Union building. Some of this has already been done to date on the east wing roof.

6. Paul Bunyan Room: The existing murals and benches in the Paul Bunyan Room will be saved and protected during construction.

7. Curatorial Services: The Wisconsin Union will ask to work with the WHS as needed to provide curatorial services for Wisconsin Union information, interpretation and historic items.

Image: Courtesy of Wisconsin Union.

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