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City of Madison

Madison Municipal Building Conceptual Schematic Design Study

November 2013

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Introduction

Purpose of the Conceptual Schematic Design Study

This Madison Municipal Building Conceptual Schematic Design Study has been completed to satisfy the objectives established by the City of Madison, which are to guide and inform the sustainable re-use and rehabilitation of this National Register property. The findings are also intended to help inform the advancement of the Judge Doyle Square development project currently under consideration by the city. Isthmus Architecture, Inc. was retained by the City of Madison to identify the programming needs, assess the long-term viability for building re-use and established the magnitude of associated costs for a comprehensive rehabilitation.

The City of Madison is committed to preserving the exterior and primary spaces of the building's interior, recognizing the important role the structure plays in the history of Madison, its significance within the downtown urban fabric, its status as a Madison Landmark and the city's vital role in promoting the sustainable re-use of significant civic structures.

The work included within this study will function as a reference document; providing the city with information on building conditions as they existed in 2013. The recommendations presented are based on findings gleaned from historical research, building and site surveys and a code analysis of the building and current life safety systems. The design options presented here are also well informed by a thorough and productive programming effort. Specific items and issues identified by all user groups of the Madison Municipal Building (MMB) are crucial to the proposed re-use and were given full consideration throughout the development of this study. The final result of the study is the conceptual framework for the sustainable rehabilitation of MMB.

History and Background

During the tenure of James Knox Taylor (Supervising Architect of the U.S. Department of Treasury from 1897 to 1912), the federal government began promoting the concept that government buildings should be monumental and beautiful. Under Taylor, many new buildings were designed and built across the United States.

John Nolen's visionary plan of 1911 for the City of Madison stipulated a strong "organic relation between the new Capitol (building) and Lake Monona." He stated that the six blocks southeast of the Capitol Square, between Main Street and Lake Monona, "should be secured … as sites for other public buildings." George Post's design for the State Capitol acknowledges this important axis. The golden statue, Wisconsin, atop the great dome, peers down Monona Avenue to Lake Monona establishing the capitol's front door. Monona Avenue, Madison's officially-designated civic center, was renamed Martin Luther King Jr. Boulevard in 1986.

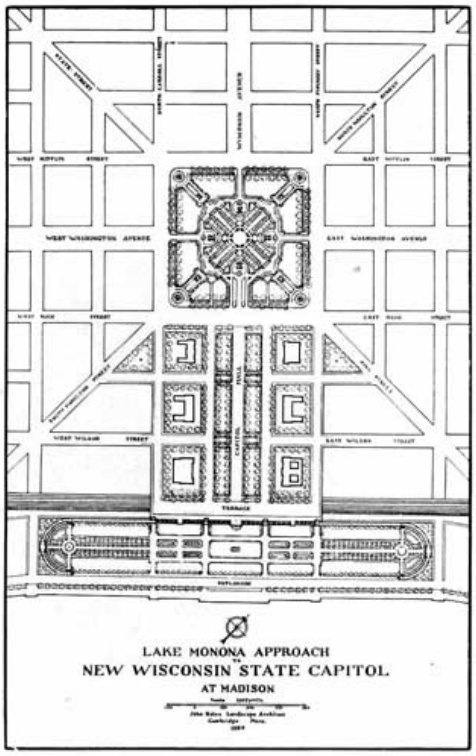

Figure 1 – Nolen Drawing courtesy of UW Board of Regents

Figure 2 – Aerial photo courtesy of the City of Madison

The 1913 Federal Public Buildings Act authorized the construction of a large number of federal public buildings. For the purposes of economy and efficiency, the Department of the Treasury instituted a classification system under which the size and extent of new post office buildings were functions of the value of real estate and postal receipts in the city where the building was to be located. The United States Post Office and Federal Courthouse, the previous name of the Madison Municipal Building, was designed as a first class, subclass B, building, stating:

> "The building exemplifies the image the federal government sought to project to the public."[1]

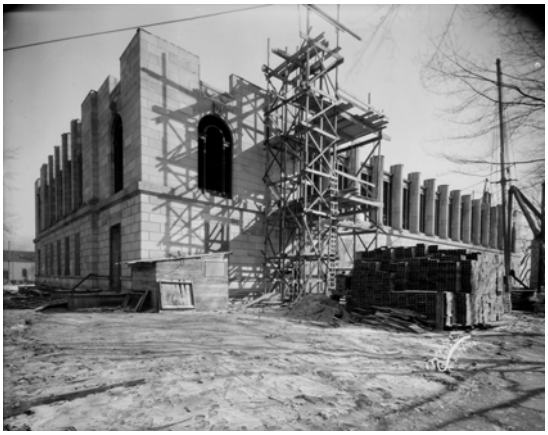

Figure 3 – Photo courtesy of Wisconsin Historical Society

Figure 4 – Photo courtesy of Wisconsin Historical Society

In response to the planning and vision of Nolen, the majestic contribution of architect George Post and spurred on by the construction of a new United States Post Office and Federal Courthouse, on June 10, 1927, the Madison Common Council formally adopted the following:

> "resolved, that whereas it is deemed desirable to establish a civic center so that all public buildings may be grouped for greater convenience of the public and the improvement of the beauty of the city, and whereas it is the sense of the common council of the City of Madison that said civic center should be established on Monona Ave., now therefore be it resolved that said Monona Ave. is and it is hereby designated by the City of Madison as a civic center."[2]

[1] *Wisconsin Historical Society Index*
[2] *Adopted by the Common Council, June 10, 1927, Madison 1856-1931, Stuart D. Levitan*

As stated in Stuart Levitan's book:

> "Twenty years after John Nolen first proposed the Grand Mall, in February 1929 the federal government opened its first physical manifestation – the United States Courthouse and Post Office."[3]

Construction started on the building in 1927 and was completed in 1929. The building is located on the northeast side of Martin Luther King Junior Boulevard, one block off of the Capitol Square. The original plat at the City of Madison, Dane County, Wisconsin signifies this parcel as Block 88 and is approximately 2 acres.

> "This block long building was designed under the direction of the Acting Supervising Architect for the U.S. Treasury Department, James Wetmore. Classical Ionic order columns unify the upper two stories of this limestone-veneered example of Neo-Classical Revival style. This imposing symbol of the federal government was completed in 1929 at a cost of nearly $1 million. The building was constructed as the first piece of a grand scheme by famed urban planner John Nolen to turn the street into a civic boulevard leading from the State Capitol to the lake's edge." [4]

In 1979, under Mayor Paul Soglin, the City of Madison bought the building. The federal court operations moved to new facilities while the post office remained, sharing the space with city offices and remains to this day. The City retained Flad & Associates to renovate the interior of the lower level and first floor including replacement of windows and the majority of the interior finishes. This initiative permitted the City of Madison to be conveniently housed in two neighboring buildings, directly opposite on the boulevard.

Over the years, periodic upgrades have been made to the building. Most notably, the post office space on the first floor was renovated in 1999 and there have been multiple system upgrades especially on the lower level, first and third floors. Several planning efforts to assess potential interior reconfigurations have been completed but no significant renovations have taken place.

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[3] *Page 241, Madison 1856-1931, Stuart D. Levitan*
[4] *Wisconsin Historical Society Index*

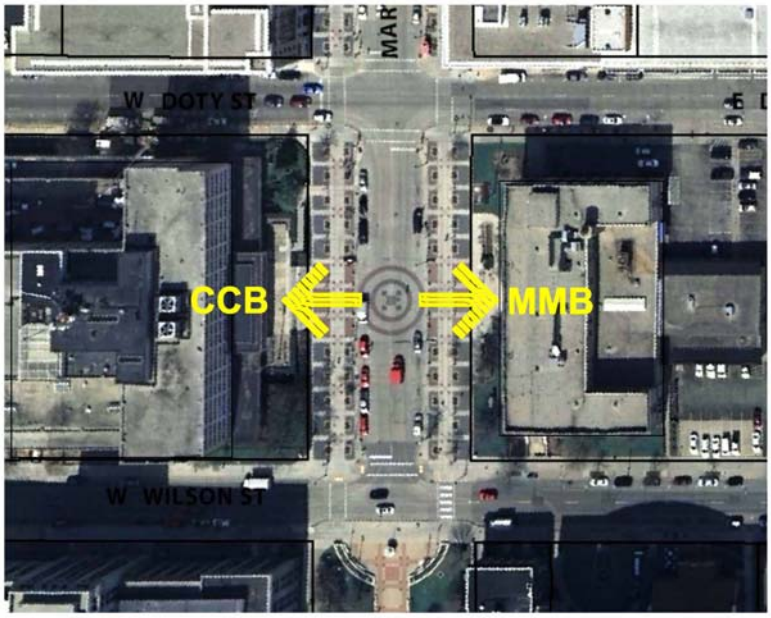

Figure 5 – Functional Adjacency of the Madison Municipal Building & City County Building

Continued use of the Madison Municipal Building as a place of city government is logical and important. Indeed, the placement of recent neighboring buildings such as the Monona Terrace Community and Convention Center and the Risser Justice Center reaffirms the importance of reusing the Madison Municipal Building for city use, consistent with Madison's strong commitment to the significance of Nolen's grand boulevard. Rehabilitation of the Madison Municipal Building should respect the historic quality of the existing structure while providing for optimal interior environment meeting the needs of a modern functional public building; comfortable and efficient. The final result should be an outstanding example of long-term civic vision and sustainability for the City of Madison for years to come.

Historical Designations

Federal:

National Register of Historic Places, authorized under the National Historic Preservation Act of 1966, is the Nation's official list of cultural resources worthy of preservation. The National Register is administered by the National Park Service of the U.S. Department of the Interior. A plaque with this designation is placed at the main entrance, Figure 3. Listed: 11/27/2002

The Madison Municipal Building, formerly known as the U.S. Post Office and Federal Courthouse, was placed on the National Register of Historic Places due to it significance under Criterion C: "embodies the distinctive characteristics of a period, or method of construction representing a significant and distinguishable entity. The building is a fine local example of the Neo-Classical Revival style. The designated period of significance for the building coincides with the years of construction, 1927-1929."[5]

State:

Wisconsin State Register of Historic Places, authorized by the Wisconsin State Legislature is the State's official list of cultural resources worthy of preservation. The Wisconsin State Register is administered by the Wisconsin Historical Society (Certification Date – July 19, 2002). Listed: 07/19/2002

The building is included in the Wisconsin Architecture and History Inventory (WAHI), which contains data on buildings, structures, and objects that illustrate Wisconsin's unique history. The WAHI is a permanent record maintained by the Wisconsin Historical Society (Reference Number 28435).

Built: 1927-1929

Additions: 1942-59, 1979, 2007

Site Monument: 1993 Martin Luther King Jr. Memorial

City:

The building is listed in the City of Madison Landmarks Registry. Designated October 15, 2002.

[5] *National Register of Historic Places, United States Post Office and Federal Courthouse*

Research Methodology

A core team of city staff was established to promote direct interaction throughout the project. The core team was comprised of at least one member of all departments currently housed in the building. In addition, representatives from the mayor's office, finance, building operations and facilities management also were present. This project was lead by Jeanne Hoffman, Amy Scanlon and Jim Whitney of the City of Madison. Core team meetings were held at regular intervals to gather input and share developments as the investigation work progressed and options were assessed. Jeanne Hoffman, Facilities and Sustainability Manager, served as the city project manager and coordinated all planning meetings, reviewed and approved documents and provided general project oversight.

Initially, each city department representative completed a six page programming questionnaire specifically prepared for the project by the design team. The next task was meeting with the staff to review the questionnaire and discuss the results. Meetings were held with each department. A follow-up meeting was held with the mayor's staff upon conclusion of the departmental meetings. Collected data was translated onto spreadsheets for analysis. The preliminary findings from programming analysis were presented to the core team on May 6, 2013 for review and discussion. These findings were updated to incorporate stakeholder input and the revised documentation was shared electronically. As the project progressed, this information assisted in the development of blocking diagrams illustrating potential interior reconfiguration and adjacency options between departments.

The U.S. Postal Service, a current tenant in the building, participated in the planning process. The design team and city staff met with local postal management and interacted with central postal planning.

At specific intervals in the development of the project, reports were presented to the Judge Doyle Square committee for the purposes of sharing relevant information. All substantive information and documentation was posted electronically on the city SharePoint site, and made available to the core team throughout the project.

An interdisciplinary team of professionals was assembled to assess MMB and prepare this report. Isthmus Architecture, Inc. (IAI) of Madison, a firm specializing in sustainable re-use of historic buildings, functioned as the team leader. The firm surveyed and documented architectural

conditions, led dialogues concerning rehabilitation recommendations, and coordinated the compilation and dissemination of historic and technical information supplied by the project consultants.

Continuum Architects & Planners (CA+P) of Milwaukee lead the extensive programming and space analysis efforts. KJWW Engineering Consultants (KJWW) of Madison issued recommendations based on its structural, mechanical, electrical, fire protection, technology and plumbing analysis. Burse Surveying and Engineering, Inc. (Burse) of Madison provided technical knowledge related to the site, utilities and civil engineering issues inherent to the site and re-use of the building. Joe Daniels Construction Co., Inc. provided probable construction cost data and analysis based on the re-use recommendations established by the team.

During the development of the study, IAI and project consultants were committed to develop a thorough method of research, condition survey, documentation, analysis and open dialog. Through cooperation with city staff, the project team established documents intended to serve as a field manual for future work at the site. In order to compile this information in the most useful and efficient manner, all project information, meeting minutes, drawings and preliminary presentations were posted and regularly updated on the city SharePoint site for immediate access to the core team members.

In undertaking historical research, the project team worked closely with Andrew Kraushaar, (Chip) Larry L. Brown III and Jen Davel of the Wisconsin Historical Society to establish an accurate history of the MMB building, including an understanding of building transitions. Amy Scanlon, Paul Stauffer and James Whitney of the City of Madison provided access to historic drawings and records.

Executive Summary

Field Survey and Documentation

Investigation of the Madison Municipal Building began in March 2013 and continued through the completion of the report in October 2013. Using electronic base drawings provided by the city as base drawings for the project, the team recorded the existing configuration and revised the drawings as necessary during the planning process. The team also examined material samples, concentrating on those elements integral to the building's structural system or pertinent to its surface finishes. Different disciplines employed different methods of survey for incorporation into the binders. For example, members of the architectural team organized their survey by using interior room numbers; some of the engineering team members organized their work by building systems, which extended through many spaces and areas. All systems and components were observed, and their physical condition was categorized according to the three major distinctions outlined by state and federal historic preservation guidelines: good, fair and poor. In addition to categorizing the condition of building components, the team also identified those areas requiring immediate attention, those areas to be selectively removed for further investigation, and those areas that need to be monitored for movement. The team also produced digital images documenting the interior, exterior and site to illustrate the survey process and the data recorded. The photos were logged by number, and serve to illustrate defects in materials and systems as recorded in the field notes.

The entire project team met on-site twice during the survey to share their findings and identify areas that require immediate repair or deserve closer investigation. The project team also met various times to discuss pertinent issues with specific core team members. Minutes of each of these meetings were recorded as part of the project documentation. Correspondence by letter, electronic mail, facsimile and telephone were recorded and archived as part of the project. All documents related to development of the final report were retained, either as hard copy or digital file. All digital files were saved to CD-DVD for transfer to the city, along with all field survey and other documentation information.

This report for the Madison Municipal Building is based upon the following investigative activities:

- Detailed analysis of the building's structural elements, evaluation of structural characteristics of historic and non-historic repair features;

- Detailed analysis of the building's interior and exterior features, building systems and evidence of changes over time;
- Survey of the building's interior finishes and a survey of interior furnishings and evidence of changes over time;
- Programming interviews with current city staff;
- Departmental programming analysis;
- Building code analysis;
- Preparation of a detailed space program.

Programming and Space Analysis

Using the office space needs document prepared for the city in 2011 by Potter Lawson, Inc. as a basis, the team set about to verify the assumptions and needs. Each department now occupying MMB was asked to complete a programming questionnaire specifically crafted to collect quantifiable information on department function, staffing projections, foreseeable changes in department operation, amount of interface with the public, need of support space, storage requirements, and adjacencies.

A series of meetings were held with a core team of stakeholders representing all departments in MMB, city project staff and mayor's office liaisons. Once the questionnaires were completed and returned to the consulting team, programming interviews were scheduled with each department to expand on the questionnaire responses, discuss the process and obtain additional insight into the overall operation of MMB. These meetings were a time to answer the many individual staff questions that arose as a natural part of the programming phase.

Preliminary findings were assembled into a PowerPoint document presented to the core team on May 6, 2013. This presentation covered the agreed upon space standards utilized, net to gross programming analysis, departmental programming analysis, detailed space programming per department/division and a summary of the preliminary findings. Concurrently, a re-use and sustainability outline was prepared. After review and discussion among the consultant team, city staff and the core team, the results were complied in a sustainability report. The substance of the report is included as a chapter in this report.

The next step was to challenge the findings under a variety of scenarios. Each scenario was based on different assumptions. Some of the assumptions included, for example, should City Channel remain in MMB or how much could on-site storage be reduced or taken off-site? The utilization of existing conference rooms was documented, verified and analyzed. This effort proved to be more challenging than expected but it yielded very useful information on actual use versus perceived use. This type of rigorous analysis prompted a very lively and productive discussion between all stakeholders.

This study assumes that the City Credit Union will not remain in MMB under any scenario. However, the U.S. Post Office branch located on the first floor may continue to be a tenant in the building. Additional separate programming efforts were required to establish the potential needs and future options for this post office. Meetings were held with the local postal managers and a useful programming discussion was held with Jeff Nowling of the USPS Facility Department Headquarters. The results of these efforts were presented to the mayor's staff and then shared with the core team.

Basic fit plans were prepared for MMB to weigh the merits of the several proposed re-use scenarios. The scenarios with the most merit were shared with all stakeholders including the Judge Doyle Square committee.

Based upon findings and the current understanding of the scope of the project, rehabilitation of the building for continued city use is strongly recommended. The proposed rehabilitation strategy incorporates the detailed programming information that was assembled and refined during the preparation of this study. The proposed rehabilitation conforms to the Secretary of the Interiors Standards for Rehabilitation and general standard of care for sustainable rehabilitation projects. Rehabilitation of the Madison Municipal Building will meet minimum code compliance, sustainable benchmarks and provide a comfortable, functional, and efficient interior environment for years to come.

Recommendations

Continued use of MMB for city offices is the most suitable use and is the most compatible use given its history and landmark status, in keeping with best preservation practice. Historic rehabilitation of the building interior is the most appropriate treatment to provide a functional, comfortable and flexible environment for all users and to preserve the maximum original architectural integrity. This recommended approach will greatly extend the useful life of this significant public building.

Conceptual Schematic Design

Historic rehabilitation of the interior of MMB can permit the city to continue to house the vast majority of the existing functions for the foreseeable future while maintaining over 20% of the original interior elements. Using the rehabilitation approach outlined in this document, all office space, meeting space, support spaces and building systems will be optimally reconfigured for flexible use and completely upgraded to state of the art. Rehabilitation will preserve all of the significant interior elements and primary public spaces. Using this well-ordered approach, the successful rehabilitation of MMB will result in a completed project that will be an exemplary model of sustainable re-use, a model on par with the award winning Wisconsin State Capitol rehabilitation.

Preliminary Cost Estimates

The preliminary probable cost of rehabilitation of MMB, based upon the framework in this report is estimated to be in the range of $19,000,000 - $25,700,000. The probable cost is based upon a detailed estimate prepared by a qualified consultant, actively engaged in the local construction industry, with a thorough understanding of the proposed scope of work recommended by this study. The actual cost will depend on the final project scope and other factors that cannot be determined at this early planning stage.

A rehabilitation of MMB, as proposed in this study, would be an excellent candidate for historic tax credit incentives. Based upon these early concepts, the credit could be considerable, especially since proposed legislation currently under consideration in Wisconsin will likely increase the state historic tax credit to 20 percent.

Acknowledgments

The development of this study required close collaboration between the City of Madison and the consultant team. The City of Madison provided drawings, historic photographs and copies of previously completed studies prior to the on-site work of the architect and engineers, and also graciously provided background information, access to the buildings and their time in assisting the consultant team. Members of the Space Planning and Conceptual Team articulated projected future needs and anticipated uses for the facility.

Many people have made significant contributions to the project. Special thanks to Jeanne Hoffman, for her leadership and support of this study. She kept the City of Madison moving forward through the preparation of the report. We greatly appreciated the continued involvement and guidance of all the team members. Their vision has been instrumental in completing this study in an effort to preserve and rehabilitate a valued historic facility.

CITY OF MADISON

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Architect – Engineering Division

Amy Scanlon, Registered Architect

Historic Preservation Planner – Planning Division

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We extend our sincere appreciation to everyone who participated in or supported this effort.

November, 2013

Peter R. Rött, AIA, NCARB, Preservation Architect

Laura M. Davis, AIA, Preservation Architect

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Building Condition Assessment

Building Description

General

The Neo-Classical Revival architecture of the Madison Municipal Building is distinguished by its formal composition, symmetrical façade, monumental Ionic order columns, decorative moldings, entablatures and cornice surmounted by a parapet. The scale and detailing of these architectural elements is based upon classical forms derived from ancient Greece. Greece is often referred to as the birth place of democracy and the Neo-Classical Revival style in America came to symbolize democracy and permanence, popular for civic and institutional buildings. The front façade of the Madison Municipal Building includes a central projected section, thirteen bays wide, featuring two-story Ionic columns. The exterior, including the columns, is clad in smooth faced Indiana Limestone.

The structural system for the building consists of an interior beam and column framework with exterior load bearing masonry walls. The exterior masonry bearing walls also serve as the lateral system for the building. The structural floor system for the second, third and high roof levels are a one-way concrete joist slab supported by concrete-encased steel beams and concrete-encased steel columns. The clay tile formwork between the concrete joists was left in place, as is typical for joist framing of this era.

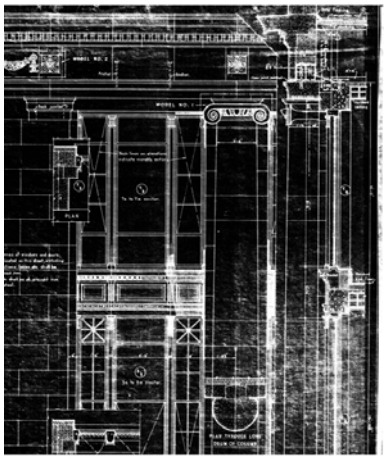


Figure 6 – Original Drawing of Front Window and Wall Section

The main structure for the first floor is a one-way concrete joist slab supported by concrete beams and a combination of concrete columns and concrete-encased steel columns. The columns are supported on standard spread footing foundations and the exterior walls are supported on continuous strip footings.

Original interior walls were built with 4" thick clay tile block AKA pumpkin block or hollow tile. A 1" thick, 3-coat plaster system was then applied to both surfaces. These walls were used at the height of modern fireproofing in 1927. They offered up to three hours of fire resistance and also have a low level of sound transference.

Building Alterations

Sometime between 1942 and 1959, while the building was still owned by the federal government, a loading dock addition was constructed on the rear of the building. (Figure 7) This low slope roofed addition is clad in cream brick. Significant renovation of the lower level and first floor was completed between 1979 and 1982. This renovation resulted in the loss of the original main lobby and altered the original exterior by the replacement of the original steel windows on the lower level and first floor. In 1993, a concrete marker with a bronze bust of Martin Luther King, Jr., was erected on the lawn to the right of the main entrance. In 1997-1998, the grading and planters at the main entrance were reconfigured to provide universal accessibility with the addition of an accessible ramp. Miscellaneous interior renovations took place in 2007.

> "The integrity of the building has been affected by the 1979-1982 remodeling. On the exterior, the dark, fixed replacement windows are incompatible with the building as shown in Figure 6. The first floor and basement have been gutted, losing all integrity. However, the second and third floors are intact. While the alterations detract from the building's architectural character, enough of the original appearance has been retained to lend the building as a fine local example of Neo-Classical Revival design applied to a civic building."[1]

Description – Stone Facade

Standard buff colored Indiana limestone adorns the main façades of the Madison Municipal Building. Supplied by the Indiana Limestone Company the stones are laid in an ashlar pattern and have a smooth sand rubbed finish. The stone depths vary in size depending on its location and purpose. Transitional corner stones are nine to ten inches deep while the stones in the field are typically seven to eight inches deep.

[1] *National Register of Historic Places, United States Post Office and Federal Courthouse, 2002*

Exposed stone face sizes also vary; from a standard 39" width x 16 ½" height at the second and third floors to a 30" width x 16 ½" height with 2" reveals on the first floor.

Figure 7 – Stone Face

The reveals run horizontally and vertically at each stone and the window openings are recessed. Horizontal cut stone banding occurs twice at the first floor level; the first is 11" high with a slightly rounded profile. The second is 2 feet higher, 8 ¼" tall and has a square profile. A strong, heavy, 1'7" tall square shaped band separates the first floor from the second and third floors. It provides a substantial base to the columns, pilasters and false columns that span between the two floors.

Decorative stonework is located at select door and window openings on all floors. Mainly rigid, geometric stone shapes are found on the first floor while curvilinear and whimsical shapes are found on the second and third floors. Twelve partially engaged, round, two-story tall, ionic columns divide the main façade creating thirteen two-story tall openings in which elaborate steel windows reside. Four fully engaged, square, two-story tall, modified ionic columns divide the two secondary facades creating five, two-story tall openings for steel windows. These openings create a light, airy feeling in contrast to the flanking ends of each elevation where there is primarily stone; punched open with one bay of window openings.

Figure 8 – 3 of 12 Partially Engaged Columns on the South Elevation

Topping this magnificent building is a massive, continuous stone cornice and parapet. Made up of four separate pieces of cut stone plus individual dentils, the cornice creates a shadow line that visually separates the parapet from the main façade.

Figure 9 – Stone Cornice and Parapet

The majority of the parapet is clad solid with three pieces of stone, which includes the coping; however, the heaviness of the parapet is lightened by the addition of openings with balusters that align with each window bay. Two types of brick are used on the backside of the stone parapets. The same cream colored brick used at the buildings rear is used at the jambs of each opening with balusters. The brick changes to a dark red, heavily textured brick once the corner is turned. All parapets are topped with slightly pitched stone coping.

Description – Brick Facade

Brick is located on what is considered the rear of the building. The stonework on the primary facades turns the corners into the "U" shape and stop, creating a quoin-like appearance and the parapet is terminated with a decorative stone scroll as it turns the corners. A modified, less imposing cornice continues into the "U" and stops at the back wall. An even smaller, less "stone-adorned" parapet continues on the back wall. Both the side and back walls are topped with metal coping.

While the "U" shape, rear wall isn't stone it does have decorative brick elements that effectively elevates its appearance.

Figure 10 – Brick Façade in the "U" Shape

On the back wall, in absence of the stone cornice, there is a continuous cut stone band and about 1 ½ feet lower is a continuous row of soldier course brick. The five circle top window openings that serve the second floor main court room are framed with three header courses of brick and linked together with another row of soldier courses located at the spring of the arch. Between and at the end of each opening are 2 foot diameter stone inlays framed with a header course of brick. The balance of the brick is laid in a standard running bond pattern.

Window openings in the brick walls are framed with steel lintels (except for the circle top windows), stone jamb returns and stone sills. It appears that in the large expanses of brick wall, steel relief angles were used. Drawings have not been found to confirm this hypothesis but irregularities at regular intervals are apparent, which supports the theory.

A brick chimney, about 17 feet higher that the parapet wall, is located in the southwest corner of the "U" shape. Square in shape as it rises out of the lower roof, the chimney changes shape by the cutting off of the corners making it appear closer to an octagonal than a square. Tall, thin, 3-sectioned decorative steel grilles are located on all four sides and it is topped off with a 3-piece, cut stone cap.

Description - Roofs

The main roof of the Madison Municipal Building has a heavily sloped wood structure with an asphalt roof system on top that sets inside the stone and brick parapet. The wood structure of 4x4's and tongue and groove wide boards was built on top of the flat roof structure. At its highest point, the top of the roof comes within 1 ½ feet of the parapets balustrade openings and at its lowest point, the bottom, underside of the roof, comes within 2 feet of the concrete roof structure. The distance between the roofs low and high point is about 2 ½ feet making about 5 feet of crawl space between the two structures at its highest point.

Figure 11 – An Independent Wood Structure creates the Heavily Sloped Roof

The 15,500 SF built-up bituminous asphalt roof with round stone ballast has 10 drains. High points and low points are visually apparent. Newer painted aluminum flashing and counter-flashing protects the parapet perimeter at a continuous elevation.

Built similarly but with considerably lower and fewer slopes is the roof within the "U" shape. This structure essentially slopes in one direction with slight depressions at the two drain locations. The north edge of this roof is covered with aluminum cap flashing with counter-flashing continuing on each wall.

Figure 12 – The "U" Shaped Roof Area Slopes in One Direction

Description - Exterior Steel Windows

David Lupton's Son's Company of Philadelphia PA manufactured and installed the steel windows in the Madison Municipal Building. At the time of installation Lupton Windows had twelve offices nationwide with hundreds of distributors. Sydnor Hall and Company was the local distributor for this project.

Framing for the steel windows consists of a variety of cast iron shapes. Sills, jambs, mullions, spandrels and headers are made from cast iron. In addition, decorative elements such as applied columns, mini-cornices and bases are made of cast iron. The actual window units are steel with a baked on shop paint. Wood is used sparingly for interior blocking and backer locations.

Figure 13 – Windows are Framed with Decorative Cast Iron, Sashes are Steel.

The operating hardware is nickel plated malleable iron. Standard on each casement type window is one operating handle attached to a steel tubular connecting rod that activates an auxiliary latch. Keeping the window open at the desired location is a casehold tube adjuster; a sliding tube within a tube with a thumb turn tightener. Depending on the size of the sash there could be 3 to 5 hinges with the butt of the hinge located outside allowing the window opens outward. The glass is ¼" clear float glass glazed with steel beads screwed into the sash using brass screws.

There are five different window opening shapes where the original steel windows still exist. Located on the main elevation, between the stone columns are the rectangular shaped, two-story window openings with the nearly thirteen foot tall windows at the second floor (W-1) divided by a decorative cast iron spandrel panel topped by a nearly nine foot tall window on the third floor (W-3). On the second floor at each façade end are thirteen foot tall circle top window openings with elaborate circle top steel windows (W-2). Modified circle top windows are located in the north, brick clad elevation at the second floor (W-5) and simple rectangular shaped openings are located at the third floor (W-4).

All of the windows have at least one operable sash. The north facing circle top windows have an awning type opening while the others have casement type openings. Type W-1 has three operable sashes; type W-2 has four operable sashes; types W-3 and W-4 have two operable sashes and type W-5 has one operable sash.

Figure 14 – Type W-2 Window with Four Operable Sashes

Description – Replacement Windows

In 1979, when the City of Madison acquired the building, the lower level and first floor underwent extensive remodeling. It was at this time that the original steel windows were removed from these floors. It is unknown whether any part of the cast iron frames, sills or jambs remains imbedded in the brick and stone opening. Further investigation behind the furred drywall finished walls is required to ascertain its existence.

Figure 15 – Aluminum Framed Replacement Windows are Located on the Lower and First Floor Levels

Standard two inch, commercial grade, bronze colored, aluminum framed, fixed, storefront windows with tinted insulated glass were installed as replacements to the original steel windows located on the lower level and first floor within the stone openings. The replacement units attempt to resemble the original design intent however they fall very short because the frame, glass and muntin inserts vary in color, reflectance and size.

Residential grade, aluminum double hung replacement windows were installed on the second and third floors in the brick walls. Again, the original design intent was followed but the frame, glass and muntin inserts are wildly different.

Description – Exterior Doors and Frames

Three, double door openings are symmetrically located in the middle of the main façade. All three lead to the interior main lobby. The doors are inset in the openings about 2 feet and are framed in decorative stone adorned with rosettes, panels and other artistic elements. Decorative metal transom grilles complete the large opening.

Figure 16 – Original Cast Iron and Steel Double Door and Transom Openings remain Intact

The doors and frames are original to the building; only the door pulls and locking mechanisms have been changed. Made of steel and similar in design to the steel windows, the door frames and decorative transom grilles are cast iron while the doors are steel. The horizontal divider between the doors and transom is a cast iron lintel shaped like a cornice supported on each side with skinny, ionic type fluted columns. The glass has been replaced with tempered glass without disturbing the original grille work.

The secondary entrance located on the east elevation is similar to the main double doors. The west door opening still has the original cast iron frame and decorative grille transom; however, a new single acting door with a sidelight has replaced the double doors. The door is equipped with accessibility hardware as this is an accessible entrance to the building. Utility entrances range from hollow metal, aluminum frame and steel overhead doors; all are not original to the building.

Figure 17 – Modified for Accessibility, the West Entrance still retains much of the Original Cast Iron Framing

Exterior

Methodology - Exterior:
On May 21, 2013, Isthmus Architecture, with the use of a 135 foot articulating boom truck, conducted a visual condition survey of the Madison Municipal Building's exterior façades. It was a beautiful spring day with temperatures in the mid 70's and a slight southwest wind.

The survey sheets used to record the findings were generated in AutoCAD from the original construction documents and stone shop drawings. (Both were extremely useful in understanding how the exterior walls were constructed.) Each elevation was divided vertically and horizontally and each segment was given a label. For note taking, groupings of segments were enlarged and printed on an 11 x 17 piece of paper.

Once the boom lift was offloaded and positioned in the lower parking lot, the team surveyed the north side starting in the "U" shaped, brick adorned inset then worked their way east to the building's northeast corner. Difficulties with parking lane closures, due to miscommunication, caused the team to bypass the east elevation and move to the south elevation. When the team completed the south elevation, they moved to the west elevation but unfortunately did not complete this portion of survey due to a malfunctioning boom lift. The balance of the exterior condition survey was conducted on July 23, 2013 using high-powered binoculars.

Figure 18 – Boom Lift used for Onsite Survey

Initial roof and parapet surveys were conducted on May 28, 2013 with follow-up verification on June 19, 2013. In addition to the exterior roof surface, the space below the elevated roof structure was investigated.

To document the various conditions, yellow, red, orange and green markings were used on the survey sheets to identify certain conditions. Yellow indicates cracks in the mortar/brick and areas that require re-pointing, red was used to identify movement cracks, orange was used to identify areas of excessive moisture infiltration and green was used to identify excessive rusting at the steel windows. Over 100 digital photographs were taken as another method of documentation.

Condition – Stone Facade

The majority of the limestone in the wall field is in good condition. There are large areas where the mortar joints have deteriorated completely, other areas where the joints are poor but still functioning and other areas where the joints are in good condition. Minor mold condition issues have occurred in areas where the stone protrudes from the building, like at the stone bandings, cornice and window sills. These areas do not shed the water as quickly therefore it picks up more airborne contaminates and the contaminants are not flushed away. The deep, pitched stone sill below the two-story columns attract contaminates but the slope of the sill is enough to rid the water prior to causing damage to the stone. The mold issues are more unsightly than detrimental to the stone.

Like other buildings of the era and type, the majority of building issues at MMB reside in the construction and detailing of the parapet and roof systems. Water is finding its way through the roof flashing and deteriorated mortar joints in the parapet and cornice. The distance of travel for moisture to reach occupied interior spaces is too great but there are signs of water infiltration in the interstitial space between the roof deck (concrete) and the roof system (wood and asphalt.)

Figure 19 – Water Infiltration is occurring at the Raised Wood Roof Level.

There are areas where more water is penetrating the system and it appears most of the moisture is migrating to and staying in the stone, the brick back-up and the joints. Signs of water saturation in the stone and joints occur on all elevations of the building. Most water infiltration has not caused damage to the stone other than staining but damage to the stone due to freeze and thaw within the saturated stone can be found in portions of the west and southwest parapet and cornice.

A few of the decorative stone elements show signs of wear, which is typical of a building this age and is not detrimental to the building. In particular, the decorative stone below the third floor corner windows but conversely the two-story round and square engaged columns are in very good shape.

Movement of the stone and brick has occurred in areas of the parapet and cornice.

Figure 20 – All Four Major, Outside Parapet and Cornice Corners Show Slight Movement.

The cornice movement can be found at each of the outside building corners where the cornice cantilevers the most and it is more exposed to wind and weather. Parapet movement appears to be happening in all but a few locations; some more severe than others. Torqueing and sheering of the stone balusters is occurring and horizontal brick joints are expanding, which means outward movement of the parapet as a whole is occurring as well.

Overall settling of the building's foundation has created cracks at the weakest part of the limestone façade; above the one-bay wide, window openings at the end of each elevation. The cracks do not appear in the plaster finish at the interior of the building reinforcing the opinion that the cracks are superficial.

Condition – Brick Facade

Brick is located on what is considered the rear of the building. Water infiltration at the parapet level within this "U" shape area is apparent. Moisture affecting the side walls is coming from deteriorated joints in the metal coping cap and/or flashing, not from the roof because these walls are on the high end of the roof slope located behind. The back wall parapet is showing signs of moisture infiltration that could be caused by deteriorated joints in the metal coping, flashing and from direct assault from the draining roof. The infiltration is at its worst where the metal coping meets the decorative stone scroll on both side walls.

Figure 21 – Darkening of the Stone below the Metal Coping indicates Water Saturation

If steel in a masonry wall is not properly flashed, (water diverted away) overtime water will erode the protective surface and rust will start to occur. Left unchecked, the steel will expand in layers and surprisingly the separation of these layers has enough power to move the surrounding masonry. This phenomenon is called rust jacking. It appears that rust jacking is starting to occur at the steel relief angles used in the side walls. Deterioration of the brick faces, discoloration of the brick and slight bulging of the brick indicate movement is occurring. Rust jacking at the window opening steel lintels is more apparent because the supporting brick at the jambs are cracking and the sealant used to protect the steel at its bearing points is separating.

Figure 22 – Discoloration and Shifting of Brick indicates Rusting is occurring at the Hidden Relief Angles

There are many movement cracks in the brick facades. Control, expansion and construction joints were not widely used in 1927 so when the building settled it found its own path for relief. The most serious cracking in the brick is located at the outside corner of the brick chimney where full height vertical cracks are occurring. It appears the chimney brick is linked with (rather than separated with a movement joint) the back and side walls so when the walls move independently and in different directions cracking is occurring at the weakest point; the chimney corner.

Figure 23 – Outside Corner of the Brick Chimney is Cracking Vertically on Both Sides

Condition - Roofs

The main roof and the low roof of the Madison Municipal Building have a separate wood structure on which the waterproofing system is laid and both systems are near the end of their practical life expectancy. The exposed tar at the perimeter of the roofs is cracking and in some cases openings have occurred. The continuous sealant joint at the top of the counter-flashing is losing its resiliency too; resulting in hundreds of miniscule to large fissures. A critical sealant joint is located at the open balustrades where water must travel across the joint. It is in these locations where the most amount of water is infiltrating and affecting building elements below.

Condition – Exterior Steel Windows

Unprotected cast iron and steel will rust when exposed to the elements. The coatings on the steel and cast iron frames and window units on the second and third floor have been compromised in several key locations. Typically we found rust occurring at the sills, at the bottom mullion of the operable casements and at the decorative ledge at the spring point of the circle top windows. The most severe of these occurrences is at the mullions. Over the years, as the original seals deteriorated, every type of caulk and sealant has been used to keep out the draft. Applied with care and good intent to aid the occupant, the sealant has aided in the accelerated deterioration of the coatings and obstructed moisture from exiting the system causing rusting. The excessive sealant has also rendered many of the operable sashes inoperable.

Figure 24 – Rust is Developing at Window Sills

Ninety-nine percent of the hardware has been painted including the sliding tube hold-opens, rendering them useless. Many connecting rods and latches are missing or have been removed at public accessible windows. Some latches are bent, missing or wired shut but the majority of the original hardware is repairable and reusable.

Condition – Replacement Windows

The bronze aluminum windows are in good condition. They do not leak and they are not staining the surrounding stone. The only objectionable aspect about them is that they do not aesthetically fit the 1927 building. The double hung aluminum windows are less obtrusive since they are tucked back into the "U" shape, brick clad building backside. Their non-conformity is more apparent when they are viewed from the buildings interior.

Condition – Exterior Doors and Frames

Given their proximity to caustic ice removing salt compounds, the cast iron fames and steel doors are surprisingly in good condition. The integration of modern operating security hardware has not detrimentally altered the doors or frames. Minor oxidation is present but is not damaging the steel.

Interior

Methodology - Interior

Prior to conducting the detailed interior survey, photographs were taken of building elements such as doors, windows and flooring. Each element was categorized into types for ease of identification. Next, three Excel spreadsheets were developed to document the findings; one for Interior Finishes, a second for Windows and a third for Doors, Door Hardware and Door Casing. At the same time, a separate team conducted a close inspection of each floor to document as-built conditions and recent changes to department layouts and configurations was completed to update base drawings for project reference. The work included documentation of workstation furniture, office equipment and major furniture pieces. These items were categorized into historic or non-historic, salvageable and reusable or beyond useful life.

The interior survey started on March 27, 2013, on the second floor. Information was inputted directly into a laptop computer, which was placed on a rolling cart for convenience. Building elements were identified, measured and noted. Differences between our current floor plans and reality such as room layout and door placements were also noted for future reconciliation. By April 4, 2013, we had accumulated detailed information of the historically intact second and third floors and cursory information of the heavily remodeled lower level and first floor.

Drawings could not be found that showed the past or current layout of the elevator penthouse. On-site field measuring took place on June 19, 2013 and the information was transferred to the AutoCAD drawings. Investigation of the interstitial space between the wood roof deck and the structural concrete roof was also completed at that time. Refer to the Building Condition Assessment chapter for more information.

On May 28, 2013 examination to confirm the extent of original plaster ceilings and decorative plaster elements located above acoustical tile ceiling grid systems was conducted on the first floor and lower level at locations designated by the consultant team. Building maintenance staff facilitated this investigation by providing ladders, tools and lighting.

Figure 25 – Original Plaster Ceilings and Decorative Crown Moldings remain above the Suspended Ceilings on the First Floor

Examination of the floor finish on the first floor included selective removal of glued-down carpet in several areas of the Traffic Engineering department. Building maintenance staff pulled back the carpet in the areas designated by the consultant team and reset the carpet when the investigation was completed. The existence of original flooring and its condition was photo documented.

Condition – Lower Level and First Floor:

The majority of the existing finishes on the lower level and first floor date back to 1979 when a complete renovation was undertaken. Wall and ceiling finishes include rubber tile, carpet tile, broadloom carpet, ceramic tile acoustical lay-in ceiling tiles and painted gypsum wall board walls; all in fair condition. No original lighting, window treatments, doors, trim or windows exist.

Rooms on the lower level that changed very little and still have remnants of original finishes are portions of the old boiler room, refrigerant room and toilet room. The toilet room, with its porcelain tile floor border and hexagonal marble tile field, is now a part of the custodial room. Concrete floors and exposed brick walls are original features in the mechanical rooms. An original finish on the first floor that still exists is the original marble trimmed, red quarry tile floor currently exposed in the traffic engineering suite. Investigation below the current exposed finishes revealed that this original floor remains along the entire south

side of the first floor; the location of the original post office lobby. In the same area, above the suspended acoustical ceiling tile grid system are remnants of the original lobby's decorative plaster coffers. It appears as if every decorative coffer has been damaged from the installation of mechanical and electrical upgrades.

Furniture – Lower Level and First Floor:

Open office space is configured with workstation panels that are 34 years old and still retain original fabric. Furniture within the building inspection areas is compatible with the workstation panel system. Elsewhere in the open office areas, furniture is freestanding, a mix of finishes and manufacturers. The condition of the furniture varies.

Historic Furniture

MMB is largely furnished with a variety of free standing and systems office furniture of differing age, finish and condition. The building does retain a certain amount of furniture pieces original to its use as a U.S. Courthouse. These furniture pieces are constructed of wood, predominantly light oak and finished with a clear sealer. Early photographs confirm that these pieces were original to the building's second floor courtroom. Today, most of the pieces can be found in Room 260, the large second floor meeting room, formerly the courtroom. Several pieces from the courtroom can be found in private offices and corridors. This sturdy furniture is in good condition, consisting of three basic types: hearing room tables, hearing room chairs and gallery benches.

Figure 26 – Original Furniture

Condition – Second and Third Floors

Original finishes and features abound on the second and third floors. Everything from the porcelain corridor floors to the plaster ceilings, from the solid wood paneled doors to the operating hardware for the transom windows, exists and is in good condition. Even the wood flooring in the office areas is intact under a layer of carpeting. The richness of the dark stained wood doors, door trim, wainscot and baseboard adds a richness and history to the building that has been lost on the lower floors.

Toilet Rooms on the second and third floors have a lot of original features. Marble items such as floors, baseboard, toilet stall walls and half wall wainscot are prominent, higher end finishes that still exist. Even original porcelain pedestal sinks, floor mounted toilets and janitor wash sinks are in use.

Quarter sawn white oak, (2) recessed wood-panels and (1) recessed opaque glass-paneled doors can be found throughout the second and third floor corridors. Each includes one, clear glass, operable transom sash and both are framed in a continuous 3-piece, 6 inch wide quarter sawn white oak stained trim. Plinth blocks on the corridor side are black marble, the opening is spanned with a white marble threshold and quarter sawn white oak plinths are used on the office side. Many still have the operating door hardware consisting of a mortise latch set with deadbolt, brass escutcheon plates and oval door knobs. Each door swings on three 5-knuckle butt hinges with round finials and some have vintage door closures with kick-down door stops. The transom operating hardware is most impressive with its long brass operating bar that moves a counter-balance bar, which tilts the sash on two hinges.

Doors located between offices and/or corridor doors leading to utility type functions are quarter sawn white oak, (5) recessed wood-panel doors with hinges, trim and locking mechanisms similar to the corridor doors. A significant difference between the two types of openings is the latter does not have a transom sash.

Figure 27 – Slop Sink in Women's Restroom

Doors leading into Room 260, the old court room, are not found anywhere else in the building. The room has two double-door openings each with four doors. On the corridor side there are two quarter sawn white oak doors each with (2) recessed wood panels, which swing out into the corridor. On the room side there are two ceremonial leather covered doors with oval windows, which pivot in both directions.

Figure 28 – Quarter Sawn White Oak Doors and Frames leading into Room 260

Covered entirely in leather with edges trimmed in oak the ceremonial doors have small brass, round headed tacks laid in two rectangle shapes, top and bottom, and one oval shape that surrounds the window. A full-width brass kick plate protects the bottom, front and back of both doors. The leather is well worn in many locations and it has started to dry out and become very brittle.

Framed with the typical 3-piece door trim but topped with a crown molding cornice, the corridor doors stand out as important entrances. The hinges allow the doors to be held open at about a 170 degree angle, exposing the leather doors behind. Hook and ring style door hold open mechanisms keep the doors open.

Framing the leather doors on the room's interior is an elaborate wood frame. Fluted flat columns, slightly taller that the doors flank each side and are topped with a low-slope plain profile pediment, accented with a centrally located wood carved oval ornament.

Figure 29 – Leather Doors located in Room 260

Second and Third Floor typical finishes are:

Flooring:	Location	Material	Condition
	Public Corridors	Marble; porcelain	good condition
	Offices	Carpet, wood	fair condition
	Toilets	Marble; porcelain	good condition

Ceiling:	Location	Material	Condition
	Public Corridors	Decorative plaster	good condition
	Offices	Plaster	good condition
	Toilets	Plaster	good condition

Walls:	Location	Material	Condition
	Public Corridors	Plaster, wood panel	good condition
	Offices	Plaster	good condition
	Toilets	Plaster, marble	good condition

Doors:	Location	Material	Condition
	Public Corridors	Panel wood, hollow metal	good condition
	Offices	Panel wood	good condition
	Toilets	Panel wood	good condition

Trim:	Location	Material	Condition
	Public Corridors	Wood, stained; marble	good condition
	Offices	Wood, stained	good condition
	Toilets	Wood, painted; marble	fair condition

Window Treatment:	Location	Material	Condition
	Offices	2" painted wood blinds	fair condition

Lighting:	Location	Material	Condition
	Public Corridors	Original pendants	good condition
	Offices	2x4 fluorescent pendants	good condition
	Toilets	Original pendants	fair condition

Heating, Ventilation, and Air Conditioning System

All components of the existing systems range from thirty-four to eighty-six years old and are at the end of their usable life. Multiple components have rust damage and leak on a regular basis due to age. Replacing the existing system would also greatly increase the energy efficiency of the building's mechanical system, and would eliminate the constant maintenance on the current antiquated equipment.

The heating system for the building consists of two gas-fired steam boilers located in the lower level mechanical room. One boiler is original to the building (installed in 1926) and the other boiler was installed during the 1979 renovation. Both boilers are currently operating, however, are nearing the end of their usable life.

The chilled water system consist of one centrifugal water-cooled chiller (CH-1) located in the mechanical room. There is also a heat reclaim chiller (CH-2), which rejects heat from the chilled water system to a10,000 gallon hot water storage tank located in the same lower level mechanical room. Both chillers were installed during the 1979 renovation, and are nearing the end of their usable life.

Figure 30 – Rust and Age Degradation on Heat Reclaim Chiller

A draw through cooling tower is located on the single story roof and serves both chillers located in the lower level mechanical room. The cooling tower was installed during the 1979 renovation, and is nearing the end of its usable life. Both figures below show the current condition of the cooling tower and associated condenser water piping. In the last five years there have been multiple leaks in the condenser water piping that have been temporarily patched. The cooling tower does not operate the majority of the year, due to the heat reclaim chiller.

Figure 31 – Cooling Tower Condition

Figure 32 – Cooling Tower Condition

In the lower level mechanical room, there are a heating water primary and secondary pumps, chilled water primary and secondary pumps, and condenser water pumps. All pumps were installed during the 1979 renovation and are nearing the end of their usable life. Below is an example of the typical rust and water damage that is present on many of the pumps. The pumps require additional regular maintenance including seal replacement, bearing replacement, etc. due to their age.

Figure 33 – Rust on Pump Header

Many of the valves located in the lower level mechanical room are rusting and show signs of water damage to insulation.

Figure 34 – Leaking Valve and Damaged Insulation

The building is split into two heating zones; lower level and first floor are combined and second and third floor are also combined into a separate system. The lower level and first floor are heated by a combination of overhead recirculating fan coil units with hot water heating coils and hot water fin-tube radiation installed along the exterior walls. Both the fan coil units and fin-tube were installed during the 1979 renovation. Heating water is provided by a shell and tube heat exchange located in the lower level mechanical room, which converts steam into hot water. It was reported that the system occasionally has leaks at fittings, valves, etc. However, overall the system is functioning as intended. The second and third floor heating is still served by the original cast iron steam radiators located at the windows in each room.

Figure 35 – Steam Radiator

Figure 36 – Steam Radiator Control Valve

The only temperature controls on second and third floor during heating season is through manually opening or closing the control valve located at each radiator. These radiators and associated steam and condensate piping are approximately eighty-seven years old and are at the end of their expected life. Moisture damage was noted in multiple locations due to radiator leaks, and the radiators have been painted multiple times with paint peeling on all radiators.

The zone level cooling system is split into two separate systems similar to the heating system. The lower level and first floor are cooled by overhead recirculating fan coil units with chilled water cooling coils. The fan coil units were installed curing the 1979 renovation, and are nearing the end of their expected life. The facilities staff noted maintenance issues such as fan replacement and leaking valves for the overhead fan coil units, which reflects expected maintenance for units thirty-four years old. The second and third floor is cooled using electric window air conditioning units.

Figure 37 – Electric Window Air Conditioning Unit Installed

Ventilation air is provided to lower level and first flower through a 100% outside air unit located in a crawl space on first floor. The ventilation unit is currently very difficult to provide maintenance because of the limit dimensions of the crawl space.

Figure 38 – Ventilation Air Unit for Lower Level and First Floor

There is also significant water damage to pipe insulation within the crawl space. The outside air is pretreated by a fixed plate energy recovery unit. The energy recovery unit uses exhaust air from bathrooms, janitor closets, and other miscellaneous exhaust to pretreat the outside air. The ventilation air is then supplied to the plenum space above the ceiling in multiple locations. This outside air is then delivered to the occupiable spaces through the return plenums on the inlet to each fan coil unit above the ceiling. This method of outside air delivery is not considered the standard of care, and would need to be modified during a renovation to bring the current system up to code. Current ventilation code requires that outside air be directly ducted to each individual fan coil unit return to ensure the correct amount of ventilation air is delivered to each space.

Ventilation for second and third floor is provided through operable windows in each room, except for Meeting Room 260. Many of the "operable" windows have become stuck shut due to old age, and limit occupant ventilation. Current ventilation code does not allow natural ventilation for office buildings, and mechanical ventilation would need to be added if the spaces were renovated. Meeting Room 260 is supplied with ventilation air through a combination of three rooftop air-handling units. All three rooftop units were installed in different years as the heating and cooling load changed in the space. The units are currently sequenced on manually by the facilities staff as more heating and cooling is needed in the space. The newest Carrier rooftop unit was installed within the last five years and appears to be in good working condition; however, the other two units appear to be approximately twenty years old and are nearing the end of their usable life.

Plumbing

A 3" combination domestic water and fire protection service provides water to the building for the plumbing system. The 3" fire service splits off upstream of the water meter and feeds the remainder of the building; see fire protection system description below for details. Within the water entry room the domestic water system is metered and a building isolation valve is installed. The combined plumbing and fire protection service also shows significant rust and water damage within the water entry room.

Figure 39 – Incoming Combined Plumbing and Fire Protection Service

One gas fired water heater, located in the lower level mechanical room, provides hot water to the building. All hot water is softened by a water softener located in the same mechanical room. The domestic hot water system is currently stored and circulated at approximately 115°F. Both the water heater and softener appear to be a newer vintage and are said to be in good working condition.

Figure 40 – Water Heater

Figure 41 – Water Softener

The existing plumbing distribution system consists of steel and copper piping for domestic water and cast iron and galvanized piping for sanitary and vent. Most of the piping is original to the building, and with the exception of some leaking shutoff valves, the system is reported to be in good working condition. There are various vintages of plumbing fixtures installed throughout the building. Many of the plumbing fixtures are antiquated, and some have been abandoned in place due to infrequent use. The current fixtures do not meet current EPA regulations for water flow requirements.

Figure 42 – Antiquated Plumbing Fixtures

Fire Protection

The existing fire protection system is served by a 3" water main located in the basement. This water main serves as a combination domestic water and fire protection service. The fire service is routed through a reduced pressure backflow preventer located in the lower level mechanical room. The fire service is then boosted by an existing fire pump installed during the 1979 renovation of basement and first floor.

Figure 43 – Fire Pump

The building is currently not sprinkled and the only means for fire protection are 1-1/2" hose valves located in multiple locations on each floor. The existing system is not currently monitored by the fire alarm system, and does not provide monitoring of water flow to indicate and alarm condition. The current fire protection system does not meet the minimum code requirements for a building of this type. Current code would require the building to be fully sprinkled per NFPA 13 and Class III standpipes in stairwells per NFPA 14. The existing incoming water service will likely be undersized for the code required fire protection system.

Telecommunications

Telecommunications service for the building consists of copper and optical fiber cabling. Incoming telecommunications copper cabling from the service provider enters the building at the west end of the Lower Level Mechanical Room and routes to the Lower Level Telephone Equipment room. Copper backbone cabling to serve Madison Municipal Building spaces is then routed to telecommunications rooms on the first and third floors. Existing service entrance copper cabling is in good condition. However, the telecommunications room used for service entrance is at maximum capacity, and is undersized in comparison to what is required by ANSI/TIA/EIA-569 Standards.

Figure 44 – Telecommunications Service Entrance Room

Incoming optical fiber enters the building at the south end of the Maintenance Shop on the lower level and routes to the telecommunications rooms on the first and third floors.

Figure 45 – First Floor Telecommunications Room

Figure 46 -- Third Floor Telecommunications

Electrical

Electrical Conditions

The existing electrical system is a 4000 Amp, 120/208V 3-phase, 4-wire service, which is adequate for the facilities current functions and use. This electrical system is most likely more than capable of handling modifications and minor expansions to the existing building, as the majority of new systems are very efficient compared to what is currently installed. The existing lighting is largely outdated, and very inefficient to modern fluorescent and LED fixtures. Fire alarm is dated and may require updates in the near future. All three electrical systems have a fair amount of exposed conduit and junction boxes, especially on second and third floor due to the original block walls and additional system items being added over the years.

Figure 47 – Exit Sign

Power

As mentioned before, the existing service is 4000 Amp, 120/208V 3-phase, 4-wire service, GE Service Entrance switchgear, in good condition. The incoming utility service is served from exterior transformers on the northwest side of the building. The existing main electrical service equipment is in good condition, and large portions of the branch panels are undergoing an upgrade. Most of the second and third floor panels are being completely overhauled with new branch panels and splice boxes replacing the original 1920s panels in the corridors. In addition, the distribution has been upgraded to include an individual feeder for each panel located on the upper floors, greatly expanding the available capacity.

Although the second and third floor panels have been recently upgraded, the other areas of the building have also seen one or two renovations, and branch panels vary in type, quality, and condition throughout. Some of the existing to remain panels is Westinghouse; these can be difficult to find parts for and even though they are in good operating condition now, they eventually will need replacement.

Figure 48 – Current Electrical Service

Figure 49 – Electrical Branch Panels

Devices are a bit more varied throughout the facility. The second and third floors appear to be the most dated, with portions of the building looking completely original, or very dated. There is potential that receptacle circuits in the un-renovated areas are fed with ungrounded cloth wiring, which presents a very dangerous fire hazard. Third floor also has exposed disconnect located in an office for roof mounted equipment. This is a potential safety issue, and it presents a problem each time it needs maintenance, as the office could be shut down for a period of time while conducting the maintenance.

Figure 50 – Exposed Disconnect Electrical Device

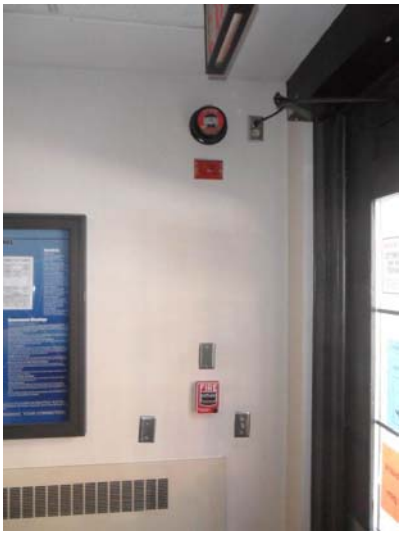


Figure 51 – Fire Alarm

The building also has an elevator, which has undergone some changes since the original building. It appears to still be served from the original exposed motor located in the penthouse equipment room. The inspection dates looked current and the elevator appears to be in good working condition. The elevator cab itself has had at least one recent upgrade, and so have the button interfaces on each floor.

Figure 52 – Exposed Elevator Motor

Figure 53 – Elevator Button Interfaces

Structural

A majority of the existing structural framing was not visible due to the current wall and ceiling finishes. The existing drawings from 1926 were reviewed to better understand the structural system. The structural system for the building consists of an interior beam and column system with exterior masonry bearing walls. The exterior masonry bearing walls also serve as the lateral system for the building.

The main structure for the second floor, third floor and high roof is a one-way concrete joist slab supported by concrete-encased steel beams and concrete-encased steel columns. The clay tile formwork between the concrete joists was left in place, as is typical for joist framing of this era.

The main structure for the first floor is a one-way concrete joist slab supported by concrete beams and a combination of concrete columns and concrete-encased steel columns. The columns are supported on standard spread footing foundations and the exterior walls are supported on continuous strip footings.

The existing drawings note that the concrete around the steel framing is for fireproofing. An alternate fireproofing detail is shown, using clay tile block, which indicates the steel and concrete were likely not designed to work together as a composite section.

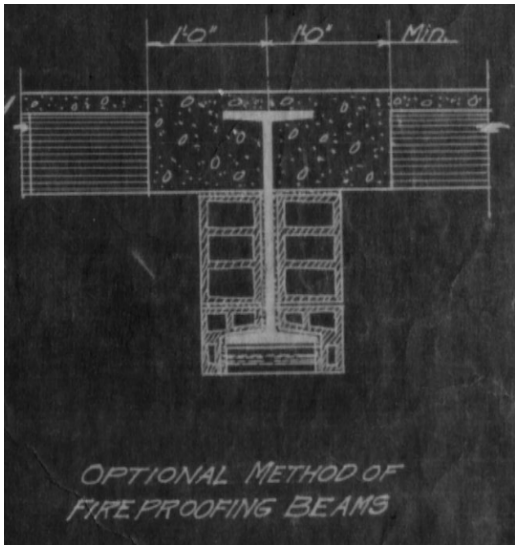


Figure 54 – Alternate Fire Proofing Detail from Existing Drawings

At the high roof and low roof on second floor, there is a pitched wood post and beam roof system built-up on top of the existing concrete slab.

Figure 55 – Underside of Pitched Wood Roof Framing

The old court room on second floor is a two story space. There is an opening in the third floor slab for this space and the existing drawings indicate the roof slab is recessed 1'-10 ¾".

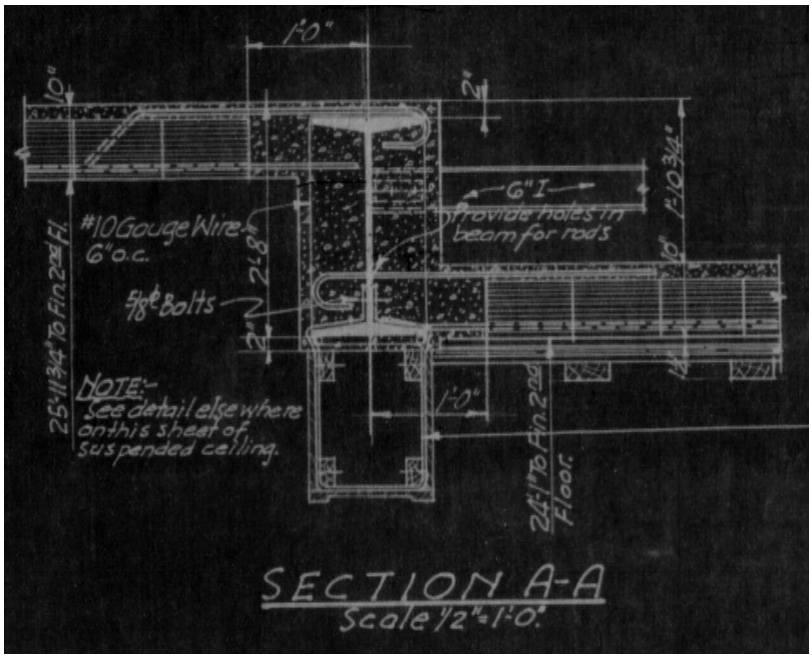


Figure 56 – Recessed Roof Slab at Court Room from Existing Drawings

Plaster cracking was observed at the upper corners of multiple doors on third floor. This is to be expected given the age of the building and the flexible nature of the steel beam support girders.

Figure 57 – Plaster Cracking at Corners of Third Floor Door

Where visible, the exterior basement walls appear to be multi-wythe brick walls. At the water service room in the west corner of the building, there is evidence of water damage to the existing brick. The paint is delaminating and portions of the brick faces have popped off.

Figure 58 – Existing Brick Basement Wall Water Damage

Conclusions:

Overall, the building structural systems appear in good condition. Items like cracking or sagging of floor systems and deterioration of bearing walls were not observed, leading to the assessment that the existing structure has ample useable life ahead.

DRAFT

Programming and Space Analysis

Process

At the March 14, 2013 project meeting, the approach for the programming process was discussed. It was decided to include multiple representatives from each department. The multi-step process involved over 50 staff representing all of the individual departments.

Programming Questionnaire

Each department was asked to complete a questionnaire. The questions addressed current and future staffing needs, how the department would like to interact with the general public, how the departments collaborate between each other as well as conference room usage.

Programming Interview

Each department was asked to assign two to seven staff to attend the interview and provide feedback. In most cases that included the departmental manager. The discussions were recorded in individual meeting minutes and space tabulations for each department were prepared.

Departmental Review, Feedback Comments and Follow-up

Each manager reviewed their respective space program and notes and provided written comments. Where necessary the programming team had detailed phone conversations with the manager to resolve all issues. Follow up meeting minutes recorded the discussion and final decisions along with the final space tabulation.

Project Team Meeting

The completed program was presented to the department leaders for one last review.

Reoccurring user comments collected during interviews

The current building layout presents many challenges for a modern office environment such as:

- The building is inefficiently configured
- The office spaces do not encourage collaboration within departments
- The building layout does not promote synergy between departments
- The public spaces are not inviting
- The building does not project an image of a vibrant and growing city
- The public access to departments is difficult

- Security of building needs updating
- There is a need for large conference rooms / training areas

Programming Assumptions

It was assumed that efficiencies could be realized if all interior walls are eliminated except where historically significant (corridor walls, stair walls and council room).

Reduce overall storage by using off-site storage and retrieval as well as by scanning documents and storing hard copies off-site. It is understood that scanning and cataloguing project files is a significant task requiring additional labor or cost.

Provide all staff quality systems furniture. It is anticipated that systems furniture will increase storage/filing as well as overall work surface as compared with the current freestanding furniture.

Opportunities where staff could be relocated to off-site office space were explored. City Channel was identified as a group that may be better suited to be with the rest of the IT department.

Programming Criteria

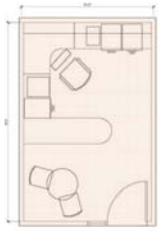
Space Standards

The space standards utilized are common industry wide space standards; they also were reviewed and approved by the mayor's office on May 6, 2013.

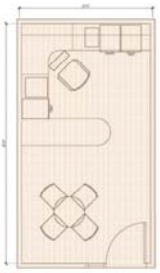
Director – Private Office – 216 SF
Manager, Supervisor – Private Office – 180 SF
Employee w/ confidential meetings –Private Office – 150 SF
Engineers, Planners, Zoning – Workstation – 72 SF
Typical staff – Workstation – 64 SF
Interns, Building Inspectors – Workstation – 48 SF

Graphic representation of these standards follows:

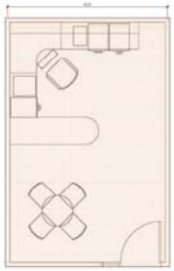
City of Madison Job Classification	FTE	PTE		Private Office		Work Station	Rooms other than Offices
Director				216			
Manager/Supervisor				180			
Employee w/ Confidential Mtgs				150			
Engineers/ Plan/Zoning Reviewers						72	
Everyone else						64	
Interns/Building Inspectors						48	



PRIVATE OFFICE
10' X 15'



PRIVATE OFFICE
10' X 18'



PRIVATE OFFICE
12' X 18'

City of Madison Job Classification	FTE	PTE		Private Office		Work Station	Rooms other than Offices
Director				216			
Manager/Supervisor				180			
Employee w/ Confidential Mtgs				150			
Engineers/ Plan/Zoning Reviewers						72	
Everyone else						64	
Interns/Building Inspectors						48	

WORKSTATION
6' X 8'

WORKSTATION
8' X 8'

WORKSTATION
8' X 9'

Conference Room Utilization – Process and Findings

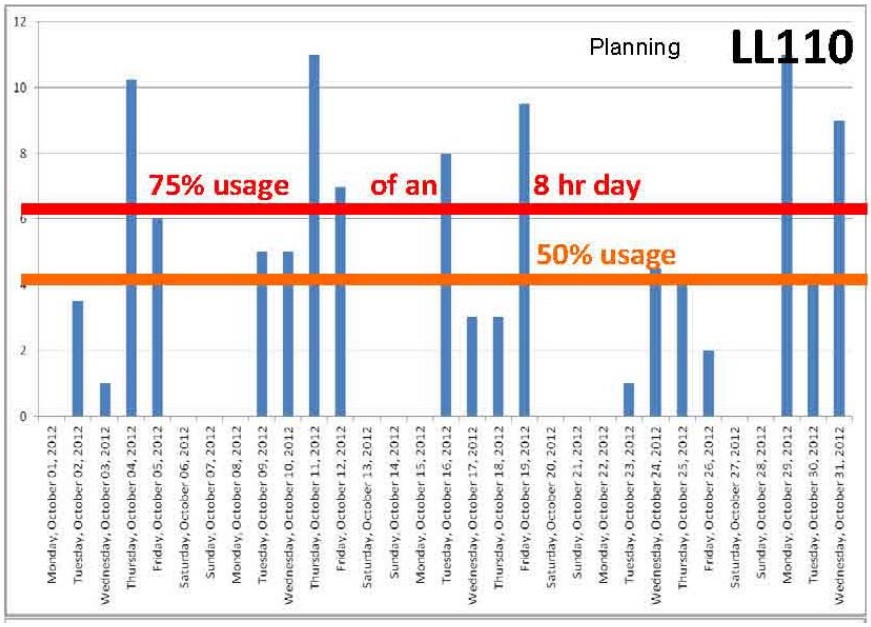
Our questionnaire asked staff about the size and need of conference rooms; the perception of staff is that they need more conference rooms.

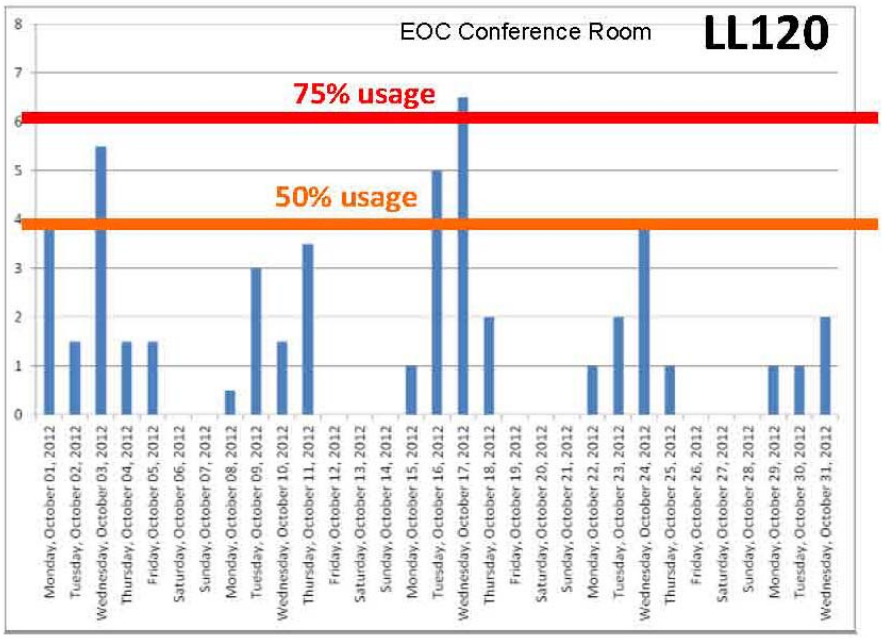
To test this perception we reviewed the 2012 and 2013 conferencing schedule. All larger conference rooms are scheduled via Outlook and the data was easy to review. We reviewed data from the years 2012-2013 and chose the period with the heaviest use – October 2012. We used this information to generate the charts below.

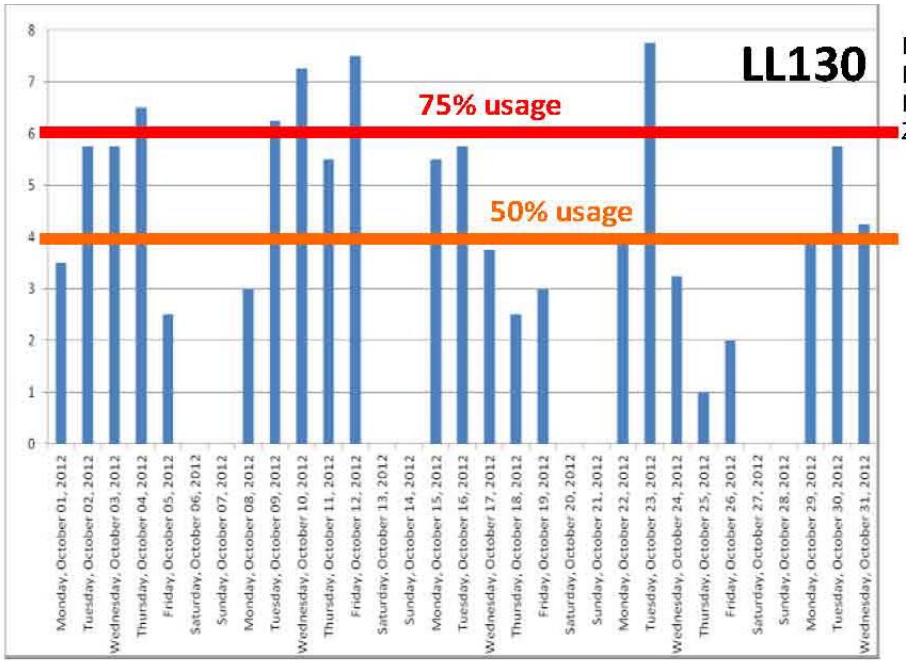
The majority of conference rooms were utilized, on average, less than four hours per day. For a typical office building, we assumed that documented usage below 75% of a typical day or month means that it is underutilized.

Please note that oftentimes the utilization of a room is due to poor acoustics, lighting and quality of furniture. Also quick walk-in meetings are not documented on the Outlook schedule. Most conference rooms are only accessible from within a department and may not be considered as open to everyone.

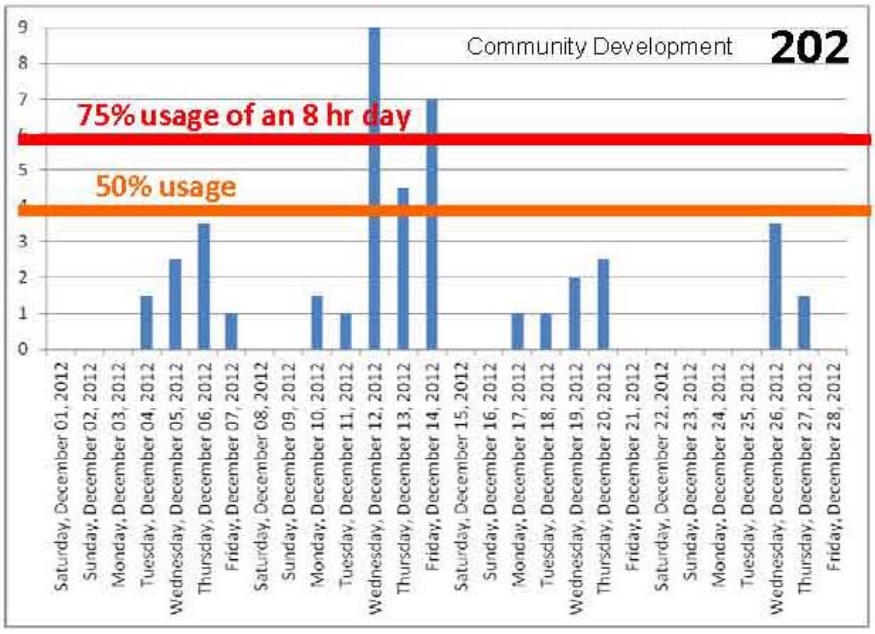
Following are graphics demonstrating the actual room usage.







Planning, Building Inspection, Zoning


Community Development
202
75% usage of an 8 hr day
50% usage
9
8
7
6
5
4
3
2
1
0
Saturday, December 01, 2012
Sunday, December 02, 2012
Monday, December 03, 2012
Tuesday, December 04, 2012
Wednesday, December 05, 2012
Thursday, December 06, 2012
Friday, December 07, 2012
Saturday, December 08, 2012
Sunday, December 09, 2012
Monday, December 10, 2012
Tuesday, December 11, 2012
Wednesday, December 12, 2012
Thursday, December 13, 2012
Friday, December 14, 2012
Saturday, December 15, 2012
Sunday, December 16, 2012
Monday, December 17, 2012
Tuesday, December 18, 2012
Wednesday, December 19, 2012
Thursday, December 20, 2012
Friday, December 21, 2012
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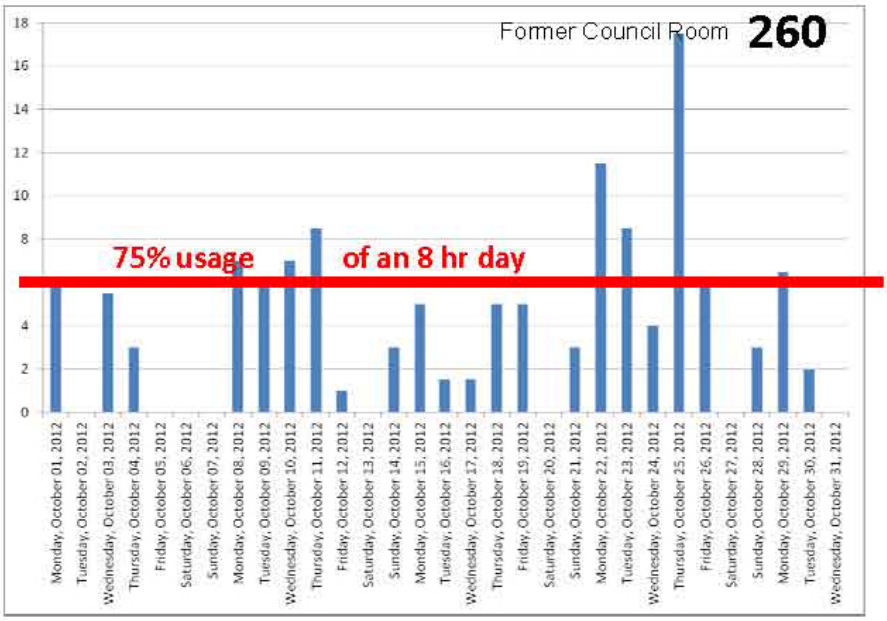
Former Council Room
260
75% usage
of an 8 hr day
18
16
14
12
10
8
6
4
2
0
Monday, October 01, 2012
Tuesday, October 02, 2012
Wednesday, October 03, 2012
Thursday, October 04, 2012
Friday, October 05, 2012
Saturday, October 06, 2012
Sunday, October 07, 2012
Monday, October 08, 2012
Tuesday, October 09, 2012
Wednesday, October 10, 2012
Thursday, October 11, 2012
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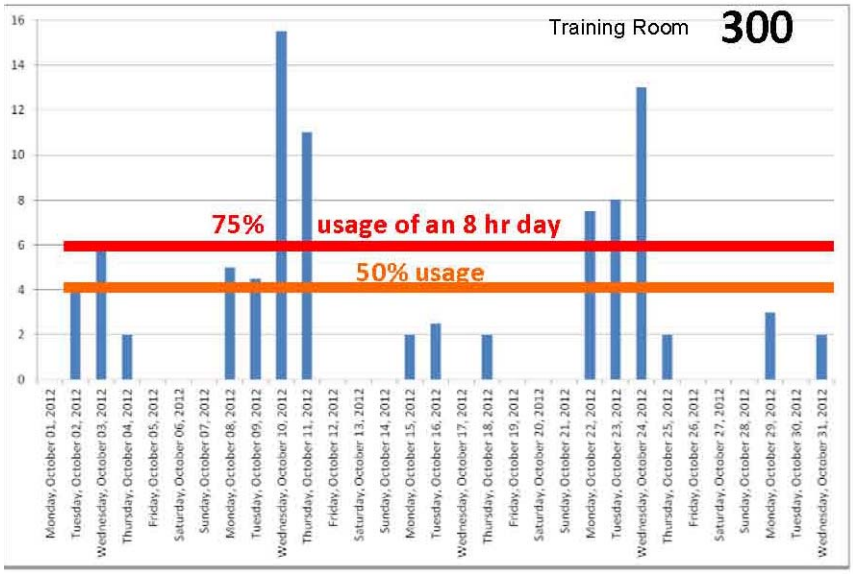
Sunday, October 28, 2012
Monday, October 29, 2012
Tuesday, October 30, 2012
Wednesday, October 31, 2012


Training Room
300
75%
usage of an 8 hr day
50% usage
16
14
12
10
8
6
4
2
0
Monday, October 01, 2012
Tuesday, October 02, 2012
Wednesday, October 03, 2012
Thursday, October 04, 2012
Friday, October 05, 2012
Saturday, October 06, 2012
Sunday, October 07, 2012
Monday, October 08, 2012
Tuesday, October 09, 2012
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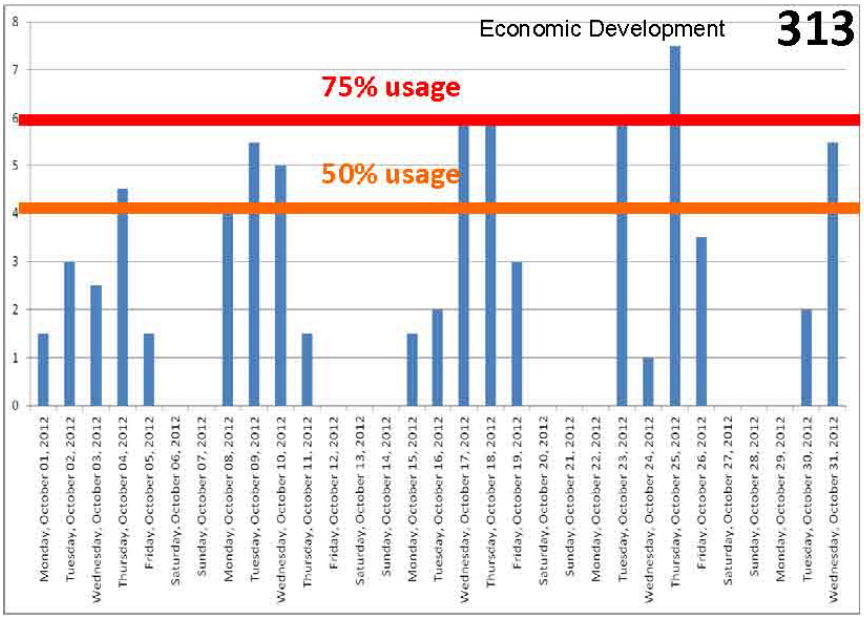
Economic Development
313
75% usage
50% usage
8
7
6
5
4
3
2
1
0
Monday, October 01, 2012
Tuesday, October 02, 2012
Wednesday, October 03, 2012
Thursday, October 04, 2012
Friday, October 05, 2012
Saturday, October 06, 2012
Sunday, October 07, 2012
Monday, October 08, 2012
Tuesday, October 09, 2012
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Tuesday, October 30, 2012
Wednesday, October 31, 2012

Conference Room Recommendations

Our recommendations are to have public conference/meeting rooms that are clustered together on no more than two floors and are easy to find and secure after hours. In addition, departmental conference rooms that are accessible from a corridor are not to be buried inside of a department. Our final recommendations are four departmental conference rooms per floor.

Public Meeting Rooms

Division or Department	Employee Name	Title or Room Name	Assumptions	No of Rooms	Room Size	Sub Total
Training Rooms	Large Training Room	48 to 50 person at seminar tables	50 x 24 SF/person	1	1200	1200
Training Rooms	Computer Training Room	10 to 12 persons	12 X30 SF/person	1	360	360
Public Meeting Rooms	XLarge Public Meeting Room	20 persons around table and 40-50 persons in gallery		1	1600	1600
Public Meeting Rooms	Hearing Room for Housing and EOC	Examiner Table, appelant table for 5-6 people and employer table for 5-6 people plus 8-12 in gallery Room Size 40'X30'		1	650	650
Public Meeting Rooms	Hearing Room for Housing and EOC	Break-out room for Hearings - 4 to 6		1	150	150
Public Meeting Rooms	Medium Public Meeting Room	20 to 22 persons around table		1	450	450
Public Meeting Rooms	Small Public Conference Room	16 to 20 around table		0	350	0
Public Meeting Rooms	Small Public Conference Room	12 to 16 around table		2	300	600

Departmental Conference Rooms

Division or Department	Employee Name	Title or Room Name	Assumptions	No of Rooms	Room Size	Sub Total
Dept Conference Rooms	Dept Conference Rooms	8 to10 around table	2 per floor	8	180	1440
Dept Conference Rooms	Dept Conference Rooms	4 to 6 around table	2 per floor	8	150	1200

Common-use Spaces

Each department will have one coffee area and one printing/copying work area; in addition, each floor will have four departmental conference rooms. A larger, building-wide, employee-only break/locker room is provided.

Space Efficiency Factors

An overall building gross to net an efficiency factor of 55% was used in the space program. That means 55% of the space is useable, net space; while the remaining 45% is assigned for walking space between work stations, corridors, restrooms, exit stairs, equipment/data rooms and mechanical space.

This efficiency factor is a bit lower than typically seen in office buildings. A lower factor was deliberately used to account for the incorporation of historically significant spaces such as wider corridors, extra large exit stairs and common lobby/orientation space. In addition over 85% of all offices are open workstations that will require more circulation space than private offices.

Department Description and Issues to be Resolved

Programmer's Perception and overall recommendations are:

- Reduce amount of paper and file storage in the department and work areas. All paper files still needed should be scanned. Original paper files to be stored off-site.
- Move storage of files that need to be retained for 7 to 10 years off site. Files will be easily retrieved.
- Appropriate systems furniture will allow for more vertical storage then current desks and bookcases.
- All departmental conference rooms to be located so that they can be easily shared by all.

Facilities – Maintenance and Custodial

Currently, MMB is serving as a custodial distribution hub for a number of buildings (Engineering, 4 Police Stations and 2 Fire Departments.) This multi-building function will be moved to the Emil Street location. This will significantly reduce the amount of space needed in this building as well as reduce the need for multiple loading docks.

Information Technology – City Channel

City Channel is part of the Information Technology (IT) Department located in the City-County Building (CCB). City Channel is responsible for the local City of Madison government television station and website. City Channel requires a TV and Recording Studio along with a Control Room, office and support spaces. Currently a portion of Room 260 is set up as the TV studio – it has rigging and lighting.

The department leader of IT would like to reintegrate the City Channel section into the CCB building. The City is planning to move City Channel in 2014 or early 2015 regardless of the MMB project.

HR – Organizational Development and Training

This group organizes and schedules all citywide training programs and holds these classes at MMB as well as a few other locations. In addition, this group is also charged with testing and with management/process improvement consulting to all city agencies and individual city management staff. A training room (Room 300) and computer training rooms are needed to support this agency.

This department could easily be moved to be with the rest of the HR department in the CCB if office and training room space would be available.

HR – Employee Assistance Program

A small three-person staff provides confidential consultation for managers and employees around sensitive workplace related concerns as well as personal issues that have the potential to impact work performance. They also deliver informational training on various work related and wellness related topics and respond to critical incidents/trauma that occur to employees while in the line of duty. Accommodation needs to remain separate from the rest of the HR department for privacy and trust reason.

HR - Accommodations

A one-person staff provides assistance to employees with disabilities. Testing and services are frequently offered at the employment site. The office of HR-Accommodations needs to be secured due to HIPA regulations.

Traffic Engineering Division and Parking Utilities

Traffic Engineering manages all aspects of transportation within the City including traffic signals, marking, signing, geometric roadway design, as well as various plan and permit reviews. In addition the Traffic Engineering division manages and maintains the following systems used both by Traffic Engineering as well as other City Agencies.

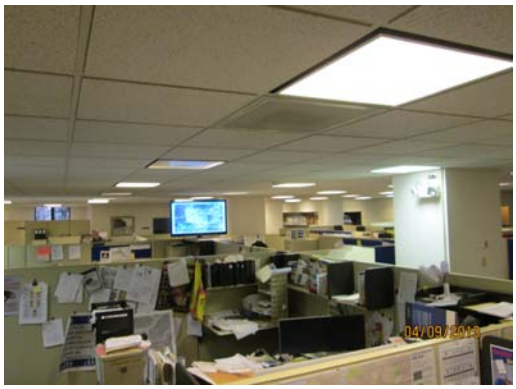
- Fiber Optic Cable Network
- The City and County Mobile Radio System
- The City Camera Network for both police and traffic engineering (Hardware and communications)

The Traffic Engineering division also manages traffic signals by agreement for WISDOT, Dane County, The City of Fitchburg, The City of Monona, The village of Oregon, and The City of Verona. Through these agreements the City of Madison operates as a regional traffic signal manager.

Parking utility deals with the following:

- Parking of all on-street parking
- Managing of five city owned parking structure
- Parking meter collection
- Residential monthly parking permits

Traffic Engineering and Parking Utilities were split into two separate locations on the 1st floor after additional space became available – the separation is not working well and combining the two groups, is desired.



Traffic Engineering is responsible for the following standing meetings:

- Pedestrian, Bicycle, Motor Vehicle Commission once a month.

Department of Planning & Community & Economic Development

Office of the Director

The Office of the Director is responsible for the overall administration of the Department of Planning and Community and Economic Development as well as centralized administrative support, word processing, and desktop publishing services to the other four divisions of the Department. The Office is also responsible for department-wide system improvements among the Divisions, cross-training of staff, and public information development for improved customer service.

The staff (Word Processors and Receptionists) is also the staff for the Planning Division and Building Inspection staff. The word processors type the Inspectors letters and notices and also do a lot of work for the Planning Division.

CDA - Housing

CDA Housing administrates the Section 8 and Public Housing Assistance programs. The department has a significant amount of scheduled appointments with clients using their services. For example, over 1,700 families enrolled in Section 8 Housing have to meet with a counselor on an annual basis. Both of the programs are supported by HUD and federal money. HUD is very interested in improving security including security doors from public areas and all lockable file cabinets.

People who have been denied Section 8 housing assistance have an opportunity for a hearing in front of impartial examiner. The hearing room is set up in a courtroom style with an examiner table, an appellant and an employer table, and a gallery for 8-12 people. CDA housing averages 50 to 75 hearings a year.

The hearing room and associated break-out room are over 800 SF net and typically the rooms remain in the courtroom set up and are not scheduled for any meetings other than for hearings. Ideally CDA Housing would have its own hearing room set-up. However, this study recommends that CDA Housing and EOC who also holds hearings in this building, share these two rooms. EOC, on average holds ten meetings a year. The meetings are typically scheduled for five days but at times can last up to 18 days to 2 months. At the end of the study, the two groups, especially EOC, do not think that sharing will work. It is recommended that this issue be revisited at the beginning of the design phase.

Building Inspection Division

The staff in the Building Inspection division review building and site plans for conformity with local and State Codes; issue permits; inspect to ensure the building is built according to the approved plans and applicable codes; and enforce City ordinances including, but not limited to, electrical, plumbing, heating, building, zoning, housing and property maintenance and consumer protection. Consumer Protection which is related to Weights and Measures Verification is located and will remain off-site.

Over half of the staff in Building Inspection are building and zoning inspectors who are in the field the majority of the day. They have limited office hours when they file reports and return phone calls. Inspectors are using docking laptops and are provided with a small workspace. They work in conjunction with the building and zoning staff responsible for project review and permitting.

One of the many discussions revolved around a centralized, one-stop shop, Development Center for all building, zoning and planning related services. The one-stop Development Center has worked well in many other Cities and is the most user friendly approach for developers, architects and residents.

The Development Center and all of the associated staff and support functions will not fit on any of the floor plates. It is recommended to locate the storage and the field building inspectors on the lower level. Staff was not comfortable with this idea and suggests that all BI staff need to be located on the same floor. The issue will need to be thoroughly revisited in future design phases.

Planning Division

The planning division develops and implements long and short range plans, policies and strategies to guide the community growth and development. They are responsible for preparing and maintaining the City's Comprehensive Plan; conducting citywide planning initiatives and planning for existing and new neighborhoods; and provide staff services to the Madison Area Transportation Planning Board.

The planning division is comprised of four different sections:

- Comprehensive Plan and Development Review
- Neighborhood Planning , preservation, and design
- Maintaining a shared Data/GIS/City Geo database.
- Transportation Planning is located off-site and is anticipated to remain off-site.

Planning would also be part of a centralized, one-stop shop, Development Center.

Community Development Division

The Community Development Division is primarily responsible for the administration of multiple and varied social service programs. The staff administrates numerous federal, state and local programs including managing Community Development Block Grants. They work with local community development partners to distribute these grants and provide contract management for these programs.

The division has the following sections; each having been autonomous in the past, but now are being brought together. The staff is still working on integrating their programs and is hindered by the lack of meeting and informal collaboration spaces.

- Energy Savings (Green Madison)
- Child Care/Children & Families
- Homeless and Crisis Intervention
- Senior Center & Services (Senior Center & Services staff works off site and will remain off-site

Economic Development

The Division administers the City's economic development plan; manages and coordinates the tools to redevelop and revitalize the City's older neighborhoods and commercial areas; performs real estate services for the City including property acquisition and disposition, management, leases, and relocation; promotes healthy neighborhoods and livable urban community by administering community-oriented programs which provide affordable housing, expand economic opportunities, enhance suitable living environments, and support thriving neighborhoods, particularly for persons of low and moderate income; and provides advice and connections to help start, attract, retain, and grow businesses. EDD consists of three offices: the Office of Business Resources, the Office of Economic Revitalization, and the Office of Real Estate Services.

Alternatives

Post Office

The future of the existing USPS branch is uncertain at this time. If the post office stays in this location it will be significantly smaller in size. It will be become a "Retail Center" focused on the PO Boxes and a small retail counter and a self-service area. The space analysis and blocking diagrams includes alternatives to illustrate the impacts if the post office remains in the building in its current location, or is split between two floors or relocates off-site.

IT - City Channel

IT - City Channel's location was reviewed and the space analysis includes alternatives to illustrate the impacts if the department remains in the building or relocates off-site. Additionally, the future studio size requirement was reviewed against more contemporary installations.

Connection to the Hotel

The space analysis includes alternatives to illustrate the impacts if the connection is made on-axis with the main entrance or if the connection is made parallel to Wilson Street. Additionally, the configuration of this connection is not fixed at this time.

Development Center

A one-stop Development Center, staffed by Building Inspection, Zoning, Planning and a number of other city agencies is a customer friendly approach to assist developers, architects, engineers and homeowners. This concept is used in many larger municipalities and has been discussed for a number of years for the MMB.

The blocking diagrams show different options with and without a centralized development center. The creation of a development center should be revisited when more detailed discussions regarding this concept can occur.

Conceptual Program

By using standard office sizes and workstations, managing appropriate amounts of storage and conference room spaces as well as providing sufficient support spaces the Program Summary conclude that all of the departments with some anticipated growth will be able to fit comfortably in the Madison Municipal Building without the annex. This assumes City Channel moves to CCB.

Program Summary

Division or Department			FTE	PTE	Room Number	Current Space- SF	Private Office	Work Station	Rooms other than Offices	SUB TOTAL NET SF
Facilities Maintenance & Custodial		Sub Total	4	0		2800	0	0	850	**850**
Information Technology – City Channel		Sub Total	3	4			move to CCB			
HR – Organizational Development &Training and Accomn		Sub Total	8	0		1850	900	128	458	**1486**
Traffic Engineering Division and Parking Utility		Sub Total	32	0		6246	726	1928	1430	**4084**
Department of Planning & Community & Economic Development										
Office of Directors			7	1		635	366	448	36	**850**
CDA - Housing		Sub Total	14	6		4206	1710	600	1158	**3468**
Building Inspection		Sub Total	41	0		4815	780	1968	1690	**4438**
Planning		Sub Total	24	0		6593	480	1464	2124	**4068**
Community Development Division		Sub Total	27	4		6135	630	1888	442	**2960**
Economic Development		Sub Total	20	2		4668	972	1104	852	**2928**
	Sub Total		180	17		37,948	6564	9528	9040	**25,132**
	Conference Rooms					7280				7850
	Coffee Areas and Work Rooms					0				1210
	TOTAL		180	17		45,228				**34,192**

Post Office	5,730		3,500
Credit Union	642		-
	51,600	Net SF	37,692
		Building -wide efficiency	55%
Space available in building without annex is 72,372 GSF	78,970	Gross SF	68,531

Common Spaces

Conference Rooms

Division or Department	Employee Name	Title or Room Name	Job Classification	FTE	PTE	No of Rooms	Room Size	Sub Total
Training Rooms	Large Training Room	48 to 50 person at seminar tables	50 x 24 SF/person			1	1200	1200
Training Rooms	Computer Training Room	10 to 12 persons	12 X30 SF/person			1	360	360
Public Meeting Rooms	XLarge Public Meeting Room	20 persons around table and 40-50 persons in gallery				1	1600	1600
Public Meeting Rooms	Hearing Rooms	Examiner Table, appelant table for 5-6 people and employer table for 5-6 people plus 8-12 in gallery				1	650	650
Public Meeting Rooms	Hearing Rooms	Break-out room for Hearings - 4 to 6				1	150	150
Public Meeting Rooms	Medium Public Meeting Room	20 to 22 persons around table				1	450	450
Public Meeting Rooms	Small Public Conference Room	16 to 20 around table				0	350	0
Public Meeting Rooms	Small Public Conference Room	12 to 16 around table				2	300	600
	Furniture Storage					1	200	200
Dept Conference Rooms	Dept Conference Rooms	8 to10 around table	2 per floor			8	180	1440
Dept Conference Rooms	Dept Conference Rooms	4 to 6 around table	2 per floor			8	150	1200
		Sub Total						**7850**
Building -wide space standards - modified from DOA								
Vending Area/Break Room			1 per building			1	400	400
Coffee Area - 45SF			1 per department			9	45	405
Work room - 45SF			1 per department			9	45	405
File Area	figure 1 (42" to 48" or 6sf) file per employee		is listed with each Div/Dept					
		Sub Total						**1210**
	Total							**9060**

Building Core - is part of the 55% efficiency factor

Division or Department	Employee Name	Title or Room Name	Job Classification	FTE	PTE	No of Rooms	Room Size	Sub Total
Main Mechanical Room								2205
Air Handling Rooms - 1 per floor			20X30			4	600	2400
Water Meter Room								60
Main Switch Gar								231
Electrical Room - 1 per floor						4	64	256
Emergency Power Room						1	120	120
Main Telecomm Room						1	120	120
Telecomm Distribution - 1 per floor						4	84	336
Exterior Location for Emergency Generator								
Loading Dock - 1 Bay						1		5000
Custodial Closet - 1 per Floor						4	50	200
Shower and Changing Rooms						2	80	160
		Sub Total						**11,088**
	Building Systems Core Spaces							**11,088**

Building Code Analysis

Regulatory Overview

Department of the Interior – National Park Service

The Madison Municipal Building is listed on the National Register of Historic Places, the Wisconsin State Register of Historical Places and the City of Madison's Landmarks Register.

Figure 59 – National Register Plaque

Per the National Historic Preservation Act of 1966, all National Register building's slated for modification that are federally owned or federally funded require a review process called Section 106 review. Typically, the State Historic Preservation Office (SHPO) of the state where the project is located undertakes the review on behalf of the federal government. The Madison Municipal Building is owned by the City of Madison; therefore, formal submittals to the federal government are not required.

The State of Wisconsin has added additional terms, however, requiring a review by the Wisconsin SHPO for publicly owned properties on the National Register, regardless of the funding sources. While not actually a Section 106 review, the WSHPO uses the same guidelines as they would for a Section 106 review. There is no formal submittal form or process to initiate this review.

Figure 60 – Cornerstone

At the earliest stages of planning, the City should send a description of the plans with a cover letter to the Division of Historic Preservation at the Wisconsin Historical Society. It is strongly recommended that the City remain in contact with the Division throughout the project in order to keep them abreast of the project's developments and to help anticipate the need and timetable for future reviews.

Figure 61 – Madison Municipal Building 2012

State of Wisconsin Statutes

State statutes governing historic properties impact work on important civic buildings, as well as any change in ownership. At the earliest stages of planning, the City should become familiar with Wisconsin Statutes, specifically: 700.40 / Uniform conservation easement act, 66.1111 (3) / Ownership, use and disposition of property and (4) / Consideration of effects on historic properties.

State of Wisconsin - 2009 International Building Code (IBC)

In 2003, the State of Wisconsin adapted the International Building Code (IBC). Previously, the state wrote, edited and maintained its own building code; therefore, with its adaptation of the IBC the state maintained the ability to modify any regulation it sees fit. The Madison Municipal Building project is ruled under the International Existing Building Code (IEBC), the Americans with Disabilities Act (ADA) Accessible Guidelines and Wisconsin Building Code Chapter 72.

The Madison Municipal Building is an office building by function and is defined under the code as having a Business, Civic Administration use. This use carries very distinct requirements pertaining to life safety; specifically emergency egress, smoke/fire safety and fire suppression thresholds. All of these must be met or provisions and agreements must be made to modify the requirements.

City of Madison

The proposed rehabilitation project will require review by the Madison Landmarks Commission. Once the project is approved, a Certificate of Appropriateness is granted. Additionally, approvals will be required by City Plan Commission, Urban Design Commission and Common Council prior to final plan approval by the State of Wisconsin Safety and Buildings Division.

Due to the close proximity of the Madison Municipal Building to the State Capitol Building, it should be verified if Federal Department of Homeland Security clearance is required prior to any actual work on site.

2009 International Existing Building Code (IEBC)

Following is a summary of the relevant sections of the IEBC:

Reduced Building Area: 72,400 GSF / 3 Stories & Basement

Construction Class: Type IB

Use and Group: B (Business, Civic Administration)

Chapter 4 Classification of Work

There are eight classifications; three of which are related to alterations. Level 3 alteration is the highest level and is for projects where the work area exceeds 50% of the aggregate area of the building.

Section 405 Alteration-Level 3

405.1 Scope -work area exceeds 50% of the aggregate area of building

405.2 Application. Comply with IEBC Chapters 6, 7 & 8

Section 408 Historic Buildings

408.2 Application. Except as specifically provided for in Chapter 11, historic building shall comply with applicable provisions of this code for the type of work being performed

Chapters 6, 7 and 8 Alterations-Level 1, 2 and 3

Level 3 projects must comply with provisions stipulated in Chapters 6 and 7 as well as Chapter 8. Each chapter builds upon the next in terms of requirements and regulations; for instance, Sections 605, 706 and 806 all relate to Accessibility.

Section 605 Accessibility

605.1 General - work shall comply with 605.1.1-605.1.12 and Chapter 11 of the IBC unless not technically feasible. Where not feasible, the elements shall provide for the maximum extent that is feasible.

Section 703 Building Elements and Materials

703.2.1 Existing Vertical Openings – all existing interior vertical openings connecting two or more floors shall be enclosed with approved assemblies having a fire-resistance rating of not less that 1 hour with approved opening protectives.

Section 704 Fire Protection

704.2.2 Group B - automatic sprinkler protection required

704.3 Standpipes - required

704.2.4 Other required suppression systems - see Table 903.2.13 of the IBC

Section 705 Mean of Egress

705.4.1 Two Egress Doorways Required – rooms and spaces having an occupant load greater than 50 persons or in which the travel distance to an exit exceeds 75 feet shall have a minimum of two egress doorways.

705.6 Dead-End Corridors – Dead-end corridors in any work area shall not exceed 35 feet

Section 802 Special Use and Occupancy

802.1 High-Rise Buildings – Any building having occupied floors more than 75 feet above the lowest level of fire department vehicle access

802.2.1 Re-circulating air or exhaust systems - systems greater than 15,000 cubic feet per minute (CFM) shall be equipped with smoke and heat detection per the International Mechanical Code (IMC).

802.1.2 Elevators - provide existing elevators with emergency operation in accordance with ASME A17.3

Section 807 Structural

807.5.3 Limited Structural Alteration - where not more than 30% of total building area is involved in structural alterations, the analysis shall demonstrate that the altered structure complies with the loads at the time of original construction.

Section 808 Energy Conservation

808.1 Minimum Requirements - Level 3 Alterations are permitted without requiring the entire building to comply with International Energy Conservation Code (IECC).

Chapter 11 Historic Buildings

Section 1101 General

1101.2 Report – Design professional shall prepare report identifying each required safety feature that is in compliance with Chapter 11 and where compliance with other chapter of these provisions would be damaging to the contributing historic features. Additionally, the report shall describe each feature that is not in compliance with Chapter 11 provisions and shall demonstrate how the intent of the provisions is complied with in providing an equivalent level of safety.

Section 1102 Repairs

1102.5 Replacement - in-kind replacement is permitted except with respect to safety glazing requirements which shall comply with the IBC.

Section 1103 Fire Safety

1103.2 General - notes the addition of an automatic fire-extinguishing system per local code official, however, the system shall not be an alternative to the required number of exits from the facility.

1103.3 Means of Egress - allowances can be made on existing egress openings by local code officials.

Sustainability Analysis

Programming Criteria

As a result of meetings with the Core Team to develop sustainable strategies, four key goals were articulated:

- Plan for a functioning office building with optimal building systems
- Plan for a functional work environment
- Target energy efficiency
- Optimize sustainability where practicable

Sustainable Guidelines

- Madison Landmarks Ordinance
- National Park Service Guidelines for Rehabilitation and Renovation
- U.S. Green Building Council LEEDv4 Standards
- City of Madison Design Guidelines

Sustainability Design Report

Overview

The Madison Municipal Building is an excellent candidate for sustainable rehabilitation that can successfully meet the City's needs for many years to come. The original construction is of very high quality, consisting of very durable materials. The current condition of the building structure and envelope is good. A thoughtful conceptual design for re-use should be able to maintain the majority of the exterior elements, features and original material. Inside, a significant portion of the original interior elements, features and original material may be retained without compromise to the upgraded efficiency, comfort and security that will be required for continued use.

The roof of the building provides an opportunity to incorporate renewable energy and green technology with an added educational benefit. Due to the existing configuration, the roof lends itself easily to incorporation of a photo voltaic array and potentially a vegetated roof.

Conceptual design should focus on optimizing indoor environmental quality. This historic building has generous window openings on three sides that provide a great opportunity for good daylighting and views. Thermal comfort and indoor air quality may be greatly improved by tightening-up these openings and by the specification of new efficient HVAC systems with adequate controllability.

Methodology

The LEED Green Building Rating System provides a set of performance standards for certifying the design and construction of buildings. Using these standards as a guide, the proposed rehabilitation of the Madison Municipal Building was assessed. The findings are as follows:

Site

The existing site of the Madison Municipal Building situated in the city center contains many elements essential to a sustainable project.

Site Context

Exists on Martin Luther King Jr. Boulevard, government boulevard as articulated by John Nolen

Functional Connectivity

Provides unequalled adjacency to the City County Building

Community Connectivity

Provides excellent access to all available modes of transportation

Location provides logical well-established way-finding

Life Cycle Assessment

Rehabilitation would avoid impacts pertaining to embodied energy

Rehabilitation will have smaller carbon footprint over new construction

Materials and Resources

The proposed rehabilitation will retain the majority of the existing building envelope.

- All visible significant architectural elements contributing to the historic designation will be retained
- Elements to immediately visible may be adapted for sustainable purposes

Interior elements retained

- Important primary elements contributing to the historic designation will be retained

Recycle, Demolition and Salvage

- Plan to minimize landfill of demolition

Energy and Atmosphere

Significant improvements can be made in these areas, provided the rehabilitation concept is based upon attainable goals. Realistic targets under this category follow.

Energy performance

Possible 15-35% over code baseline

Refrigerant Management

Phase-out plan to be completed in 10 years

Renewable Energy

Plan for photo voltaic array on roof

Heat Island

Plan for a vegetated roof (size)

Water Efficiency

- Target 25-35% reduction

Indoor Environmental Quality

Significant improvements can be made in the indoor environment during the proposed rehabilitation. Realistic targets under this category follow.

Controllability of Systems

Provide key area, building level energy metering

Thermal Comfort

Meet ASHRAE 55

Increased Ventilation

Meet LEED benchmark

Indoor Air Quality

Meet ASHRAE 62.1

Daylighting and Views

Provide natural daylight in majority of enclosed area

Plan to maximize view to exterior at all staff work and public areas where feasible

Priorities and Alternatives

Priority needs to be given to optimizing indoor environmental quality, optimizing energy efficiency and functionality. The project should be as sustainable as practicable.

At this point in the development of a plan to rehabilitate the Madison Municipal Building, it is prudent to consider a number of alternatives. The concept must include flexibility to respond accordingly to the funding made available to execute the project.

Alternatives include project components that are not critical to the project priorities. Phased completion of several sustainable elements may be of benefit. These elements may include the solar array and the vegetated roof.

It is the consensus of all stakeholders to recommend the preparation of an Owner's Project Requirement Document to clearly articulate the project goals.

Recommendations

Evaluation of Significance

The process referred to as the "Evaluation of Significance" represents the key transitional step between collecting data and developing recommendations as to the treatment of spaces. After reviewing the preliminary research materials including the Application to the National Park Service for national recognition, the team acknowledged that while several physical alterations and remodeling have occurred in the Madison Municipal Building, more than half of the building maintains a great deal of historic fabric.

Evaluation was based on three independent criteria – architectural significance, historical significance and architectural integrity. In analyzing architectural significance, under consideration was the manner in which spatial configuration, materials, finishes, and details were implemented to make a space distinctive. Although the focus remained on interiors, structural and mechanical components contributing to the uniqueness of each space were discussed as appropriate.

The analysis of historical significance considers the historical importance of events or individuals associated with a given space; however, under the nomination guidelines, all governmental buildings are automatically eligible regardless of specific events or individuals.

Ratings for architectural integrity were based on consideration of the historic and transitional building fabric, relative to the remaining original finishes of the interior. Building fabric was defined to include decorative finishes, decorative plaster, wood trim, windows, doors, marble, and light fixtures. The original floor plans, when compared with the existing floor plans, provided the team with useful information concerning original and existing floors, walls, and the configuration of individual spaces. This procedure assisted in determining where architectural integrity remains intact, and conversely, where it has been lost.

In working through the evaluation process, each space on every floor was designated as having a Primary, Secondary or Utilitarian significance. If a space was determined to have a Primary significance," ideally, it should be saved and subject to preservation or restoration treatment; a Secondary significance indicated a space should be saved through rehabilitation; and a Utilitarian significance means original fabric should be saved only if it conforms to the building program otherwise it may be renovated.

Definitions of preservation treatments follow the National Park Service Secretary of the Interior's Standards for the treatment of historic properties, which define the relative impact of the treatment upon a structure and are as follows:

Preservation

Preservation is the act or process of applying measures necessary to sustain the existing form, integrity and/or materials of a building or space.

Restoration

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

Rehabilitation

Rehabilitation is the act or process of making an efficient contemporary use through repair, alterations and/or additions while preserving those portions or features that convey historical, cultural or architectural values.

Renovation

Renovation is the act or process of removing the original form or features and replacing those materials and features with new fabric and materials that are contemporary in nature.

Spaces categorized as having Primary significance were labeled Zone 1; therefore, should be preserved or restored. Spaces regarded as having Secondary significance were labeled Zone 2 and may be restored or rehabilitated. Zone 3 spaces are usually of a support or utility nature and may be renovated.

Therefore; spaces of Primary Significance are those elements or interior spaces exhibiting unique or distinctive qualities, original materials or elements, especially identified in the National Register Nomination for the building. Areas of Secondary Significance are those areas that are modest in nature, void of highly significant or original features, materials or conditions, but when restored or rehabilitated, will contribute to the interpretation of the property as a whole. Support or Utility areas are not subject to primary or secondary significance categories. These are areas where modifications would not represent a loss of character or an intrusion upon historical or architectural significance.

Recommended Treatments

<u>Zone 1 - Primary Significance – Preservation and Restoration:</u>

Exterior limestone facades of the building

Original steel and cast iron windows

Brick exhaust tower

First floor public lobby; original configuration

Second floor court room

Second and third floor primary public corridors and stairwells

Photo courtesy of Wisconsin Historical Society

<u>Zone 2 - Secondary Significance - Rehabilitation</u>

Brick "U" shaped exterior elevations

Second and third floor secondary public corridors and toilet rooms

Second floor northeast suite – original judge's chambers

Photo courtesy of Wisconsin Historical Society

<u>Zone 3 - Utilitarian Significance - Renovation</u>

All of the lower level

All of the first floor, except the original public lobby

Second and third floor offices

Architectural Recommendations

Exterior

Stone Facade

If a full exterior building restoration is undertaken, we recommend all masonry joints be re-pointed and all stone faces be cleaned. This will provide a uniform appearance but more importantly it will provide a base point from which a regular maintenance program can begin. Sealant joints should be installed in skyward, horizontal joints and mortar in vertical joints. Stones with both joint locations, such as the second floor banding and the cornice, should receive both joint treatments and in some cases vents should be introduced to aid in air circulation.

The brick and stone parapet sits on top of the massive, through-wall stone cornice.

Figure 62 – Brick and Stone Parapet

Drawings have not been found to determine how these elements are connected together but standard practice at the time of construction does suggest that some sort of mechanical means was used. It is also not known whether steel anchors were used to tie the stone to the brick inside the parapet. The amount of movement seen in the parapet increases the possibility that rust jacking of steel is occurring; that freeze/thaw of the brick and mortar are not enough to warrant this movement. We recommend a portion of a parapet wall be deconstructed down to the top of a cornice block in order to study and fully understand the dynamics occurring in the wall. From this evaluation we will be able to determine the cause of the movement and what the best methods are to resolve the issues. Adjustment to the shifted portions of the stone cornice is not required since it is very slight and further movement can be arrested. At this time, we do not suggest installing metal on top of the stone coping or cornice as long as the joints are maintained on a regular basis.

Replacement mortar for both re-building and/or re-pointing shall be based on test results taken from mortar samples within the wall. Achieving the correct ratio between sand, lime, Portland cement and water is crucial to getting the correct color and absorptive qualities that will be compatible with the stone. Replacement stone shall also be as close a match to the original as possible so the restored wall works as one unit.

Installation of a new roof system is highly recommended. Refer to the roof section for more information.

Brick Facade

Further investigation at the steel relief angles is recommended. Pick two to three locations where movement is the most prominent and carefully remove one to two layers directly above the steel. We can then verify whether or not flashing was used and the extent of damage to the steel. If the steel has lost more than one-third of its thickness, it should be replaced. If there is no flashing or the flashing is damaged then new flashing should be installed.

Roof replacement will resolve the water issues at the back wall parapet. Cap flashing replacement at the side and back wall parapet will resolve the balance of the water issues. Reconstruction of the parapet walls in the "U" shape is not required; however, the brick as well as the stone should be completed re-pointed.

After the cracks on the chimney are repaired, we recommend relief joints be created either on one or both of the inside brick corners that connect the chimney to the walls. The chimney needs to be able to move independently of the walls.

Other movement cracks are occurring in the brick walls but they do not raise a red flag at this point. Re-pointing of the brick, just as with the stone walls, is recommended so a baseline is created from which cyclical maintenance can occur.

Roofs

The wood structure upon which the waterproofing sits is in excellent condition. Even at those locations where water has reached the wood little damage has occurred. The roof structure is very capable of being reused; however, to correct the counter-flashing detail at the balustrade openings the pitched surface has to be changed. The pitch can be reduced but only by way of adding more drains or lowering the whole roof system.

The lower raised roof in the "U" shape also needs to be replaced. We recommend moving the roof drains further away from the roof edge so a minimum four foot diameter basin around the drains can be created.

Exterior Steel Windows

There are no products available today that can replicate the intricacies of these steel windows. Their design and contribution to the overall aesthetics and historic nature of the building is the same as the two-story stone columns on the front elevation. Removal of them would irrevocably harm the character of the building.

Figure 63 – Steel Window with Stone Carving Decorations

A thorough condition survey should be conducted at the Design Development stage to create a comprehensive scope of work for each window. Removal for any reason, including refurbishment, of the cast iron framing members is not recommended as they are imbedded in the stone rough opening and their removal could result in undue damage to the opening. The cast iron should be stripped in place of any existing coatings and re-coated with high quality advance engineered coating products. The steel sashes should be removed, tagged with their individual window opening number and restored off site. All of the hardware should be removed and completely reconditioned including the removal of all paint. The sliding tube hold-opens will properly function after a rigorous clean-up and re-lubing.

In terms of energy efficiency and sustainability, there are drawbacks to retaining and restoring the original windows. Made in 1927, the windows are not equipped with energy efficient features found in modern day windows. Condensation does occur on the steel sashes and cast iron frames when the temperature between the interior and the exterior varies greatly. The quarter inch thick, single pane glass does not stop the temperature differential either but there are steps that could be taken to maximize the efficiency of the window opening without altering or replacing this important historic element.

Interior or exterior modern storm windows are one option to consider increasing the efficiency of the window openings. Storm windows are good at creating the air barrier or thermal break between the hot and cold sides of the opening. Low profile (skinny, small framing members) frames are available so the installation of them will not harm the overall appearance of the window. A key decision to be made is whether the original windows will be restored to their full operability or if, for HVAC reasons, the windows will be rendered inoperable.

Another option is the application of an adhesive coating to the glass. This method aids in the reduction of heat transference in the glass but the loss at the steel frame will still remain. If the windows remain operable, we recommend adding weather stripping between the operable sash and the steel frame as well as a separation layer between the glass and the steel glazing bead. This will greatly decrease the heat loss and resulting condensation but it will not be completely omitted.

Replacement Windows

There is no doubt that the removal of the lower level and first floor original steel windows changed the character of the building. Thankfully, the original windows within the larger, more prominent openings on the second and third floors still reside. Authentic replication of the missing original windows is not possible today but new windows would give the design team an opportunity to specify products that do a better job at replicating the original design intent.

Exterior Doors and Frames

Metal thresholds and sealants should be replaced but the framed openings and inserts are worthy of rehabilitation and reuse. A basic wash, re-coating and refurbishing of the hardware, doors and frames is needed to extend their life.

Interior

General

Replication of missing original elements can be accomplished with a variety of different elements. Items such as doors, trim profiles and finishes are obvious selections but discussion about less visible elements should be had. As mentioned in the Building Condition chapter, the construction of the original interior partition walls created a different "feel" to the spaces by using clay tile and plaster. Does the team want to recreate that experience in newly created spaces? Cost and time will be major factors in making this decision but not to the extreme as may be assumed. By installing veneer plaster on a modern framing system we can accomplish similar results without the cost and difficulty of installing power and communication wiring in a clay tile wall.

Pure replications of visible elements should be avoided per the National Park Service (NPS) Standards because in ensuing years people must be able to distinguish between original and replications. In Zone 1 areas, we recommend close replications of visible elements in order to enhance the historic experience. In Zones 2 and 3, we recommend keeping or reusing any original elements and add contemporary ones.

Lower Level and First Floor

To the largest extent possible, the original first floor post office lobby with its marble and quarry tile floor and plaster coffered ceilings should be restored and/or recreated.

Second and Third Floors

We recommend original finishes and elements remain as much as possible while still fitting within the design intent and program of the building. Replications of historical elements such as door hardware or light fixtures is not required; however, it is reasonable to request original elements be refurbished and reinstalled.

Heating, Ventilation, and Air Conditioning System

The following is a comparison of alternate HVAC systems for this project. Each system that we believe is a viable option for this project is described below. We would recommend using computer software to run an energy model of the below mentioned options to determine which system meets the Owner's energy goals.

Option 1: Variable air volume (VAV) with Hydronic Reheat

Central station air-handling units located in penthouse on lower roof deliver cooled and dehumidified supply air to individual zones controlled by VAV boxes and reheat coils. Return air and outside air are mixed, heated or cooled, and filtered at the air-handling unit. The cooling coil is served by chilled water from centrally located chillers. Variable frequency drives (VFD's) provided with the air-handling unit allow energy savings at off-peak conditions. An economizer section of the air-handling unit allows up to 100% outside air for "free cooling" when weather conditions allow. A carbon dioxide sensor in various critical occupied zones allow outside airflow rates to be reduced to conserve energy.

A hydronic heating system provides hot water to VAV box heating coils, and other terminal heating equipment. Fin-tube radiation will provide supplemental heating at perimeter windows for occupant comfort. The boilers are sequenced and configured such that the water temperature can be reduced during mild outside air temperatures to conserve energy. Heating water pumps are fitted with VFD's, which allow for further energy savings. To meet code-mandated ventilation flow rates without over-cooling rooms, boilers, and pumps will operate in the summer.

Option 2: Variable air volume with dedicated outside air system (DOAS) with heat recovery

Central station air-handling units located in penthouse on lower roof deliver cooled and dehumidified supply air to individual zones controlled by VAV boxes and reheat coils. Return air and outside air are mixed, heated or cooled, and filtered at the air-handling unit. The cooling coil is served by chilled water from centrally located chillers. Variable frequency drives (VFD's) provided with the air-handling unit allow energy savings at off-peak conditions. An economizer section of the air-handling unit allows up to 100% outside air for "free cooling" when weather conditions allow. A carbon dioxide sensor in various critical occupied zones allow outside airflow rates to be reduced to conserve energy.

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A separate energy recovery system delivers dehumidified and partially conditioned air to individual zones controlled by VAV boxes and occupancy sensors. The energy recovery unit saves energy and may allow reduction in total cooling capacity to offset its first cost. The unit will contain heat recovery via an enthalpy wheel between the outside air intake and relief air exhaust air streams.

Option 3: Fan coil units with dedicated outside air system

Four-pipe fan coil units will be located above ceilings to provide heat and cooling. Each fan coil unit has a filter, fan, and coils that are connected to hydronic piping. Fan coil units require frequent access to replace filters. If possible, they can be located away from occupied spaces and can have some lined ductwork to minimize noise transfer.

A separate energy recovery system delivers dehumidified and partially conditioned air to individual heat pumps. Occupancy can open and close ventilation VAV boxes to provide only the amount of ventilation needed. The cooling coil in the energy recovery unit is served by chilled water from centrally located chillers. Variable frequency drives (VFD's) provided with the supply and return fan allow for reduced airflows at off-peak conditions. A carbon dioxide sensor in various critical occupied zones allows outside airflow rates to be reduced during times of partial occupancy. The energy recovery unit saves energy and may allow reduction in total cooling capacity to offset its first cost.

Hydronic piping serves the fan coil units and provides water for the heating and cooling coils. The heating water is supplied from a central boiler system and the chilled water is supplied from building chillers.

Option 4: Chilled Beams

Chilled beam systems include a finned coil in each zone. Central ventilation air is introduced through nozzles that induce room air. The combined primary and induced airflow passes through the finned coil. This is a variation of an induction system. The differences between chilled beams and induction units are that the nozzle technology has improved somewhat, filters are not included, and the primary system pressure required is much lower.

Chilled beams can be used for heating and cooling and are available in 2-pipe and 4-pipe arrangements. They are most advantageous when the sensible loads are high compared to latent loads. Chilled beams have few advantages when latent loads are high or high ventilation rates are required.

Chilled beams are intended to provide only sensible cooling. Higher chilled water temperatures are used to avoid condensation during typical operating conditions.

Chilled beams are similar to fan coil units in that only ventilation air must be ducted through the building. Chilled beams differ from fan coil units in that chilled beams do not have condensate pans/drains, do not include fans, are quieter, require no power, and probably require less maintenance. Disadvantages are that chilled beams cannot heat or cool zones without the central system operating (chilled water must be provided year round) and there is a risk that they will cause condensation if operated in cooling mode when the zone humidity is too high.

Option 5: Variable Refrigerant Flow (VRF) with DOAS

A variable refrigerant flow system is a fully custom direct expansion refrigeration system that offers simultaneous heating or cooling year-round from a single refrigerant piping network. Variable speed compressors located outside the building can operate as either condensing units or heat pumps depending on the building's overall load requirement. Indoor terminal units can either heat or cool, depending on the individual zone requirements, by using a refrigerant manifold that connects to the refrigerant piping network. This manifold will modulate the liquid or hot gas refrigerant to the terminal unit to match the space load requirements.

Outdoor condensing units would be located within the penthouse on the lower roof. Typical outdoor condensing units cannot operate at the low temperatures experienced in Madison, Wisconsin. Locating the outdoor units within a heated enclosure allows them to operate down to the winter conditions typically experienced in this area. Outdoor units are available with different cooling and heating capacities to suit the application. The one limitation of the system is permissible pipe runs are 400 feet real length and 130 feet level difference between indoor and outdoor units.

Plumbing System

The existing three-inch combination domestic water and fire protection service will need to be upsized to accommodate a new compliant fire protection system. The new incoming water service will need to split within the water entry room to serve the domestic water and fire protection systems. A centralized water softening system will need to be located proximal to the incoming domestic water service and will provide softened water for all domestic water. A new natural gas water heater should be installed within the lower level mechanical room to provide hot water throughout the building. Refer to Sustainability Analysis Chapter for more information.

Fire Protection System

The current fire protection system does not meet the minimum code requirements for a building of this type. Current code would require the building to be fully sprinkled per NFPA 13 and Class III standpipes in stairwells per NFPA 14. The existing three-inch incoming water service will need to be replaced and upsized to accommodate the new sprinkler requirements. A fire pump could be located in the existing lower level mechanical room. The entire building will need to be sprinkled. Density of coverage will be based on NFPA requirements. Class III standpipes would be routed from the ground floor to the roof level of each stair tower with a horizontal exit to grade.

Telecommunications Systems

As mentioned in the Conditions chapter, the current service entrance room is undersized. The service entrance room should be expanded to a minimum size of 10' x 14'. A Main telecommunications Distribution Facility (MDF) room 10' x 12' should be created on the First Floor to house servers and other active computer network equipment. The MDF room will also house portions of the City of Madison Traffic Engineering Department video surveillance system and cabling. Additional telecommunications rooms should be located on each floor and sized at 8' x 10' minimum dimensions. Telecommunications rooms shall be located such that the maximum cable distance to any work area does not exceed 295'. Telecommunications rooms will be designed with a standard EIA/TIA layout, with adequate room to support all current and most future needs of the building. Equipment racks, wall termination space, fiber optic termination cabinets, copper termination patch panels, and full cable management for all cabling will be provided. Ladder rack should also be provided for overhead distribution of cabling and equipment patch cords.

Horizontal (station) cabling from telecommunications rooms to work areas for voice and data needs will need to be Category 6 compliant. Backbone cabling from the MDF to each telecommunications room should be provided. Backbone cabling for legacy voice communications would consist of multi-pair Category 3 copper cabling. Backbone cabling for data communications should consist of a mix of multimode and single mode optical fiber.

A wireless telecommunications structured cabling system for the entire building should be provided to support owner-provided wireless access points.

An ANSI/EIA/TIA 607 compliant telecommunications grounding and bonding system should be provided for the entire facility.

Access Control System

A PC-based access control system workstation should be provided to monitor and configure the access control system. Access control system should be based on the City of Madison standard KeyScan system. Keypad readers, door status switches, and exit devices for entry access to non-public areas should be provided where required.

CCTV (Closed Circuit Television) System

An IP based video surveillance system should be provided for recording and viewing of all video camera locations. Camera locations should be as determined by the Owner.

Electrical System

Electrical Service and Distribution

Utility company electrical service transformers are existing, providing a secondary service of 120/208V, 3 phase, 4 wire. Any updates to the service transformers will also be 120/208V, 3 phase, 4 wire, and will be pad-mounted type and located outside of the building. Primary service and/or secondary service metering shall be provided in accordance with the local utility company requirements.

Power Distribution System

Upgrades to the distribution system should include replacing outdated panels and install new power panels with the specifications listed below.

208Y/120 volt general power panels will be provided on each floor in each area, coordinated into stacked electrical rooms. Panels will be designed to have 25% spare capacity for future expansion possibilities.

Additional power panels will be provided in specialty areas such as kitchens, etc. Electronic secondary metering will be incorporated on all major distribution switchboards.

Motors of ¾ horsepower and larger shall be served at 208 volt, 3 phase, 3 wire. Motors less than ¾ horsepower shall be served at 120 volt, 1 phase, 2 wire service, as applicable.

Fans, pumps, and cooling towers should be controlled by variable frequency drives (VFD's) with full bypass capabilities.

Devices shall all be 20A rated minimum commercial grade.

Lighting Systems

Lighting levels for this project will meet current IES recommended lighting levels.

Exterior site lighting should all be LED type. 5000-6000K color temperature.

Fluorescent luminaires with T8 (4100K) type lamps are recommended for general lighting. LED down lights should be used for low illumination areas. All luminaires should utilize energy saving lamps and electronic ballasts. LED fixtures will be implemented for accent lighting and areas requiring dimming.

Emergency egress lighting should be fluorescent type. Exit luminaires should be LED type for energy efficiency and long lamp life. Emergency lighting would be fed from the emergency branch of the emergency distribution system. Battery backup means or a back-up generator within each luminaire would provide emergency lighting.

Lighting design will need to comply with the ASHRAE 90.1 standards for allowable lighting watts per square foot. Design watts per square foot will strive for 30% better than code required. Additional mandatory controls for lighting will be installed that include manual switching, multi-level controls, automatic controls to reduce lighting levels, daylight controls, and exterior lighting controls.

All interior lighting should be controlled by an automatic shutoff means. The exception to this would be emergency egress lighting and other areas where automatic shut-off is determined unsafe.

A separate control device should control types of light that are not classified as general lighting. Examples of these types of lighting are display/accent lighting, case lighting, task lighting, non-visual lighting, and demonstration lighting.

No wall-mounted occupancy sensors should be used. Only line-voltage ceiling type occupancy sensors should be installed.

Fire Alarm System

A complete addressable fire alarm system will need to be installed to replace the existing fire alarm systems. New fire alarm notification and initiation devices will need to be provided throughout the facility. System initiation would consist of individually addressable analog smoke and heat detectors, as well as addressable fire pull stations.

A graphics annunciator would be located at the main fire alarm panel location or user's workstation. Additional remote LCD annunciators would be located at the main entrances and as required by the local fire department.

System notification would consist of A.D.A. and N.F.P.A. compliant visual only devices and combination audio/visual devices using speakers and voice alarms.

Emergency Power System

The emergency system would consist of standby emergency generator(s) rated at 208Y/120V, 3 phase, 4 wire. The generators will need to be located exterior to the building. Sound attenuating enclosures should be utilized for minimal noise during operation.

Separate automatic transfer switches for emergency and optional stand-by equipment branches should be included.

The generators would be diesel-fired with a fuel supply capable of maintaining operation for a minimum of 24 hours of full load capacity on the generator set.

Grounding

Grounding system and equipment grounding will need to be provided per NEC for distribution panelboard, transformers, motor starters, branch panelboards, wiring systems, etc.

A green insulated equipment ground copper conductor, sized according to NEC 250-95, would be run with all feeders and branch circuit homeruns.

Structural System

Based on conversations with the Owner, users, design team, and as well as review of the current block plans, there are a number of items that will impact the building structure.

Elevator:

A new elevator is envisioned east of existing meeting room 260. The existing drawings indicate that there was a stair between second and third floors at this location in the original construction. It appears that the stair opening has been filled in, but it is likely that the existing framing around this opening still exists. Utilizing the existing opening location would assist in reducing construction costs. The existing drawings indicate steel framing spaced 7'-10" apart in the north-south direction and 11'-3 ½" apart in the east-west direction. These dimensions are to the beam centerlines and are not clear opening dimensions.

At the first and second floors, a new opening would need to be cut in the existing concrete pan joist slab. The floor system would need to be re-supported in order to do this. There are two options for supporting the floor. The first option involves constructing the elevator shaft walls out of concrete masonry units that are built tightly between the floors. The floor system would bear on these masonry walls once the floor opening is cut, providing the needed floor support. The second option involves installation of new steel beams to support the floor around the new opening. The new steel framing will likely need to span between existing columns in order to provide a direct load path down to the foundations.

In the basement, a new elevator pit will need to be installed. The existing drawings indicate that the footing of the nearest column was already lowered because of an adjacent cistern. The top of footing elevation should be verified to determine if underpinning of the foundations is required to install the pit. The adjacent cistern should also be investigated further to determine its impact on the elevator pit location.

Mechanical Openings:

Installing modern HVAC systems can present structural challenges for older buildings. Frequently, larger ductwork openings are required through the floor and/or roof to meet current ventilation requirements.

The existing floor and roof structure consists of one-way concrete joists with 12" wide, clay tile formwork between the concrete joist ribs. Piping, conduit, and plumbing can go through the floor, between the joist ribs, without structural reinforcing of the floor system. Larger openings that need to go through one or more joist ribs will require localized reinforcing of the floor system. This can be accomplished by bringing in steel framing on the underside of the floor.

Another option is to create a larger shaft to route mechanical, electrical, technology, and plumbing systems in. The floor around the shaft can be supported in a similar manner to the elevator shaft options described above.

New Mechanical Penthouse:

A new mechanical penthouse has been proposed on the second floor low roof, adjacent to the exterior wall of meeting room 260. It will be used to house lightweight mechanical equipment such as an air-handling unit. Based on the location, a one-story, steel framed penthouse is structurally feasible with localized reinforcing of the existing roof beams. New steel columns should be located over top of the existing steel girder beams. Preliminary calculations indicate that the existing columns and footings are capable of supporting the new penthouse loads without reinforcing.

Living Roof:

There is a desire to provide a living roof at both the main roof and the lower roof at second floor. The current pitched, wood post and beam roof system would be removed and a new roofing system applied on the existing "flat" concrete slab below.

There is a wide variety of living roof systems available on the market today, some of which can be fairly light in weight. We recommend providing a new roof system that is of comparable weight to the existing wood roof being removed, approximately 10-15 pounds per square foot (psf), in order to avoid reinforcing the existing roof structure.

Paper Storage:

It is our understanding that there is a need for paper storage of existing building plans. We recommend locating this heavier storage load in the basement where there is a soil-supported slab on grade.

The existing drawings do not indicate the design live load values for the supported floor systems. Current building code indicates the following live load values: Offices – 50 psf; Corridors above first floor – 80 psf; Stairs and public assembly spaces – 100 psf; Library stack rooms – 150 psf.

Locating paper storage on the first, second, or third floor slabs will require reinforcement of the structure. One way to accomplish this is to bring in a new steel beam and column line under the slab to support it between the existing columns – reducing the floor span. The columns will need to go down to the basement with new foundations installed. On the top side of the floor slab, sheets of fiber reinforcement will need to be applied to provide reinforcing for the concrete over the new support location.

Opening Up Existing Stairwells:

At the existing stairwells, the existing structural drawings show steel beam framing around the floor openings. This indicates that the walls are not structural and can be modified or removed without significant structural impact to the building.

Future Vertical Expansion:

Based on review of the existing structural drawings, it does not appear that the building was designed for a future vertical expansion. The main evidence supporting this is that the column and footing sizes at locations supporting only two-stories are smaller than those supporting four-stories. In order to accommodate a substantial vertical expansion the foundations and columns would need to be reinforced. Utilizing a lighter weight, steel structure for the expansion would help minimize the reinforcing efforts.

Implications of Adjacent Building Construction:

The existing building was built in the mid 1920's. The building code at that time did not contain provisions to consider drifting snow. The current building code now requires snowdrift to be looked at for new buildings and modifications to existing buildings. It will also need to be looked at if a taller building is constructed adjacent to the Madison Municipal Building.

In order to avoid imparting additional load on the roof of the Madison Municipal Building, there are a few options we can look at in the 2009 International Building Code. First is building separation. The code states that structures need to be designed to sustain localized loads from snowdrifts caused by a higher structure within 20 feet of a roof. Therefore, if there is a separation of 20 feet or more between buildings, snowdrift will not be a concern. Second is a low roof portion of the adjacent building. If building separation is not desired, the new adjacent building could have a low roof adjacent to the Madison Municipal Building that matches the existing roof height and is designed to support the snowdrift load. If neither of these options is desirable, the existing roof structure will need to be analyzed and reinforced to support additional snow loading. New snowdrift loads are dependent on roof lengths and shape of the new building, so cannot be determined at this time.

Conceptual Schematic Design

Conceptual Process

After programming documents were produced, the project team began the space planning phase with three different activates:

1. The team laid out the spaces within the building footprint, and analyzed the potential departmental relationships to produce different departmental blocking diagrams.
2. The team surveyed the building and began to document the findings of this field investigation.
3. Lastly, different site issues that would impact the layout of the departmental spaces were overlaid.

From these three exercises, five Building Blocks were established that were significant space-planning concepts that at first blush, appeared to be important enough that they should be incorporated into every scheme. At the first meeting during the space programming phase, these building blocks were presented to the MMB Space Planning and Conceptual Team to test their validity, as well as presented different space planning schemes that adhered to this buildings blocks. The result was that most of these Building Blocks were indeed valid, but not all. One of the conceptual ideas was, after discussion, determined to not be an imperative within the schemes.

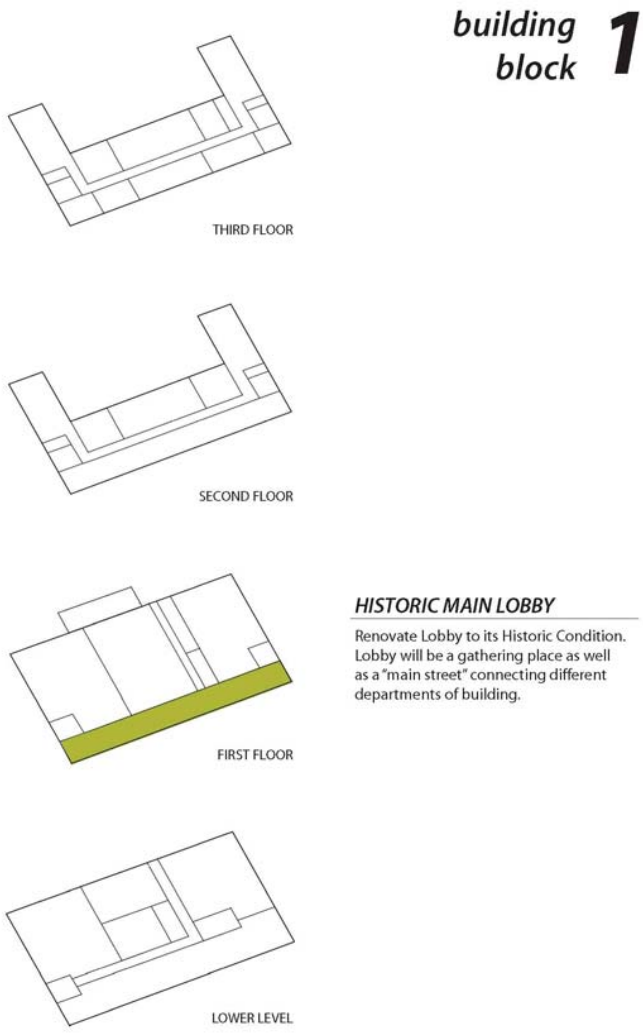
Next, a new set of space planning schemes was prepared that responded to the comments from the first meeting. After a series of revisions and refinements, this resulted in three schemes that have the most potential.

Following is a description of the building blocks that were used, as well as the three refined schemes that resulted.

Building Blocks

Building Block 1 – Return First Floor Lobby to its original location.

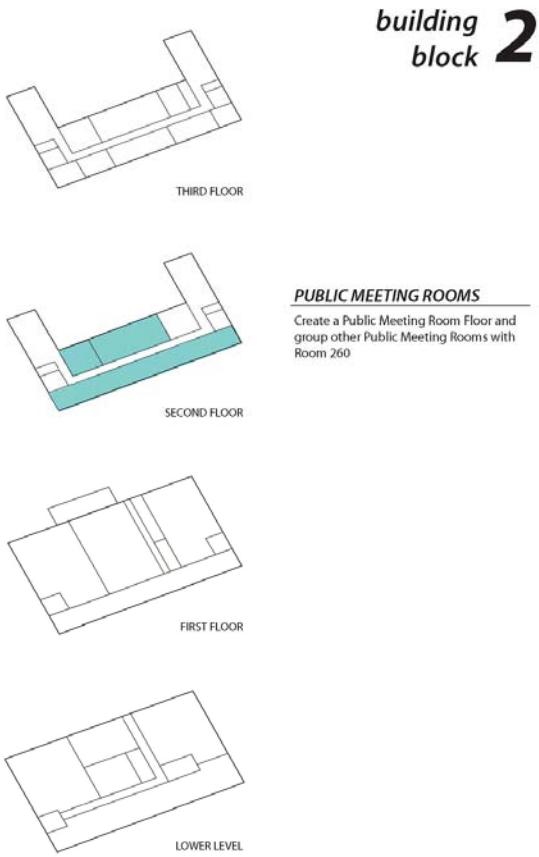
Restore the space that used to be the main lobby. This space has historical significance and should be renovated. There is some indication that there are significant historic details behind some of the walls, ceiling and floor finishes that have been built in previous renovations.



Building Block 2 – Second Floor = Public Meeting Floor

Maintain the second floor meeting space (Room 260) as a formal meeting room. This room is another space that has historical value in the building, and it should be maintained as a meeting room, and restored to remove portions of the ceiling and finishes that have been constructed in previous renovations that do not relate to its historic detailing.

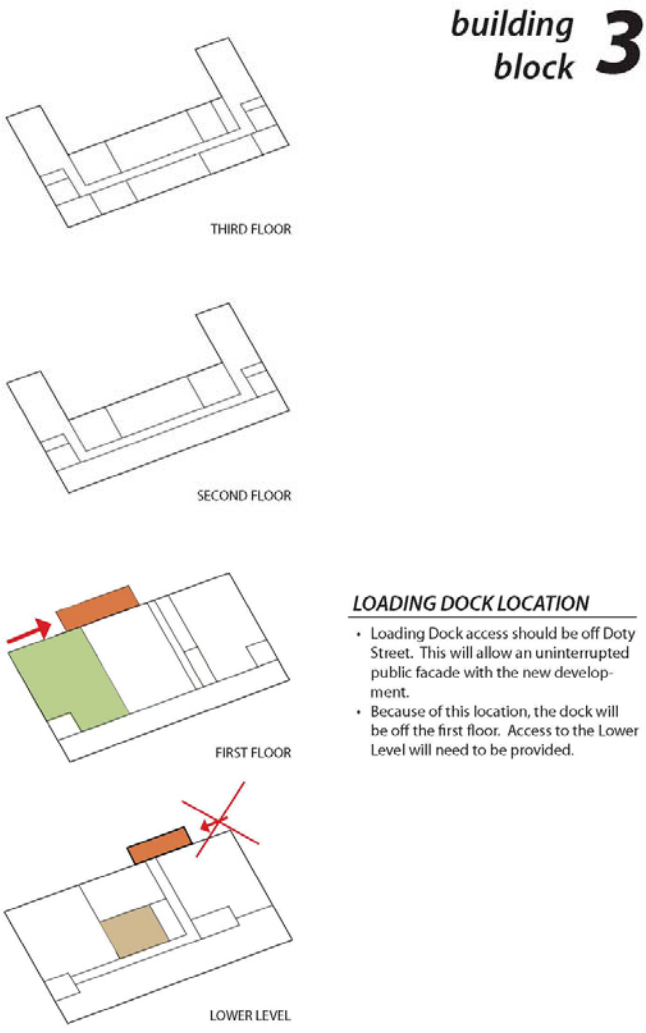
In addition to the maintaining Room 260 as a public meeting room, we went a step further and suggested that the location of the remainder of the public meeting rooms should also be on this second floor, taking advantage of the concept of the second floor as a place for the public. If the main public meeting room (Room 260) is going to be on the second floor, we proposed placing all of the public meeting rooms on this floor, allowing this floor to generally be a public area, and allowing a more clear delineation of public areas vs. office areas for security purposes.



This assumption was challenged, and ultimately found not to be required.

Building Block 3 – Loading Dock Location

The loading dock should be accessed from Doty Street on the west, and not Wilson Street on the east. The location of the loading dock has implications for a number of spaces, including the Post Office as well as some of the service areas of MMB. Equally important is the location in relation to the surrounding pedestrian areas. It is assumed that the development to the north will emphasize the pedestrian connection to MLK drive and Monona Terrace, and therefore will not want a Loading Dock off this street. Placing the loading dock off Doty will keep the Wilson street walk clean and pedestrian friendly.



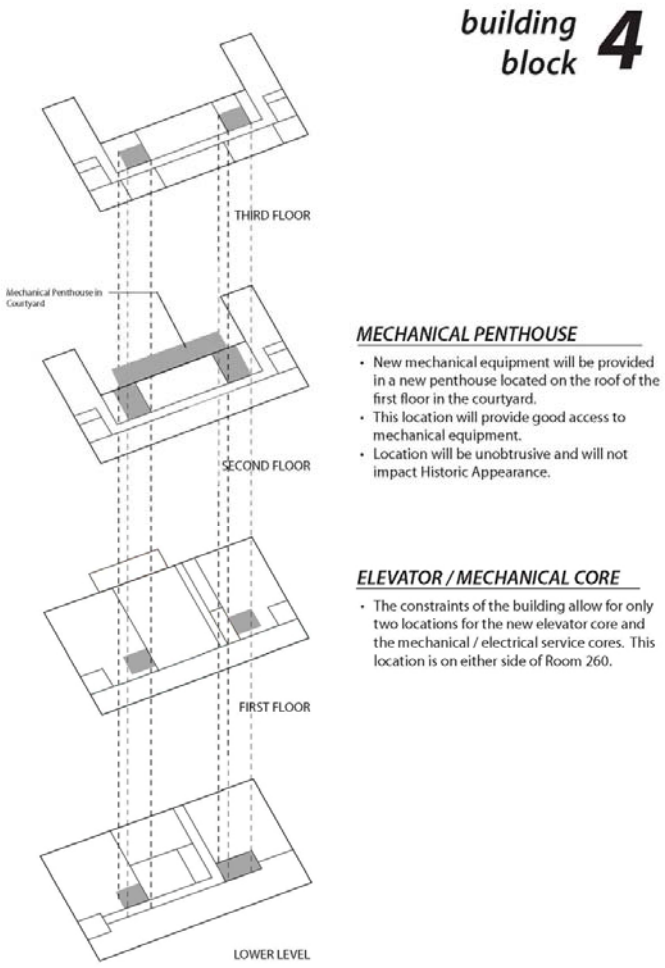
Building Block 4 – Mechanical Room and Vertical Core Locations

The building will have new elevators that are in a more central location. In addition, the building will have a new mechanical system installed to replace the outdated current system. The location of the new elevator cores, the new mechanical shafts, and the new mechanical room was studied in many different ways. This building block formalizes the decision of the location of the new mechanical room, as well as the general location of the elevator cores and mechanical shafts.

We studied a number of places to house the mechanical units, including:

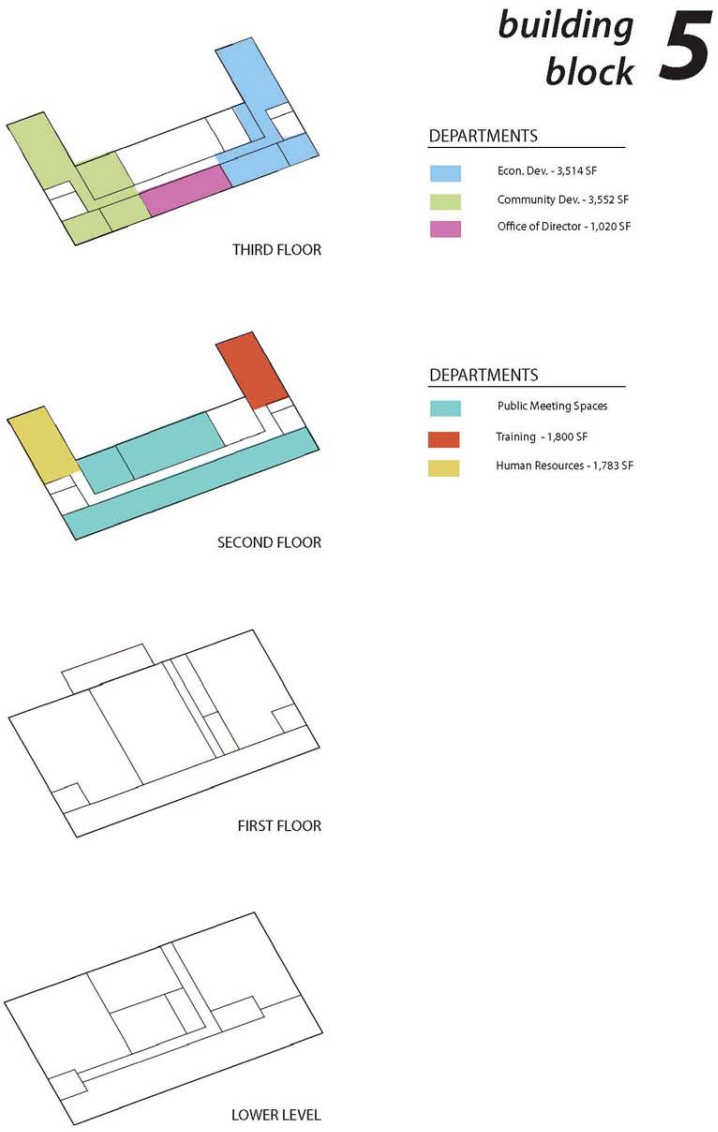
1. Placing all the mechanical units in the basement
2. Placing all the mechanical units on the roof
3. A combination of mechanical units in the basement and on the roof.
4. Placing a mechanical unit on each floor
5. Placing all the mechanical units on the roof of the first floor in the courtyard area.

Ultimately it was decided that the space on the roof of the first floor would provide the most economical, most accessible space for this equipment.



Building Block 5 – Critical Departmental Adjacencies

Departmental Adjacencies were established during the programming phase. During the space planning phase, we overlaid these adjacencies with the existing constraints of the building footprint to determine the best locations for each department. This exercise led to the determination that some departmental spaces with critical adjacencies that fit well on particular floors. One of these floors is the Third Floor, which holds the Economic Development Department, the Community Development Department, and the Office of Director. The layout of this floor was considered to work in all iterations and therefore became a building block of the design.

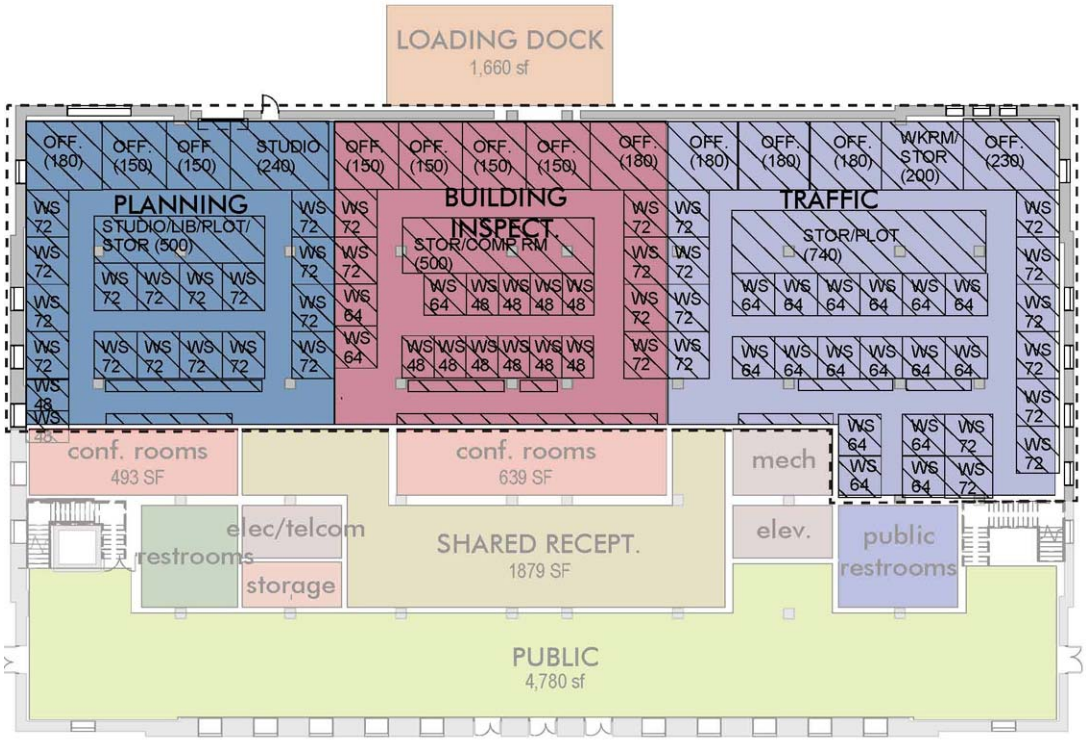


Additional Influences

The space planning phase integrated the established building blocks, the existing building footprint and layout, with the space needs of the different departments. In addition to these issues, the study addressed two other issues that will influence the space plan: The one-stop shop Development Center, and the Post Office.

One-Stop Shop Development Center: A one-stop shop, Development Center for all building, zoning and planning related services has been discussed at the City for some time. This type of Development Center has worked well in many other cities and is a user friendly approach for developers, architects and residents. Essentially this approach puts the public interactions spaces with the Planning, Traffic and Building Inspection departments in the same location sharing the same reception and waiting areas.

OPTION 3
FIRST FLOOR - FIT PLAN



This report does not begin to discuss the advantages and disadvantages of this concept from an operational standpoint, but we have included an option that is based on a one-stop shop, as well as options that maintain the department spaces as independent entities as they currently are situated.

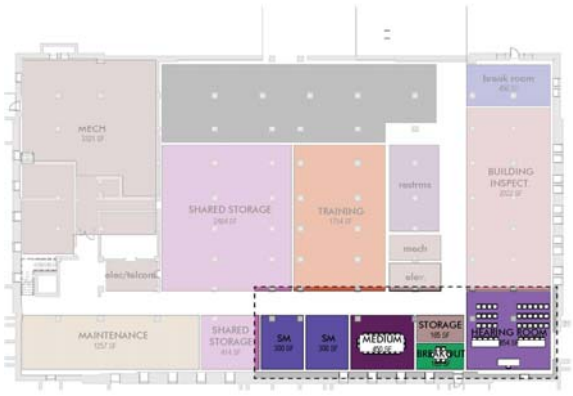
Post Office: The Post Office currently occupies valuable first floor space in the building. As part of this study, we reached out to the Post Office to determine their future space needs for this location. The Post Office would like to maintain a location in this building, but will be able to down-size their space needs to an area of approximately 3,350 sf.

As part of this study, and in light of a number of the City's departments wanting to be on the first floor of the building, we looked at a few different options for allocating that space:

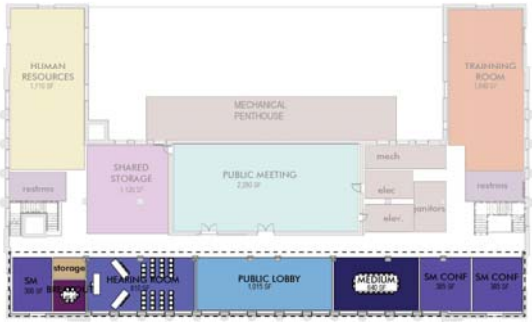
1. The entire space required for the Post Office would be on the First Floor.
2. The space can be split into two different areas on the first and second floor. The first floor would contain access to the Loading Dock, as well as potentially the PO boxes and service counter. The Lower Level will contain the sorting area. Any option that splits the Post Office into two levels will need to consider adding an elevator connecting the loading dock with the lower level sorting area.
3. The Post Office will not be located at this building, but rather at a different location.

Lastly, the grouped meeting rooms were developed to a full concept in two schemes for comparison and to show optimal configuration alternatives. Ultimately, this study does not make a decision on these issues, but rather, will show different schemes that take into account the alternative options relating to these issues.

OPTION 1
PUBLIC MEETING SPACES



OPTION 2
PUBLIC MEETING SPACES



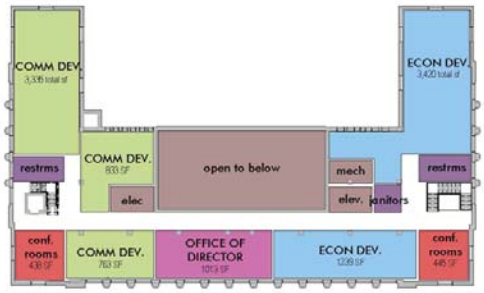
Space Plan Options

Option 1

Option One adheres to the current separated set up of the different departments. Some ideas of Option One that are worth mentioning are:

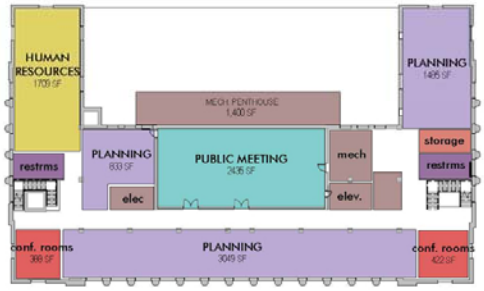
- The CDA Housing, Building Inspection and Traffic departments, all which have significant public interaction needs, are located on the first floor. In order to achieve this, the Building Inspection department is split between the First Floor and the Lower Level. The rationale for doing this is to put the workstations for the Building Inspectors, which are occupied only a small portion of each day, on the lower level to allow for other spaces that are more actively used on the first floor.
- There is a small space for the Post Office that is allotted on the north side of the first floor adjacent to the loading dock. The remainder of the Post Office space is in the Lower Level.
- The Planning Department, another department that sees significant public visitor traffic, is located on the Second Floor with easy access to the first floor.
- The Public Meeting Spaces are located on the Lower Level with direct access to the elevators.

OPTION 1



THIRD FLOOR

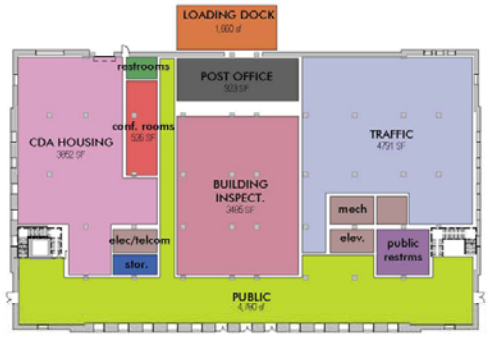
DEPARTMENTS	PROGRAMED AREA
ECONOMIC DEVELOPMENT	3,500 SF
COMMERCIAL DEVELOPMENT	3,550 SF
OFFICE OF DIRECTOR	1,020 SF
SUPPORT SPACES	**PROGRAMED AREA**
CONFERENCE ROOMS	660 SF



PLANNING: TOTAL SPACE PROVIDED - 5,367 SF

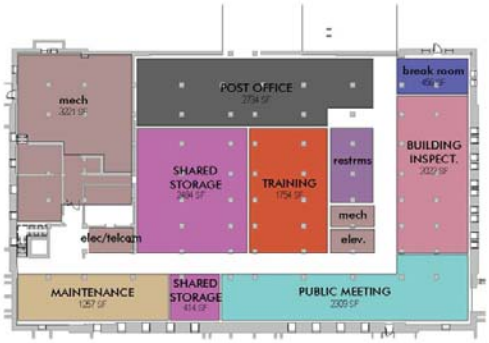
SECOND FLOOR

DEPARTMENTS	PROGRAMED AREA
HUMAN RESOURCES	1,780 SF
PUBLIC MEETING SPACE (RM 260 ONLY)	2,435 SF
PLANNING	4,426 SF
SUPPORT SPACES	**PROGRAMED AREA**
CONFERENCE ROOM	660 SF



FIRST FLOOR

DEPARTMENTS	PROGRAMED AREA
BUILDING INSPECTION (w/o INSPECTORS' DESKS)	3,657 SF
CDA HOUSING	4,162 SF
TRAFFIC	4,901 SF
POST OFFICE - TOTAL SF (2,713 SF ON LOWER LEVEL)	3,337 SF
SUPPORT SPACES	**PROGRAMED AREA**
DEPT CONFERENCE ROOMS	660 SF



LOWER LEVEL

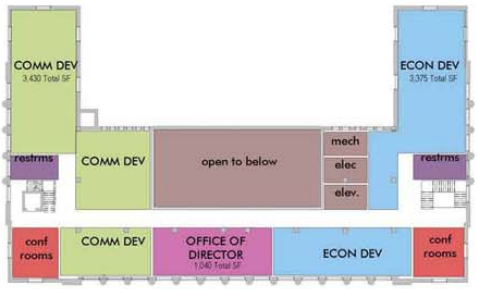
DEPARTMENTS	PROGRAMED AREA
BUILDING INSPECTION (INSPECTORS' DESKS ONLY)	1,699 SF
MAINTENANCE	1,020 SF
PUBLIC MEETING SPACE (w/o ROOM 260)	1,615 SF
POST OFFICE - TOTAL SF (923 SF ON FIRST FLOOR)	3,337 SF
SUPPORT SPACES	**PROGRAMED AREA**
TRAINING ROOM	1,800 SF
BREAK ROOM	400 SF

Option Two

Similar to Option One, Option Two maintains the current separate departmental entities in the scheme. Other items of note are:

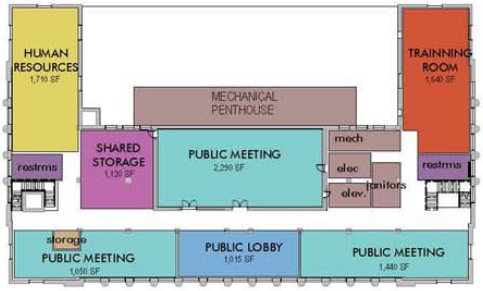
- The inter-relationship between the Planning and Building Inspectors Department is maintained and augmented by placing both these departments adjacent to each other on the Lower Level.
- The First Floor consists of Traffic and CDA Housing, both departments with a lot of public traffic, and also keeps a large, more accessible Post Office on this floor.
- The Second Floor becomes a more publicly accessed floor by placing all the Public Meeting rooms on this floor.

OPTION 2



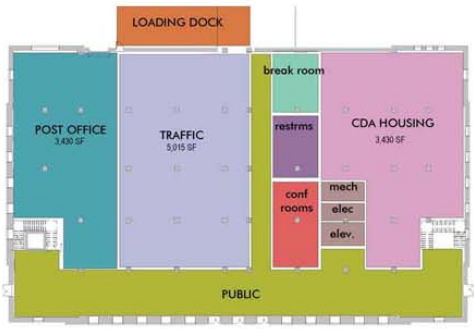
THIRD FLOOR

DEPARTMENTS	PROGRAMED AREA
ECONOMIC DEVELOPMENT	3,500 SF
COMMERCIAL DEVELOPMENT	3,550 SF
OFFICE OF DIRECTOR	1,020 SF
SUPPORT SPACES	**PROGRAMED AREA**
CONFERENCE ROOMS	660 SF



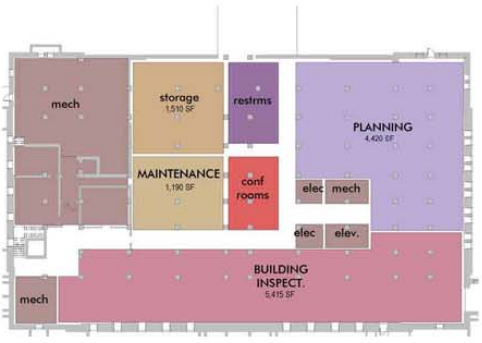
SECOND FLOOR

DEPARTMENTS	PROGRAMED AREA
HUMAN RESOURCES	1,780 SF
PUBLIC MEETING SPACES	4,050 SF
SUPPORT SPACES	**PROGRAMED AREA**
TRAINING ROOM	1,800 SF



FIRST FLOOR

DEPARTMENTS	PROGRAMED AREA
CDA HOUSING	4,182 SF
TRAFFIC	4,901 SF
POST OFFICE	3,337 SF
SUPPORT SPACES	**PROGRAMED AREA**
DEPT CONFERENCE ROOMS	660 SF



LOWER LEVEL

DEPARTMENTS	PROGRAMED AREA
PLANNING	4,426 SF
BUILDING INSPECTION	5,326 SF
MAINTENANCE	1,020 SF
SUPPORT SPACES	**PROGRAMED AREA**
CONFERENCE ROOM	660 SF

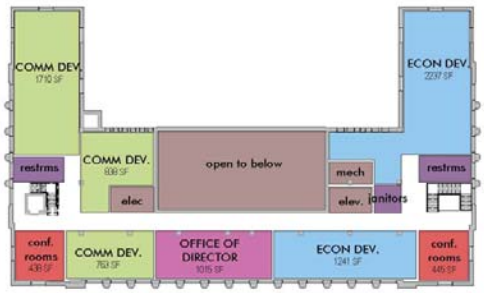
Option Three

Option Three is a scheme the represents a one-stop shop Development Center. We note the following features of this scheme:

- The one-stop shop consists of the Planning, Traffic, and Building Inspection Departments located on the first floor, all with a common reception space for customers.
- Similar to Option One, the Building Inspection department is split between the First Floor and the Lower Level with the Building Inspector's workstations, areas that are not used on a full time basis, located on the Lower Level. This scheme includes a communicating stair between the First Floor and the Lower Level to enhance connectivity between floors.
- This option assumes that Post Office will move into a different building and does not allocate any space for this entity.
- The CDA Housing Department is located on the Second Floor.

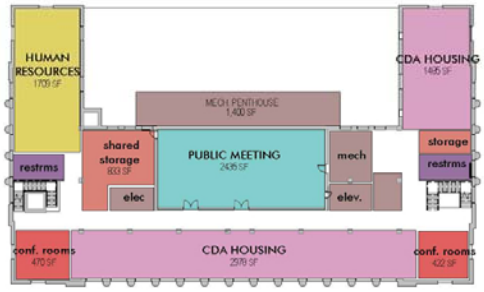
It is intended that these options will spur discussion and conversation between the different stakeholders of the project, continues to develop in future phases and, through these discussions, coalesce the options into one scheme that meets the needs of the City.

OPTION 3



THIRD FLOOR

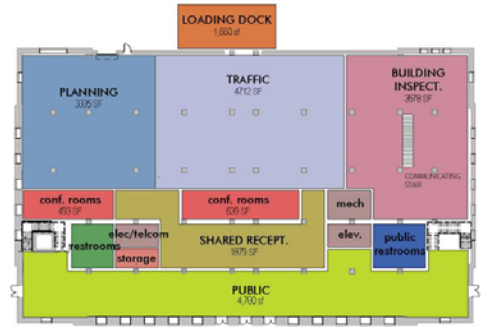
DEPARTMENTS	PROGRAMED AREA
ECONOMIC DEVELOPMENT	3,500 SF
COMMERCIAL DEVELOPMENT	3,550 SF
OFFICE OF DIRECTOR	1,020 SF
SUPPORT SPACES	**PROGRAMED AREA**
CONFERENCE ROOMS	660 SF



CDA HOUSING: TOTAL SPACE PROVIDED - 4,463 SF

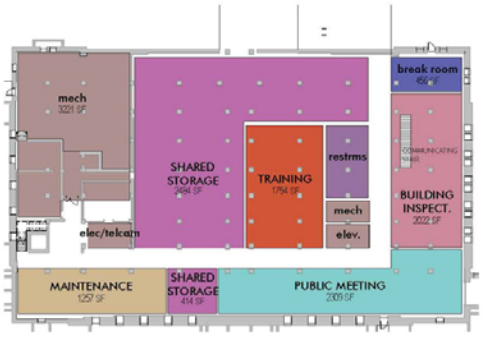
SECOND FLOOR

DEPARTMENTS	PROGRAMED AREA
HUMAN RESOURCES	1,780 SF
PUBLIC MEETING SPACE (RM 260 ONLY)	2,435 SF
CDA HOUSING	4,162 SF
SUPPORT SPACES	**PROGRAMED AREA**
CONFERENCE ROOMS	660 SF



FIRST FLOOR

DEPARTMENTS	PROGRAMED AREA
PLANNING	4,426 SF
w/o RECEPTION	480 SF
w/o STORAGE	840 SF
TOTAL	3,298 SF
TRAFFIC/PARKING	4,902 SF
BUILDING INSPECTION	5,326 SF
w/o INSPECTORS' DESKS	1,699 SF
w/o RECEPTION	960 SF
TOTAL	2,667 SF
SUPPORT SPACES	**PROGRAMED AREA**
DEPT CONFERENCE ROOMS	660 SF



LOWER LEVEL

DEPARTMENTS	PROGRAMED AREA
PLANNING (STORAGE ONLY)	840 SF
BUILDING INSPECTION (INSPECTORS' DESKS ONLY)	1,699 SF
MAINTENANCE	1,020 SF
PUBLIC MEETING SPACE (w/o ROOM 260)	1,615 SF
SUPPORT SPACES	**PROGRAMED AREA**
TRAINING	1,870 SF
BREAK ROOM	400 SF

Conceptual Framework

A final concept for the sustainable re-use of MMB should combine these fundamental components:

- Reconfigure the interior layout to provide a flexible office environment
- Provide sufficient and efficient building systems
- Improve city departmental interaction and public service
- Tighten the integrity of the thermal envelope
- Respect the historic integrity of the exterior and public space

Opportunities to elevate the design solution should be thoughtfully considered. Historic tax credit incentives can greatly offset the cost of rehabilitation and ensure the highest level of execution. Likewise, incorporating the U.S. Green Building Commission's LEED criteria is another incentive to elevate the quality of the execution.

Driving the concept should be the effort to work through and select the interior layout that provides the greatest long-term benefit to the city in terms of flexibility. Conceptual blocking diagrams were generated for this study as a result of the programming effort. The diagrams showing the most potential, given the preliminary nature of the process, have been included for consideration in this chapter. Each interior blocking concept offers the opportunity to be developed into a workable solution with much potential.

Conceptual Design Statement

Civic buildings are amongst the most significant cultural elements of every community. These buildings contribute greatly to good urban fabric. Historically, the siting, placement and design of important public buildings has been the result of extensive dialog and thorough planning efforts by leading professionals. The urban center of the City of Madison was established upon a unique geographic feature and laid out with a signature street plan that is immediately recognizable.

Rehabilitation of the Madison Municipal Building should respect the significant historic quality of the existing structure while providing for optimal interior environment meeting the needs of a flexible, functional public building; comfortable and efficient. The final result should not be an attempt to obscure the rehabilitation effort but celebrate the integration of old and new in a manner that balances respect for our past and our focus on the future. This goal of integrating old and new

can be achieved. The Madison Municipal Building rehabilitation will be an outstanding example of long-term civic vision and sustainability for the City of Madison for years to come.

The architecture of the Madison Municipal Building reflects a public moment in time or period of significance, as well as, embodying the cultural ideals of government. Its continued use as a place of city government is logical and important. Indeed, the placement of recent neighboring buildings such as the Monona Terrace Community and Convention Center and the Risser Justice Center reaffirms the importance of reusing the Madison Municipal Building for City use. These buildings with the State Capitol and the City County Building reinforce the official city designation of Martin Luther King Jr. Boulevard as "Madison's civic center."

Madison has two front doors, the Madison Municipal Building and the City County Building. The physical adjacency of these major civic buildings is ever more an asset as the City continues to expand. Despite the advances in technology, there simply is no substitute for close proximity.

The conceptual schematic design for the sustainable rehabilitation of the Madison Municipal Building should be guided by a number of factors beginning with the building's designated historic status. The process for rehabilitating a historic landmark structure is well established and proven to follow best practices compliant with regulatory agencies.

DRAFT

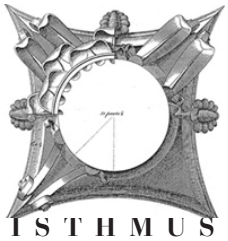
Preliminary Cost Estimates

The scope of work proposed in this study is based upon assumptions detailed in the conceptual framework of the preceding chapters. This estimate is intended to be used as a preliminary guide to inform future discussion of the potential cost of construction for planning purposes. Many factors beyond the scope of this report will affect actual final scope of work and cost of construction.

General Contractor Base Budget Estimate	$19,052,000
Construction Contingency	$1,905,200
% of Lease Payments, Move Costs, Digitize Records	$592,800
City Channel Build-out Budget	$450,000
Furnishings, Fixtures and Equipment (FFE)	$1,500,000
Architectural & Engineering Services	$2,200,000
PRELIMINARY TOTAL	$25,700,000

Opportunities

In developing and refining the rehabilitation scenario for the Madison Municipal Building, the significant potential value of historic tax credits should be given further study and consideration.



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