Schematic Design Report

Madison Central Public Library

Madison, Wisconsin

December 2, 2010
Project No. 2010.10.00

Prepared by:
Meyer, Scherer & Rockcastle + Potter Lawson, Inc.

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Schematic Design Documents:

1. Executive Summary.
2. Consultant Team Identification.
3. Introduction.
4. Architectural Form and Design.
5. Integrated Sustainable Design.
6. Building System Descriptions.
    - A. Site Development.
    - B. Exterior Systems.
    - C. Interior and FF&E Systems.
    - D. Structural Systems.
    - E. Plumbing and Fire Suppression Systems
    - F. Mechanical Systems.
    - G. Electrical.
        1. Lighting Systems
        2. Electrical Systems.
    - H. Special Systems
    - I. Public Art
7. Alternates.
8. Project Schedule Summary.
9. Schematic Design Drawings.

Appendix:

I. LEED Checklist.

II. Basis of Design (BOD).

III. Project Schedule.

IV. Schematic Design Drawings (see separate documents).

- a. Pdf's of Drawings and Revit Model.

V. Exterior Renderings (separate document to be provided after public presentation).

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The Madison Central Public Library located at 201 West Mifflin Street, Madison Wisconsin, was built in 1965. The building's primary structure consists of concrete steel reinforced, cast in place walls, columns and waffle slab. The existing exterior wall is composed of a two-tone brick veneer system (darker, quarter-turned at the base and smooth, lighter-toned above first floor level). The brick is affixed to a poured-in-place concrete wall or concrete block unit structure; finishes on the inside vary. The exterior wall is finished with limestone trim, underlined by a recessed stone detail. A stone clad colonnade frames the entry court. A narrow tinted-window curtain wall system within the brick wall provides limited daylight to the interior spaces as well as restricted views into and out of the building. The building's identity as an important civic structure is limited to the corner courtyard. In addition, the internally focused design has a dark, low ceiling interior and, we believe, does not promote well-being for its occupants.

The building's infrastructure is both outdated and worn, with severely deficient mechanical and electrical systems. The building's square footage is not efficiently used. In addition, the lower level metal storage mezzanine that is used for a significant part of the collection no longer meets code or universal design requirements.

The renovation/addition project seeks to remedy these deficiencies, as well as define a new identity in the community that reflects the significance the public place on the library services. We believe that this world-class service deserves a world-class building that will serve the citizens for decades to come. This identity is established through three guiding principles:

1. The services of the building should be visible from the outside. We believe that the vitality of the city is reinforced when the residents can see what is going on inside the building. In addition, this transparency will enliven the urban setting and enable the library to re-engage with the urban fabric. This increased transparency will also support a healthier atmosphere on the interior and a safer environment on the street.
2. The library deserves the right amount of space to house its collection and services. Much-needed square footage for spaces to meet, collaborate and study quietly and for computers and other technology will be added, and the building will be reorganized to serve the library now and well into the future.
3. The patrons and staff of the building deserve a highly flexible and welcoming interior architecture. The space, furnishings, equipment and engineering systems will be highly efficient, supportive of service and uplifting.

Architectural identity is more than the edifice of the building. It is achieved when the architecture enriches the patron experience. When that experience is healthy, productive and pleasant, then the architectural expression, both inside and out, becomes embedded in the memory of the patron. This, in turn, creates an identity.

Building

The new library building will accommodate approximately **118,500 gross square feet (GSF)** of floor area on five levels—a change from the existing four levels. The building will house youth and adult collections of about **349,000 items,** as well as approximately **100 public computer stations** located throughout the library.

Places to meet, collaborate, study and learn will be available to the community. The renovated library will house 18 group study rooms, two multi-purpose program rooms which can be used outside regular library hours, and a conference room which will double as quiet study when not used for meetings. Increased reader seating and lounge furniture will be present throughout the library, and a technology-centric production lab will enable business owners, teens and others looking to use the latest in technology to create digital content to suit their needs.

The staff will benefit from updated workspaces as well as from an automated materials handling system to efficiently process the books and get them returned to shelves more quickly, freeing staff for other tasks. The building will accommodate material returns at both entries for customer convenience

The existing building is a low-slung, internally focused structure. Many passers-by are unaware of the varied resources available within; few are enticed to enter and explore. The interior is dark and visually cut off from the surrounding neighborhood. In inclement weather the walk up the hill to the entry can be a difficult one. The re-imagined library will address these existing conditions. The building's new form and design are driven by a need for identity within the city of Madison, increased natural light to the interior, function for customers and staff alike, and an integrated sustainable approach. The building will open itself to the city by providing views both into and out of the building.

The re-imagined Madison Public Central Library will be located on its current site, 201 West Mifflin Street, Madison, Wisconsin. The site is bounded by Fairchild Street to the north, Mifflin Street to the west, Henry Street to the south, and a party wall on the east. While there is no public parking on the site, the library currently has about 8 spaces for staff within the building. These will be removed and the space will be repurposed. Many library users who arrive by car will access the site from the Overture parking ramp to the south; others will arrive from the Loop which travels around the state capitol building and brings people from areas northwest and northeast of the site. Others, including residents of the Capitol Hill District and local business people, will arrive by foot. To accommodate arrival from all directions, a new entry along Mifflin Street is being introduced. This new entrance will also mitigate the navigation difficulties imposed by the sloping grade:11'-3" in the north-south direction and 5'-3" in the east-west direction. Minor modifications proposed for the site include widening the sidewalk at the corner of West Mifflin and Fairchild to match the condition across the street at the Overture Center; providing a drop-off space in front of the new Mifflin Street entrance; and possibly widening the sidewalk and replanting trees along Mifflin Street

Construction and Project Cost Estimates

The following is the project cost estimate from Mortenson Construction (MC), as of November 18, 2010. This estimate was based on a 121,170 GSF building. Our project is currently at 118,104 GSF. More detail of this estimate is provided in a separate document issued by MC.

Project Budget

Construction Budget	$**21,783,117**
Development & Soft Costs	$2,979,249
FFE	$3,161,488
Professional Services	$3,130,500
Total Project Cost Estimate	**$31,054,354**
Total Project Budget	**$29,500,000**
Variance at mid-SD	**$1,554,354**

Project Schedule Summary

The project is scheduled for substantial completion at end of November 2012, and for occupancy in mid January 2013. Refer to the detailed schedule included in Appendix V. Major milestones for completion of the project are summarized as follows:

Milestone	Start	Finish
Programming	June-2010	July-2010
Conceptual Design	Aug-2010	Aug-2010
Schematic Design	Sept-2010	Dec-2010
Design Development	Jan-2011	Mar-2011
Construction Documents	April-2011	July-2011
Bidding/Procurement	Aug-2011	Oct-2011
Construction	Nov 2011	Nov-2012
Grand Opening	**January, 2013**	

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2. Consultant Team Identification

Schematic Design December 2, 2010

Meyer Scherer & Rockcastle

Jeffery Scherer	Principal in Charge of Design and Management
Traci Lesneski	Principal in Charge of Interiors and Furnishings
Dagmara Larson	Project Manager/Architect
Byoungjin Lee	Architect
Sean Wagner	Architect for Sustainability
Megan Eckhoff	Interior Designer
Carla Gallina	Lighting Designer

Potter Lawson

Doug Hursh	Project Manager for Design
Eugene Post	Project Manager – Process, Engineering Coordination and Construction
Ron Locast	Architect
Brian Reed	Architect
John Dreher	Engineer – Electrical
Gary McLean	Cost Estimator/Construction Contract Administrator
Chad Oistad	Construction Contract Administrator

Arnold & O'Sheridan

Paul Karow	Engineer - Structural

Henneman Engineering

Dan Green	Project Manager – HVAC, Plumbing and Fire Suppression
Mike Schmidt	Principal
William Peden	Engineer - Plumbing & Fire Suppression

Library Planning Associates

Anders Dahlgren	Library Programmer

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A building project requires multiple decisions on a daily basis, at a variety of scales. To guide these decisions and ensure that all project team members are operating under the same assumptions, the project team has created a series of principles.

The first set of principles is the Owner's Project Requirements (OPR), which contains the operational, energy-conservation and safety/security guidelines for the project. The second are the Guiding Principles discussed in the August 6, 2010 Visioning Meeting with representatives from the Building Committee and the Library Board and Foundation. This list sets the priorities for the project and the general "attitude" toward the building (i.e., that the building is first and foremost a public library; that the building will be used as a teaching tool).

In addition to these project guidelines, MS&R has added Project Design Principles to guide decision-making with regard to the design, materiality and detailing of the building.

Respect

The design of the library will be an evolution based on a respect of the strongest design features of the existing building. This will result in a layered design that is richer and more authentic in its re-imagined form with vestiges of the existing building remaining legible within and juxtaposed against the new.

Identity

The new building will create a landmark library that conveys its civic importance. It will reveal library services and activities through a more transparent facade creating a human-centric vibrancy. The identity of the library will be defined by an honest relationship between interior activities and the exterior form.

Gradation

Progression is an important organizing tool. The building program is organized into zones representing levels of activity and privacy. This organization shall be evident on the exterior and interior through positioning of void, solid, transitional and definitive materials. Lighting, detailing and furnishings shall reinforce the progression and ensure activities are self-evident.

Responsiveness

Buildings that age gracefully can easily adapt to new and previously un-thought-of uses just as they can adapt to current internal and external civic demands. We will develop the building to be responsive and flexible to: the macro- and micro-environment; the solar and urban orientation; the evolution of the library services and offerings; the ever-changing community needs; and library staffing.

Light

Democratic access to day-light is a fundamental right. Daylight will shape the interior spaces and the places between. Materials will be selected mindful of how they respond to light: refraction, reflection, transmission, or inhibition. The building will be transformed from its current dark, internally-focused and visually disconnected state to a light-filled, externally oriented and visually connected building both inside and out.

Discovery

The building shall include areas of delight that encourage discovery. While services and products will be displayed to maximize self-service, there will be moments in the building that encourage browsing and exploration. Where possible, building and library systems will provide didactic learning opportunities.

Planning Process

The Madison Public Central Library project was initiated on June 7, 2010 with a meeting of the full planning and design team, including representatives from the City of Madison, Madison Public Library, Potter Lawson, Library Planning Associates and MS&R ("Building Committee").

The building programming process commenced on June 22, 2010. Library Planning Associates, Inc. and MS&R, Ltd. led the process with Barb Dimick, Library Director and the Madison Public Library's Core Management Team. The program was refined through a series of meetings and discussions, until a final program document was submitted to the City of Madison on August 1, 2010. The program document was written, at the direction of the City of Madison, independent of the established budget and existing square footage of the building; the document was to define the "Gold Standard" central library for the size and demographics of Madison, Wisconsin. The ensuing document called for a library of 126,074 gross square feet (GSF) and included 326 readers seats, 100 public computers and shelving to accommodate nearly 387,000 items in the print and non-print collections. Also included were 343 seats in meeting, conference and program rooms, a Madison Room for an expanded local history collection and research and 18 study rooms.

Starting in August 2010 with the Conceptual Design phase and continuing through the Schematic Design phase in October and November 2010, the building program, project budget and exterior expression were tested first through program diagrams and then through conceptual designs. The emerging concepts were discussed and debated openly through several Building Committee meetings, three public input meetings and additional stakeholder meetings including Mayor Cieslewicz, Madison Public Library management and staff, Capitol Neighborhoods Inc., neighborhood business owners, and various homeless providers.

On September 10, 2010, the Design Team received a directive from the City of Madison to reduce the project to a size that would meet the established budget of $29.5M project cost. Through benchmarking costing it was determined that this would result in a building of between 116,000-120,000 GSF. The early part of the Schematic Design phase was spent investigating this new size and how to accommodate the program elements within this smaller footprint, while investigating multiple options for the exterior expression.

Community Input

The Design Team held three public input meetings during the Concept and Schematic Design phases, with a fourth to be held on December 7, 2010. The input from these meetings helped the team narrow the early design concepts and exterior expressions, solidify program locations within the building and prioritize aspects of the project. In addition to the public meetings, various stakeholder meetings were also held. These stakeholder groups included the City of Madison, the Madison Public Library management team and staff, Mayor Cieslewicz, Capitol Neighborhoods Inc., neighborhood business owners and various homeless providers.

Building (by definition new) is always the act of changing what exists (by definition old), and, whether intended or not, relationships are formed between the two. The complex relationships of old and new can be orchestrated not only into functional architecture and a dynamic part of a city, but can also impart authentic meaning that embodies diversity, honesty, creative tension, cultural continuity, and sustainability. MS&R's old/new philosophy applies both ways to the Madison Central Public Library project: to old spaces being renewed and to new spaces creating a relationship with existing conditions. We believe, therefore, that architectural form for the library is one of enduring value:

1. The architectural design is a framework for relative meanings. On the most general level, the duality of old/new offers a time continuum on which potential meanings and associations of the library's history and its context become interrelated. This continuum offers us the potential for ordering, reordering, and creation of new meanings that neither the old nor the new possess separately. For this reason, the reuse of the existing library is perfect--its frame serves as a literal and metaphorical bridge between the past and the future.

2. Time and change are fundamental to architecture. Similar to gravity, natural systems, and urban systems, time is foundational to the shaping of architecture and therefore a worthy platform from which to explore meaning. Buildings interact with their preexisting natural, and in this case, urban settings, and each new building changes the part of the city from which it rises. Over time, weather and entropy change buildings, displaying the power and disorder of architecture's antithesis—chaos. Shifting library services, cultural values, and human needs prompt buildings and cities to change, leaving residue of what was. Such alterations can be viewed as vibrant inspiration for new ideas and the editing of places into dynamic and interactive collages that affirm living processes. This collaging of old-new is a perfect setting for a building that houses both virtual and physical artifacts of the information matrix. The new design begins by "erasing" the residue of the building that is past its prime (like mechanical and electrical systems) or no longer useful (like the colonnaded entry.) In their stead are new forms that signal a shift from the past. The corner entry is framed by the "literary living room." This three-story glass form is pivoted at the intersection of the "old" brick exterior wall. This pivoting establishes a new identity and signals a shift from the past. The transparency is in stark contrast to the introverted, dark and dispiriting existing exterior enclosure.

3. The myth of the old. Meanings are imparted by time. In many cases, the public will choose traditional architectural styles for personal spaces, housing, offices, and institutions because of their familiarity. Although these traditional choices can be applied to new buildings, the authenticity of old places cannot be recreated through mimicry. By respecting the autonomy and authenticity of both the new and the old, any resultant combination of old and new will have its own authenticity. For this reason the new forms associated with this library project are of now and not over-simplified historical pastiche.

4. The myth of the new. The new is powerful. The allure of youth, progress, new things, and new ideas pervade our culture. In architecture, it drives innovation that can move the vocabulary of architecture in new directions and creates stunning buildings. It also drives the waste of physical and cultural resources through the abandonment of old neighborhoods and the destruction of serviceable buildings. We believe that this part of the myth of the new is unethical and unnecessary. At the root of this belief is a cultural and pragmatic realization that everything ultimately is a transformation of something else. The thoughtful reuse, repositioning, and reframing of matter and space can be as profound as the pretense of inventing it. For this reason, we embrace the merger of old-new in the "new" and re-imagined library. It is an ethical, sustainable and wise choice to renovate and reinvigorate the existing library. Where we can, we have improved the old with new daylighting strategies.

5. Reuse and sustainability. The heritage preservation and sustainability movements are converging. Saving existing buildings to strengthen the cultural fabric and reduce waste is mutually beneficial. Old/new is a comprehensive approach that integrates the ethical issues of environmentally conscious design and culturally conscious preservation with a commitment to high level solutions to our clients' needs.

6. Overall, the final proposed architectural form is reflective of its specific place in Madison. It is our belief that place influences every aspect of our culture--including the emotional, perceptual and intellectual. As Jorge Luis Borges puts it, "The creator (i.e. the architect) walks a tightrope suspended between memory and oblivion." We have learned that the best client (in this case the citizens of Madison) relationship is one that enables patience and discovery; is not motivated by pure economics; and where each party is willing to go to places neither can imagine at the beginning of the design journey. It is hoped that the architecture form that we are proposing will enable transportive journeys for young and old alike.

5. Integrated Sustainable Design Approach

Schematic Design December 2, 2010

Project Goals

Sustainable design is most successful when all of the design team members, including the Owner, share similar values and attitudes toward the project; when a project's efficiency and cost, as well as the created environment and the impact the building will have on the environment at large, are considered with attention and care.

The City of Madison provided the following documents as guidelines for the design; Exhibit "B" Policy for Energy Efficiency and Sustainability of City Operations, Guidelines to Reduce Operating Expenses and Meet Sustainability Goals dated 9/24/2010, and Owner's Project Requirements dated 8/25/2010 ver. R4. These documents provide common guidelines for the design team, while defining a written assessment of sustainability needs and desires regarding the new Central Library.

- Design and construct a Library that will achieve at a minimum LEED Certification – Silver, following the U.S. Green Building Council's LEED for New Construction (LEED-NC) Rating System, V3.0.
- Achieve at least 40% energy savings compared to efficiency levels prescribed by ASHRAE Standard 90.1-2007.
- Achieve the lowest possible lifetime cost for construction within the project budget.
- Design the building to provide continual energy conservation throughout the life of the building that can be showcased and used for the educational purpose.
- Ensure good indoor air quality.
- Design spaces to maintain a healthy environment for patrons and staff.
- Design spaces efficiently to reduce material costs.

Design Process

These guidelines have not been considered in isolation by the design team, but rather are essential components of the project's Design Objectives and Principles described in this report. Team work during schematic design has been focused on meeting project objectives, creating a seamless approach to all project components, integrating all systems within the architectural expression, and making all parts of the building equally important parts of the design.

An integrated design approach is essential to the achievement of measurable outcomes of the project's sustainable goals. The required performance guidelines of the LEED-NC V 3.0 set the project framework and oversight for this process.

Design Strategies

Within each narrative section of this Report, the Design Team has provided an overview of the specific project strategies by discipline, which will be expanded upon and further tested during the Design Development phase. These specific project strategies address the required performance criteria in the following primary LEED-NC V 3.0 categories: Sustainable Sites, Water Efficiency, Energy & Atmosphere, Material & Resources, Indoor Environmental Quality, Innovation in Design.

Next Phase

Data for the performance indicators of this project are being tracked by the project team and will be expanded upon throughout the design and construction phases. All performance goals and credits are grouped into the following categories:

- To be further examined in Design Development.
- Not obtainable by the project due to existing project circumstances (for example SS credit 3 – Brownfield Redevelopment).
- Credit opportunities to be determined in Design Development (for example SS credit 6.1 Storm Water Design - Quantity Control)
- Potential credits that need to be tested against the budget (for example EA credit 2 On-Site Renewable Energy)
- Credits attempted.

The LEED-NC V3.0 worksheet for the Schematic Design phase is provided in an Appendix of this Report.

6.A. Site Development Systems Description

Schematic Design December 2, 2010

Summary

The new Library site development will be limited. The existing Library building is built up to the property line on N. Fairchild and Mifflin Street as well as an existing building and parking ramp along the southeast property line. The area of our site development or rework will occur on the 15-foot wide receiving area along Henry Street property line. The construction limits for this project will be the four property lines.

Demolition, Site Clearing, and Tree Protection

Confine clearing and grubbing operations to the minimum area reasonably necessary to undertake the work.

Protect existing street trees designated to remain. Install temporary vegetation protection zone chain link fencing as indicated on the Drawings to protect trees from construction damage. Maintain temporary vegetation protection fencing and remove when construction is complete.

Demolish and remove designated existing structures, paving, surfacing, and hardscape elements in their entirety.

Dispose of debris off-site.

Earthmoving and Soil Preparation

Sediment and Erosion Control: Install and maintain erosion control measures as required by the erosion control plan throughout phases of the project.

Paving and Surfacing

Construct paving/surfacing will be in compliance with State of Wisconsin and City of Madison specifications.

Paving Type: 4000 psi, air entrained Portland cement concrete with tooled joints and medium broom finish, 6X6 WWM fabric located mid-depth. Thickness: 5 inch. Base: 6 inch crushed limestone.

Site Improvements

New recessed exterior scissors lift to replace existing recessed scissors lift at receiving area.
Extend top of walls of existing electrical vault to new grade (exterior exit doors) and provide new-galvanized metal grate over existing vault opening.
New stainless steel metal handrails at exterior stairs.

Site Furnishings

Waste Receptacles: to be determined.

Landscaping

Landscape materials including trees, shrubs and ground cover.
Flowering/Intermediate Trees: 1.5 to 2 inch caliper.
Shrubs: container or balled and burlapped.
Groundcovers: container

Utilities

Any utility rework or design work required outside of our property lines along the N. Fairchild, Mifflin and Henry Streets will be by the City of Madison Engineering Department.

Work by Others

All Civil, Landscape and Lighting design work, outside of our property line, along N. Fairchild, Mifflin and Henry Street will be by the City of Madison Engineering Department. The City's design documents and specifications will be included as part of the Madison Central Public Library project for bidding and construction purposes. This includes but is not limited to sidewalk, curbs/curb cuts, street trees, street lighting, bicycle racks and traffic signage as required.

6.B. Exterior Systems
Systems Descriptions

Schematic Design December 2, 2010

Summary

Exterior Building Materials

Approximately 50% of the existing exterior wall will remain in place. This will include large panels of the brick as well as the common wall between the Library and the Fiore Building.

Exterior Wall Systems

The primary exterior wall materials will include existing masonry and stone, new materials will include glass curtain wall and zinc metal panels. The existing dark brick at the base of the building will be removed and replaced or left in place and covered with a new exterior cladding. It is expected that the exterior systems will be revised and variations will occur during the Design Development phase.

1. Existing Brick wall assemblies
2. New metal panel wall assemblies
3. New Curtain wall assemblies
4. New Backlit Glass panel assemblies
5. New Stone masonry

The new exterior walls will typically be non-bearing, insulated cavity wall construction with 3" of rigid insulation and steel stud back up, the common firewall between the properties will have a concrete block backup for fire rating. The exterior assembly construction will be reviewed during Design Development by the exterior enclosure consultant.

Wall Assemblies

New Metal Panel Assembly

The majority of the 3rd floor will be clad with zinc metal panels. The cladding could consist of a similar system to the Rheinzink flat lock tile system or the Rheinzink horizontal reveal panel system. The zinc panels will have a preweathered blue gray finish.

The assembly consists of:

Metal Wall Panels
Vent Mat
Weather Barrier
¾” Plywood sheathing
Z Furring with 3 inches of rigid insulation
Air/vapor barrier
5/8” exterior sheathing
6” steel studs
5/8” GWB interior

Existing Brick Wall Assembly

Existing brick walls may require some exterior maintenance and patching. Existing insulation and plaster will be removed and new insulation and GWB will be added to the interior of the existing brick walls. This assembly will be reviewed by the exterior wall consultant. At this time the assembly consists of:

Existing Brick Wall
Existing air space
Existing CMU back up
3” of closed cell foamed in place insulation
3 5/8” metal studs
5/8” GWB interior

New Fire Rated Wall at the property line between the Library and Network 222

The new wall on the 3rd floor at the property line will require a fire rating that will be obtained by utilizing a CMU back up with an exterior cladding. For the purposes of pricing during this schematic phase the exterior cladding will be zinc metal panels. Assembly:

Zinc Metal Panels
Vent Mat
Weather Barrier
¾" Fire Retardant Plywood sheathing
Z Furring with 3 inches of rigid insulation
Spray on Air/vapor barrier
CMU Wall (3 hour)
Metal furring or framing
5/8" GWB interior

New Curtain Wall Assembly

Multi story curtain wall framing, structural glazing and captured glazing to incorporate a combination of insulated vision, composite metal panels, frit coated glass and insulated spandrel glass panels. Based on Efco or Kawneer curtainwall systems. Glazed aluminum curtainwall with 1" insulated glass units, will represent the primary exterior glazing. Aluminum supports will be thermally broken. Entry glazing shall be identical to curtain wall. Clerestory windows, office windows and glazing to be identical to curtain wall.

IGU Type: 1 inch insulated glass constructed of transparent, translucent and opaque lights. All IGU's to have Low E technology similar to Guardian Sunguard Super Neutral 54 on clear.

New Backlit Glazing Assembly

One option for replacing the dark brick at the base of the building is to use LED backlit laminated translucent glass panels. The assembly would consist of laminated structural glazing with no visual framing members, continuous LED lighting within an internal space with a white painted metal panel to cover the existing brick. This assembly would require a stone or concrete base to keep the glass off the sidewalk and would also require a zinc or stainless steel trim cap at the top of the backlit assembly.

Ultra High Performance Concrete, Cast Stone Panels, Glass Fiber Reinforced Concrete Panels or Stone Panels

Another option for replacing the base materials is to use a thin rain screen system utilizing thin concrete or stone panels. The panels would be attached directly over the existing brick with a metal rail system and would create a rain screen over the existing brick wall. This system may be used in conjunction with the backlit glazing system. One thin reinforced concrete system being researched is the Rieder FiberC product from Austria.

Existing Stone panels at roof edge
There are 2 options for the existing stone panels on the top of the exterior walls. One option is to clean the stone and patch any holes and tuck point or caulk the panel joints. The second option is to replace the panels with either stone or precast concrete panels to match what will be used on the base of the building.

Roofing Systems

Low Slope Roof System (non-green roof area)
Sloped a minimum of ¼" per foot with a 60 mil single ply fully adhered EPDM membrane system over tapered insulation in thickness required to provide positive drainage, over two layers of 2" flat insulation. The roofing system shall comply with Energy Star rating, LEED requirements and shall allow the ability to add green roof trays.

Green Roof
Option 1: Built up roof system similar to Hydrotech
Option 2: pre-planted tray system with an engineered planting medium similar to the LiveRoof system.
Depth to be determined. A full green roof is an alternate on the third floor.

Public Access Roof Decks
At the public access roof decks optional materials include:
Concrete pavers
Ipe wood decking
Composite deck products with recycled content

Skylights (Alternate)
See alternate section.

Roof Deck Railings
Glass and stainless steel guard railings will be used at public access roof decks.

Miscellaneous Exterior Elements

Signage
Large dimensional letters are planned for use at the main entry as shown in the elevation along Mifflin Street. The materials for the letters could be zinc coated metal or translucent resin 3M UV coated Chroma product that are edge lit with concealed LED lighting.

Louvers
New louvers will be required on the mechanical penthouse. The louvers should match the finish of the zinc metal wall panels.

Roof Sculpture
The large bronze sculpture located in the courtyard will be relocated to the roof.

Bohrod Mural
There is a potential scenario where the exterior of the wall that is being saved for the Bohrod Mural will need to be covered in order to provide insulation. In this case the preliminary budget allowance shall include zinc metal panel system over the existing brick.

Canopy over new Mifflin Entry
The canopy over the new Mifflin Street entry could be constructed of:
Option 1: Back lit translucent glass
Option 2: Zinc metal clad canopy

Garage Door
New insulated garage doors with insulated glazing and metal finish to match the zinc metal panels.

Vertical and Horizontal Sunshading
The vertical and horizontal sunshading panels on the Mifflin and Henry Street facades will be clad in zinc-coated metal.

Exterior Doors
Building entrance doors and other doors in aluminum curtain wall will be aluminum and tempered glass, manually operated. One door leaf at all building public entrances will be power assisted.

Miscellaneous Equipment
Corner stone

Options

Options for stone building cap

Clean and Repair existing stone
Replace existing stone

Options for Mifflin canopy

Backlit glass canopy
Metal clad canopy

Overview

In keeping with the stated Project Design Principles (Respect, Identity, Gradation, Responsiveness, Light, Discovery), the building interior is designed to be intuitive to use and responsive for future use while also encouraging exploration in lifelong learning. Color and texture will be used to both guide users through the library and generate interest in surroundings to encourage exploration. The entire building maximizes the available natural light and views to the exterior. The principle of Gradation is expressed in the interior organization as well as in the play of materials and textures.

The interior is organized into three zones. The Mifflin side of the building is the active "Marketplace" area, filled with technology, library materials display, group study rooms and casual seating. This zone is where the main stair and elevator are located, contributing to the active nature of this area of the library. The mid zone of each public floor contains library stacks, technology for longer-term use and individual study. It is designed as a wide-open, flexible area to allow the evolution of library service to occur gracefully. The third zone of each floor, located along the party wall, contains the service block. The service block design is driven by efficiency. It contains the staff workrooms, toilets and janitor closets, storage and other building support functions.

Upon entering the library at the main entry point on Fairchild, customers will have clear view of public functions, book drop, main stair and elevator, and of the service desk. Upon entering at the secondary entry on Mifflin, customers will have easy access to the main stair and elevator, another book drop, a program room, and the children's area. The Youth Services and Adult Services departments are peppered with retail-inspired fixtures containing books and media. Computers and other technology are distributed throughout the library.

Program

The building is comprised of five levels: Basement Floor (below grade, at elevation 81'8"), Ground Floor (at Henry Street grade, at elevation 89'8"), First Floor (at Fairchild Street grade, at elevation 100'0"), Second Floor (at elevation 114'8") and a new Third Floor (at elevation 129'2"). Iterations in the Conceptual Design and Schematic Design phases have produced the following program distribution among the five levels:

Basement Floor: Children's Room, Maintenance Offices, Mechanical and Electrical rooms, Library Stacks Storage.

Ground Floor: New Mifflin Street entry with book drop, 75-person Program Room and associated support spaces, Staff spaces including Technical Services, Maintenance Shop, Automated Materials Handling and Mailroom.

First Floor: New Materials, Fiction, Large Print, Teen, Audio-Visual, group study spaces, a 15-person Conference Room, Production Lab and staff spaces including Circulation Services, part of Technical Services and the Print Shop.

Second Floor: Non-Fiction and Reference, group study spaces and staff spaces including User Services and Library Stacks Storage.

Third Floor: Large Meeting room (divisible) and Administrative staff.

Interior Systems

Library Material Conveying System

All library materials returned to the building at the Fairchild entry on Level One will be transported under the stab by the material conveying system from the book drop to AMH Room at the Ground Level. The conveyer needs to be compatible with the Automatic Material Handling System, which is not in the project scope and will be installed by the Owner in the AMH Room.

Conveying Systems

Public Elevator will have cork plank flooring. Walls will be a medium finish wood tone with a custom laser etched pattern back-lit by LED lighting with additional light for cab through back-lit custom translucent ceiling. Exterior walls of the elevator shaft will be polished Venetian plaster over drywall.

Elevator Model: Seville 35.

a. Rated Capacity: 3500 lbs..
b. Rated Speed: 150 ft./min.
c. Operation System: TAC32.
d. Travel: 47'-8".
e. Landings: 5 total.
f. Openings: Front: 5; Rear: 0.
g. Cab Inside: 6' - 8" wide x 5' - 5" deep clear.
h. Cab Height: 8’0” nominal.
i. Hoistway Entrance Size: 3' - 6" wide x 7'-0" high.
j. Door Type: Single Speed.
k. Power Characteristics: 460 volts, 3 Phase, 60 Hz.
l. Seismic Requirements: Zone 1.
m. Fixture & Button Style: Traditional Signal Fixtures with Microban® antimicrobial protection.
n. Special Operations: None.

Staff Elevator will have rubber flooring. Walls will be an impact-resistant finish.

Elevator Model: Seville 30.

a. Rated Capacity: 3000 lbs.
b. Rated Speed: 150 ft./min.
c. Operation System: TAC32.
d. Travel: 47'-8".
e. Landings: 5 total.
f. Openings: Front: 5; Rear: 0.
g. Clear Car Inside: 6' - 8" wide x 4' - 3" deep.
h. Cab Height: 8’0” cab height nominal.
i. Hoistway Entrance Size: 3' - 6" wide x 7'-0" high.

j. Door Type: Single Speed.
k. Power Characteristics: 460 volts, 3 Phase, 60 Hz.
l. Seismic Requirements: Zone 1.
m. Fixture & Button Style: Signa4 Signal Fixtures.
n. Special Operations: None.

Operable Partitions

The Large Meeting Room on the Third Floor will be divisible into two independent rooms with a large-scale operable partition stored in the ceiling, similar to Skyfold products. This operable partition will be electrically operated and integrated with the meeting room control system, tying together control of the lighting, sound and AV systems.

The Children's Program Room on Basement Floor and the Conference Room on First Floor will each have custom laser-cut wood panels that roll on a ceiling-mounted track. This will allow both rooms to be integrated into the adjacent public spaces when not in use.

Doors and Door Frames

All door frames, except fire rated partitions and existing doors to remain, shall be 8'-0" high clear anodized aluminum, with grade AA wood doors in veneer to match wood accents used throughout the interior.

Stair Systems

Public Stairs to be constructed of polished white cast concrete with ornamental glass guardrails and satin metal handrail. For slip resistance and visual clarity steel bars will be imbedded into the cast steps.

All existing exit stairs will be replaced with a code compliant steel pan stair system with exposed polished concrete treads.

Interior Finishes

The interior finishes shall be chosen both for their sustainable nature and their warmth in character. All materials are highly durable, easily maintained and intended for contract use in a publicly-used building. The building will use as minimal of resources as possible. Where possible, materials and finishes will be native to the region.

Stone. Natural stone, quarried in Wisconsin, will be used on the exterior of the building. Where appropriate, this material may be use selectively on the interior of the building for warmth, texture and stature.

Wood. Wood will be used strategically to provide warmth on the interior. For example, screens to lock the library from after-hours spaces may be fabricated from wood laser-cut into a pattern that allows some visibility into the library when closed, and acts as integral art when open. Wood species will be a medium to deep tone to provide contrast with other materials on the interior.

Cork. Cork tiles, which are a rapidly-renewable resource, will be used for their warm and textured appearance, contribution to a healthy building and ease of maintenance. The cork will be a plank module (roughly 4”x36-48”).

Color. The library will be infused with vibrant color. Study room interiors will use colored fabric acoustical walls for warmth, texture and improved acoustics.

Concrete. The existing building structure is concrete, as is the existing waffle slab. We propose to expose those materials and express them out of respect for the existing building’s best qualities. These existing portions of the building will be painted white to both reflect light in the building and to act as the existing canvas on which the new library is “painted.” The marketplace – a busy, active space – will use concrete for the floor material to visually mark this area as different from the quieter library spaces.

Basement Floor

The Children’s Room will have durable and vibrantly colored flooring composed of various colors of rubber sheet flooring laid out in a custom pattern. A vapor barrier will be required over the existing slab prior to finish flooring installation. Exposed structural columns and underside of cast-in place slab will be cleaned, patched and painted. All lighting and mechanical systems will be carefully coordinated for a neat appearance, and suspended exposed within the space.

Program Room acoustics will be addressed by full height fabric-covered acoustic panels applied to walls of the room. Fabric will be high grade COM. Additional interest will be brought to the room through a custom ceiling installation.

Study Room partitions will be made up of a variety of butt-jointed transparent, translucent and colored glasses to aid with staff supervision of these rooms. Like the Program Room, pairs of interior walls within each room will host full height, high-grade COM fabric-covered acoustic panels.

Ground Floor

For ease of maintenance, the building entry will contain a steel walk-off mat system, transitioning into a level 2 quality, polished concrete slab with a 1500 sheen finish within the Lobby. The glazed entrance systems lead into the building proper, allowing for visual continuity from exterior to interior. The translucent, back lit wall, expressed on the outside of the Mifflin Street entry will continue into the Vestibule.

The Program Room will have cork plank flooring and full height fabric covered acoustic panels. Panels will be high-grade COM fabric. Program Room ceiling will be composed of a concealed grid with 2x6 acoustic ceiling panels.

The lobby, Program Room and associated support areas, stair and elevator are to be open for operation after the library proper has closed. Separation between the Basement Floor and this after hours zone is provided by an operable fire rated glass partition.

First and Second Floors

For ease of maintenance, the Main Entry will contain a steel walk-off mat system, transitioning into a walk-off carpet tile system at the entry ramp. In the new addition of the building a ceiling systems of 2x6 acoustic tiles in a concealed grid will be installed.

The lobby, stair and elevator are to be open for operation after the library proper has closed, to allow access to the Large Meeting Room on the Third Floor. Separation between the library and this after hours zone will be achieved with operable custom laser-cut wood sliding panels.

The Commons and Marketplace areas on both floors will have level 2 quality, polished concrete slab with a 1500 sheen finish. Contract grade dense low-pile carpet tile "area rugs" will be provided at seating areas.

The Study Rooms and Conference Room on these two levels will be primarily glazed with a variety of butt-jointed transparent, translucent, and colored glass panels. Any solid walls facing library collection areas will be covered in textile wall covering. Interior walls will receive full height, high-grade COM fabric-covered acoustic panels. Floors in these rooms will receive a cork plank floating floor system.

Collection areas will receive the cork plank floor system. The back wall of stack area ("service zone wall") will have pattern of full height, custom framed, glazed punched openings, residing within a painted wall surface.

Ceiling finish will be determined during the Design Development phase, once the Owner has reviewed on site mock-ups and the mechanical system is selected. Painted exposed structure to be used as a basis of design, with an add alternate of 80% of ceiling area to be finished with a ceiling system of 2x6 acoustic panels within a concealed grid, with free, expressed edges.

Third Floor

The Large Meeting Room will be divisible into two smaller rooms, by an acoustically rated operable partition. Each half of the room shall have independent lighting, audio-visual, shading and sound controls. To further address acoustic comfort and separation both parts of the meeting room will contain a ceiling system of 2x6 acoustic panels within a concealed grid, as well as cork plank flooring and full height high-grade COM fabric covered acoustic panels applied to three walls. To provide flexibility with audio-visual components, power operated black-out shading will be installed at all perimeter and interior glazed openings within the room and will be tied to the lighting control system.

The Lobby, Madison Room and Corridor outside of the Meeting Room will all contain the ceiling system of 2x6 acoustic panels within a concealed grid. Floor finish will be level 2 quality polished white concrete slab with a 1500 sheen finish. A contract grade dense, low-pile carpet tile "area rug" will be provided in the Madison Room.

Corridor walls abutting the meeting room will be covered in a textile wall covering to address durability and esthetic needed for public gathering areas. Corridor walls opposite will have full height plywood backing for gallery component.

Penthouse Level

The penthouse houses mechanical equipment. It will have sealed concrete floors, painted gypsum board walls and exposed painted ceiling structure, fire rated where required.

Building Overall

All public and staff restrooms and staff showers will have 18x24 through-body porcelain tile with minimal grout joints on the floor and 2x8 wall tiles in various colors installed in a custom pattern. Tile will be provided on all walls in public restrooms and wet walls only in the staff restrooms. All restroom partitions will be stainless steel and ceiling hung.

All staff offices and workrooms will receive rubber sheet flooring and 4x4 concealed grid acoustical ceiling tile system. Visual connection and daylight will be provided via full height glass openings with clear and transparent glazing, based on privacy needs.

Interior Furnishings and Custom Millwork

The library shelving height is capped at 66" to reduce visual and physical barriers and provide a comfortable, accessible feel to the interior. The shelving will be new, finishes with white paint and be trimmed with solid surface end panels and canopy tops. The end panels and canopy tops shall be provided as part of the millwork package.

In order to accomplish providing lower-height shelving for public collection areas, a staff-access-only storage collection will be provided on the basement floor. This storage collection will use compact shelving storage to maximize the number of materials that can be stored in the available space.

Compact storage shelving will consist of all new frames and carriages with reused existing shelves. Existing Shelving will be reused as is within all enclosed storage areas on First and Second floors. Compact shelving rails will be embedded in the floor slab.

Library material display fixtures are to be included in the millwork package. These mobile, four-sided units will contain adjustable laminate shelving in a solid surface shell with concealed heavy-duty casters.

Custom millwork counters in public areas will be constructed of solid surface supported by a steel "L" bracket tied to structure within the partitions, for a seamless look and no visible support brackets. Worksurfaces will be held away from the wall 1" to all cables and power cords to fall over the back edge. Cables and power cords will be managed below the surface with a basket and clamps. No cords shall be visible.

Custom millwork components in staff areas will be constructed of laminate, with laminate shelves and interiors. Hardware shall be Doug Mockett or similar.

Public area furniture will be designed and/or selected for its ability to adapt easily as use patterns changes. Technology will be incorporated seamlessly into the furnishings to eliminate unsightly cords and cables. Study tables will have metal frames and solid surface tops for longevity. Study chairs will have metal frames and leather seats. Lounge furniture will be upholstered in leather or fabric treated with nanotechnology for soil-hiding and stain-resisting features.

Staff work areas are designed with efficient and reconfigurable contract office furnishings (Herman Miller, Haworth or similar). Worksurfaces will be supported with metal frames and have laminate tops. Low and mid-height fabric panels will be used for separation and privacy. Task seating will be new, ergonomic contract quality seating for safety and health of staff.

Most of the building's existing furniture is past its useful life. Where possible, however, existing furniture will be redeployed within the building, mainly in staff areas. Examples include side chairs and some tables. All the book trucks that are in working order will be reused. The majority of the existing shelves are used as is either on the compact storage or in the other two storage collection rooms. Existing children's chairs in the public area will be refurbished and reused (see separate Furniture Inventory Document for more information).

All new furnishings throughout will be as flexible as practical for reconfiguration and contract grade.

Interior Signage

Major public areas will be signed with individual metal lettering hung from the ceiling with metal rods. Through-color acrylic accents will be used.

Each solid surface shelving end panel will hold an integrated collection location sign which allows library staff to change the message as needed with a paper insert. All children's book bins will have acrylic framed placards.

Rooms will contain an acrylic colored sign with Braille. Signs mounted on glass will include a matching acrylic backer. Where possible, universal pictograms will be used to aid in communication with the diverse population.

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6.D. Structural Systems
Systems Description

Schematic Design December 2, 2010

Summary

Structural design will be in conformance with the International Building Code (w/ Wisconsin amendments) and with appropriate design requirements of the American Concrete Institute and American Institute of Steel Construction and other respective structural materials governing organizations.

Structural aspects of the project involve adapting the existing concrete "waffle slab" floor structure for new stair/elevator openings, light-well opening and other potential minor penetrations and incorporating a number of openings in the exterior façade at both upper walls and foundation walls. New additions will include a 3rd floor over a portion of the original footprint, as well as a 3 level addition in the former exterior plaza, to include meeting rooms, reading space and entry lobby.

Foundation System

All new foundations for the infill of the existing plaza will consist of conventional spread and strip footings, supporting new concrete perimeter frost walls, concrete stair walls and columns. The new three story entry addition does not contemplate excavation of additional basement space. Perimeter walls would be doweled to the existing foundation system and would typicall be reinforced with continous horizontal top and bottom steel. Spread footings will be reinforced with rebar in each direction and strip footings will have continuous horizontal steel. Slab-on-grade will be minimum 4" in thickness and conventionally placed on 15 mil vapor barrier, on compacted granular sub-grade. A new geotechnical investigation has not yet been performed for this site, however; based on review of the original soils noted, as well as area knowledge, allowable soil bearing conditions will be inexcess of that necessary for new construction or added loads to existing.

Entry Addition Superstructure

The entry addition superstructure will be steel-framed. Floors will be concrete slabs on composite steel deck, supported in-turn by steel wide-flange purlins and steel wide-flange girders. Including slab, the structural system will be approximately 24" in depth. Column supports will be round shelled Fire-trol elements (integrally fire-proofed), 10.75" diam. first to second floor and 8.625" diam. second floor to roof. The steel roof structure will be similarly framed with steel wide-flange purlins and girders, supporting steel roof deck. The second/ third floors will overhang the first floor footprint on north and west. The new stair tower will use concrete walls to support new floor/roof structure and provide for an east support to the considerable north cantilever. This support will be achieved by extension of the west stair wall north along the addition cantilever and will extend vertically from second floor to roof. Steel structure will require fire-proofing (with exception of columns as previously noted). All steel floor and roof deck will be galvanized.

Third floor Structure

Original documents stated the existing roof was designed as a future floor, which has been confirmed by subsequent analysis. The live load capacity for this existing "waffle slab" concrete structure is in excess of 100 PSF, allowing for the proposed office and large meeting room occupancy. Additional floor structure is not required over this existing slab. New third floor roof structure will be steel-framed and fire-proofed as required. The roof is characterized by high and low roofs. The roof framing over the large group meeting room will utilize deep wide-flange steel beams spanning east-west across the space to provide for a column-free space. These beams will support open-web steel

joists (or wide-flange steel purlins) with top-chord extensions to the north to provide roof support beyond grid 2. The horizontal-fold partition will be supported by an independent beam and column. The new entry addition roof will be at similar elevation to the meeting room and will frame into the meeting area roof framing. The balance of low roof framing will be steel wide-flange purlins or open-web joists, supported on wide-flange girders. A high/low roof condition will be framed at the south side of the corridor outside the meeting room to provide clerestory light to this space. All roof structure will support steel, wide-rib decking. As required, roof structure will be designed to support PV panels. The area between grids A-C and 6-10 will have a mechanical penthouse. The penthouse floor will be concrete slab on composite steel deck, supported by wide-flange purlins and beams. The roof over the penthouse will be wide-flange purlins and beams supporting steel roof deck. All floor and roof decking will be galvanized. It is intended that new columns align with existing column centerlines as closely as possible. To achieve a column free space in the meeting room, some columns are being moved off grid, but these columns will remain over the existing concrete drop panels to allow vertical load shear support. Analysis has shown that the additional bending caused in the existing roof slab can be resisted by the existing reinforcing.

Existing Building

The original building is a concrete structure, using "waffle slab" floor construction and concrete columns. This is a form of long-span, two-way slab, which does not generally incorporate beams into the support scheme, except at opening and building perimeters. Original documents indicate the floors (and roof/future floor) were designed for an allowable live load of 100 PSF. Subsequent analysis shows that live load capacity of up to 110 PSF can be achieved. Applicable codes require that un-posted, general stack areas in current construction be designed for 150 PSF. In this application, stack areas will be limited to shelf heights and aisles that will maintain loading at or below the 110 PSF threshold. Based on reduced footprints and control of space program in surrounding areas, a limited amount of compact material storage can be achieved on elevated floors. The general areas of condensed storage will occur on slab-on-grade at the basement level.

The adaptation of the existing building to new, exciting spaces generally involves careful layout of new stair and elevator openings and at first floor, introduction of a light well. The existing structure at these openings has been re-analyzed to verify that adequate capacity for public space is available following opening placement. Analysis shows that the openings indicated can be achieved without additional expensive or unwieldy reinforcing. Other subsequent analysis has indicated that columns and footings have excess capacity to allow the third floor (and penthouse) extensions, without additional reinforcement. Placement of the new stair and elevator elements also allow for installation of new footings/foundations without interference with existing foundations. In general, a new slab-on-grade will be placed at the basement level, as the existing has various settlement and crack issues and new utility routing would otherwise require a high degree of cutting and patching.

Providing increased window area in the exterior will be provided by removal of portions of the existing non-bearing concrete and brick masonry walls. Small floor extensions may be made at some of these openings by adding short steel or concrete additions. Some additional openings will be provided in the foundations walls along Mifflin Street as well, leaving column locations alone and allowing enough remaining wall to resist unbalanced earth pressure from the grade change from Fairchild Street to Henry Street.

Lateral Resistance

It is assumed, based on experience with building sites in this area, a seismic site classification of "C" will be appropriate for design. This will result in a corresponding Seismic Design Category A, which renders much smaller lateral loads due to seismic forces and likely result in wind forces controlling design. Analysis has shown that the existing building frame in the north-south direction, has enough frame stiffness to resist lateral forces in this direction. During final design, it will be determined whether existing stair shafts/remaining exterior masonry infill walls will provide enough stiffness in the east-west direction. Additional lateral resistance in the east-west direction may be gained by the new concrete stair structure in the entry addition. New third floor extension will require some lateral bracing; likely a combination of the new stair/elevator shafts, extensions of the existing stairs and possibly some new diagonal steel bracing.

Basis of Design & Materials Stresses

New entry floors:	100 PSF
New stairs:	100 PSF
New roofs: (in accord with ASCE 7-05 for p_g=30 psf)	
Existing floors (limited to:)	110 PSF
Localized Compact Storage (per supplier)	
New mechanical penthouse	100 PSF
Wind: (in accord with ASCE 7-05 for 90 mph)	

The above loads would be considered "live loads," in addition to the self-weights and superimposed dead loads applied to respective areas.

New foundations at the entry addition will bear upon compacted engineered fill and proportioned for 4000 PSF allowable bearing. This will be field verified by a qualified Geotechnical Engineer during construction. New interior stair and elevator shaft footings can be designed for 8000 PSF allowable bearing

Steel materials contemplated will comply with ASTM A992 for wide-flange beam members and ASTM A500 for hollow structural steel members. Other steel plates, etc will be ASTM A36. Steel roof deck will comply with Steel Deck Institute requirements and conform to ASTM A611 material. All steel work will be in accordance with the American Institute of Steel Construction.

All concrete work will comply with the requirements of ACI 301 and 318. Concrete contemplated for use will require a design strength between 3000 psi and 4500 psi, depending on specific use. All concrete used/exposed to the exterior, will be air-entrained. All reinforcing steel used in the concrete will conform to ASTM A615.

Concrete masonry work will comply with ACI 530, with strengths of 1500 psi minimum F'm. Steel joint reinforcing will be provided in all cases, with vertical steel reinforcing as required by design.

6.E.1 Plumbing Systems
Systems Descriptions

Schematic Design December 2, 2010

Summary

The existing Plumbing system will be demolished completely and a new system will be installed. The new Plumbing Systems will be designed in accordance with the Wisconsin Plumbing Code, COMM chapters 81 – 84. The Plumbing Systems will use the following documents as guidelines for the design; Exhibit "B" Policy for Energy Efficiency And Sustainability Of City Operations, Guidelines to Reduce Operating Expenses and Meet Sustainability Goals dated 9/24/2010, and Owner's Project Requirements dated 8/25/2010.

Exterior Piped Building Systems

Replace the existing 4" domestic water service with a new 6" combined domestic/fire protection water service from Fairchild Street to building.

Furnish a new 6" sanitary building sewer from building to municipal sewer in either Henry or Mifflin Street.

Connect new storm building drain to existing 12" storm building sewer running from building to municipal sewer in Mifflin Street.

Interior Piped Building Systems

Water service piping and water distribution piping 4" and larger shall be ductile iron with mechanical joints. Water distribution piping 3" and smaller will be Type L copper with soldered joints and fittings.

Pipe material for sanitary waste, storm water, clear-water waste, and vent piping above floor will be no-hub cast iron hub pipe for noise control purposes.

Schedule 40 PVC pipe will be allowed for exterior underground piping, interior under floor sanitary, storm, and clear-water waste and vent piping.

Fiberglass insulation of 1" thickness will be installed on domestic hot water piping. Fiberglass insulation of ½" thickness with a vapor barrier will be installed on domestic cold water piping.

Fiberglass insulation of ½" thickness with a vapor barrier will be installed on horizontal storm piping installed above floor and initial 4' of vertical storm conductors.

Plumbing Fixtures

Water Efficiency
Water efficiency within the building will be maximized to reduce the burden on municipal water supply and wastewater systems. The goal is to achieve a 40% reduction in water use over the water use standards required by the Energy Policy Act (EPAct) of 1992. At minimum there will be a 20% reduction in water use over EPAct.

To achieve the water use reduction goals outlined above the design will incorporate high efficiency water closets, high efficiency urinals, and low-flow lavatory and sink faucets.

Fixtures will comply with ADA Accessibility Guidelines where required.

Fixture Types
Water Closets: Wall mounted 1.28 gallon per flush (gpf) high efficiency (HET) fixture with elongated bowl, top spud, open front seat, and manually operated 1.28 gpf flush valve (option-sensor operated 1.28 gpf flush valve).

Juvenile Water Closets: Floor outlet 1.6 gpf fixture with elongated bowl, top spud, rim height of 10¾", open front seat, and manually operated 1.6 gpf flush valve. **Note:** Juvenile fixtures that operate on less than 1.6 gallons are not available.

Urinals: Wall mounted wash down 0.125 gpf (one pint per flush) high efficiency (HEU) fixture with top spud and battery-powered sensor operated 0.125 gpf flush valve.

Lavatories: Solid surface counters with integral bowls or wall hung vitreous china lavatories, depending upon location. All lavatories shall have battery-powered sensor operated faucets flow controlled to 0.5 gpm.

Water Coolers: Wall mounted electric, two-basin design, GreenSpec listed

Sinks: Single and double compartment 18 gauge, Type 304 self-rimming stainless steel sinks, with manually operated faucets flow controlled to maximum 1.6 gpm.

Mop Basins: 36" x 24" x 10" molded stone basin and mixing faucet with hose connection vacuum breaker, and stainless steel wall guards.

Indoor hose bib/wall faucet and exterior wall hydrants: ¾" size, with hose connection vacuum breaker

Hot water connection for dishwasher in Staff Lounge, and cold water connections for ice maker and coffee maker.

Cold water connections for additional coffee makers as needed.

Drains and Cleanouts
Floor drains in finished areas will have cast iron bodies with nickel-bronze strainers. Floor drains in mechanical areas will have cast iron bodies with a cast iron grate.

Roof drains will have cast iron bodies with an aluminum or cast iron dome strainer. Drains in green roofs will have cast iron bodies with a bronze dome strainer covered by a stainless steel mesh screen.

Floor cleanouts will have cast iron bodies with nickel-bronze covers. Wall cleanouts will have a stainless steel wall plate.

Plumbing Equipment

Water Softeners
An automatic ion exchange water softener with meter initiated regeneration and integral brine recovery system will be provided. The unit will soften water supplied to the domestic water heaters and building humidifiers.

Domestic Water Heaters
High efficiency 60 gallon gas-fired direct vent storage type water heater will be provided to furnish adequate hot water for the library's needs for lavatories, sinks, showers, and mop basins. Probable size is 60 gallons storage capacity with a recovery of 143 gph at 100° rise.

Hot Water Temperature Maintenance
Hot water return piping with a circulation pump will be furnished to maintain hot water temperature within the distribution system.

Sump Pumps
One sump basin with pump will be furnished at the bottom of each elevator hoistway. Sump pump will be cast iron, size estimated to be 50 gpm at 20' head. Sump basin will be 18" diameter x 22" deep.

It currently appears that additional sump pump installations are not required to remove sanitary waste, storm water, or clear water waste form the lowest level of the building.

Optional Plumbing Systems

Storm Water Reclaim
Provide two or three 500 gallon storage tanks to hold rain water, along with treatment equipment and pressurization pumps for re-use of rain water for HVAC cooling tower and/or flushing water closets and urinals in the main public toilet rooms. All reclaimed storm water shall be treated to COMM 82.70 water quality standards.

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6.E.2. Fire Suppression Systems
Systems Descriptions

Schematic Design December 2, 2010

Summary

The existing Fire Suppresion System will be demolished completely and a new system will be installed. The new Fire Suppression System will be designed in accordance with the Wisconsin Building Code and applicable NFPA standards. The Fire Suppression System will use the following documents as guidelines for the design; Exhibit "B" Policy for Energy Efficiency and Sustainability of City Operations, Guidelines to Reduce Operating Expenses and Meet Sustainability Goals dated 9/24/2010, and Owner's Project Requirements dated 8/25/2010.

Automatic Sprinkler System

The entire building will be provided with an automatic fire sprinkler system per NFPA 13. This assumes a new 6" combined domestic/fire protection water service, double check valve assembly, sprinklers throughout the building, inspectors' tests, and wall mounted fire department inlet connection per Madison Fire Department requirements.

Sprinklers in areas with finished ceilings will be UL listed semi-recessed quick response pendant type. Finish for sprinkler and escutcheon shall be white. Sprinklers in unfinished areas or rooms without ceilings will be UL listed quick response upright type. Finish to be determined based upon area.

Any areas of building subject to freezing temperatures, such as the garage, will be protected by dry pipe sprinkler system suitable for use in an unconditioned space. All other areas of the building will be protected by a wet pipe sprinkler system.

Wet Standpipe System

A wet standpipe system per NFPA 14 with a 2½" hose valves for use by the Fire Department will be installed to serve each floor level in all required exit stair towers. All standpipes will be interconnected at the lowest floor level.

Fire Pump

A fire pump installation, with electric drive fire pump, jockey pump, and controller will be furnished. A fire pump test connection to the building exterior shall be furnished.

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6.F. Mechanical Systems
Systems Descriptions

Schematic Design December 2, 2010

Summary

The existing Mechanical System will be demolished completely and a new system will be installed. The new Mechanical Systems will use the following documents as guidelines for the design; Exhibit "B" Policy for Energy Efficiency and Sustainability of City Operations, Guidelines to Reduce Operating Expenses and Meet Sustainability Goals dated 9/24/2010, and Owner's Project Requirements dated 8/25/2010.

Design Criteria

The facility will be designed with an emphasis on occupant comfort, systems reliability, systems serviceability, easily maintained, building energy efficiency, flexible, and remaining within the Owner's budget.

The key focus on determining Mechanical Systems will be: Cost, Maintenance and Feel that are related to the Owner's project requirements and associated "Core values" of the project.

- Cost is associated with Initial, Operating, and Maintenance costs relative to enhanced efficiencies
- Maintenance is associated with maintainability, ease of operation, flexibility and life expectancy.
- Feel is associated with comfort, indoor air quality (IAQ), acoustics, and aesthetics Impacts

Codes and Standards

Mechanical Systems will be designed in accordance with industry recognized codes and standards.

Design Conditions

The facility will be designed utilizing the following design values

Indoor Design Conditions

Summer = 75°F ± 3°F
Winter = 70°F ± 3°F

Outdoor Design Conditions

Summer: 91°F DB/74°F WB
Winter: -15°F

Building Load Data

The building envelope characteristics will consist of modeling assemblies of walls, glazing, roof and related building elements. Refer to architectural programming for established U-values for envelope elements.

Ventilation

Mechanical Systems will be designed in accordance with industry recognized codes and standards. Outdoor air will be provided to the building during occupied hours in accordance with ASHRAE Standard 62.1, as required by the 2006 IMC.

Acoustics

The mechanical systems will allow for an acoustical environment that does not negatively impact the occupant productivity, communication and privacy of the staff. Sound levels will be designed to meet the following criteria:

Library Areas:	Room Criteria 30 to 35
Meeting Rooms:	Room Criteria 25 to 30

Mechanical Systems

Heat Generation and Distribution

Heating will be provided by two natural gas-fired, seal combustion condensing hot water boilers. Each boiler will be sized for approximately 2/3 of the load to provide for redundancy. Each boiler will have an approximate input of 2,610 MBH. For future expansion of the third floor will include space allocation for third boiler.

Hot water for the heating system will be distributed throughout the building with two base mounted secondary pumps, each sized for 100% of the building load, piped in parallel to allow for redundancy. The secondary pumps will be provided with variable frequency drives to control the pump speed based on system load requirements. The secondary pumps will be arranged in a lead-standby control mode. The heating hot water system will distribute water at 140 ^{o}F with the supply temperature reset based on the outside air temperature.

The hot water system will supply water to fin-tube radiation, infloor radiant system, convectors, unit heaters, cabinet unit heaters and VAV box reheat coils. Infloor radiant system will be provided at 1st and 2nd areas, except 3rd floor. Fin-tube radiation will be provided on 3rd floor with external glazing. Convectors will be provided in toilet rooms and similar spaces as necessary. Unit heaters will be provided in mechanical, service garage and electrical rooms as necessary. Cabinet unit heaters will be provided at all entries into the building and stairwells. All terminal devices will be provided with 2-way modulating control valves with electric actuators.

Geothermal and Distribution

Geothermal system is to serve the Infloor Radiant system to provide either cooling or heating in basement areas. Geothermal system will be served by 15-20 vertical wells (150' deep) at the exterior building perimeter along Henry and Mifflin Street to provide 50 tons of cooling/heat rejection. Heat pump chiller will have an approximately (2) 25 Ton, modular units. Each heat pump chiller will be sized for approximately 2/3 of the load to provide for redundancy. Supplemental cooling will be from the dedicated ventilation air system (DOAS) serving this space.

Glycol water will be distributed from well field to basement utilizing two inline primary pumps, each sized for 100% of the building load, that are piped in parallel to allow for redundancy. A third recirculating pump load will be provided with variable frequency drive to control the pump speed based on system load requirements. The primary pumps will be arranged in a lead-standby control mode. The geothermal system will distribute water at 50-100^{o}F. A central geothermal manifold in mechanical room will allow for circuiting and balancing the wells to the design water flow rates. There will be approximately 3-4 circuits.

Process water will be distributed in basement level with two inline secondary pumps, each sized for 100% of the building load, piped in parallel to allow for redundancy. The secondary pumps will be provided with variable frequency drives to control the pump speed based on system load requirements. The secondary pumps will be arranged in a lead-standby control mode. The process water will distribute water at 50-100^{o}F.

The geothermal water system will supply basement Infloor Radiant system serving as either cooling or heating system. In-floor radiant system will serve five to six manifold systems located in partition wall. Each manifold is approximately 2500 sq.ft. The radiant floor system will be provided with an inline circulating pump and a 2-way mixing valve to mix water with the radiant system return water to maintain the desired supply temperature.

Refrigeration
Chilled water for the facility will be generated by two 175 ton water-cooled chillers with remote cooling tower for heat rejection. Each chiller will be sized for approximately 2/3 of the load to provide for redundancy. The chilled water system will be arranged in a variable primary flow arrangement. Chilled water will be pumped to the dedicated outside air unit (DOAS) and air handling units.

Alternate; Chiller: To evaluate the water-cooled, oil-free chiller with magnetic bearing compressors for lowering operating and maintenance costs.

Chilled water will be distributed throughout the building with two base mounted primary pumps, each sized for 100% of the building load, piped in parallel to allow for redundancy. The primary pumps will be provided with variable frequency drives to control the pump speed based on system load requirements. The primary pumps will be arranged in a lead-standby control mode. The chilled water system will distribute water at 44^{o}F.

Alternate; Ice Storage: To evaluate Ice storage system for lower operating and initial system cost. Ice storage system will consist of two smaller chillers at 100 ton in a glycol system and approximately 5-7 ice storage tanks. Chillers will be used in ice making mode during times of no cooling load. Chillers will be used to satisfy cooling load during conventional cooling mode. During on-peak cooling loads, the chillers will operate at a reduced capacity, with melting ice satisfying the remaining cooling load. Air distribution system will be low temperature system of 47-48^{o}F.

Heat Rejection
Heat Rejection water for the facility will be served by forced draft, vertical counterflow cooling tower. Cooling tower capacity is sized for 350 Ton. Cooling tower will be located penthouse, indoors. Provide basin heater for cooling tower. Condenser water will be distributed from chiller room located in basement to penthouse with two base mounted condenser pumps, each sized for 100% of the building load, piped in parallel to allow for redundancy. The condenser pumps will be arranged in a lead-standby control mode.

For waterside economizer, a condenser plate & frame heat exchanger on condenser water will be utilized to provide “free cooling” to Infloor Radiant system. Plate & frame exchanger is in parallel of the two chillers. Cooling tower operation will supplement cooling during spring/fall seasonal conditions bypassing the chiller(s) operation.

Alternate; Tower Reclaim: To evaluate if heat recovery to the cooling tower utilizing plate & frame heat exchanger to provide supplemental heating.

Dedicated Outside Air System (DOAS)
The building will be served by an air handling system located in a penthouse. The distribution system will be a variable air volume (VAV) system with air terminals. DOAS will provide ventilation directly to the space serving all floors within the building. Heat recovery wheels will capture heat transfer from the exhaust airflow to reduce outside air energy consumption. The system will have an approximate airflow capacity of 45,000 CFM with recirculation capabilities for minimum air change within the space for dehumidification purposes. The outside air airflow will be approximately 25,000 cfm.

The DOAS air handling unit will be a custom air handling unit with 2" thick, double wall panels. The unit's components will consist of filters, total enthalpy wheel, heating coil, chilled water coil, passive wheel – dehumidification, and associated supply/exhaust fans.

1st and 2nd Floor Distribution System – Hydronic System
The 1st and 2nd floors will be served by "Radiant Ceiling Panel" system. The ceiling Radiant Panel system will consist of 65-75% ceiling coverage in suspend ceiling system, modules of 24"x118". Radiant panels will be insulated with 1" thick rigid fiberglass insulation with scrim foil jacketing.

Process water will be distributed from the basement level with two inline secondary pumps, each sized for 100% of the building load, piped in parallel to allow for redundancy. The secondary pumps will be provided with variable frequency drives to control the pump speed based on system load requirements. The secondary pumps will be arranged in a lead-standby control mode. The process water will distribute water at 58-100°F.

The process water system will supply radiant ceiling panel system serving as either cooling or heating system. Radiant ceiling panel system will serve twelve-sixteen zones per floor. Each manifold is approximately 2000-2500 sq.ft. The radiant floor system will be provided with 2-way mixing valve with electric actuators.

Alternate; Raised Floor: To evaluate a "Raised Floor" system on 1st and 2nd floor to enhance comfort, indoor air quality and lighting design. The Raised Floor system will consist of an air handling system to supply air to underfloor plenum on 1st and 2nd floor. Air handling system will be located in a basement mechanical room. The system will be a variable air volume (VAV) system with underfloor air terminals/hot water reheat. The system will have an approximate airflow capacity of 65,000 CFM to serve 1st and 2nd floors.

The Raised Floor air handling unit will be a custom air handling unit with 2" thick, double wall panels. The unit's components will consist of filters, total enthalpy wheel, heating coil, chilled water coil, passive wheel – dehumidification, and associated fans.

3rd Floor Distribution System – Air System
The 3rd floor will be served by two independent air handling systems located in a penthouse. Each system will be a variable air volume (VAV) system with supply air terminals/reheat coils. Each system will have an approximate airflow capacity of 15,100 - 18,000 CFM.

Each 3rd floor air handling unit will be a factory packaged unit with 2" thick, double wall panels. The unit's components will consist of filters, heating coil, chilled water coil, and associated supply/return fans.

Humidification Systems
Humidification is not program requirement for this project to maintain any minimum level. Dedicated outside air system will reclaim humidity that is generated from the space to supplement outside air.

Exhaust Systems
Exhaust from the toilet rooms, housekeeping spaces, storage, and other similar spaces will be exhausted through the energy recovery unit. Mechanical room, Electrical room, Penthouse, Generator, Garage areas and similar spaces which require exhaust will be exhausted through roof mounted exhaust fan(s).

Building Automation Control System
Thermal comfort is a priority of the City of Madison, Library and the LEED goals.

The Design Team will incorporate appropriate thermal zoning throughout the building and provide thermostats in each private office, meeting room and thermal zone. The mechanical system will have the ability to monitor the CO^2 levels throughout the building to meet LEED IEQ Credit 1. CO2 sensors will also be provided for all densely occupied areas (25 people or more per 1000 sq. ft. of floor area) of the building.

The building will be equipped with a building-wide BACnet Direct Digital Control (DDC) system with graphics. The DDC system will control all HVAC equipment, including the air handling units, DOAS, chillers, tower, boilers, heat pump chillers, pumps and all terminal units. The DDC system will provide control of all HVAC functions such as temperature set points, CO_2 sensors, occupancy scheduling, system monitoring, system alarms, optimization and system trend functions.

DDC controls will monitor building utilities meters: gas, electric, photovoltaic system and water for annual consumption. DDC controls shall incorporate "Green Screen" capabilities and local display for public viewing.

All terminal devices will be controlled using electric actuation on all automatic dampers and valves.

Testing, Adjusting, and Balancing
The HVAC systems will be balanced in accordance with the latest AABC or NEBB procedures.

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6.G.1 Lighting Systems
Systems Descriptions

Schematic Design December 2, 2010

Summary

The existing lighting system will be demolished completely and a new system will be installed. Architectural lighting systems shall be designed in accordance with ASHRAE 90.1 2007, IESNA RP-4. The City of Madison Owner's Project Requirements will be used as a guideline. The lighting system will reduce the number of overhead lights to provide an ambient light level of 20 fc in public spaces and 30fc of ambient light in staff work areas. Task lighting will be included on book stacks, in all reading zones, and at work surfaces where light levels of 40-50 footccandles are required. Overhead lights will provide all of the required light in study rooms, restrooms, and building support rooms where task lights are not appropriate.

Interior Lighting Systems

Suspended Luminaires
Suspended direct/indirect extruded aluminum linear luminaires will provide the ambient lighting in all public spaces, offices and workrooms. T5 fluorescent luminaires will be in continuous row configurations and suspended with aircraft cable.

Recessed Luminaires
Recessed 1x4 T8 fluorescent luminaires with acrylic lens will be installed in kitchens and storage rooms with acoustical ceiling tiles.

Recessed 1x4 T8 fluorescent luminaires with volumetric diffusers will be installed in staff spaces where ceiling heights are at or below 8'-6" AFF.

Surface Mounted Luminaires
Four foot T8 fluorescent strips will be surface mounted or chain hung, as required, to light mechanical, electrical, elevator equipment, communication equipment, janitor , utiltiy and storage rooms.

Task Lights
Local task lights will be installed at all open area work tables, in reading/lounge zones, and at office work stations. Task lights will be a combination of linear T5 fluorescent lamps with addressable dimming ballasts and Solid State LED as appropriate for each application. Each task light will have an integral occupant sensor to dim the luminaire, reduce energy demand, and extend lamp life.

Accent Lights
Suspended linear T5 fluorescent wall wash luminaires will light library displays, public art and information walls. Surface ceiling mounted adjustable lamp holders with halogen lamps will spotlight presenter locations and highlight performance zones in public meeting rooms.

Stack Lights
Continuous linear fluorescent luminaires will extend in two directions from the top of every other book range that is taller than 60" to provide one continuous row of light to each aisle. This system will consist of T5 fluorescent lamps and addressable dimming ballasts. Book ranges that are 60"or less will contain linear Solid State LED luminaires integrated into each side of the range. Each stack mounted luminaire will have integral occupant sensors to dim the lights along each aisle. Luminous end panel signage will utilize solid state LED technology.

Lamps
All T5 and T8 lamps will be 4ft long and standard full wattage. Solid state LED light sources will have integral low voltage drivers. LED transformers will be fully dimmable. All lamps will be a minimum 80 CRI and 4100K.

Ballasts - Non-Dimming
T5 and T8 ballasts will be program start and will operate at 120V. Low ballast factor T5 and T8 program start ballasts will be used to reduce energy demand and light levels where appropriate in non-public storage rooms, utility rooms and equipment rooms.

Ballasts - Dimming Addressable dimming ballasts will control lighting in daylight zones, study rooms, public meeting rooms, stacks, egress stairs and restrooms.

Exterior Lighting Systems

Exterior Wall Mounted Lighting
Wall mounted luminaires will be located at points of egress, at the loading dock, and at locations as required for building security. Luminaires will be fully shielded above 90 degrees to comply with LEED Sustainable Sites Credit 8. Exterior luminaires will include Solid State LED technology where practical.

Exterior Soffit Lighting
Soffit lighting will be provided at entrance canopies.

Building Signage
Building signage will include luminous panels utilizing Solid State LED technology.

Lighting Controls

Building Automation
Ambient lighting in all public spaces will be controlled On and Off via the automated building control system. Exterior lighting will switch On at dusk and Off at dawn via the building control system.

Occupant Sensors
Dual technology occupant sensors will switch lights On and Off in storage rooms, kitchens, non-public corridors, compact storage and egress stairs. Occupant sensors as required to dim addressable fluorescent ballasts will be located in study rooms.

Vacancy Sensors
Vacancy Sensors will switch locally controlled lights off in offices, program rooms and meeting rooms.

Preset Scene Control
Wall mounted four scene pre-set controls will operate dimming and non-dimming lights in public meeting rooms.

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6.G.2. Electrical Systems
Systems Description

Schematic Design December 2, 2010

Summary

The existing Electrical system will be demolished completely and a new system will be installed.

Codes

The electrical power and fire alarm designs will be in accordance with the following codes:

1. Wisconsin Comm. 16 Electrical
2. National Electrical Code NFPA 70
3. National Fire Alarm Code NFPA 72
4. Americans with Disabilities Act

Primary Electric

Existing

The existing library electrical service is furnished by MG&E. The building service transformer is located in an underground vault on the south corner of the building. The transformer is powered by MG & E's downtown 13.8kV medium voltage loop.

The highest recent peak demand on the electrical service was 360kW, which occurred in the summer of 2007.

The existing electrical service is 120/208V, 3-phase, with one 3000 amp lighting service and one 3000 amp power service, according to the original drawings. The 120/208V electrical service conductors are located in a concrete encased duct bank routed from the MG&E vault below the basement floor to a cable pit that is under the existing switchboards. The duct bank contains six 4" conduits and eight 3" conduits per the original drawings.

Proposed

The existing MG&E transformer vault and transformers will remain without change for this project. The existing 120/208V service conductors and switchboard will be removed. Two new 3000 amp switchboards will be installed. Refer to the architectural drawings for the proposed location of the new switchboards.

The existing 120/208V electrical service concrete encased duct bank under the basement floor will be intercepted and extended to under the new switchboards.

If a fire pump is required, it will be powered by a separate 208V 3-phase service directly from the MG&E service transformers or from a tap ahead of the main electrical switch per NEC requirements. The fire pump feeder would be routed to the fire pump controller under the basement floor so it will be outside of the building per code requirements.

Electrical Power Distribution

Two 120/208V, 3-phase, 3000 amp switchboards will be installed. One of the switchboards will power mechanical loads, the other switchboard will power all other building loads.

Branch panelboards will be located in south-east third of the building (library staff areas), with the panelboards stacked vertically as allowed by the floor plan. Interior branch power distribution will be EMT conduit and conductors.

An increased quantity of general purpose receptacles will be included to provide flexibility and access for laptop use.

Basement
Power distribution in the basement utility areas will be surface mounted EMT conduit. Power distribution in the Youth Services area will be along the perimeter walls and at the column bases. Conduit serving the receptacles adjacent to the column bases will be installed under the basement floor. Some flush floor boxes will be required, but the Owner wishes to minimize the number.

First and Second Floor
Power distribution in the public areas will be accomplished by one of two methods. The HVAC system design needs to be confirmed before the electrical power distribution approach can be finalized.

1. Power cables located in the air distribution raised floor, or
2. Power cables located in the in-floor Walker Duct (or equal) power distribution system.

Third floor
Power distribution on the third floor will be conventional, with conduit routed above the ceiling and drops down the walls. Four floor boxes will be located in the large meeting room.

Emergency Power

Emergency power is required for the following electrical systems:

1. Egress lights
2. Fire alarm

A centralized battery powered lighting inverter will power the egress lights, and a self contained battery system will be specified with the fire alarm system.

If a fire pump is installed, Safety and Buildings and the Madison Fire Department said the fire pump is not required to be on an emergency generator.

The elevators are not architecturally designated an “accessible means of egress”, and will not be connected to an emergency power source. Battery lowering will be provided to lower an elevator cab and park the cab doors open in the event of a power outage.

Fire Alarm

The fire alarm system will be an addressable and intelligent voice system, capable of identifying the specific device in alarm, and automatic adjustment of smoke detector sensitivity. The fire alarm system will be monitored by a licensed monitoring company.

The fire alarm system will have integral battery backup. Manual pull stations will be provided at all egress doors. Speaker/strobes and strobe only devices will be located throughout the building per code.

Duct detectors will be provided in return air ducts of HVAC systems over 2000 cfm and also adjacent to fire/smoke dampers.

Smoke detectors will be installed in storage rooms, mechanical rooms, elevator machine rooms, egress corridors, elevator stops, NAC power boosters and at fire alarm control panels. Heat detectors will be located in the elevator machine room. The fire alarm system will interface with the elevators for cab recall and automatic disconnection of power in the event of sprinkler water flow associated with the elevator. Sprinkler system flow and tamper switches will be monitored. Fire alarm cable will be installed in conduit, ½" minimum trade size.

The fire alarm speaker system is available for both emergency and general paging use. The remote annunciator panel will be located in the main entry vestibule.

Telecommunications

The City of Madison standard telecommunications and contractor telecommunications system commissioning specification sections will be used as a basis for this project, with project specific revisions. It is presently the intent that the phone system in the library will be VoIP. The phones and the VoIP switches will be provided by the Owner.

Telecommunications Rooms

Telecommunications rooms will be located in the basement and on the third floor as shown on the architectural floor plans. The basement telecom room will also be the demarcation point for the telephone, cable TV and fiber optic cable services. Telecommunications racks, cable runway and Category 6 patch panels will be specified. The Owner will provide the switching equipment, wireless transceivers, UPS, PDU and patch cords. Two normal power dedicated 120V receptacles will be provided at the base of each telecom rack.

The basement telecom room will be designated the MDF, and serve the basement and first floor. The third floor telecom room will be designated TR#1, and will serve the second floor, third floor and the penthouse. Cable length diagrams show that the locations of the two telecom rooms will most likely allow all horizontal station cables to be within Cat. 6 distance requirements. As the design progresses, if it appears some horizontal station cables would be out of spec, a wall mounted rack with patch panels will be specified to terminate the farthest SIOs.

If during construction it is found that due to unforeseen conditions the contractor has to route the cable such that it is out of spec, the A/E may allow the contractor to shorten the service loop or run the cable at a diagonal relative to building structure to allow the cable to be within spec.

The City of Madison has standard telecom room drawings that have requirements that will be incorporated into design. Half-inch thick 4'x8' plywood sheets will be installed on the walls of the telecom rooms. The plywood will be painted on all sides with fire retardant paint.

Telecommunications Backbone

A single 12 pair multi-mode fiber optic cable will interconnect the MDF and TR#1.

Telecommunications Distribution

Horizontal station cabling (telephone and data) will be Category 6. Standard information outlet pinning will be 568B. Wire basket type cable tray will be located down main corridors for support of horizontal station cabling where appropriate. Horizontal station cabling will be supported by J-hooks beyond the cable tray. Cable in mechanical areas will be installed in conduit for mechanical protection. The cable jacket will be plenum or non-plenum rated as required per the HVAC design.

All horizontal station cables will be specified with a service loop at the patch panel and at the SIO.

On the first and second floors the horizontal station cable will routed in either the raised air distribution floor or floor Walkerduct depending on the HVAC system chosen.

The typical SIO will have two Cat. 6 outlets per faceplate. No distinction will be made for telephone or data as the installation and requirements are the same for both. Two telephone lines will be specified to the main fire alarm panel. One telephone line will be specified to each elevator.

As-builts

The contractor will be required to submit as-built telecom drawings at the completion of the project. The as-built drawings will be required to show cable routing along with SIO identification.

Video Distribution

Video outlets will be provided in the main meeting rooms. The trunk and tap method will be used to distribute the signal. The connection to the cable TV provider will be in the MDF.

The Owner may have video projectors installed in the meeting rooms under a separate project.

Security/Controlled Access System

A combined security/controlled access system will be specified for the project. The controlled access features will include proximity sensors, door position sensors and electric strikes/locks. The security system features will include glass break sensors and motion sensors. Controlled access points will be at all exterior doors and primary doors that separate public and library staff use. Security system points will be at rooms adjacent to exterior grade levels. The central controller will interface these devices and be monitored by a monitoring company.

Closed Circuit TV System

The electrical contractor will install Cat. 6 cabling for a CCTV system. The Owner will provide the cameras, video controllers and recorders for the CCTV system. Camera locations will be confirmed as the design progresses, but it is anticipated that at a minimum cameras will be located as follows:

1. Exterior front entry.
2. Front entry vestibule
3. Exterior West Mifflin Street lower level entry
4. West Mifflin Street lower level vestibule
5. Exterior loading dock door

A Cat. 6 data cable will be installed from the MDF to the designated security office location. The system will have a one-way video and two-way voice connection to the loading dock. A call button will be located adjacent to the loading dock overhead door for the driver to initiate communications.

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Automated Materials Handling System (By Owner)

The AMH System shall be a high IQ (Tech Logic) system combining shelf and bin sort. Provide two workstations.

The AMH System shall be located in the Non-Public Staff Work Area, as follows:

- Far away from quiet work areas to control noise levels.
- Adjacent to sorting and delivery for efficient workflow.

Material to the AMH shall come from three possible locations:

- Library delivery (requires ground gravity conveyor and hydraulic lift).
- Exterior customer book return (with security camera).
- Interior customer book return.

Allotted floor space for the AMH equipment shall be adequate for design and layout of the sorting system. Space requirements shall include the following:

- Allow for future expansion to the sort system.
- Square footage to depend on the size of sort system (16 feet wide).
- Provide seven feet, six inches open space on each side of the sorting system for operators to maneuver the sorting trucks and bins.
- Provide adequate space for book trucks.
- Provide a full height wall sound barrier between AMH and sorting area.
- Space shall include a cordless phone, storage for AMH bins and a surface mounted electrical raceway to recharge them.
- Provide small/medium size white board by AMH/Delivery Area for updates/instructions.

Provide resilient flooring (no carpet tiles) under the machine with sufficient padding in areas where staff will be standing for extended periods of time.

It is anticipated that the AMH will be an electrical system.

Library technology (By Owner)

Library materials will be equipped with Radio Frequency Identification (RFID), a technology that uses communication through electromagnetic waves to tracks and identify each item in the system. Each new and existing item in the collection will be outfitted with an RFID tag. This comprehensive tracking system will include customer self check-out stations on Basement, First and Second floors, as well as staff check in and check out stations in the Circulation Workroom and at the main service desk on First Floor.

Library Materials Security System

The library will be equipped with RFID material detection gates to deter customers from leaving the building with material that has not been properly checked out. The gates will be located at both the main entry and the Mifflin Street entry.

6.H. Special Systems
Systems Description

Schematic Design December 2, 2010

Building Security System (By Owner)

At minimum, cameras will be provided at standard points in libraries: front entry, children's area, teen area, restroom hallway, delivery/staff door, exterior book drop and parking areas. The cameras would not be monitored. The value of the cameras is that information is recorded on a security appliance for review if an incident did take place.

Additional technology consistent with the City's requirements will be determined during Design Development.

Computers, Phones, Networking Equipment (By Owner)

AV Systems (By Owner)

6.I. Public Art
Systems Description

Schematic Design December 2, 2010

Overview

Madison is a community that appreciates the positive impact of public art. The library currently displays local artists' work in an informal gallery space; an amenity which is embraced and a source of pride. A desire to continue this tradition and build upon it has been clearly expressed. The renovated building will contain a gallery space that affords quiet contemplation of art.

The Madison Public Central Library also owns several pieces of art which will be placed for public enjoyment in the renovated building. A brief description of each piece follows:

Hieroglyph

Currently located in the library's entry courtyard, Hyroglyph by O.V. Shaffer is a granite sculpture measuring approximately 7'-0" x 7'-0".

This piece will be relocated to the roof terrace, in view from users of the large Meeting Room, Madison Room and the Administrative suite.

Overcoming Bias

Currently located just inside the entry, Overcoming Bias by Antonio Testolin is a marble sculpture on a pedestal base, measuring approximately 4'-0" x 4'-0".

This piece will be relocated to the 3rd floor near the large meeting room.

Bohrod Mural

Currently on the north wall of the Children's Room, the Aaron Bohrod mural has been a source of community pride.

The majority of this mural will be preserved in place. A small portion that is currently within a staff workroom will be moved to the new Children's Room on the lower level. The family of Mr. Bohrod has approved the strategy to preserve and display the mural.

Madison Library Wall

Currently in storage, this maple wood piece by James Spitzer will be refurbished and assembled on either level one or level two. Assembled, it measures approximately 4'-11"h x 10'-10"w (height includes the 5" base).

Wildflower

Currently located at the top of the main stair on level two, Wildflower by Edward Berge is a bronze sculpture measuring approximately 39" in height. It is currently part of a larger piece that includes a fountain and greenery. Only the sculpture Wildflower will be reused in the building.

This piece will be relocated to the new Children's Room.

St. George and the Dragon

Currently located on a column in the Children's Room, this medallion style piece measuring approximately 3'-0" in diameter will be relocated to the new Children's Room.

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Building Exterior

1. Extensive green roof system over entire roof over second level – see drawing A105 for location.
2. Precast panel system on the existing building base in place of LED backlit glass panels, as indicated on drawing A201.
3. Kynar finish metal panel system at Penthouse level – see drawing A201.
4. 4'x4' Premanufactured Skylights with insulated glass for second floor roof as shown on roof plan.

Mechanical Systems – see Mechanical System Descriptions

5. Chiller: To evaluate the water-cooled Oil-free chiller with magnetic bearing compressors, McQuay Model WMC.
6. Ice Storage: To evaluate the ice storage system will consist of two smaller chillers at 100 Tons in a glycol system and approximately 5-7 ice storage tanks.
7. Tower Reclaim: To evaluate if heat recovery to the cooling tower utilizing plate & frame heat exchanger to provide supplemental heating.
8. Raised Floor System: To evaluate the "Raised Floor" system in lieu of "Radiant Ceiling Panel" system serving 1st and 2nd floors. Please, note that this option includes architectural implications.

Building Interior

9. First and Second floor stack area only - 80% of ceiling area to be finished with a ceiling system of 2x6 acoustic panels within a concealed grid, with free, expressed edges.
10. Flooring: rubber tile in lieu of cork plank throughout the building.
11. Second new staff elevator to be installed in portion of existing mechanical shaft, adjacent to staff elevator shown in the drawings – see drawing A101. Mechanical shaft needs to be modified.

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Project Schedule

The overall Project Phase Layout Schedule was developed by Mortenson Construction with input from the design team. A copy of that schedule (dated 10.28.10) is included in the Appendix.

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Schematic Design Drawings

A copy of the Schematic Design Drawings are included in this Schematic Design Report. The drawings will be provided in both pdf and Revit format as separate documents from this report. A listing of those drawings is noted in the Appendix.

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Appendix

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LEED 2009 for New Construction and Major Renovation
Project Scorecard

Project Name: Madison Central Public Library
Project Address: 201 West Mifflin Street Madison, WI 53703

Yes	?	No			
15	1	10	**SUSTAINABLE SITES**		**26 Points**
Y			Prereq 1	**Construction Activity Pollution Prevention**	**Required**
1			Credit 1	**Site Selection**	**1**
5			Credit 2	**Development Density and Community Connectivity**	**5**
		1	Credit 3	**Brownfield Redevelopment**	**1**
6			Credit 4.1	**Alternative Transportation -** Public Transportation Access	**6**
1			Credit 4.2	**Alternative Transportation -** Bicycle Storage and Changing Rooms	**1**
		3	Credit 4.3	**Alternative Transportation -** Low-Emitting and Fuel-Efficient Vehicles	**3**
		2	Credit 4.4	**Alternative Transportation -** Parking Capacity	**2**
		1	Credit 5.1	**Site Development -** Protect or Restore Habitat	**1**
		1	Credit 5.2	**Site Development -** Maximize Open Space	**1**
	1		Credit 6.1	**Stormwater Design -** Quantity Control	**1**
		1	Credit 6.2	**Stormwater Design -** Quality Control	**1**
		1	Credit 7.1	**Heat Island Effect -** Nonroof	**1**
1			Credit 7.2	**Heat Island Effect -** Roof	**1**
1			Credit 8	**Light Pollution Reduction**	**1**

Yes	?	No			
4	2	4	**WATER EFFICIENCY**		**10 Points**
					4
Y			Prereq 1	**Water Use Reduction**	**Required**
		4	Credit 1	**Water Efficient Landscaping**	**2 to 4**
				Reduce by 50%	2
				No Potable Water Use or Irrigation	4
	2		Credit 2	**Innovative Wastewater Technologies**	2
4			Credit 3	**Water Use Reduction**	**2 to 4**
				Reduce by 30%	2
				Reduce by 35%	3
				4 Reduce by 40%	4

9	11		**ENERGY & ATMOSPHERE**		**35 Points**
Y			Prereq 1	**Fundamental Commissioning of Building Energy Systems**	**Required**
Y			Prereq 2	**Minimum Energy Performance**	**Required**
Y			Prereq 3	**Fundamental Refrigerant Management**	**Required**
5	5		Credit 1	**Optimize Energy Performance**	**1 to 19**
				Improve by 12% for New Buildings or 8% for Existing Building Renovations	1
				Improve by 14% for New Buildings or 10% for Existing Building Renovations	2
				Improve by 16% for New Buildings or 12% for Existing Building Renovations	3
				Improve by 18% for New Buildings or 14% for Existing Building Renovations	4
				Improve by 20% for New Buildings or 16% for Existing Building Renovations	5
				Improve by 22% for New Buildings or 18% for Existing Building Renovations	6
				Improve by 24% for New Buildings or 20% for Existing Building Renovations	7
				Improve by 26% for New Buildings or 22% for Existing Building Renovations	8
				Improve by 28% for New Buildings or 24% for Existing Building Renovations	9
				10 Improve by 30% for New Buildings or 26% for Existing Building Renovations	10
				Improve by 32% for New Buildings or 28% for Existing Building Renovations	11
				Improve by 34% for New Buildings or 30% for Existing Building Renovations	12
				Improve by 36% for New Buildings or 32% for Existing Building Renovations	13
				Improve by 38% for New Buildings or 34% for Existing Building Renovations	14
				Improve by 40% for New Buildings or 36% for Existing Building Renovations	15
				Improve by 42% for New Buildings or 38% for Existing Building Renovations	16
				Improve by 44% for New Buildings or 40% for Existing Building Renovations	17
				Improve by 46% for New Buildings or 42% for Existing Building Renovations	18
				Improve by 48%+ for New Buildings or 44%+ for Existing Building Renovations	19
	1		Credit 2	**On-Site Renewable Energy**	**1 to 7**
				1 1% Renewable Energy	1
				3% Renewable Energy	2
				5% Renewable Energy	3
				7% Renewable Energy	4
				9% Renewable Energy	5
				11% Renewable Energy	6
				13% Renewable Energy	7
2			Credit 3	**Enhanced Commissioning**	**2**
2			Credit 4	**Enhanced Refrigerant Management**	**2**
	3		Credit 5	**Measurement and Verification**	**3**
	2		Credit 6	**Green Power**	**2**

LEED 2009 for New Construction and Major Renovation
Project Scorecard

Project Name: Madison Central Public Library
Project Address: 201 West Mifflin Street Madison, WI 53703

Yes	?	No			
9	4	1	**MATERIALS & RESOURCES**		**14 Points**
Y			Prereq 1	**Storage and Collection of Recyclables**	**Required**
2	1		Credit 1.1	**Building Reuse** - Maintain Existing Walls, Floors and Roof	**1 to 3**
				Reuse 55%	1
			2	Reuse 75%	2
				Reuse 95%	3
		1	Credit 1.2	**Building Reuse -** Maintain Interior Nonstructural Elements	**1**
2			Credit 2	**Construction Waste Management**	**1 to 2**
				50% Recycled or Salvaged	1
			2	75% Recycled or Salvaged	2
	2		Credit 3	**Materials Reuse**	**1 to 2**
				Reuse 5%	1
			2	Reuse 10%	2
2			Credit 4	**Recycled Content**	**1 to 2**
				10% of Content	1
			2	20% of Content	2
1	1		Credit 5	**Regional Materials**	**1 to 2**
				10% of Materials	1
			2	20% of Materials	2
1			Credit 6	**Rapidly Renewable Materials**	**1**
1			Credit 7	**Certified Wood**	**1**
Yes	?	No			
12	1	2	**INDOOR ENVIRONMENTAL QUALITY**		**15 Points**
Y			Prereq 1	**Minimum Indoor Air Quality Performance**	**Required**
Y			Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	**Required**
1			Credit 1	**Outdoor Air Delivery Monitoring**	**1**
	1		Credit 2	**Increased Ventilation**	**1**
1			Credit 3.1	**Construction Indoor Air Quality Management Plan -** During Construction	**1**
1			Credit 3.2	**Construction Indoor Air Quality Management Plan -** Before Occupancy	**1**
1			Credit 4.1	**Low-Emitting Materials -** Adhesives and Sealants	**1**
1			Credit 4.2	**Low-Emitting Materials -** Paints and Coatings	**1**
1			Credit 4.3	**Low-Emitting Materials -** Flooring Systems	**1**
1			Credit 4.4	**Low-Emitting Materials -** Composite Wood and Agrifiber Products	**1**
1			Credit 5	**Indoor Chemical and Pollutant Source Control**	**1**
1			Credit 6.1	**Controllability of Systems -** Lighting	**1**
1			Credit 6.2	**Controllability of Systems -** Thermal Comfort	**1**
1			Credit 7.1	**Thermal Comfort -** Design	**1**
1			Credit 7.2	**Thermal Comfort -** Verification	**1**
		1	Credit 8.1	**Daylight and Views -** Daylight	**1**
		1	Credit 8.2	**Daylight and Views -** Views	**1**
Yes	?	No			
1	4		**INNOVATION IN DESIGN**		**6 Points**
	4		Credit 1	**Innovation in Design**	**1 to 5**
			1	Innovation or Exemplary Performance	1
			1	Innovation or Exemplary Performance	1
				Innovation or Exemplary Performance	1
			1	Innovation	1
			1	Innovation	1
1			Credit 2	**LEED® Accredited Professional**	**1**
Yes	?	No			
2	2		**REGIONAL PRIORITY**		**4 Points**
2	2		Credit 1	**Regional Priority**	**1 to 4**
			1	Regionally Defined Credit Achieved	1
			1	Regionally Defined Credit Achieved	1
			1	Regionally Defined Credit Achieved	1
			1	Regionally Defined Credit Achieved	1
Yes	?	No			
52	25	17	**PROJECT TOTALS (Certification Estimates)**		**110 Points**

Certified: 40-49 points Silver: 50-59 points Gold: 60-79 points Platinum: 80+ points

II. Schematic Basis of Design (BOD)

Schematic Design December 2, 2010

This Schematic BOD consists of:

- Fire Protection Systems
- Plumbing Systems
- Mechanical Systems
- Lighting Systems
- Electrical Systems

Summary

These systems will be designed using the following documents as guidelines; Exhibit "B" Policy for Energy Efficiency And Sustainability Of City Operations, Guidelines to Reduce Operating Expenses and Meet Sustainability Goals dated 9/24/2010, and Owner's Project Requirements dated 8/25/2010.

Fire Protection Systems

The building will be provided with an automatic fire sprinkler system per NFPA 13 and a manual wet Class I standpipe system. This assumes a minimum 6" combined domestic/fire protection water service, double check valve assembly, sprinklers throughout the building, inspectors' tests, Class I standpipes in each exit stair tower and wall mounted fire department inlet connections per Madison Fire Department requirements.

Any areas of building subject to freezing temperatures will be protected by dry pipe sprinkler system suitable for use in an unconditioned space. All other areas of the building will be protected by a wet pipe sprinkler system.

A manual wet standpipe with a 2½" hose valves for use by the Fire Department will be installed to serve each floor level in all required exit stair towers.

One main fire alarm panel will serve the entire building. At minimum, each floor of the building will be separated into zones for sprinkler system and fire alarm purposes.

Automatic sprinkler system design for the Library will be based upon Ordinary Hazard (Group 1) Occupancy with a sprinkler discharge density of 0.15 gpm/square foot over the most hydraulically remote 1500 square feet for the library collection shelf and stack areas, mechanical rooms, and storage rooms. Sprinkler system design will include a 250 gpm hose allowance.

Sprinklers in areas with finished ceilings will be UL listed semi-recessed quick response pendant type. Finish for sprinkler and escutcheon shall be white.

Sprinklers in unfinished areas or rooms without ceilings will be UL listed brass quick response upright type.

Electric fire pump, with controller and automatic transfer switch, designed and installed per NFPA 20.

Plumbing Systems

Plumbing systems for the Library will be designed in compliance with the Wisconsin Plumbing Code, COMM chapters 81 – 84.

Piped Utilities

Remove the existing 4" domestic water service and replace with a minimum 6" combined domestic/fire protection water service from Fairchild Street to building.

Furnish a new 6" sanitary building sewer from building to municipal sewer in either Henry or Mifflin Street.

Connect new storm building drain to existing 12" storm building sewer running from building to municipal sewer in Mifflin Street.

Water Efficiency
Water efficiency within the building will be maximized to reduce the burden on municipal water supply and wastewater systems. The goal is to achieve a 40% reduction in water use over the water use standards required by the Energy Policy Act (EPAct) of 1992. At minimum there will be a 20% reduction in water use over EPAct.

Plumbing Fixtures
To achieve the water use reduction goals outlined above the design will incorporate high efficiency water closets, high efficiency urinals, and low-flow lavatory and sink faucets.

Fixtures will comply with ADA Accessibility Guidelines where required.

- Water Closets: Elongated wall mounted 1.28 gpf high efficiency (HET) fixture with top spud, open front seat, and manually operated 1.28 gpf flush valve.
- Juvenile Water Closets (if required by building program): Elongated floor outlet 1.6 gpf fixture with top spud, rim height of 10¾", open front seat, and manually operated 1.6 gpf flush valve. **Note:** Juvenile fixtures that operate on less than 1.6 gallons are not available.
- Urinal: Wall mounted wash down 0.125 gpf (one pint per flush) high efficiency (HEU) fixture with top spud and battery-powered sensor operated 0.125 gpf flush valve.
- Lavatories: Solid surface counters with integral bowls and wall hung vitreous china lavatories. All lavatories shall have battery-powered sensor operated faucets flow controlled to 0.5 gpm.
- Sinks: Single and double compartment 18 gauge, Type 304 self-rimming stainless steel sinks, with manually operated faucets flow controlled to maximum 1.6 gpm.
- Hot water connection for undercounter dishwasher and cold water connections for ice maker and coffee maker in Staff Lounge.
- Cold water connection for coffee maker in Kitchen adjacent to 3rd floor Meeting Room.
- Mop Basin: 36" x 24" x 10" molded stone basin and mixing faucet with hose connection vacuum breaker, and stainless steel wall guards.
- Indoor hose bib/wall faucet and exterior wall hydrants: ¾" size, with hose connection vacuum breaker
- Water Coolers: Wall mounted electric, two-basin design, GreenSpec listed

Plumbing Specialties

- Floor drains in finished areas will have cast iron bodies with nickel-bronze strainers.

- Floor drains in mechanical areas will have cast iron bodies with a cast iron grate.
- Roof drains will have cast iron bodies with an aluminum or cast iron dome strainer.
- Green Roof Drains will have cast iron bodies with a bronze dome strainer covered by a stainless steel mesh screen.
- Floor cleanouts will have cast iron bodies with nickel-bronze covers.
- Wall cleanouts will have a stainless steel wall plate.
- Trap primers will be provided for floor drains subject to trap seal evaporation.
- ASSE 1013 reduced pressure principle backflow preventers will be furnished in the water supply to mechanical equipment for make-up.

Pipe Material

Pipe material for sanitary waste, storm water, clear-water waste, and vent piping above floor will be no-hub cast iron hub pipe. Schedule 40 PVC pipe will be allowed for exterior underground piping, interior under floor sanitary, storm, and clear-water waste and vent piping.

Water service piping and water distribution piping 4" and larger shall be ductile iron with mechanical joints. Water distribution piping 3" and smaller will be Type L copper with soldered joints and fittings.

Pipe Insulation

Fiberglass insulation of 1" thickness will be installed on domestic hot water piping. Fiberglass insulation of ½" thickness with a vapor barrier will be installed on domestic cold water piping. Fiberglass pipe insulation will be jacketed with a kraft-foil covering.

Fiberglass insulation of ½" thickness with a vapor barrier will be installed on horizontal storm piping installed above floor and initial 4' of vertical storm conductors. Fiberglass pipe insulation will be jacketed with a kraft-foil covering.

Water Softeners

An automatic ion exchange water softener with meter initiated regeneration and integral brine recovery system will be provided. The unit will soften water supplied to the domestic water heaters and building humidifiers.

Domestic Water Heating

60 gallon gas-fired direct vent storage type water heater with a recovery of 143 gph at 100° rise will be provided to furnish adequate hot water for the library's needs for lavatories, sinks, showers, and mop basins.

Sump Pumps

One clearwater sump basin pump will be furnished at the bottom of each elevator hoistway. Sump pump will be cast iron, estimated 50 gpm at 20' head. Sump basin will be 18" diameter x 22" deep.

One duplex sanitary sump installation will be furnished in the basement mechanical room to discharge water from basement plumbing fixtures. Sump pump will be cast iron, estimated 20 gpm at 20' head. Fiberglass sump basin will be 36" diameter x 48" deep.

Stormwater Reclaim Option

Provide two or three 500 gallon storage tanks to hold rain water, along with treatment equipment and pumps for re-use of rain water for HVAC cooling tower and/or flushing water closets and urinals in the main public toilet rooms. All reclaimed water shall be treated to COMM 82.70 water quality standards.

Mechanical Systems

Design Criteria

The facility will be designed with an emphasis on occupant comfort, systems reliability, systems serviceability, easily maintained, building energy efficiency, flexible, and remaining within the Owner's budget. The key focus on determining Mechanical Systems will be: Cost, Maintenance and Feel that are related to the Owner's project requirements and associated "Core values" of the project.

- Cost is associated with Initial, Operating, and Maintenance costs relative to enhanced efficiencies
- Maintenance is associated with maintainability, ease of operation, flexibility and life expectancy.
- Feel is associated with comfort, indoor air quality (IAQ), acoustics, and aesthetics Impacts

Codes and Standards

All mechanical systems will be designed in accordance with industry recognized codes and standards.

- Wisconsin Administrative Code
- IBC - 2006 International Building Code
- IECC – 2006 International Energy Conservation Code
- IFGC – 2006 International Fuel Gas Code
- IMC – 2006 International Mechanical Code
- ASHRAE 55-2004: Thermal Environmental Conditions for Human Occupancy
- ASHRAE 62-2007: Ventilation for Acceptable Indoor Air Quality
- ASHRAE 90.1-2007: Energy Standard for Buildings Except Low-Rise Residential Buildings
- ASHRAE 129-1997: Measuring Air Change Effectiveness
- NEBB Procedural Standards for Testing, Adjusting and Balancing of Environmental Systems - 2005
- SMACNA HVAC Duct Construction Standards – Metal and Flexible - 2005

Design Conditions

Computer modeling of the Library will be utilized to establish the building heating and cooling requirements. The computer model will also be utilized in establishing the estimated energy usage and for LEED documentation for the estimated energy usage. The facility will be designed utilizing the following design values:

Indoor Design Conditions
- Dry-Bulb Temperature
  - Summer = 75°F ± 3°F
  - Winter = 70°F ± 3°F
- Relative Humidity
  - Summer = 50% maximum ± 5%
  - Winter = 10- 25% minimum ± 5%

Outdoor Design Conditions
- Summer:
  - Dry-Bulb Temperature = 91°F
  - Wet-Bulb Temperature = 74°F
- Winter:
  - Dry-Bulb Temperature = -15°F

Building Load Data

Envelope Information

The building envelope characteristics will consist of modeling assemblies of walls, glazing, roof and related building elements. Refer to architectural programming for established U-values for envelope elements.

Infiltration

The building heat loss calculations will include an infiltration load based on 1.5 cfm of infiltration air per linear foot of exterior wall with windows, per floor level, and 1.0 cfm of infiltration air per linear foot of exterior wall without windows, per floor level. Infiltration rates of 200 cfm per door will be used for main entrance. Infiltration rates of 100 cfm will be used for secondary entrances and exits. As for garage service door, 1000 cfm will be used. ASHRAE 2009-edition suggests infiltration amounts ranging form 0.1 to 0.6 ACH for newly constructed buildings.

Occupancy Information

Refer to Architectural section for occupancy load information. The number of occupants in each space will be based on the actual occupant density listed in the facility program for building heating and cooling load calculations. The occupancy heat rejection will be as follows:

Sensible = 250 Btuh/person

Latent = 250 Btuh/person

Occupancy Schedule

The mechanical systems will be designed to operate 24 hours per day, 365 days per year. Diversity = 90% occupancy.

Ventilation Rates
Outdoor air will be provided to the building during occupied hours in accordance with ASHRAE Standard 62.1, as required by the 2006 IMC and as recommended by good engineering practices.

The minimum ventilation (outdoor air) rates will be as follows. Actual ventilation rates may exceed these values if Ventilation Rate Procedure 62MZ calculations so dictate.

- Offices and Administrative Support Area: 17 cfm per occupant using default value with noted occupancy density to meet the requirements of ASHRAE 62 Standard.
- Libraries Area: 17 cfm per occupant using default value with noted occupancy density to meet the requirements of ASHRAE 62 Standard.
- Meeting and Conference Areas: 6 cfm per occupant using default value with noted occupancy density to meet the requirements of ASHRAE 62 Standard.

Minimum supply and/or exhaust ventilation rates will be as follows. Actual ventilation rates may exceed these values if calculations so dictate.

- Toilet Rooms = 10 AC/HR
- Janitor Closet = 10 AC/HR
- Kitchenette = 6 AC/HR

Internal Loads
Internal load will include lighting, equipment and miscellaneous plug loads. Lighting loads used in the heating and cooling calculations will be designed loads from lighting design. Miscellaneous loads of equipment include heat rejections or power consumptions of known devices. Other plug loads assumptions, such as computers, office equipment, copiers, etc…will be model based on architectural program.

The following guidelines will be used for internal gains from electrical equipment (plug loads):

- Offices = 1.0 w/sf
- Conference Room = 0.5w/sf
- Meeting Room = 0.5 w/sf
- IT Closet = 20 w/sf
- Corridors, lobbies = 0 w/sf

Acoustics
The mechanical systems will allow for an acoustical environment that does not negatively impact the occupant productivity, communication and privacy of the staff. Sound levels will be designed to meet the following criteria:

- Public Areas of the Library: Room Criteria 35 to 40
- Private Office: Room Criteria 30 to 35
- Meeting Rooms: Room Criteria 25 to 30
- Corridors and Lobbies: Room Criteria 35 to 45

Heat Generation and Distribution

Heating will be provided by two natural gas-fired seal combustion condensing hot water boilers equal to Aerco BMK 3.0. Each boiler will be sized for approximately 2/3 of the load to provide for redundancy. Each boiler will have an approximate input of 2,610 MBH. Each boiler will be provided with a primary pump 175 gpm @ 20 feet of head, equal to Bell & Gossett Series 80 - 3x3x7B inline pump with 2 hp motor. For future expansion of third floor will include space allocation for third boiler.

Heating hot water will be distributed throughout the building with two base mounted secondary pumps, each sized for 100% of the building load, piped in parallel to allow for redundancy. Each secondary pump will be approximately 350 gpm @ 75 feet of head, equal to Bell & Gossett Series 1510 –3BC based mounted pump with 15 hp motor. The secondary pumps will be provided with variable frequency drives to control the pump speed based on system load requirements. The secondary pumps will be arranged in a lead-standby control mode. The heating hot water system will distribute water at 140 ^{o}F with the supply temperature reset based on the outside air temperature.

Hot water piping 2" and smaller will be Type "L" copper with wrot copper fittings. Hot water piping 2-1/2" and larger will be standard weight black steel piping with Class 150 seamless butt weld fittings. Hot water piping 1-1/2" and smaller will be insulated with 1" thick rigid fiberglass insulation with scrim foil jacketing. Hot water piping 2" and larger will be insulated with 2" thick rigid fiberglass insulation with scrim foil jacketing.

Shut-off valves for the hot water system will be bronze body two-piece ball valves. Shut-off valves for the chilled water system for piping 2-1/2" larger will be lug style, iron body butterfly valves with lever actuators. Balancing valves for the chilled water system for piping 2" and smaller will be bronze body calibrated balance valves. Balancing valves for the chilled water system for piping 2-1/2" and larger will be lug style, iron body butterfly valves with memory stop lever actuators and insertion type flow meters. Balancing valves for the hot water system will be bronze body calibrated balance valves. Hot water piping will be sized for a maximum pressure drop of 3.5 feet per 100 feet of piping.

The hot water system will supply finned tube radiation, infloor radiant system, convectors, unit heaters, cabinet unit heaters and VAV box reheat coils. Infloor radiant system will be provided at 1st and 2nd areas except 3rd floor. Fin-tube radiation will be provided on 3rd floor with external glazing. Convectors will be provided in toilet rooms and similar spaces as necessary. Unit heaters will be provided in mechanical, service garage and electrical rooms as necessary. Cabinet unit heaters will be provided at all entries into the building and stairwells. All terminal devices will be provided with 2-way modulating control valves with electric actuators.

Low pressure natural gas will be provided for the boilers. Natural gas piping 2" and smaller will be standard weight black steel pipe with Class 150 malleable iron threaded pipe fittings. Natural gas piping 2-1/2" and larger will be standard weight black steel pipe with Class 150 seamless butt weld fittings. Shut-off valves for the natural gas system will be bronze body two-piece ball valves. Natural gas piping will be sized in accordance with the 2006 IFGC.

Geothermal and Distribution

Geothermal system is to serve the Infloor Radiant system to provide either cooling or heating in basement areas. Geothermal system will be served by 15-20 vertical wells (150' deep) at the exterior building perimeter along Henry and Mifflin Street to provide 50 tons of cooling heat rejection. Heat pump chiller will have an approximately (2) 25 Ton, modular units. Heat pump chiller will be equal to McQuay or Clima-Cool. Each heat pump chiller will be sized for approximately 2/3 of the load to provide for redundancy. Supplemental cooling will be from the dedicated ventilation system serving this space.

Glycol water will be distributed from well field to basement two inline primary pumps, each sized for 100% of the building load, piped in parallel to allow for redundancy. Each primary pump will be approximately 150 gpm @ 55 feet of head, equal to Bell & Gossett Series 80 – 2-1/2x2-1/2x9-1/2B line pump with 5 hp motor. A third recirculating pump load will be provided with variable frequency drive to control the pump speed based on system load requirements. The primary pumps will be arranged in a lead-standby control mode. The geothermal system will distribute water at 50-100^{o}F. A central geothermal manifold in mechanical room will allow for circuiting and balancing the wells to the design water flow rates. There will be approximately 3-4 circuits.

Process water will be distributed in basement level with two inline secondary pumps, each sized for 100% of the building load, piped in parallel to allow for redundancy. Each secondary pump will be approximately 150 gpm @ 70 feet of head, equal to Bell & Gossett Series 80 – 2-1/2x2-1/2x9-1/2B line pump with 7-1/2 hp motor. The secondary pumps will be provided with variable frequency drives to control the pump speed based on system load requirements. The secondary pumps will be arranged in a lead-standby control mode. The process water will distribute water at 50-100^{o}F.

Geothermal water piping 2" and smaller will be Type "L" copper with wrot copper fittings. Geothermal water piping 2-1/2" and larger will be standard weight black steel piping with Class 150 seamless butt weld fittings. Geothermal water piping 1-1/2" and smaller will be insulated with 1" thick rigid fiberglass insulation with scrim foil jacketing. Geothermal water piping 2" and larger will be insulated with 2" thick rigid fiberglass insulation with scrim foil jacketing. Shut-off valves for the geothermal water system will be bronze body two-piece ball valves. Balancing valves for the hot water system will be bronze body calibrated balance valves. Geothermal water piping will be sized for a maximum pressure drop of 3.5 feet per 100 feet of piping.

The geothermal water system will supply basement Infloor Radiant system serving as either cooling or heating system. Infloor radiant piping system will be PEX(cross linked polyethylene) tubing, Class A. In-floor radiant system will serve five to six manifold systems located in partition wall. Each manifold is approximately 2500 sq.ft. The radiant floor system will be provided with an inline circulating pump (capacity to be determined) and a 2-way mixing valve to mix water with the radiant system return water to maintain the desired supply temperature. All 2-way modulating control valves will be with electric actuators.

Refrigeration

Chilled water for the facility will be generated by two 175 ton water-cooled chillers with remote cooling tower for rejection. Water-cooled chiller shall be equal to McQuay WGZ. Each chiller will be sized for approximately 2/3 of the load to provide for redundancy. The chilled water system will be arranged in a variable primary flow arrangement. Chilled water will be pumped to the dedicated outside air unit (DOAS) and air handling units.

> Alternate No.1: To evaluate the water-cooled Oil-free chiller with magnetic bearing compressors, McQuay Model WMC.

Chilled water will be distributed throughout the building with two base mounted primary pumps, each sized for 100% of the building load, piped in parallel to allow for redundancy. Each primary pump will be approximately 700 gpm @ 75 feet of head, equal to Bell & Gossett Series Series 1510 –4BC based mounted pump with 20 hp motor. The primary pumps will be provided with variable frequency drives to control the pump speed based on system load requirements. The primary pumps will be arranged in a lead-standby control mode. A two-way bypass valve will be provided in the system to maintain the minimum chiller flow rate. The chilled water system will distribute water at 42^{o}F.

Chilled water piping 2" and smaller will be Type "L" copper with wrot copper fittings. Chilled water piping 2-1/2" and larger will be standard weight black steel pipe with Class 150 seamless butt weld fittings. Chilled water piping water piping 1-1/2" and smaller will be insulated with 1" thick rigid fiberglass insulation with scrim foil jacketing. Chilled water piping 2" and larger will be insulated with 1-1/2" thick rigid fiberglass insulation with scrim foil jacketing.

Shut-off valves for the chilled water system for piping 2" and smaller will be bronze body two-piece ball valves. Shut-off valves for the chilled water system for piping 2-1/2" larger will be lug style, iron body butterfly valves with lever actuators. Balancing valves for the chilled water system for piping 2" and smaller will be bronze body calibrated balance valves. Balancing valves for the chilled water system for piping 2-1/2" and larger will be lug style, iron body butterfly valves with memory stop lever actuators and insertion type flow meters. Chilled water piping will be sized for a maximum pressure drop of 3.5 feet per 100 feet of piping.

> Alternate No.2: To evaluate the ice storage system will consist of two smaller chillers at 100 Tons in a glycol system and approximately 5-7 ice storage tanks. Chillers will be used in ice making mode during times of no cooling load. Chillers will be used to satisfy cooling load during conventional cooling mode. During on-peak cooling loads, the chillers will operate at a reduced capacity, with melting ice satisfying the remaining cooling load. Air distribution system will be low temperature system of 47-48^{o}F.

Heat Rejection
Heat Rejection water for the facility will be served by forced draft, vertical counterflow cooling tower equal to Evapco LSTB-10112. Cooling tower capacity is sized for 350 Ton. Cooling tower will be located penthouse, indoors. Louvers with isolation dampers will be placed at cooling tower room intake. Cooling tower will discharge with nozzle hood through penthouse roof. Provide basin heater for cooling tower. Condenser water will be distributed from chiller room located in basement to penthouse with two base mounted condenser pumps, each sized for 100% of the building load, piped in parallel to allow for redundancy. Each condenser pump will be approximately 860 gpm @ 90 feet of head, equal to Bell & Gossett Series 1510 – 5E based mounted pump with 30 hp motor. The condenser pumps will be arranged in a lead-standby control mode. A three-way bypass valve will be provided in the system to maintain the minimum condenser temperature. The condenser water system will distribute water at 97-85^{o}F.

For waterside economizer, a condenser plate & frame heat exchanger on condenser water will be utilized to provide "free cooling" to Infloor Radiant system. Plate & frame exchanger is in parallel of the two chillers. Cooling tower operation will supplement cooling during spring/fall seasonal conditions bypassing the chiller(s) operation.
Condenser water piping 2-1/2" and larger will be standard weight black steel pipe with Class 150 seamless butt weld fittings. Shut-off valves for the condenser water system for piping 2-1/2" larger will be lug style, iron body butterfly valves with lever actuators. Balancing valves for the condenser water system for piping 2-1/2" and larger will be lug style, iron body butterfly valves with memory stop lever actuators and insertion type flow meters. Condenser water piping will be sized for a maximum pressure drop of 3.5 feet per 100 feet of piping.

Dedicated Outside Air System (DOAS)
The building will be served by an air handling system located in a penthouse room. The system will be a variable air volume (VAV) system with air terminals. DOAS will provide ventilation directly to the space serving all floors within the building. The system will have an approximate capacity of 45,000 CFM with recirculation capabilities for minimum air change within the space for dehumidification purposes. The outside air criterion will be approximately 25,000 cfm. The system supply ductwork pressure will be controlled and reset based on the critical zone to minimize fan energy. The supply air temperature will be reset based on the critical zone. The air handling unit will be selected so the face velocity through the filters and cooling coil do not exceed 450 fpm.

The building will be pressurized through to help minimize infiltration into the building. The outside air from the energy recovery unit will be ducted to the air handling unit intake.

The DOAS air handling unit will be a custom air handling unit with 2" thick, double wall panels. The unit will have the following components:
- Outdoor air damper/Exhaust air damper plenums
- Exhaust air fan with variable frequency drive (VFD)
- Filter section with 2" pleated pre-filters (MERV-8) and 12" cartridge filters (MERV-13).

- Total Enthalpy Wheel – Heat Recovery
- Recirculation return air damper.
- Supply fan with VFD.
- Pumped hot water heating coil.
- Chilled water cooling coil.
- Passive Wheel - Dehumidification

3rd Floor Distribution System – Air System

The 3rd floor will be served by two independent air handling systems located in a penthouse. Each system will be a variable air volume (VAV) system with supply air terminals/reheat coils. The system will have an approximate capacity of 15,100 - 18,000 CFM. The system supply ductwork pressure will be controlled and reset based on the critical zone to minimize fan energy. The supply air temperature will be reset based on the critical zone. The air handling unit will be selected so the face velocity through the filters and cooling coil do not exceed 450 fpm.

The outside air from the dedicated outside air system, DOAS, will be ducted to each air handling unit mixing chambers. The building will be pressurized through to help minimize infiltration into the building.

Each 3rd floor air handling unit will be a factory packaged unit with 2" thick, double wall panels. The unit will have the following components:

- Outdoor air damper/Return/Relief air damper plenums
- Return air fan with variable frequency drive (VFD)
- Filter section with 2" pleated pre-filters (MERV-8) and 12" cartridge filters (MERV-13).
- Pumped hot water heating coil.
- Chilled water cooling coil.
- Supply fan with VFD.

1st and 2nd Floor Distribution System – Hydronic System

The 1st and 2nd floors will be served by building will be served by "Radiant Ceiling Panel" system, equal to Rittling Carboline with graphite backer. The ceiling Radiant Panel system will consist of 65-75% ceiling coverage in suspend ceiling system, modules of 24"x118". Ceiling panel will be baked enamel finish with custom color by Architect. Radiant panels will be insulated with 1" thick rigid fiberglass insulation with scrim foil jacketing.

Process water will be distributed from the basement level with two inline secondary pumps, each sized for 100% of the building load, piped in parallel to allow for redundancy. Each secondary pump will be approximately 200 gpm @ 50 feet of head, equal to Bell & Gossett Series 80 – 2-1/2x2-1/2x9-1/2B line pump with 7-1/2 hp motor. The secondary pumps will be provided with variable frequency drives to control the pump speed based on system load requirements. The secondary pumps will be arranged in a lead-standby control mode. The process water will distribute water at 58-100°F.

The process water system will supply radiant ceiling panel system serving as either cooling or heating system. Radiant ceiling panel system will serve twelve-sixteen zones per floor. Each manifold is approximately 2000-2500 sq.ft. The radiant floor system will be provided with 2-way mixing valve with electric actuators.

Process water piping 2" and smaller will be Type "L" copper with wrot copper fittings. Process water piping 2-1/2" and larger will be standard weight black steel piping with Class 150 seamless butt weld fittings. Process water piping 1-1/2" and smaller will be insulated with 1" thick rigid fiberglass insulation with scrim foil jacketing. Process water piping 2" and larger will be insulated with 2" thick rigid fiberglass insulation with scrim foil jacketing. Shut-off valves for the process water system will be bronze body two-piece ball valves. Balancing valves for the hot water system will be bronze body calibrated balance valves. Process water piping will be sized for a maximum pressure drop of 3.5 feet per 100 feet of piping.

Alternate No.3: To evaluate the "Raised Floor" system in lieu of "Radiant Ceiling Panel" system serving 1st and 2nd floors.

Raised Floor System
The building will be served by an air handling system located in a basement mechanical room. The system will be a variable air volume underfloor (VAV) system with air terminals/hot water reheat. The system will have an approximate capacity of 65,000 CFM. The system supply ductwork pressure will be controlled and reset based on the critical zone to minimize fan energy. The supply air temperature will be reset based on the critical zone. The air handling unit will be selected so the face velocity through the filters and cooling coil do not exceed 450 fpm.

The air handling unit will be a custom air handling unit with 2" thick, double wall panels. The unit will have the following components:

- Outdoor air damper/Exhaust air damper plenums
- Exhaust air fan with variable frequency drive (VFD)
- Filter section with 2" pleated pre-filters (MERV-8) and 12" cartridge filters (MERV-13).
- Total Enthalpy Wheel – Heat Recovery
- Recirculation return air damper.
- Supply fan with VFD.
- Pumped hot water heating coil.
- Chilled water cooling coil.
- Passive Wheel - Dehumidification

Humidification Systems
Humidification is not program requirement for this project to maintain any minimum level. Dedicated outside air system will reclaim humidity generated from the space to supplement outside air.

Exhaust Systems
Exhaust from the toilet rooms, housekeeping spaces, storage, and other similar spaces will be exhausted through the energy recovery unit. Mechanical room, Electrical room, Penthouse, Generator, Garage areas and similar spaces which require exhaust will be exhausted through roof mounted exhaust fan(s).

Sheet Metal Work
All ductwork on the project will follow SMACNA standards for ductwork construction. Ductwork materials will be galvanized sheet metal with thicknesses per the SMACNA Standards. All ductwork will be sealed in accordance with SMACNA Class "A" standards. Long radius elbows will be utilized where possible. When it is necessary to use mitered elbows, turning vanes will be provided in each supply elbow. Turning vanes will not be utilized on return or exhaust systems.
All outside air, mixed air and supply air will be externally insulated. The mixed air and outside air systems will be insulated with 2" thick, 3 pcf rigid fiberglass insulation with factory foil jacketing. The supply air system will be insulated with 1-1/2" thick, 1-/2 pcf flexible fiberglass insulation with factory foil jacketing.

Ductwork will not be lined. Sound attenuating flexible duct up to 6 ft in total length will be provided at the supply diffusers to control noise. Sound attenuators at the discharge of air terminal devices will not be provided unless required to meet noise criteria. Each branch take-off will be provided with a manual volume damper for balancing purposes.

Supply ductwork upstream of VAV boxes will be constructed to 4" pressure class in accordance with SMACNA Standards and will be sized for a maximum pressure drop of 0.15" w.g. per 100 feet of ductwork. Supply ductwork downstream of VAV boxes will be constructed to 2" pressure class in accordance with SMACNA Standards and will be sized for a maximum pressure drop of 0.10" w.g. per 100 feet of ductwork.

Exhaust, return, relief and outside air ductwork will be constructed to 2" pressure class in accordance with SMACNA Standards and will be sized for a maximum pressure drop of 0.08" w.g. per 100 feet of ductwork.

Automatic Control System
Thermal comfort is a priority of the building owner and the LEED goals.

The Design Team will incorporate appropriate thermal zoning throughout the building and provide thermostats in each private office, meeting room and thermal zone. The mechanical system will have the ability to monitor the CO^2 levels throughout the building to meet LEED IEQ Credit 1. CO2 sensors will also be provided for all densely occupied areas (25 people or more per 1000 sq. ft. of floor area) of the building.

The building will be equipped with a building-wide BACnet Direct Digital Control (DDC) system with graphics. The DDC system will control all HVAC equipment, including the air handling units, DOAS, chillers, tower, boilers, heat pump chillers, pumps and all terminal units. The DDC system will provide control of all HVAC functions such as temperature set points, CO_2 sensors, occupancy scheduling, system monitoring, system alarms, optimization and system trend functions.

Controls for the building shall consist of a Honeywell system intermixed with DDC controls. The control system shall be similar in nature to the existing City of Madison's building control network. Personal computer operator workstation: Located in mechanical room shall have control, graphics, and monitoring capabilities.

DDC controls will monitor building utilities meters: gas, electric, photovoltaic system and water for annual consumption. DDC controls shall incorporate "Green Screen" capabilities and local display for public viewing.

The control system will utilize electronic room sensors with set point adjustability and LED temperature display. The adjustment will be limited to 5 ^{o}F range from the set point. All terminal devices will be controlled using electric actuation on all automatic dampers and valves.

Testing, Adjusting, and Balancing
The HVAC systems will be balanced in accordance with the latest AABC or NEBB procedures.

Lighting Systems

Interior Lighting

a) Fluorescent lighting fixtures in the all public and staff areas will utilize T5 and T8 lighting technology that provides a blend of brightness, control and energy efficiency. All lighting in study rooms, staff offices, lounge and workrooms will be provided with dual-level switching.
b) Fluorescent strips with white industrial reflectors and T8 lamps will be used Material handling rooms. Fluorescent strips and T8 lamps without reflectors will be used in all unfinished building operations rooms.
c) Task lights will be installed at all open work area tables in reading/lounge zones and office work stations. Task lights will be a combination of linear T5 fluorescent and solid state LED technology as appropriate for each application. All task lights will have integral vacancy sensors.
d) Fluorescent fixtures with acrylic lens will be provided in kitchens and kitchen storage rooms.
e) Standard output T8 and T5 lamps will be used throughout the building. All fluorescent lamps will have a correlated color temperature of 4100K and a minimum color rendering index of 80. Ballasts will be programmed start < 10% THD, electronic ballasts.
f) Ambient lighting in the library collections, reading areas, open study, technology center, lobbies and vestibules will be controlled On and Off via the automated building control system.
g) Occupancy sensors shall be provided in restrooms, staff workrooms, storage rooms, non-public corridors, egress stairs, and library collections areas as to meet ASHRAE/IESNA Standard 90.1 mandatory lighting control provisions.

h) Vacancy sensors shall be provided in meeting rooms, program rooms, study rooms, staff offices, staff lounge and material handling as to meet ASHRAE/IESNA Standard 90.1 mandatory lighting control provisions.
i) Daylight sensors in combination with addressable dimming ballasts shall be installed in all rooms and zones with access to direct or indirect daylight.
j) Illuminated LED exit signs with directional arrows will be provided at all exit doors and along the egress paths.

Illumination and Lighting Control Criteria and Selection
Lighting will be designed per Illuminating Engineering Society (IES) recommended practice RP-4 and a reduced energy demand relative to ASHRAE 90.1. All light levels shown are horizontal (Average Ambient/Task) at task level 2'-6" AFF. The power density range includes a high value which will be the maximum connected load and a low value achieved via lighting controls.

Space	Illumination Range Footcandles	Power Density W/SF	Lighting Control
Library Collections	30 / 20 vertical	1.7 / 1.2	AB, OS
Study Rooms	30 / 50	1.0 / 0.7	DL, VS
Open Reading	30 / 50	1.1 / 0.8	AB, VS
Technology Center	30 / 45	1.0 / 0.8	AB, DD
Program Rooms	30 / 50	1.1 / 0.7	DL, VS
Meeting Rooms	30 / 75	1.3 / 0.8	DL, VS
Lobby/Pre-function	20 / 45	1.0 / 0.6	AB, DD
Coffee Shop	30 / 45	1.1 / 1.1	LB, AB
Friends Store	20 / 50	1.5 / 1.5	LB, AB
Offices	30 / 50	1.0 / 0.8	DL, VS, DD
Staff Workrooms	30 / 50	1.0 / 0.6	OS
Staff Lounge	30 / 50	1.0 / 0.6	DL, VS
Kitchen	30 / 60	1.2 / 0.5	DL, VS
Material Handling	20 / 50	0.8 / 0.4	DL, VS
Corridors	10 / 20	0.5 / 0.5	AB, OS
Building Operations	30 / 50	1.3 / 0.8	DL
Storage/Utility	15 / 30	0.8 / 0.3	OS
Restrooms	10 / 20	0.9 / 0.5	OS

AB - Automated Building control
DL - Dual Level lighting control
OS - Occupancy Sensor
VS –Vacancy Sensor
LB- Local Switch ON + AB OFF
DD- Daylight Dimming

Exterior Lighting
Exterior Lighting design shall be meet the requirements of LEED SS-8 Reduce Light Pollution.
a) The exterior lighting system shall be controlled by the automated building control system with a time clock input and photocell input with manual override. The exterior lighting shall be programmed for photocell ON. Time clock Off will be controlled in four zones for independent scheduling of main and secondary entries, the loading dock, egress doors and the book drop(s).

b) Average maintained horizontal light levels at the task plane will meet ANSI/IES RP-4 and will be as follows:

Entries	5.0 fc
Loading Dock	10.0 fc
Egress Doors	1.0 fc
Book Drop	5.0 fc

Electrical Systems

Summary
The existing Electrical systems will be demolished completely and new systems will be installed.

Codes
The electrical power and fire alarm designs will be in accordance with the following codes:
1. Wisconsin Comm. 16 Electrical
2. National Electrical Code NFPA 70
3. National Fire Alarm Code NFPA 72
4. Americans with Disabilities Act

Guidelines
The following documents contain goals that are desired to be achieved in the electrical power and fire alarm designs:
1. Central Library – Energy and Maintenance Requirements; Guidelines to Reduce Operating Expenses and meet Sustainability Goals
2. Policy for Energy Efficiency and Sustainability of City Operations
3. Owner's Project Requirements; Madison Central Public Library Renovation

Primary Electric
Existing
The existing library electrical service is furnished by MG&E. The building service transformer is located in an underground vault on the south corner of the building. The transformer is powered by MG & E's downtown 13.8kV medium voltage loop.

The highest recent peak demand on the electrical service was 360kW, which occurred in the summer of 2007.

A 277/480V, three phase service was investigated, but MG&E policy for customers on the downtown 13.8kV loop with the transformers in a below grade vault is that they need to have an actual load near 750kVA. MG&E only stocks 750kVA and larger submersible transformers at 277/480V, three phase. The added first costs of larger feeders at 120/208V, three phase will be partially offset by not having to install step-down transformers. Over time there will be energy savings by not having the parasitic losses of the transformers.

The existing electrical service is 120/208V, 3-phase, with one 3,000 amp lighting service and one 3,000 amp power service, according to the original drawings. The 120/208V electrical service conductors are located in a concrete encased duct bank routed from the MG&E vault below the basement floor to a cable pit that is under the existing switchboards. The duct bank contains six 4" conduits and eight 3" conduits per the original drawings.

Proposed
The existing MG&E transformer vault and transformers will remain without change for this project. The existing 120/208V service conductors and switchboard will be removed. Two new 3,000 amp switchboards will be installed. Refer to the architectural drawings for the proposed location of the new switchboards.

The current building square footage is approximately 120,000sf. The average new construction NEC adjusted load for a building of this type is 13 VA/sf. 120,000x13=1,560kVA, or 4,330 amps at 120/208V, three phase.

The existing 120/208V electrical service concrete encased duct bank under the basement floor will be intercepted and extended to under the new switchboards.

If a fire pump is required, it will be powered by a separate 208V 3-phase service directly from the MG&E service transformers or from a tap ahead of the main electrical switch per NEC requirements. The fire pump feeder would be routed to the fire pump controller under the basement floor so it will be outside of the building per code requirements.

Electrical Power Distribution
Two 120/208V, 3-phase, 3000 amp switchboards will be installed. One of the switchboards will power mechanical loads, the other switchboard will power all other building loads.

Branch panelboards will be located in south-east third of the building (library staff areas), with the panelboards stacked vertically as allowed by the floor plan. Interior branch power distribution will be EMT conduit and conductors.

An increased quantity of general purpose receptacles will be included to provide flexibility and access for laptop use.

Basement
Power distribution in the basement utility areas will be surface mounted EMT conduit. Power distribution in the Youth Services area will be along the perimeter walls and at the column bases. Conduit serving the receptacles adjacent to the column bases will be installed under the basement floor.

First and Second Floor
Power distribution in the public areas will be accomplished by one of two methods. The HVAC system design needs to be confirmed before the electrical power distribution approach can be finalized.

1. Power cables located in the air distribution raised floor, or
2. Power cables located in the in-floor Walker Duct (or equal) power distribution system.

Third floor
Power distribution on the third floor will be conventional, with conduit routed above the ceiling and drops down the walls. Four floor boxes will be located in the large meeting room.

Emergency Power
Emergency power is required for the following electrical systems:

1. Egress lights
2. Fire alarm

An emergency generator was considered for the project. If an emergency generator was installed, the Madison Fire Department requires that a minimum of 2 hours of generator fuel be located on site. This would mean the generator would have been diesel powered rather than utility furnished natural gas. The mechanical engineer was concerned that diesel exhaust fumes would be smelled inside the building during monthly testing of the generator. The Madison Fire Department said that if a fire pump is installed, it did not require emergency power since the library is not currently designated as a City emergency response site. Joe Hertel with the Wisconsin Department of Commerce also said that the fire pump does not have to be on emergency power. The city and library decided to not install an emergency generator.

A centralized battery powered lighting inverter will power the egress lights, and a self contained battery system will be specified with the fire alarm system. The building approximate square footage is 120,000. The emergency egress lighting load is estimated to be 0.2W/sf. 120,000x0.2=24kW. The lighting inverter capacity is estimated to be 25kVA.

The elevators are not architecturally designated an “accessible means of egress”, and will not be connected to an emergency power source. Battery lowering will be provided to lower an elevator cab and park the cab doors open in the event of a power outage.

Fire Alarm
The fire alarm system will be an addressable and intelligent voice system, capable of identifying the specific device in alarm, and automatic adjustment of smoke detector sensitivity. The fire alarm system will be monitored by a licensed monitoring company.

The building occupancy type is A3, with an occupancy capacity greater than 1000. The fire alarm voice annunciation is required by the IBC. The Madison Fire Department requires a manual handset for voice pages be located at the remote fire alarm annunciator located at the main vestibule.

The fire alarm system will have integral battery backup. Manual pull stations will be provided at all egress doors. Speaker/strobes and strobe only devices will be located throughout the building per code.

Duct detectors will be provided in return air ducts of HVAC systems over 2000 cfm and also adjacent to fire/smoke dampers.

Smoke detectors will be installed in storage rooms, mechanical rooms, elevator machine rooms, egress corridors, elevator stops, NAC power boosters and at fire alarm control panels. Heat detectors will be located in the elevator machine room. The fire alarm system will interface with the elevators for cab recall and automatic disconnection of power in the event of sprinkler water flow associated with the elevator. Sprinkler system flow and tamper switches will be monitored. Fire alarm cable will be installed in conduit, ½" minimum trade size.
The fire alarm speaker system is available for both emergency and general paging use. The remote annunciator panel will be located in the main entry vestibule.

Telecommunications
The City of Madison standard telecommunications and contractor telecommunications system commissioning specification sections will be used as a basis for this project, with project specific revisions. It is presently the intent that the phone system in the library will be VoIP. The phones and the VoIP switches will be provided by the Owner.

Telecommunications Rooms
Telecommunications rooms will be located in the basement and on the third floor as shown on the architectural floor plans. The basement telecom room will also be the demarcation point for the telephone, cable TV and fiber optic cable services. Telecommunications racks, cable runway and Category 6 patch panels will be specified. The Owner will provide the switching equipment, wireless transceivers, UPS, PDU and patch cords. Two normal power dedicated 120V receptacles will be provided at the base of each telecom rack.

The basement telecom room will be designated the MDF, and serve the basement and first floor. The third floor telecom room will be designated TR#1, and will serve the second floor, third floor and the penthouse. Cable length diagrams show that the locations of the two telecom rooms will most likely allow all horizontal station cables to be within Cat. 6 distance requirements. As the design progresses, if it appears some horizontal station cables would be out of spec, a wall mounted rack with patch panels will be specified to terminate the farthest SIOs.

If during construction it is found that due to unforeseen conditions the contractor has to route the cable such that it is out of spec, the A/E may allow the contractor to shorten the service loop or run the cable at a diagonal relative to building structure to allow the cable to be within spec.

The City of Madison has standard telecom room drawings that have requirements that will be incorporated into design. Half-inch thick 4'x8' plywood sheets will be installed on the walls of the telecom rooms. The plywood will be painted on all sides with fire retardant paint.

Telecommunications Backbone
A single 12 pair multi-mode fiber optic cable will interconnect the MDF and TR#1.

Telecommunications Distribution
Horizontal station cabling (telephone and data) will be Category 6. Standard information outlet pinning will be 568B. Wire basket type cable tray will be located down main corridors for support of horizontal station cabling where appropriate. Horizontal station cabling will be supported by J-hooks beyond the cable tray. Cable in mechanical areas will be installed in conduit for mechanical protection. The cable jacket will be plenum or non-plenum rated as required per the HVAC design.

All horizontal station cables will be specified with a service loop at the patch panel and at the SIO.

On the first and second floors the horizontal station cable will routed in either the raised air distribution floor or floor Walkerduct depending on the HVAC system chosen.

The typical SIO will have two Cat. 6 outlets per faceplate. No distinction will be made for telephone or data as the installation and requirements are the same for both. Two telephone lines will be specified to the main fire alarm panel. One telephone line will be specified to each elevator.

As-builts
The contractor will be required to submit as-built telecom drawings at the completion of the project. The as-built drawings will be required to show cable routing along with SIO identification.

Video Distribution
Video outlets will be provided in the main meeting rooms. The trunk and tap method will be used to distribute the signal. The connection to the cable TV provider will be in the MDF.

The Owner may have video projectors installed in the meeting rooms under a separate project.

Security/Controlled Access System
A combined security/controlled access system will be specified for the project. The controlled access features will include proximity sensors, door position sensors and electric strikes/locks. The security system features will include glass break sensors and motion sensors. Controlled access points will be at all exterior doors and primary doors that separate public and library staff use. Security system points will be at rooms adjacent to exterior grade levels. The central controller will interface these devices and be monitored by a monitoring company.

Closed Circuit TV System

The electrical contractor will install Cat. 6 cabling for a CCTV system. The Owner will provide the cameras, video controllers and recorders for the CCTV system. Camera locations will be confirmed as the design progresses, but it is anticipated that at a minimum cameras will be located as follows:

1. Exterior front entry.
2. Front entry vestibule
3. Exterior West Mifflin Street lower level entry
4. West Mifflin Street lower level vestibule
5. Exterior loading dock door

A Cat. 6 data cable will be installed from the MDF to the designated security office location. The system will have a one-way video and two-way voice connection to the loading dock. A call button will be located adjacent to the loading dock overhead door for the driver to initiate communications.

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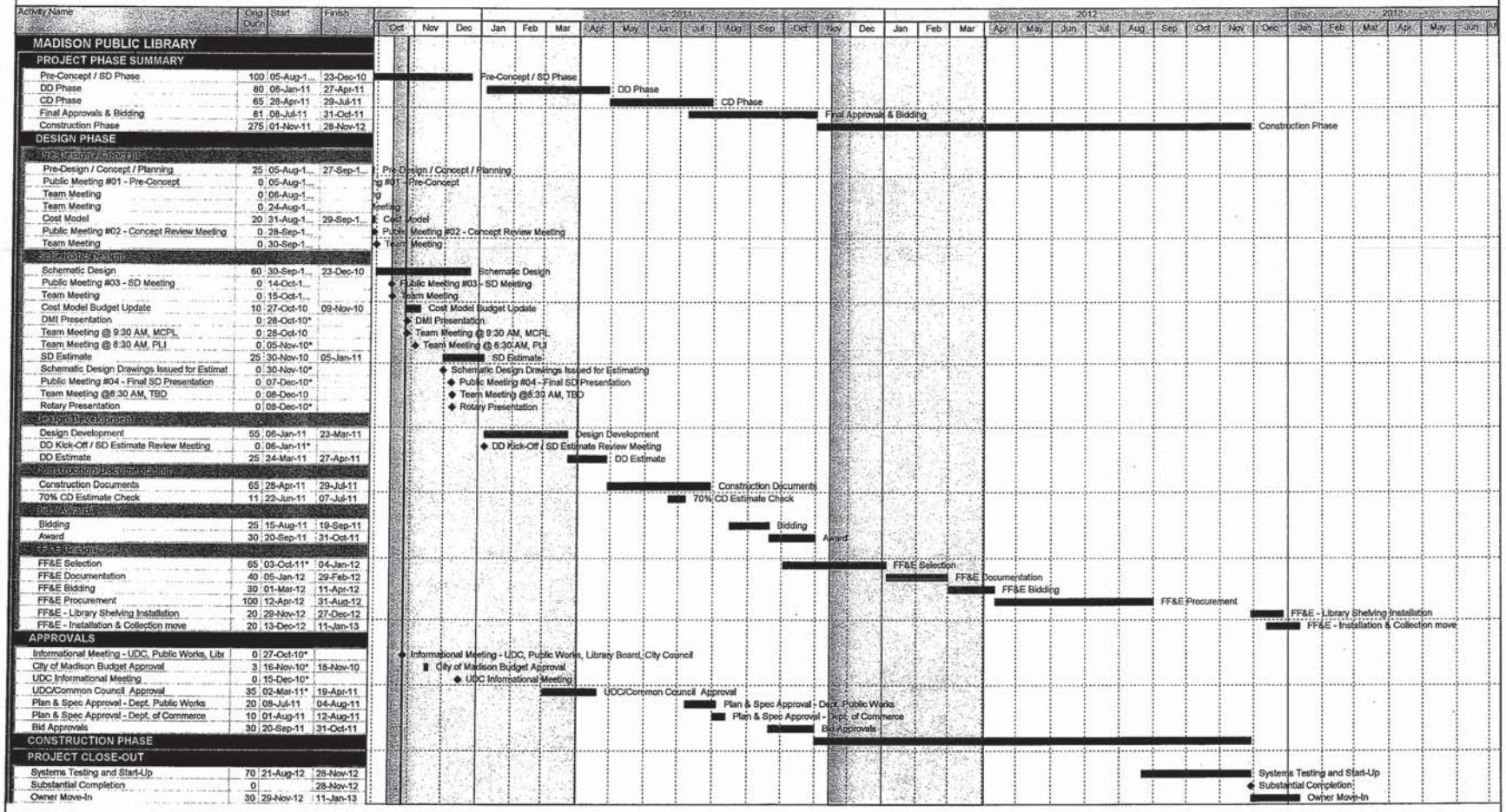

Construction

Milestone

MADISON PUBLIC Library

Preliminary Summary Schedule

Madison Public Library

October 28, 2010

Project ID: 10080026-002
Layout: MPL Phase Layout
Start Date 02-Aug-10
Finish Date 11-Jan-13
Data Date 27-Oct-10

Mortenson construction

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General

G000	Sheet Index and Symbols
G051	Code Plan
G052	Code Plan

Architectural Demolition

AD100.1	Basement Floor Demolition Plan
AD100.2	Ground Floor Demolition Plan
AD101	1st Floor Demolition Plan
AD102	2nd Floor Demolition Plan
AD103	Roof Demolition Plan
AD201	Exterior Demolition Elevation

Architectural

A100	Site Plan
A100.1	Basement Floor Plan
A100.2	Ground Floor Plan
A101	1st Floor Plan
A102	2nd Floor Plan
A103	3rd Floor Plan
A104	Penthouse Floor Plan
A105	Roof Plan
A201	Building Elevations
A202	Building Elevations
A251	Building Sections
A900.1	Basement Floor Furniture Plan
A900.2	Ground Floor Furniture Plan
A901	1st Floor Furniture Plan
A902	2nd Floor Furniture Plan
A903	3rd Floor Furniture Plan

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NOT FOR CONSTRUCTION

SCHEMATIC DESIGN
DECEMBER 2, 2010

MADISON CENTRAL PUBLIC LIBRARY

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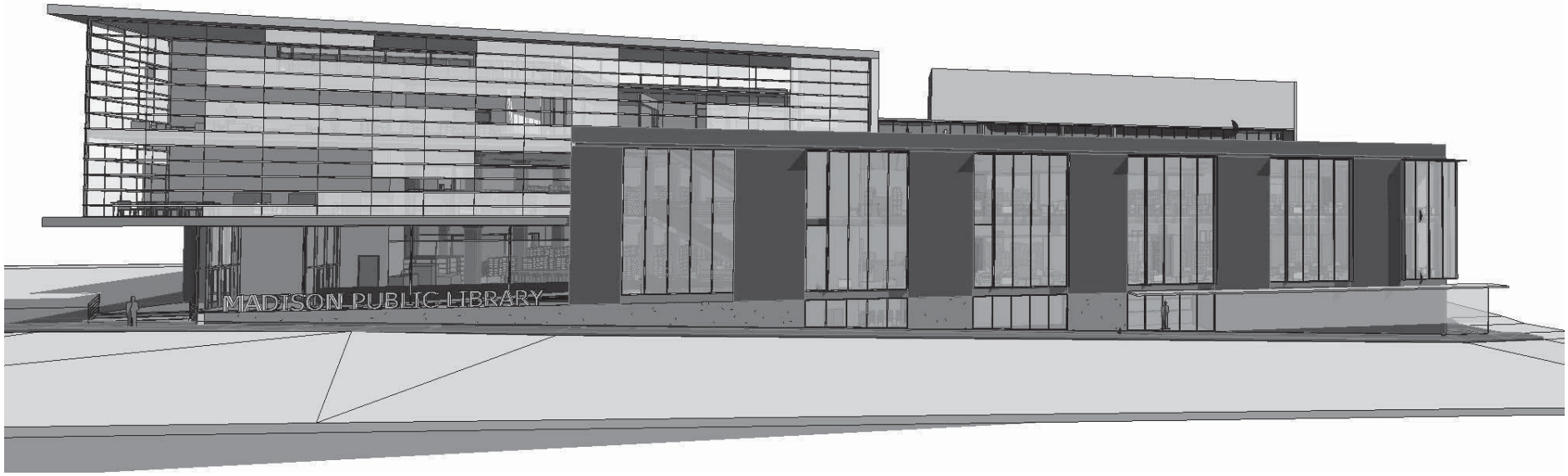
MADISON, WI 53703



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Meyer Scherer & Rockcastle, LTD
710 South 2nd Street, 8th Floor
Minneapolis, MN USA 55401-2394
612 375 0336 T 612 342 2216 F
www.msrltd.com
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MADISON, WI 53717
T 608 833 7000
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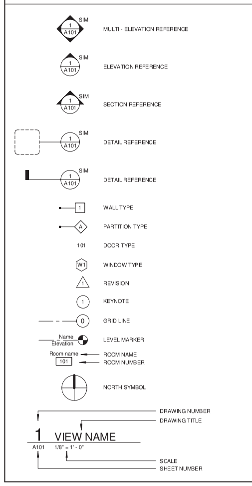

ABBREVIATIONS

A

A/E	Architect and/or Engineer
AB	Anchor Bolt
ABV	Above
AC	Air Conditioning
ACFL	Access Floor
ACOUS	Acoustical
ACT	Acoustical Ceiling Tile
AD	Access Door
ADDL	Additional
ADJ	Adjacent
ADJST	Adjustable
ADMIN	Administration
AFF	Above Finish Floor
ALT	Alternate
ALUM	Aluminum
AMEND	Amendment
ANC	Anchor
AP	Access Panel
APC	Architectural Precast Concrete
APROX	Approximately
ARCH	Architectural
AUTO	Automatic
AV	Audio Visual
AVG	Average
AWT	Acoustical Wall Treatment

B

B&B	Balled and Burlapped
BA	Building Accessory
BD	Board
BIT	Bituminous
BL	Brick Ledge
BLDG	Building
BLKG	Block(ing)
BM	Beam or Bench Mark
BO	By Owner
BOF	Bottom of Footing
BOS	Bottom of Slab
BOS	Bottom of Steel
BOT	Bottom
BPL	Bearing Plate
BR	Brick
BRC	Brick Course
BRG	Bearing
BSMT	Basement
BTWN	Between
BUR	Built up Roof

C

C	Course
C/C	Center to Center
CAB	Cabinet
CANT	Cantilever
CAT	Category
CB	Catch Basin
CE	Civil Engineer
CEM	Cement
CER	Ceramic
CF	Cubic Feet
CFS	Cubic Feet per Second
CG	Corner Guard
CHNL	Channel
CI	Cast-Iron
CIP	Cast-In-Place
CIR	Circle
CJ	Control Joint
CL	Centerline
CLNG	Ceiling
CLO	Closet
CLR	Clear(ance)
CM	Construction Manager
CMU	Concrete Masonry Unit
CO	Cased Opening
CO	Clean Out

C

COL	Column
COM	Communication
COMP	Composite
COMPR	Compressible
CONC	Concrete
COND	Condition
CONF	Conference
CONN	Connection
CONST	Construction
CONT	Contiue (ous) (ation)
CORR	Corridor
CPT	Carpet
CSK	Countersunk
CT	Ceramic Tile
CTR	Center
CU	Cubic
CUH	Cabinet Unit Heater
CW	Cold Water
CW	Curtain Wall

D

DBL	Double
DEG	Degree
DEMO	Demolition
DEPT	Department
DF	Drinking Fountain
DIA	Diameter
DIAG	Diagonal
DIFF	Diffuser
DIM	Dimension
DISP	Dispenser
DIST	Distribution
DIV	Division or Divider
DL	Dead Load
DN	Down
DR	Door
DS	Downspout
DTL	Detail
DW	Dishwasher
DWG	Drawing
DWL	Dowel
DWTR	Dumbwaiter

E

E	East
EA	Each
EF	Exhaust Fan
EGEN	Emergency Generator
EIFS	Exterior Insulation & Finish System
EJ	Expansion Joint
EL	Elevation
ELEC	Electric(al)
ELEV	Elevator
EMER	Emergency
E TR	Entrance
EO	Electrial Outlet
EOS	Edge of Slab
EPD	Ethylene Propylen Dien Monomer
EQ	Equal
EQUIP	Equipment
ESTB	Established
EW	Each Way
EWC	Electric Water Cooler
EXC	Excavate(d), Excavation
EXH	Exhaust
EXIST/EX	Existing
EXP	Expansion
EXT	Exterior

F

FA	Fire Alarm
FBR	Face of Brick
FC	Face
FD	Floor Drain
FE	Fire Extinguisher
FEC	Fire Extinguisher Cabinet
FF	Finished Face, Face of Wall
FFE	Finish Floor Elevation
FFL	Finish Floor Level
FHC	Fire Hose Cabinet
FIN	Finish
FIXT	Fixture
FLASH	Flashing
FLEX	Flexible
FLR	Floor(ing)
FLUOR	Fluorescent
FN	Fence
FND	Foundation
FO	Finished Opening
FOC	Face of Concrete
FOM	Face Masonry
FOS	Face of Suds / Steel
FP	Fireproofing
FPL	Fireplace
FRP	Fiberglass Reinforce Plastic Panel
FRT	Fire Retardant Treated
FT	Foot or Feet
FTG	Footing
FTR	Fine Tube Radiation / Radiator
FUR	Furring
FT	Future
FWC	Fabric Wall Covering

G

G	Gas
GA	Gauge
GAL	Gallon
GALV	Galvanized
GAR	Garage
GB	Grab Bar
GC	General Contractor
GEN	General
GEN	Generator
GFRP	Gypsum Fiberglass Reinforce Panel
GL	Glazing
GLU	Glue Laminated
GYP	Gypsum
GWB	Gyspum Wall Board

H

H	High
HB	Hose Bib
HC	Handicap
HDR	Header
HDWD	Hardwood
HDWR	Hardware
HM	Hollow Metal
HOR	Horizontal
HR	Handrail
HT	Height
HTR	Heater
HVAC	Heating / Ventilation / Air Conditioning
HYD	Hydrant
HW	Hot Water
HWH	Hot Water Heater

I

ID	Inside Diameter
IN	Inch
INCL	Include(ing)
INFO	Information
INSUL	Insulation
INT	Interior

J

JAN	Janitor
JBOX	Juncition Box
JC	Janitor's Closet
JST	Joist
JT	Joint

K

KIT	Kitchen
KO	Knockout

L

L	Long, Length
LAB	Laboratory
LAM	Laminate, Lamination
LAV	Lavatory
LB	Pound
LCD	Linear Ceiling Diffuser
LF	Linear Foot
LH	Left Hand
LHR	Left Hand Reverse
LIN	Linear
LINO	Linoleum
LL	Live Load
LOC	Location
LONG	Longitudinal
LTG	Lighting
LVR	Louver

M

MAS	Masonry
MAT	Walk Off Mat
MATL	Material
MAX	Maximum
MC	Medicine Cabinet
MDF	Medium Density Fiberboard
MDO	Medium Density Overlay
MECH	Mechanical
MEMB	Membrane
MEZZ	Mezzanine
MFR	Manufacturer
MH	Manhole
MIN	Minimum
MISC	Miscellaneous
MO	Masonry Opening
MR	Moisture Resistant
MTD	Mounted
MTL	Metal
MUL	Mullion
MW	Millwork
MWA	Millwork Accessory

N

N	North
NA	Not Applicable
NIC	Not in Contract
NO	Number
NOM	Nominal
NRC	Noise Reduction Coefficient
NTS	Not to Scale

O

OA	Overall
OC	On Center
OCD	Overhead Coiling Door
OD	Outside Diameter
OFCI	Owner Furnished - Contractor Installed
OFOI	Owner Furnished - Owner Installed
OH	Overhead
OHD	Overhead Door
OP	Operable Partition
OPG	Opening
OPP	Opposite
OPT	Optional
ORD	Overflow Roof Drain

P

PA	Public Address
PAR	Parallel
PBD	Partical Board
PC	Precast Concrete
PERIM	Perimeter

P

PERP	Perpendicular
PFM	Pre-Formed
PFN	Pre-Finished
PKG	Parking
PL	Plate
PL	Property Line
PLAM	Plastic Laminate
PLAS	Plaster
PLBG	Plumbing
PLF	Pound per Linear Foot
PLYWD	Plywood
PNL	Panel
PR	Pair
PREFAB	Prefabricated
PRELIM	Preliminary
PROJ	Projections
PSI	Pound per Square Inch
PT	Paint
PTN	Partition
PVC	Polyvinyl Chloride

Q

QT	Quarry Tile
QTR	Quarter
QTY	Quantity

R

R	Radius
RA	Return Air
RAD	Radiator
RB	Rubber Base
RCP	Reflected Ceiling Plan
RD	Roof Drain
REC	Recessed
RECT	Rectangular
REF	Reference
REF	Refrigerator
REG	Register
REINF	Reinforce (ment) (ing)
REQD	Required
REV	Reverse
RF	Resilient Floor
RFH	Roof Hatch
RFV	Roof Vent
RH	Right Hand
RHR	Right Hand Reverse
RM	Room
RND	Round
RO	Rough Opening
ROW	Right of Way
RT	Rubber Tile
RWL	Rain Water Leader

S

S	South
SA	Supply Air
SAN	Sanitary
SC	Solid Core
SCHED	Schedule
SD	Storm Drain
SECT	Section
SF	Square Foot
SFRNT	Storefront
SHR	Shower
SHT	Sheet
SHTG	Sheathing
SIM	Similar
SLNT	Sealant
SM	Surface Mount
SMTL	Sheet Metal
SOG	Slab on Grade
SP	Space(ing)
SPEC	Specifications
SQ	Square
SS	Stainless Steel

S

SSF	Solid Surface
SSK	Service Sink
ST	Stone Tile
STC	Sound Transmission Coefficient
STD	Standard
STL	Steel
STN	Stone
STOR	Storage
STRUCT	Structural
SUBFL	Subfloor(ing)
SUSP	Suspended
SYM	Symmetry, Symmetrical
SYS	System

T

T	Tread
T&G	Tongue & Grooved
TAN	Tangent
TBD	To Be Determined
TD	Trench Drain
TEMP	Temporary
TERE	Terrazzo
THK	Thick(ness)
THRES	Threshold
TOB	Top of Beam
TOC	Top of Concrete or Curb
TOD	Top of Deck
TOF	Top of Footing
TOJ	Top of Joist
TOM	Top of Masonry
TOP	Topping
TOS	Top of Slab
TOS	Top of Steel
TOW	Top of Wall
TRTD	Treated
TS	Tube Steel
TYP	Typical

U

UC	Undercut
UFIN	Unfinished
UG	Underground
UNO	Unless Noted Otherwise
UPH	Upholstery
UR	Urinal
UTIL	Utility

V

VAR	Varies
VB	Vapor Barrier
VCT	Vinyl Composition Tile
VERT	Vertical
VEST	Vestibule
VIN	Vinyl
VNR	Veneer
VR	Vapor Retarder
VT	Vinyl Tile
VWC	Vinyl Wall Covering

W

W	West
W	Wide, Width
W/	With
W/O	Without
WC	Water Closet
WD	Wood
WDW	Window
WF	Wide Flange
WG	Wall Guard
WHTR	Water Heater
WP	Waterproof(ing)
WR	Waster Receptacle
WS	Weather-Strip(ing)
WSCT	Wainscot
WT	Window Treatment

SHT NO	SHEET NAME
GENERAL	
G000	SHEET INDEX AND SYMBOLS
G051	CODE PLAN
G052	CODE PLAN
ARCHITECTURAL DEMOLITION	
AD100.1	BASEMENT FLOOR DEMOLITION PLAN
AD100.2	GROUND FLOOR DEMOLITION PLAN
AD101	1ST FLOOR DEMOLITION PLAN
AD102	2ND FLOOR DEMOLITION PLAN
AD103	ROOF DEMOLITION PLAN
AD201	EXTERIOR DEMOLITION ELEVATION
ARCHITECTURAL	
A100	SITE PLAN
A100.1	BASEMENT FLOOR PLAN
A100.2	GROUND FLOOR PLAN
A101	1ST FLOOR PLAN
A102	2ND FLOOR PLAN
A103	3RD FLOOR PLAN
A104	PENTHOUSE FLOOR PLAN
A105	ROOF PLAN
A201	BUILDING ELEVATIONS
A202	BUILDING ELEVATIONS
A251	BUILDING SECTIONS
A900.1	BASEMENT FLOOR FURNITURE PLAN
A900.2	GROUND FLOOR FURNITURE PLAN
A901	1ST FLOOR FURNITURE PLAN
A902	2ND FLOOR FURNITURE PLAN
A903	3RD FLOOR FURNITURE PLAN

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LOCAL ARCHITECT + ELECTRICAL
Potter Lawson
15 ELLIS POTTER COURT
MADISON, WI 53711
PHONE: 608 274 2741

ARNOLD AND O'SHERIDAN INC
CONSULTING ENGINEERS

MECHANICAL
Henneman Engineering Inc.
Madison:
1232 Fourier Drive, Suite 101 T 608.833.7000
Madison, Wisconsin 53717-1960 F 608.833.6996
Email: info@henneman.com
Website: http://www.henneman.com
JOB NO. 10-6817

PHONE:

PHONE:

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Date: ______ License No: ______

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PROJECT NO. 2010041.00

PROJECT PHASE SCHEMATIC DESIGN

DRAWN BY: Author CHECKED BY: Checker

SHEET INDEX AND SYMBOLS

G000

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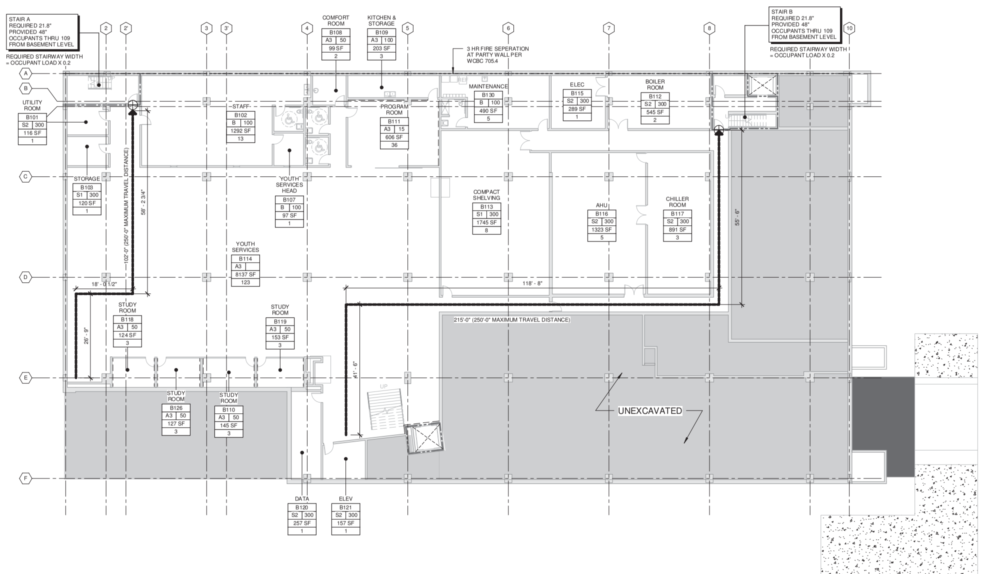
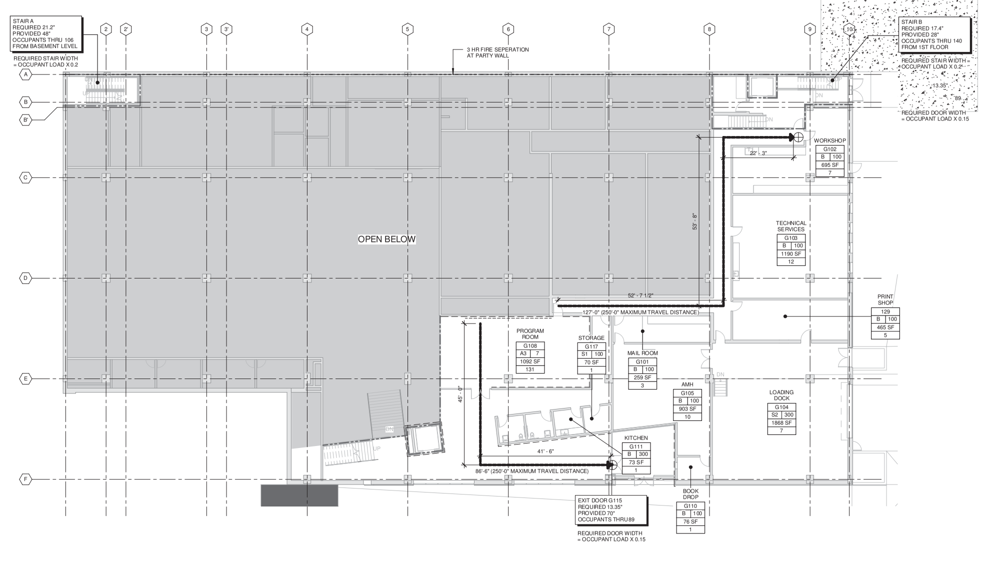


1 BASEMENT FLOOR CODE PLAN
G051 1/16" = 1'-0"



2 GROUND FLOOR CODE PLAN
G051 1/16" = 1'-0"

PLUMBING FIXTURE REQUIREMENT (CHAPTER 29)

	A3		B	
	LIBRARY		STAFF	
OCCUPANT LOAD	1,511		229	
	MEN	WOMEN	MEN	WOMEN
TOILETS	7*	11*	4***	4***
LAVS	4**	4**	3****	3****
DRINKING FOUNTAINS	4		2	
SERVICE SINKS	1		1	

REQUIRED COUNT HAS BEEN MET

(TOILET : 26 REQUIRED, 28 PROVIDED, LAVS : 14 REQUIRED, 22 PROVIDED)

FOR OCCUPANCY A3
* WATER CLOSET - 1 PER 125 FOR MALE AND 1 PER 75 FOR FEMALE
**LAVATORIES - 1 PER 200

FOR OCCUPANCY B
*** WATER CLOSEST - 1 PER 25 FOR THE FIRST 50 AND 1 PER 50 FOR THE REMAINDER EXCEEDING 50
**** LAVATORIES - 1 PER 40 FOR THE FIRST 80 AND 1 PER 80 FOR THE REMAINDER EXCEEDING 80

CODE REVIEW SYMBOLS

NAME
ROOM NUMBER
OCCUPANCY | OCC. /NSF
NET SQUARE FEET
OF OCCUPANTS

FE FIRE EXTINGUISHER
DESIGNATED EXIT

EGRESS TRAVEL PATH
1 HOUR RATED FIRE BARRIER
2 HOUR RATED FIRE BARRIER
3 HOUR RATED FIRE BARRIER

EXIT DOOR 101
REQUIRED DOOR WIDTH
PROVIDED DOOR WIDTH
OCCUPANTS THRU DOOR

STAIR A
REQUIRED STAIR WIDTH
PROVIDED STAIR WIDTH
OCCUPANTS THRU STAIR
FROM LEVELS SERVED

PLUMBING FIXTURE REQUIREMENT (CHAPTER 29)

	OCCUPANCY TYPE	
	OCCUPANCY DESCRIPTION	
OCCUPANT LOAD		
	MEN TOTAL	WOMEN TOTAL
TOILETS	# REQUIRED	# REQUIRED
LAVS	# REQUIRED	# REQUIRED
DRINKING FOUNTAINS	# REQUIRED	
SERVICE SINKS	# REQUIRED	

REQUIRED COUNT HAS BEEN MET

FOR OCCUPANCY B
* WATER CLOSEST - 1 PER 25 FOR THE FIRST 50 AND 1 PER 50 FOR THE REMAINDER EXCEEDING 50
** LAVATORIES - 1 PER 40 FOR THE FIRST 80 AND 1 PER 80 FOR THE REMAINDER EXCEEDING 80

2006 IBC - BUILDING CODE ANALYSIS (WI Commercial Building Code)

USE AND OCCUPANCY CLASSIFICATION	
Assembly Group A3 (Library) and B (Office) -Section 303	
TYPE OF CONSTRUCTION	
TYPE IIA (Non Separated Uses) - Building is sprinkled	
FIRE RESISTANCE RATING OF BULDING ELEMENTS	
Structural Frame - Table 601	1 hr
Bearing Walls (Interior) - Table 601	1 hr
Bearing Walls (Exterior) - Table 601	1 hr
Nonbearing walls and partitions (Interior) - Table 601	No Rating
Nonbearing walls and Partitions (Exterior) - Table 602	3 hr at Party wall per Section 705.4
- (Fire Separation Distance is > 30 ft) - Table 602	No Rating
Floor Construction (Including supporting beams and joists) - Table 601	1 hr
Roof Construction (Including supporting beams and joists) - Table 601	1 hr
Enclosure of Shafts less than 4 stories - Table 707.4	1 hr
Enclosure of Shafts more than 4 stories - Table 707.4	2 hr
Corridors - Less than 30 occupants - Table 1017.1	N/A
Corridors - Without Sprinkler System - Table 1017.1	N/A
Corridors - With Sprinkler System - Table 1017.1	No Rating
Mechanical Room - Table 508.2	No Rating w/ Sprinkler
Storage Room - Table 508.2	No Rating w/ Sprinkler
GENERAL BUILDING HEIGHTS AND AREAS (CHAPTER 5, 503)	
508.3.2.2 - Allowable area and Height (in Nonseparated Occupancies 508.3.2) Base on the most restrictive allowances for the occupancy groups under consideration. Base on the most restrictive allowances for the occupancy groups under consideration.	
Allowable Height	4 stories; 85'-0"
Proposed Height	4 stories; 55'-10"
Allowable Building Area	210,040 GSF
Proposed Building Area	118,500 GSF
Allowable Increases (Section 506)	
- Frontage Increase (Section 506.2) If=100 [F/P-0.25] W/30 = [513/764-0.25] 30/30 = 42%	If=42%
- Automated Sprinkler Increase (Section 506.3)	Is=200%
Total Allowable Area per floor(Aa) (Section 506.1) Aa=At+[AtIf/100]+[AtIs/100] Aa=15,500SF+6,510SF+31,000SF = 53,010	Aa=53,010 sf
Sprinkler System Height Increase (Section 504.2)	1 story; 20 '-0"
Total Allowable Height	85'-0"
BUILDING HEIGHT - PROPOSED VS. ALLOWABLE	
Proposed Building Height	4 story; 62'-0""
Allowable Building Height w/ Sprinkler	4 story; 85'-0"
BUILDING FLOOR AREA - PROPOSED VS. ALLOWABLE	
Proposed Building Area	
- Basement Level	20,896 GSF
- Ground Level	11,528 GSF
- Level 1	32,486 GSF
- Level 2	32,947 GSF
- Level 3	17,797 GSF
- Penthouse	3,150 GSF
- Total	118,804 GSF
Allowable Building Area W/ Sprinkler (per floor)	53,010 sf per floor
INCIDENTAL USE AREAS (Table 508.2)	
Furnace rooms where any piece of equipment is over 400,000 BTU per hour input	1 hr or provide automatic fire extinguishing system
Rooms with boilers where the largest piece of equipment is over 15 psi or 10 horsepower	1 hr or provide automatic fire extinguishing system
Storage Rooms over 100 sq ft	1 hr or provide automatic fire extinguishing system
FIRE RESISTANCE RATED CONSTRUCTION (Chapter 7)	
Maximum area of Exterior Wall Openings (Table 704.8)	
- Fire Separation Distance is > 30 feet (Table 602)	No Limit
- Party wall (Table 705.4)	3 hr
- Structural Frame	1 hr
- Exterior Bearing Wall	1 hr
- Interior Bearing Wall	1 hr
- Floor (Ceiling / Floor)	1 hr
- Roof (Ceiling / Roof) - No rating for structural members over 20'-0" or above any floor immediatly below	1 hr
- Interior Non-bearing walls	No rating
Shaft Enclosures (Section 707)	
707.2 Shaft Enclosure Required	
- Exception 2.1- Where the area of the floor opening between stories does not exceed twisce the horizontal projected area of the escalator or stairway and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M, this application is limited to openings that do not connect more than four stories.	
707.4 Fire-resistance rating	
- Not less than 2 hours where connecting more than 4 stories	
- Not less than 1 hour where connecting less than 4 stories	
707.14 Elevator, dumbwaiter and other hoistways.	
-Same as above	
MEANS OF EGRESS	
Occupant Load (Section 1004)	
-Basement Level (218 Occupants), Ground Level (178 Occupants), Level 1 (423 Occupants), Level 2 (404 Occupants), Level 3 (507 Occupants), Penthouse (10 Occupants)	TOTAL 1,751
Egress Width with Sprinkler System (Table 1005.1)	
- Stairways 0.2 inch per Occupant	
- Stairways 0.3 inch per Occupant for Meeting room per Section 1025.6	
-Other Egress Components	
- Exit width 0.15 inch per occupant	
- Exit width 0.2 inch per occupant ofr Meeting Room	
Accessible Means of Egress	
- Stairways	N/A
- Door	32"
Minmum Widths	
- Stairways	44"
Common path of egress travel (1014.3)	
- Shall not exceed more than 75 feet for Occupancy Group A and 100 feet for Occupancy Group B with sprinkler system	
Exit and Exit Access Doorways (1015.1)	
- >50 Occupants: 2 exits or exit access doorways minimum	
Exit Access Travel Distance (1016.1)	
- 250 feet for Occupancy Group A, 300 ft for Occupancy Group B w/ sprinkler	
Corridor Fire-Risistance Rating (Table 1017.1)	
- No rating required with Sprinkler System	
Dead-ends Corridor (1017.3)	
20'-0" max for A3 and 50'-0" max for B if sprinklered	
Number of Exits (Table 1019.1)	
1-500 Occupants equals 2 exits per story	
501-1,000 Occupants equals 3 exits per story	
Common Path of Egress Travel (1014.3)	N/A
75 feet for A3 occupancy and 100 feet for B occupancy with splinkler system	
Maximum Travel Distance (Table 1016.1)	
250 feet for A3 occupancy and 300 feet for B occupancy with splinkler system	

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Potter Lawson
15 ELLIS POTTER COURT
MADISON, WI 53711
PHONE: 608 274 2741

ARNOLD AND O'SHERIDAN INC
CONSULTING ENGINEERS
STRUCTURAL ■ CIVIL ■ HVAC ■ PLUMBING
ELECTRICAL ■ TECHNOLOGY
WWW.ARNOLDANDOSHERIDAN.COM

MECHANICAL
Henneman Engineering Inc.
Madison:
1232 Fourier Drive, Suite 101
Madison, Wisconsin 53717-1960
T 608.833.7000
F 608.833.6996
Email: info@henneman.com
Website: http://www.henneman.com
JOB NO. 10-6817

PHONE:

PHONE:

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CODE PLAN

G051

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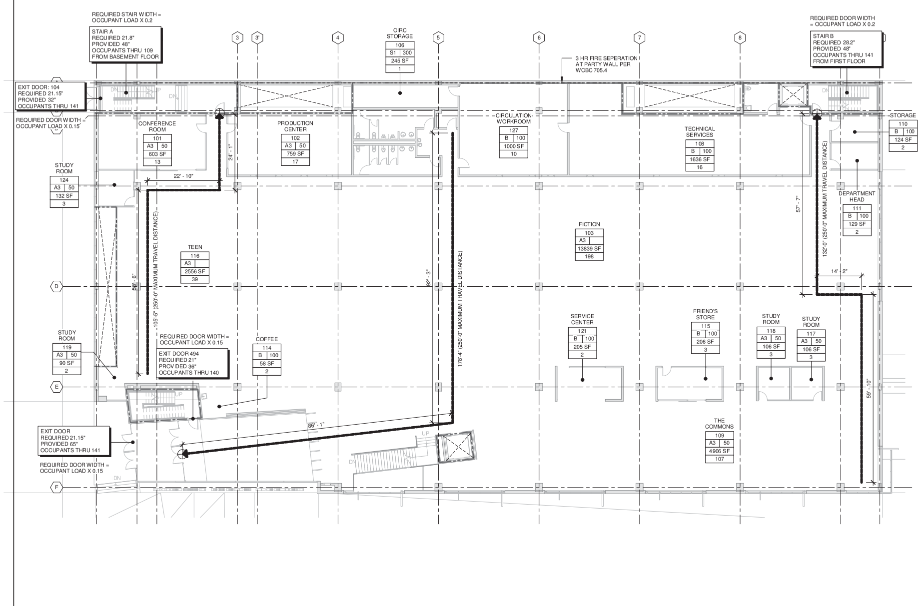
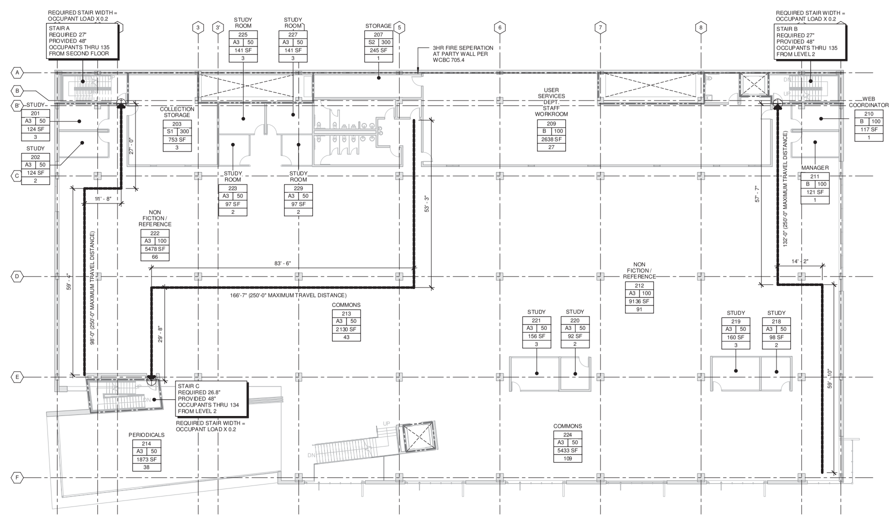

REQUIRED STAIR WIDTH = OCCUPANT LOAD X 0.2
STAIR A
REQUIRED 21.8"
PROVIDED 48"
OCCUPANTS THRU 109 FROM BASEMENT FLOOR
CIRC STORAGE 106 S1 300 245 SF 1
3 HR FIRE SEPERATION AT PARTY WALL PER WCBC 705.4
REQUIRED DOOR WIDTH = OCCUPANT LOAD X 0.2
STAIR B
REQUIRED 28.2"
PROVIDED 48"
OCCUPANTS THRU 141 FROM FIRST FLOOR
EXIT DOOR: 104
REQUIRED 21.15"
PROVIDED 32"
OCCUPANTS THRU 141
REQUIRED DOOR WIDTH = OCCUPANT LOAD X 0.15
CONFERENCE ROOM 101 A3 50 603 SF 13
PRODUCTION CENTER 102 A3 50 759 SF 17
CIRCULATION WORKROOM 127 B 100 1000 SF 10
TECHNICAL SERVICES 108 B 100 1636 SF 16
STORAGE 110 B 100 124 SF 2
STUDY ROOM 124 A3 50 132 SF 3
DEPARTMENT HEAD 111 B 100 129 SF 2
TEEN 116 A3 2556 SF 39
FICTION 103 A3 13839 SF 198
STUDY ROOM 119 A3 50 90 SF 2
REQUIRED DOOR WIDTH = OCCUPANT LOAD X 0.15
EXIT DOOR 494
REQUIRED 21"
PROVIDED 36"
OCCUPANTS THRU 140
COFFEE 114 B 100 58 SF 2
SERVICE CENTER 121 B 100 205 SF 2
FRIEND'S STORE 115 B 100 206 SF 3
STUDY ROOM 118 A3 50 106 SF 3
STUDY ROOM 117 A3 50 106 SF 3
EXIT DOOR
REQUIRED 21.15"
PROVIDED 65"
OCCUPANTS THRU 141
REQUIRED DOOR WIDTH = OCCUPANT LOAD X 0.15
THE COMMONS 109 A3 50 4906 SF 107
105'-5" (250'-0" MAXIMUM TRAVEL DISTANCE)
178'-4" (250'-0" MAXIMUM TRAVEL DISTANCE)
132'-0" (250'-0" MAXIMUM TRAVEL DISTANCE)

1 1ST FLOOR CODE PLAN
G052 1/16" = 1'-0"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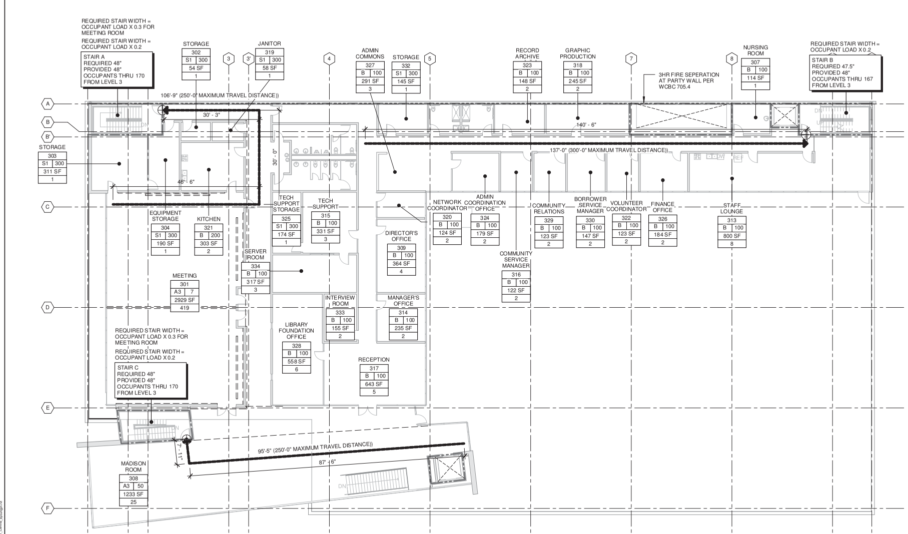
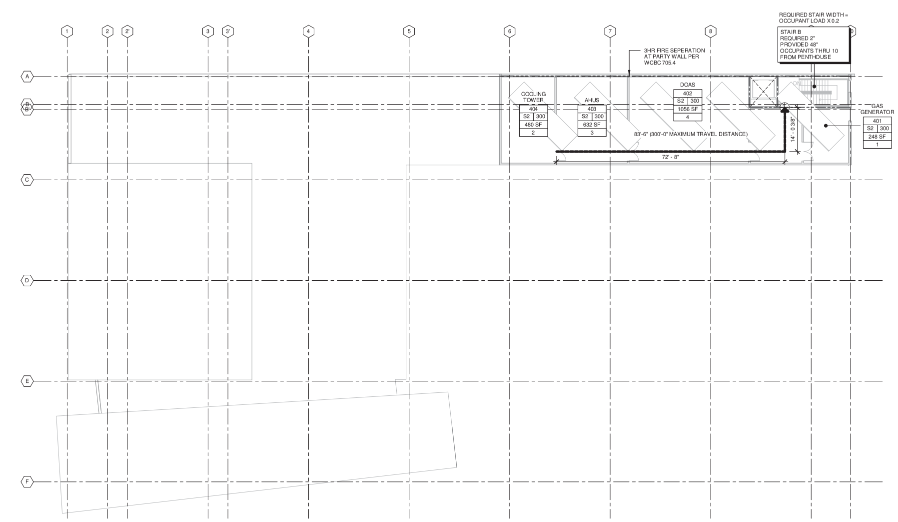
STAIR A
REQUIRED 27"
PROVIDED 48"
OCCUPANTS THRU 135 FROM SECOND FLOOR
STUDY ROOM 225 A3 50 141 SF 3
STUDY ROOM 227 A3 50 141 SF 3
STORAGE 207 S2 300 245 SF 1
3HR FIRE SEPERATION AT PARTY WALL PER WCBC 705.4
REQUIRED STAIR WIDTH = OCCUPANT LOAD X 0.2
STAIR B
REQUIRED 27"
PROVIDED 48"
OCCUPANTS THRU 135 FROM LEVEL 2
STUDY 201 A3 50 124 SF 3
STUDY 202 A3 50 124 SF 2
COLLECTION STORAGE 203 S1 300 753 SF 3
USER SERVICES DEPT STAFF WORKROOM 209 B 100 2638 SF 27
WEB COORDINATOR 210 B 100 117 SF 1
MANAGER 211 B 100 121 SF 1
STUDY ROOM 223 A3 50 97 SF 2
STUDY ROOM 229 A3 50 97 SF 2
NON FICTION / REFERENCE 222 A3 100 5478 SF 66
NON FICTION / REFERENCE 212 A3 100 9136 SF 91
COMMONS 213 A3 50 2130 SF 43
STUDY 221 A3 50 156 SF 3
STUDY 220 A3 50 92 SF 2
STUDY 219 A3 50 160 SF 3
STUDY 218 A3 50 98 SF 2
STAIR C
REQUIRED 26.8"
PROVIDED 48"
OCCUPANTS THRU 134 FROM LEVEL 2
REQUIRED STAIR WIDTH = OCCUPANT LOAD X 0.2
PERIODICALS 214 A3 50 1873 SF 38
COMMONS 224 A3 50 5433 SF 109
166'-7" (250'-0" MAXIMUM TRAVEL DISTANCE)
98'-0" (250'-0" MAXIMUM TRAVEL DISTANCE)
132'-0" (250'-0" MAXIMUM TRAVEL DISTANCE)

2 2ND FLOOR CODE PLAN
G052 1/16" = 1'-0"


REQUIRED STAIR WIDTH = OCCUPANT LOAD X 0.3 FOR MEETING ROOM
REQUIRED STAIR WIDTH = OCCUPANT LOAD X 0.2
STAIR A
REQUIRED 48"
PROVIDED 48"
OCCUPANTS THRU 170 FROM LEVEL 3
STORAGE 302 S1 300 54 SF 1
JANITOR 319 S1 300 58 SF 1
ADMIN COMMONS 327 B 100 291 SF 3
STORAGE 332 S1 300 145 SF 1
RECORD ARCHIVE 323 B 100 148 SF 2
GRAPHIC PRODUCTION 318 B 100 245 SF 3
3HR FIRE SEPERATION AT PARTY WALL PER WCBC 705.4
NURSING ROOM 307 B 100 114 SF 1
REQUIRED STAIR WIDTH = OCCUPANT LOAD X 0.2
STAIR B
REQUIRED 47.5"
PROVIDED 48"
OCCUPANTS THRU 167 FROM LEVEL 3
STORAGE 303 S1 300 311 SF 1
106'-9" (250'-0" MAXIMUM TRAVEL DISTANCE)
137'-0" (300'-0" MAXIMUM TRAVEL DISTANCE)
EQUIPMENT STORAGE 304 S1 300 190 SF 1
KITCHEN 321 B 200 303 SF 2
TECH SUPPORT STORAGE 325 S1 300 174 SF 1
TECH SUPPORT 315 B 100 331 SF 3
NETWORK COORDINATOR 320 B 100 124 SF 2
ADMIN COORDINATION OFFICE 324 B 100 179 SF 2
COMMUNITY RELATIONS 329 B 100 123 SF 2
BORROWER SERVICE MANAGER 330 B 100 147 SF 2
VOLUNTEER COORDINATOR 322 B 100 123 SF 2
FINANCE OFFICE 326 B 100 184 SF 2
STAFF LOUNGE 313 B 100 800 SF 8
DIRECTOR'S OFFICE 309 B 100 364 SF 4
SERVER ROOM 334 B 100 317 SF 3
COMMUNITY SERVICE MANAGER 316 B 100 122 SF 2
MEETING 301 A3 7 2929 SF 419
INTERVIEW ROOM 333 B 100 155 SF 2
MANAGER'S OFFICE 314 B 100 235 SF 2
LIBRARY FOUNDATION OFFICE 328 B 100 558 SF 6
RECEPTION 317 B 100 643 SF 5
REQUIRED STAIR WIDTH = OCCUPANT LOAD X 0.3 FOR MEETING ROOM
REQUIRED STAIR WIDTH = OCCUPANT LOAD X 0.2
STAIR C
REQUIRED 48"
PROVIDED 48"
OCCUPANTS THRU 170 FROM LEVEL 3
95'-5" (250'-0" MAXIMUM TRAVEL DISTANCE)
MADISON ROOM 308 A3 50 1233 SF 25

3 THIRD FLOOR CODE PLAN
G052 1/16" = 1'-0"


3HR FIRE SEPERATION AT PARTY WALL PER WCBC 705.4
REQUIRED STAIR WIDTH = OCCUPANT LOAD X 0.2
STAIR B
REQUIRED 2"
PROVIDED 48"
OCCUPANTS THRU 10 FROM PENTHOUSE
COOLING TOWER 404 S2 300 480 SF 2
AHUS 403 S2 300 632 SF 3
DOAS 402 S2 300 1056 SF 4
GAS GENERATOR 401 S2 300 248 SF 1
83'-6" (300'-0" MAXIMUM TRAVEL DISTANCE)
72'-8"

4 PENTHOUSE CODE PLAN
G052 1/16" = 1'-0"

MS&R
Meyer Scherer & Rockcastle, Ltd
710 South 2nd Street, 8th Floor
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Signature:
Print Name:
Date: License No.:

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PROJECT NO.: 2010041.00
PROJECT PHASE: SCHEMATIC DESIGN
DRAWN BY: Author
CHECKED BY: Checker

CODE PLAN

G052

NOT FOR CONSTRUCTION

DEMOLITION KEY NOTES	
NUMBER	NOTE
1	REMOVE EXISTING CMU WALL AND PREPARE TO RECEIVE NEW FLOOR
2	REMOVE EXISTING DOOR AND PREPARE TO RECEIVE NEW DOOR OR FINISH
3	REMOVE EXISTING STAIR AND RAILING, PREPARE TO RECEIVE NEW STL PAN CONCRETE STAIR OR NEW FINISH
4	REMOVE EXISTING ELEVATOR AND ASSOCIATED ACCESSORIES ONLY AND PREPARE TO RECEIVE NEW ELEVATOR - REMOVE EXISTING JACK CASING IF REQUIRED
5	REMOVE PART OF EXISTING WALL FOR NEW OPENING OR DOOR -SEE DOOR SCHEDULE FOR DIMENSION
6	REMOVE EXISTING FLOOR TO RECEIVE NEW ELEVATOR SHAFT AND ELEVATOR PIT -COORDINATE EXACT SIZE AND LOCATION WITH ELEVATOR CONTRACTOR
7	REMOVE EXISTING ELEVATOR AND SHAFT COMPLETELY AND PREPARE TO RECEIVE NEW FLOOR
8	REMOVE EXISTING MEZZANINE FLOOR COMPLETELY AND PREPARE TO RECEIVE NEW FLOOR AS SHOWN ON PLAN
9	REMOVE EXISTING WINDOW AND PREPARE TO RECEIVE NEW WALL AND FINISH
10	REMOVE EXISTING FLOOR AS SHOWN ON PLAN AND PREPARE TO RECEIVE NEW FINISH
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13	REMOVE EXISTING STOREFRONT WINDOW AND DOOR, PREPARE TO RECEIVE NEW FLOOR AND FINISH
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27	REMOVE EXISTING SITE PLANTER WALL
28	BOHROD MURAL TO REMAIN AND PROTECTED FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION
29	REMOVE EXISTING STONE CORNICE
30	REMOVE EXISTING FOUNDATION WALL AND BRICK

WALL AND PARTITION DEMOLITION KEY

EXISTING WALLS AND PARTITIONS
WALLS AND PARTITIONS TO BE REMOVED

DEMOLITION GENERAL NOTES

1. REFER TO AD201-202 FOR THE SCOPE OF EXTERIOR WALL DEMOLITION.
2. EXISTING ITEM / OBJECT TO BE REMOVED SHOWN – – – – – – – – – – –
3. NOTIFY ARCHITECT IMMEDIATELY IF FIELD CONDITIONS ARE DIFFERENT THAN SHOWN ON PLAN.
4. REMOVE EXISTING ELEVATOR FRAMES AND SILLS, REMOVE EXISTING JACK CASING IF REQUIRED. ALL LOOSE DEBRIS TO BE REMOVED BY THE DEMOLITION CONTRACTOR.
5. ALL ITEMS INDICATED TO BE SALVAGED AND REMOVED TO BE PROTECTED FROM DAMAGE DURING REMOVAL. STORE IN PROTECTED LOCATION FOR REUSE.
6. ALL ITEMS INDICATED TO REMAIN ON BUILDING INTERIOR TO BE PROTECTED FROM DAMAGE DURING DEMOLITION WORK.
7.COORDINATE ALL THE DEMOLITION SHEETS WITH ALL NEW CONSTRUCTION SHEETS. NOTIFY ARCHITECT WITH ANY DISCREPANCIES.
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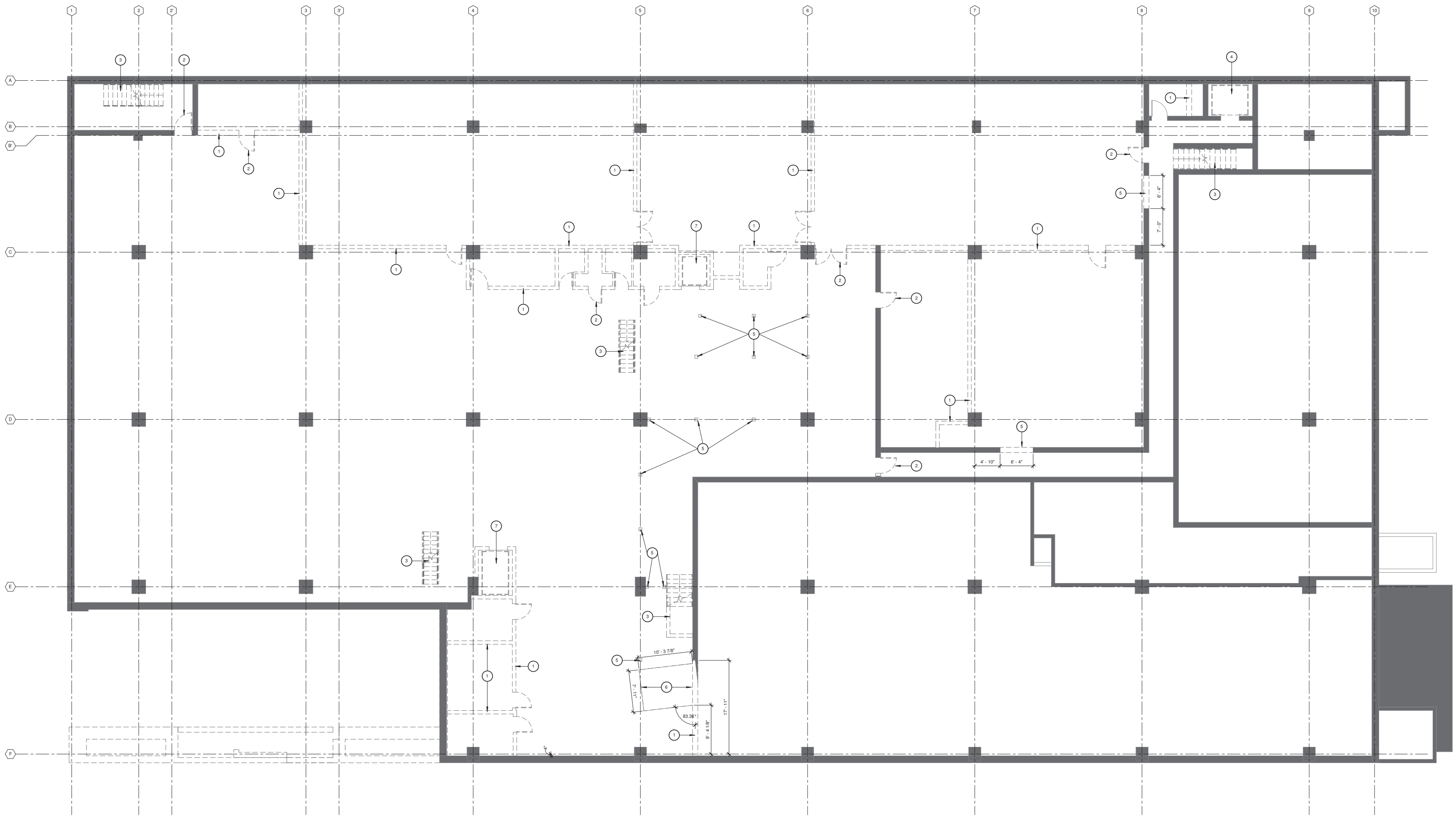
11. ALL EXISTING PLUMBING FIXTURES TO BE REMOVED UNLESS NOTED OTHERWISE.



1 BASEMENT FLOOR DEMOLITION PLAN
AD100.1 1/8" = 1'-0"

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MADISON, WI 53711
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BASEMENT FLOOR DEMOLITION PLAN

AD100.1

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WALL AND PARTITION DEMOLITION KEY

EXISTING WALLS AND PARTITIONS
WALLS AND PARTITIONS TO BE REMOVED

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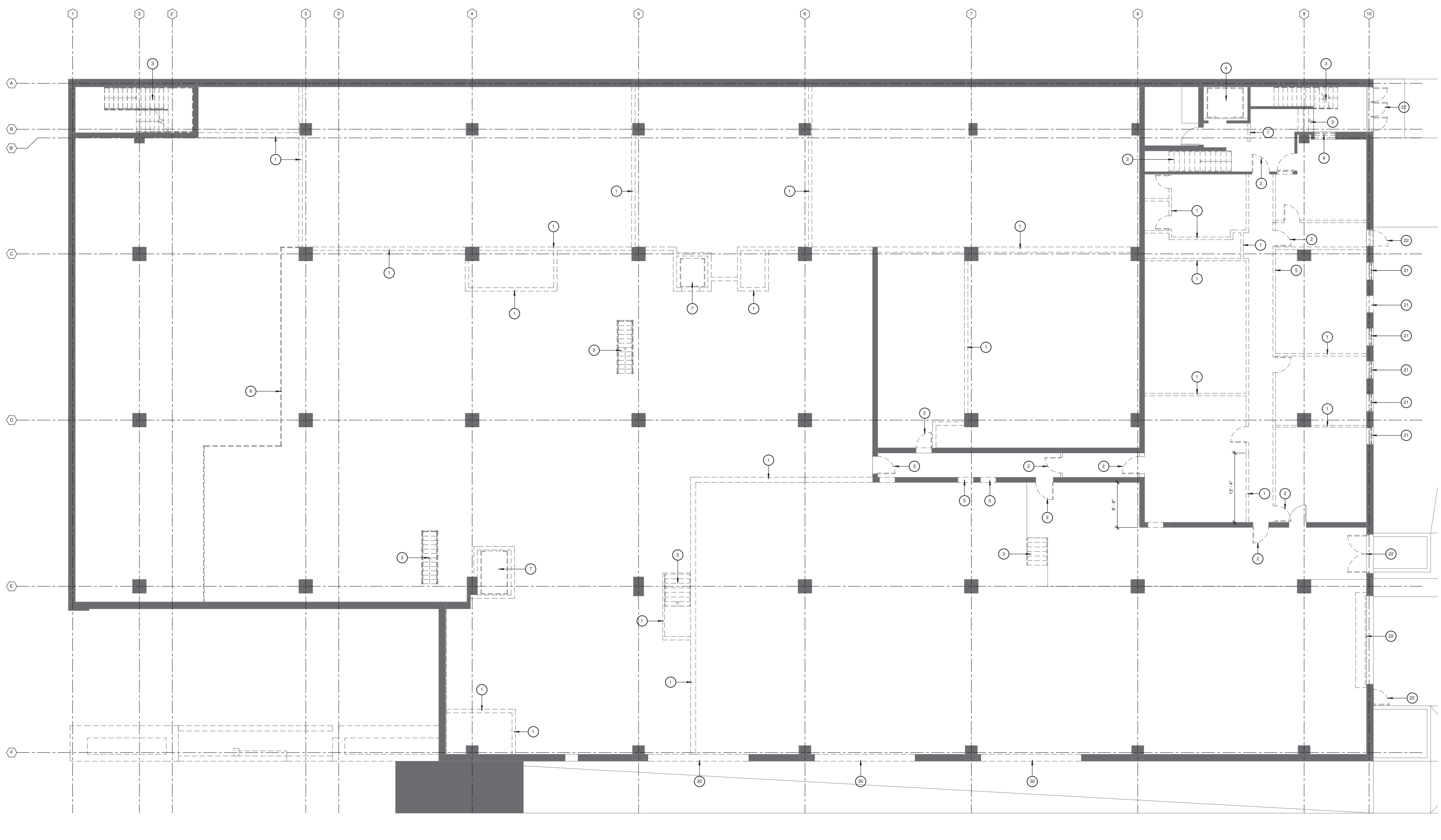

1 GROUND FLOOR DEMOLITION PLAN
AD100.2 1/8" = 1'-0"

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15 ELLIS POTTER COURT
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Signature: ______
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Date: ______ License No: ______

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PROJECT PHASE SCHEMATIC DESIGN
DRAWN BY: Author CHECKED BY: Checker

GROUND FLOOR DEMOLITION PLAN

AD100.2

NOT FOR CONSTRUCTION

DEMOLITION KEY NOTES	
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WALL AND PARTITION DEMOLITION KEY

EXISTING WALLS AND PARTITIONS
WALLS AND PARTITIONS TO BE REMOVED

DEMOLITION GENERAL NOTES

1. REFER TO AD201-202 FOR THE SCOPE OF EXTERIOR WALL DEMOLITION.

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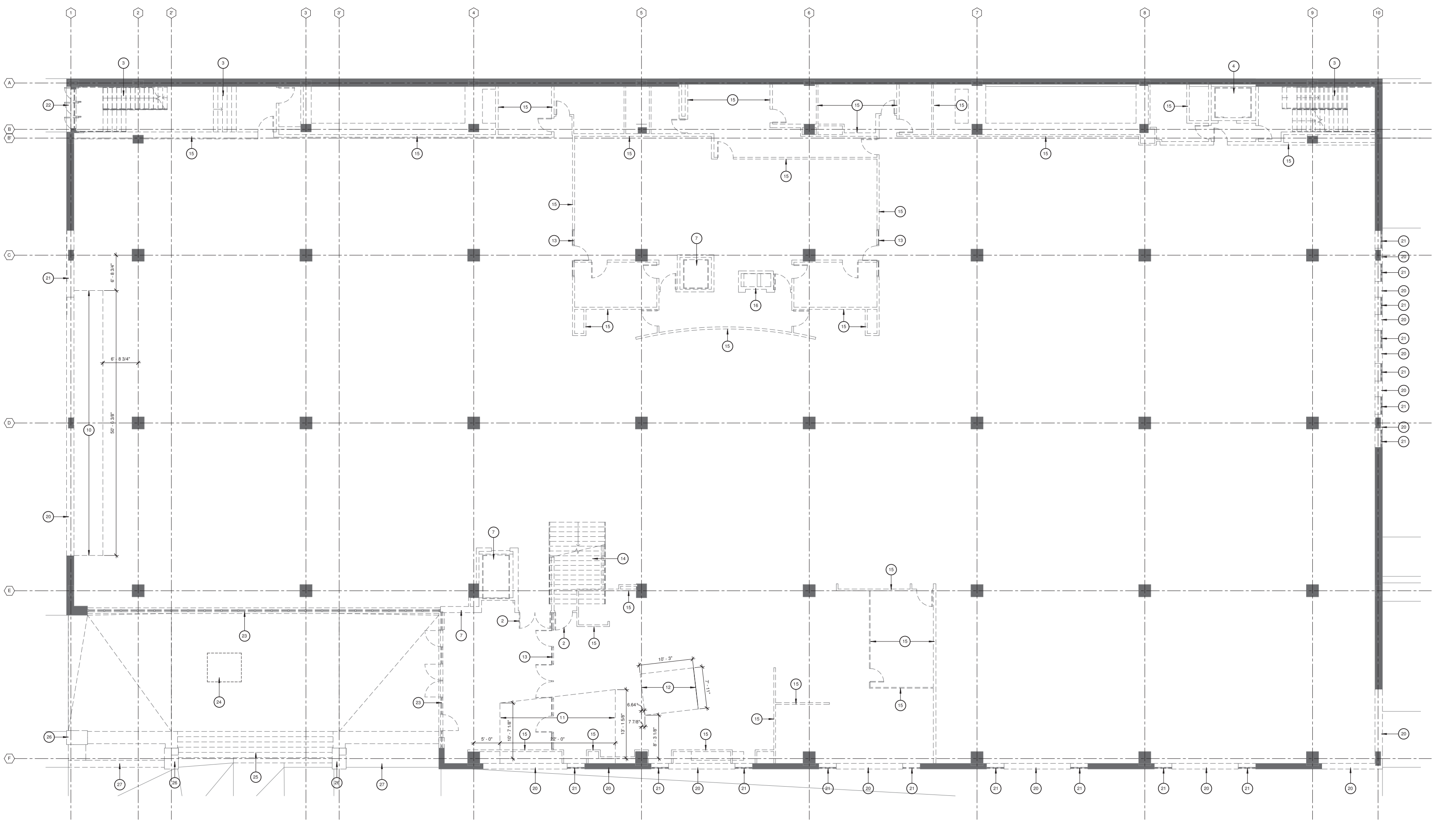

1 1ST FLOOR DEMOLITION PLAN
AD101 1/8" = 1'-0"

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15 ELLIS POTTER COURT
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PROJECT PHASE: SCHEMATIC DESIGN
DRAWN BY: Author
CHECKED BY: Checker

1ST FLOOR DEMOLITION PLAN

AD101

NOT FOR CONSTRUCTION

DEMOLITION KEY NOTES	
NUMBER	NOTE
1	REMOVE EXISTING CMU WALL AND PREPARE TO RECEIVE NEW FLOOR
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WALL AND PARTITION DEMOLITION KEY

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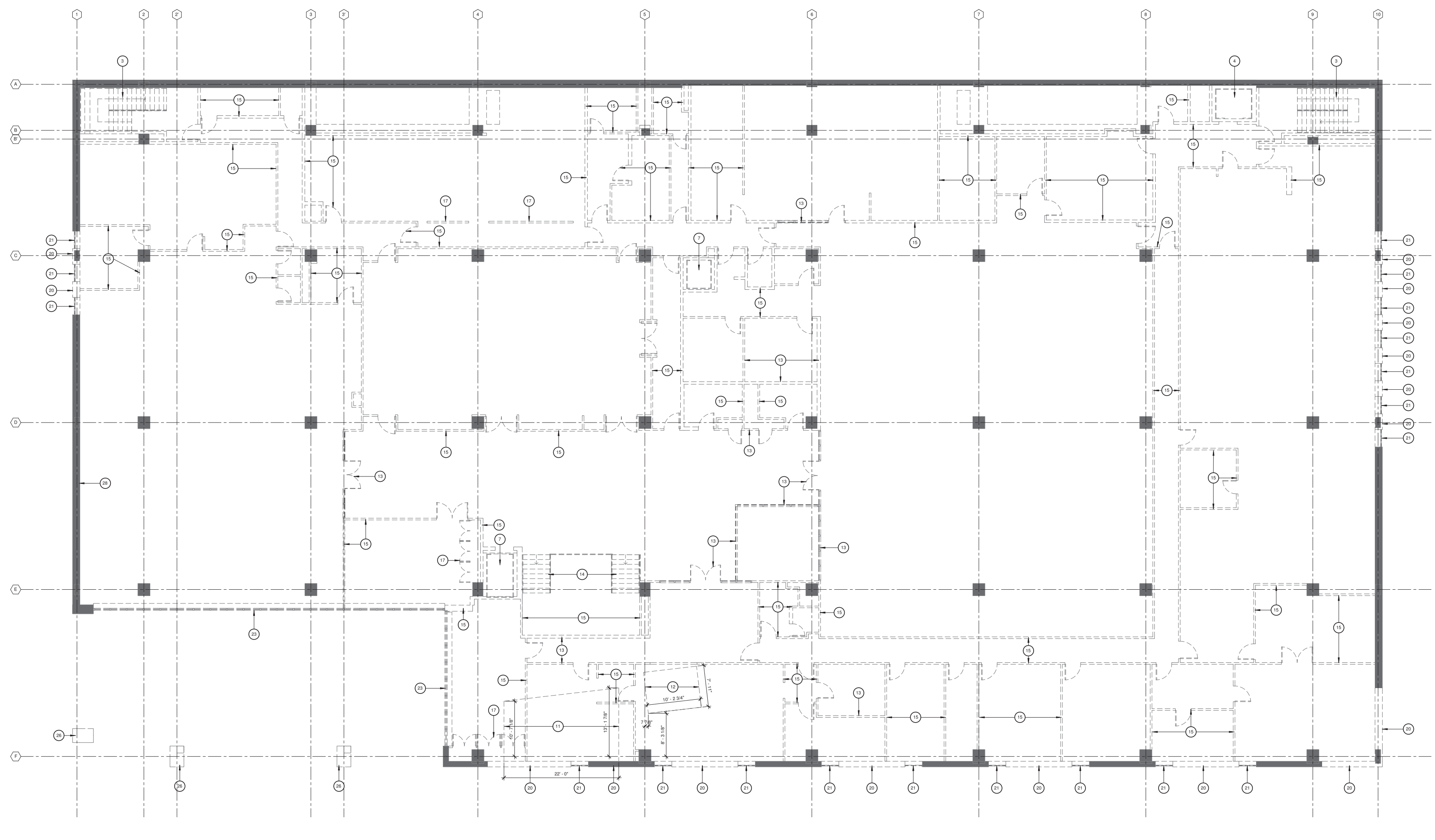

1 2ND FLOOR DEMOLITION PLAN
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DRAWN BY: Author CHECKED BY: Checker

2ND FLOOR DEMOLITION PLAN

AD102

NOT FOR CONSTRUCTION

DEMOLITION KEY NOTES	
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17	REMOVE EXISTING MILLWORK COMPLETELY
18	REMOVE EXISTING RIGID ROOF INSULATION AND ROOFING COMPLETELY AND PREPARE TO RECEIVE NEW FLOOR AND ROOF
19	REMOVE EXISTING FLOOR AS SHOWN ON PLAN AND PREPARE TO RECEIVE NEW MECHANICAL SHAFT-VERIFY THE SIZE AND LOCATION WITH THE EXISTING SHAFT OPENING BELOW
20	REMOVE EXISTING BRICK AND BACKUP WALL
21	REMOVE EXISTING WINDOW FRAMING SYSTEM, STONE INFILL PANELS & BACKUP WALL AT ALL WINDOW LOCATIONS
22	REMOVE EXISTING EXTERIOR DOORS AND FRAMES
23	REMOVE EXISTING CURTAIN WALL AND BACKUP WALL
24	RELOCATE EXISTING ART SCULPTURE
25	REMOVE EXISTING SITE STAIRS
26	REMOVE EXISTING STONE PIERS AT ENTRY COURT
27	REMOVE EXISTING SITE PLANTER WALL
28	BOHROD MURAL TO REMAIN AND PROTECTED FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION
29	REMOVE EXISTING STONE CORNICE
30	REMOVE EXISTING FOUNDATION WALL AND BRICK

DEMOLITION GENERAL NOTES

1. REFER TO AD201-202 FOR THE SCOPE OF EXTERIOR WALL DEMOLITION.

2. EXISTING ITEM / OBJECT TO BE REMOVED SHOWN — — — — — — — — — — — —

3. NOTIFY ARCHITECT IMMEDIATELY IF FIELD CONDITIONS ARE DIFFERENT THAN SHOWN ON PLAN.

4. REMOVE EXISTING ELEVATOR FRAMES AND SILLS, REMOVE EXISTING JACK CASING IF REQUIRED. ALL LOOSE DEBRIS TO BE REMOVED BY THE DEMOLITION CONTRACTOR.

5. ALL ITEMS INDICATED TO BE SALVAGED AND REMOVED TO BE PROTECTED FROM DAMAGE DURING REMOVAL. STORE IN PROTECTED LOCATION FOR REUSE.

6. ALL ITEMS INDICATED TO REMAIN ON BUILDING INTERIOR TO BE PROTECTED FROM DAMAGE DURING DEMOLITION WORK.

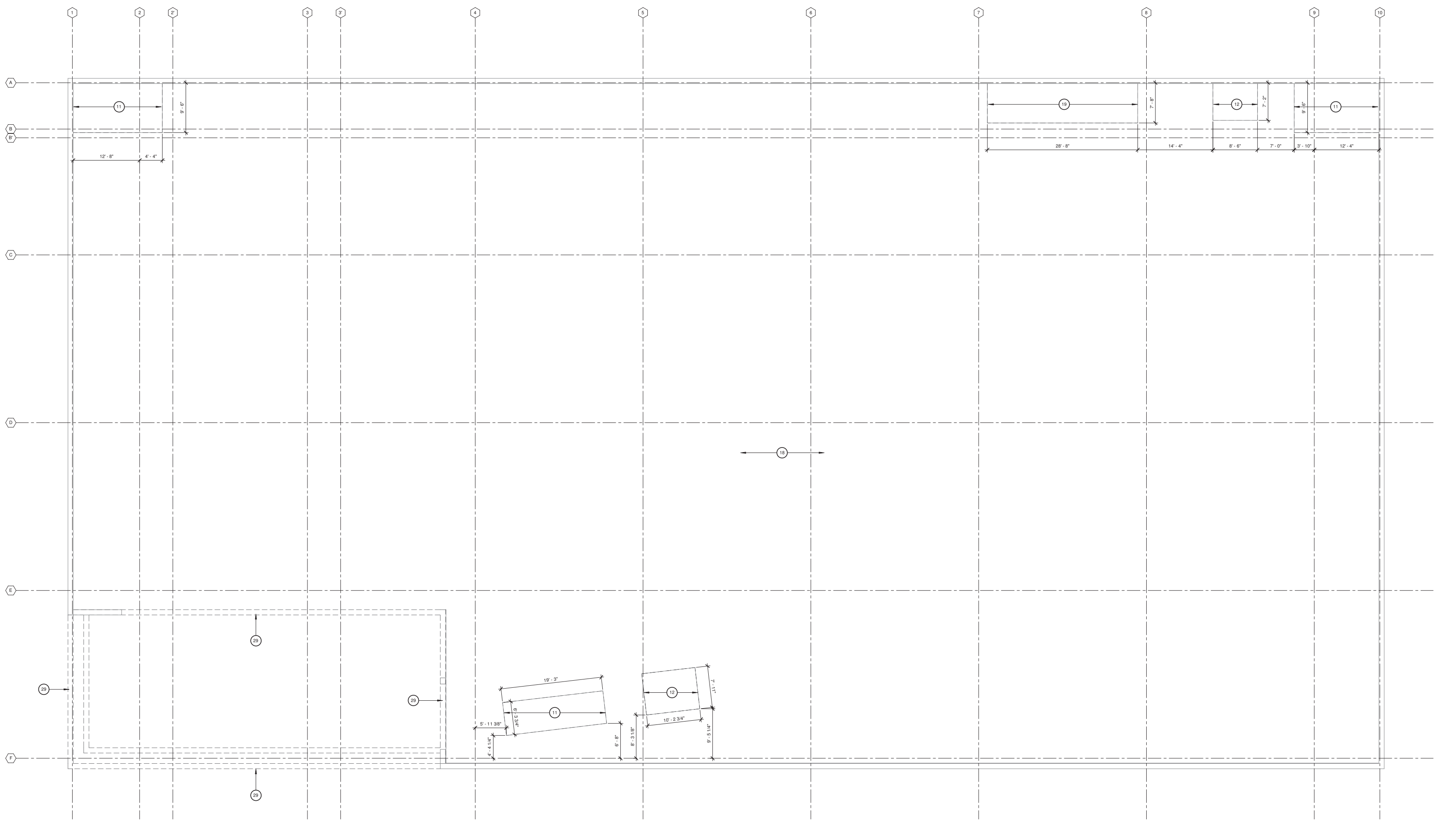
7.COORDINATE ALL THE DEMOLITION SHEETS WITH ALL NEW CONSTRUCTION SHEETS. NOTIFY ARCHITECT WITH ANY DISCREPANCIES.

8. ALL EXISTING MILLWORK AND CABINETRY TO BE REMOVED UNLESS NOTED OTHERWISE.

9. ALL EXISTING INTERIOR WALLS TO BE REMOVED UNLESS NOTED OTHERWISE.

10. ALL EXISTING CEILING FINISH AND SOFFIT TO BE REMOVED UNLESS NOTED OTHERWISE.

11. ALL EXISTING PLUMBING FIXTURES TO BE REMOVED UNLESS NOTED OTHERWISE.



1 ROOF DEMOLITION PLAN
AD103 1/8" = 1'-0"

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MS&R

LOCAL ARCHITECT + ELECTRICAL
Potter Lawson
15 ELLIS POTTER COURT
MADISON, WI 53711
PHONE: 608 274 2741

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WWW.ARNOLDANDOSHERIDAN.COM

MECHANICAL
Henneman Engineering Inc.
Madison:
1232 Fourier Drive, Suite 101 T 608.833.7000
Madison, Wisconsin 53717-1960 F 608.833.6996
Email: info@henneman.com
Website: http://www.henneman.com

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ROOF DEMOLITION PLAN

AD103

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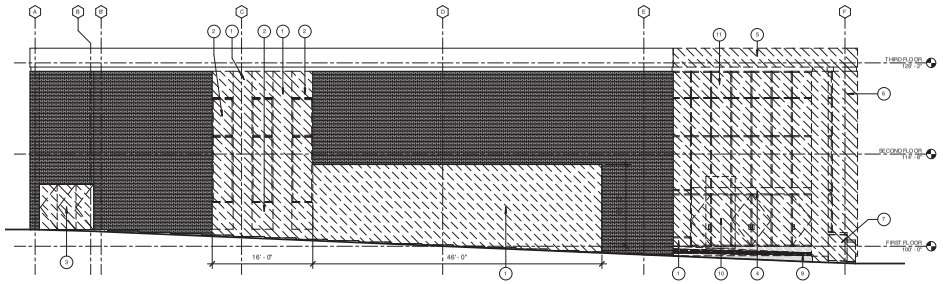
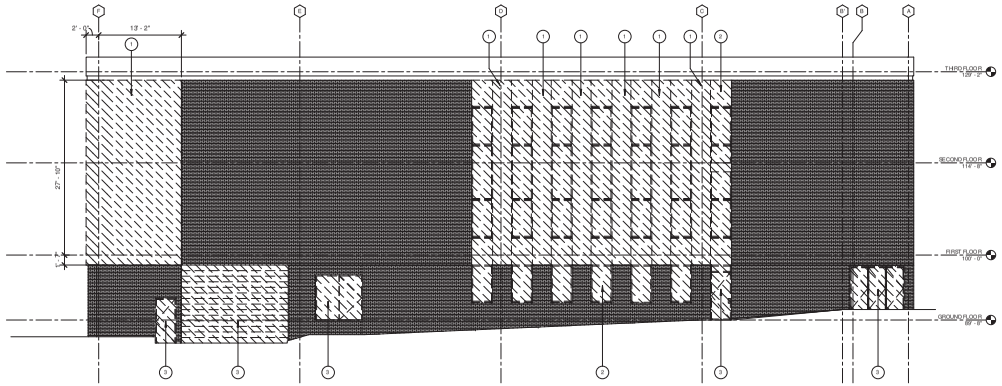
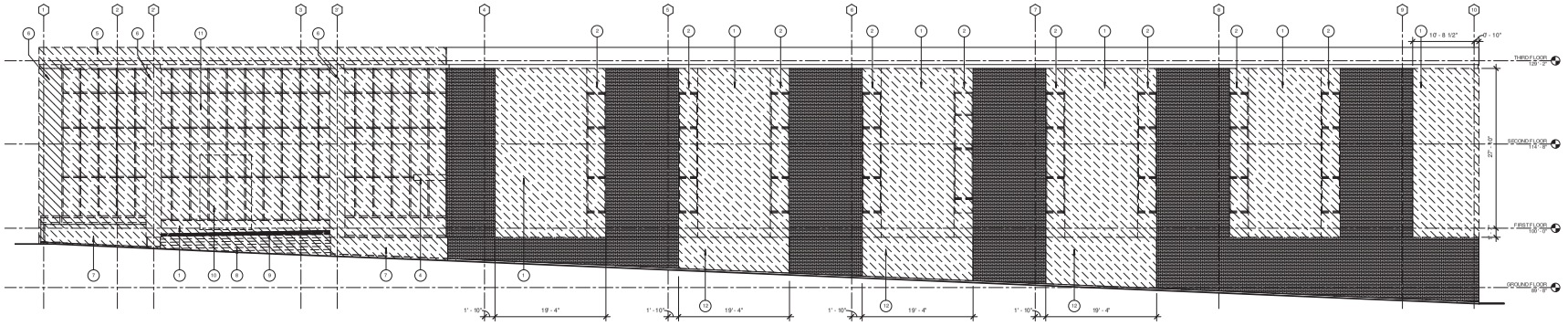


1 EAST DEMOLITION ELEVATION
AD201 1/8" = 1'-0"



2 WEST DEMOLITION ELEVATION
AD201 1/8" = 1'-0"



3 NORTH DEMOLITION ELEVATION
AD201 1/8" = 1'-0"

WALL AND PARTITION DEMOLITION KEY

EXISTING WALLS AND PARTITIONS
WALLS AND WINDOW FRAMING TO BE REMOVED

DEMOLITION GENERAL NOTES

1. REFER TO AD100.1-102 FOR THE SCOPE OF INTERIOR DEMOLITION.
2. EXISTING ITEM / OBJECT TO BE REMOVED SHOWN.
3. NOTIFY ARCHITECT IMMEDIATELY IF FIELD CONDITIONS ARE DIFFERENT THAN SHOWN ON PLAN.
4. ALL LOOSE DEBRIS TO BE REMOVED BY THE DEMOLITION CONTRACTOR.
5. ALL ITEMS INDICATED TO BE SALVAGED AND REMOVED TO BE PROTECTED FROM DAMAGE DURING REMOVAL. STORE IN PROTECTED LOCATION FOR REUSE.
6. ALL ITEMS INDICATED TO REMAIN ON BUILDING EXTERIOR TO BE PROTECTED FROM DAMAGE DURING DEMOLITION WORK.
7. ALL DIMENSIONS SHOWN ARE APPROXIMATELY NOTED. ACTUAL DIMENSION NEED TO BE VERIFIED IN FIELD.

NUMBER	NOTE
1	REMOVE EXISTING BRICK & BACKUP WALL
2	REMOVE EXISTING WINDOW FRAMING SYSTEM, STONE INFILL PANELS & BACKUP WALL AT ALL WINDOW LOCATIONS
3	REMOVE EXISTING DOORS & FRAMES
4	REMOVE EXISTING ENTRY CANOPY
5	REMOVE EXISTING STONE CORNICE
6	REMOVE EXISTING STONE PIERS AT ENTRY COURT
7	REMOVE EXISTING SITE PLANTER WALLS
8	REMOVE EXISTING SITE STAIRS
9	REMOVE EXISTING SITE CONCRETE
10	RELOCATE EXISTING ART SCULPTURE
11	REMOVE EXISTING CURTAINWALL & BACKUP WALL
12	REMOVE EXISTING BRICK & FOUNDATION WALL

MSR
Meyer Scherer & Rockcastle, Ltd.
LOCAL ARCHITECT + ELECTRICAL
Potter Lawson
15 ELLIS POTTER COURT
MADISON, WI 53711
PHONE: 608.274.2741
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EXTERIOR DEMOLITION ELEVATIONS

AD201

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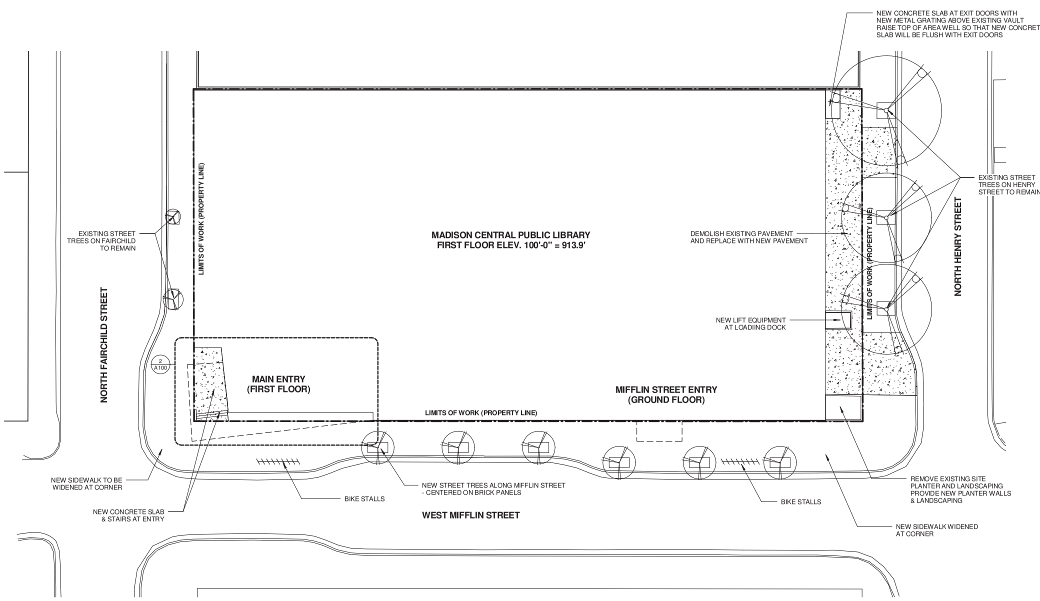
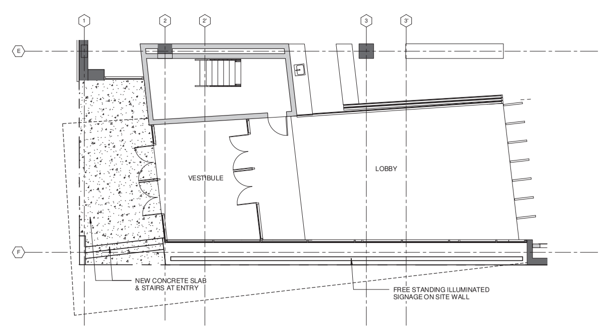

NEW CONCRETE SLAB AT EXIT DOORS WITH NEW METAL GRATING ABOVE EXISTING VAULT RAISE TOP OF AREA WELL SO THAT NEW CONCRETE SLAB WILL BE FLUSH WITH EXIT DOORS
EXISTING STREET TREES ON HENRY STREET TO REMAIN
NORTH HENRY STREET
DEMOLISH EXISTING PAVEMENT AND REPLACE WITH NEW PAVEMENT
NEW LIFT EQUIPMENT AT LOADING DOCK
LIMITS OF WORK (PROPERTY LINE)
MADISON CENTRAL PUBLIC LIBRARY
FIRST FLOOR ELEV. 100'-0" = 913.9'
EXISTING STREET TREES ON FAIRCHILD TO REMAIN
NORTH FAIRCHILD STREET
MAIN ENTRY (FIRST FLOOR)
MIFFLIN STREET ENTRY (GROUND FLOOR)
NEW SIDEWALK TO BE WIDENED AT CORNER
NEW CONCRETE SLAB & STAIRS AT ENTRY
BIKE STALLS
NEW STREET TREES ALONG MIFFLIN STREET - CENTERED ON BRICK PANELS
WEST MIFFLIN STREET
REMOVE EXISTING SITE PLANTER AND LANDSCAPING PROVIDE NEW PLANTER WALLS & LANDSCAPING
NEW SIDEWALK WIDENED AT CORNER

1 SITE PLAN
A100 1" = 20'-0"

TRUE NORTH PLAN NORTH

ALL SITE WORK OUTSIDE THE PROPERTY LINE WILL BE DONE BY THE CITY OF MADISON



2 ENTRY PLAN
A100 1/8" = 1'-0"

TRUE NORTH PLAN NORTH

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LOCAL ARCHITECT + ELECTRICAL
Potter Lawson
15 ELLIS POTTER COURT
MADISON, WI 53711
PHONE: 608 274 2741

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WWW.ARNOLDANDOSHERIDAN.COM

MECHANICAL
Henneman Engineering Inc.
1232 Fourier Drive, Suite 101
Madison, Wisconsin 53717-1960
info@henneman.com
http://www.henneman.com
JOB NO. 10-6817

PHONE:

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SITE PLAN

A100

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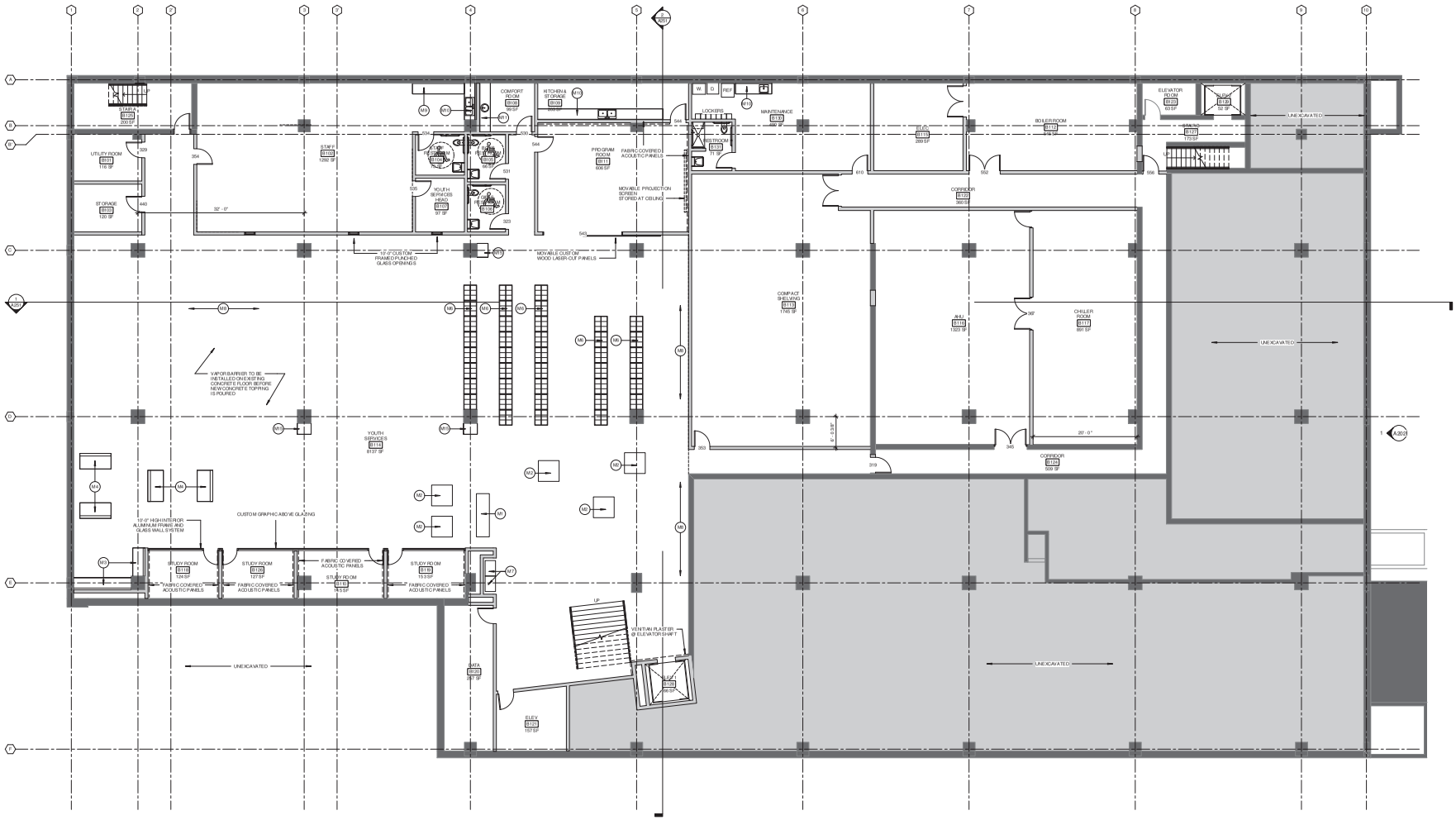

1 BASEMENT FLOOR PLAN

A100.1 1/8" = 1'-0"

MILLWORK KEY NOTES	
NUMBER	NOTE
M1	MOBILE DESK WITH POWER/DATA CONNECTIONS & BUILT-IN STORAGE. SOLID SURFACE MATERIAL
M2	MOBILE DISPLAY UNIT. SOLID SURFACE MATERIAL
M3	BUILT-IN BENCHES WITH BACKS. FABRIC WRAPPED
M4	MOBILE BENCHES WITH FABRIC WRAPPED SEAT AND SEAT BACK. SOLID SURFACE BACK
M5	CUSTOM MOBILE BOOK BINS. SOLID SURFACE MATERIAL WITH WOOD DIVIDERS
M7	SELF CHECK STATION WITH POWER/DATA CONNECTIONS. SOLID SURFACE MATERIAL
M8	SOLID SURFACE TRACKS TO HAVE SOLID SURFACE END PANELS & CANOPY TOPS. SEE FURNITURE PLANS FOR QUANTITIES
M9	LAMINATE COUNTER WITH 15" STORAGE ABOVE AND BELOW
M10	LAMINATE COUNTER WITH SINK. STORAGE ABOVE AND BELOW
M11	SOLID SURFACE COUNTER WITH SINK
M12	SOLID SURFACE EMR HEIGHT COUNTER
M13	COFFEE COUNTER WITH SINK AND STORAGE BELOW
M14	MASONITE WORKBENCH W/ OPEN SHELVING BELOW
M15	SOLID SURFACE COUNTER W/ POWER & DATA
M16	SOLID SURFACE COUNTER & BOBS WITH PLEIS BELOW
M17	LAMINATE COUNTER WITH STORAGE BELOW

TRUE NORTH N PLAN NORTH

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LOCAL ARCHITECT + ELECTRICAL
Potter Lawson
15 ELLIS POTTER COURT
MADISON, WI 53711
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BASEMENT FLOOR PLAN

A100.1

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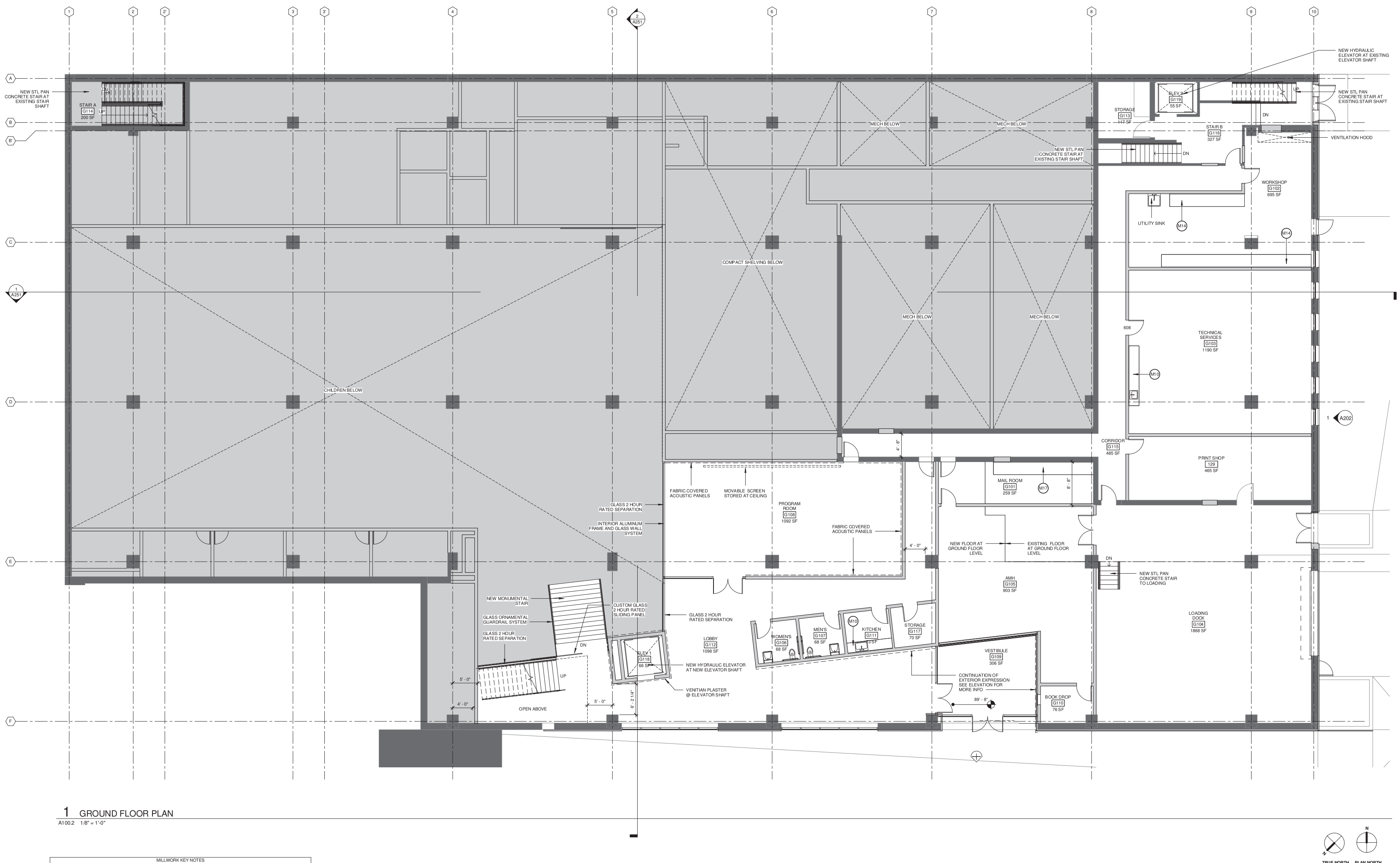
STAIR A
G114
200 SF
NEW STL PAN CONCRETE STAIR AT EXISTING STAIR SHAFT
CHILDREN BELOW
COMPACT SHELVING BELOW
MECH BELOW
MECH BELOW
MECH BELOW
MECH BELOW
NEW STL PAN CONCRETE STAIR AT EXISTING STAIR SHAFT
NEW HYDRAULIC ELEVATOR AT EXISTING ELEVATOR SHAFT
ELEV 2
G119
55 SF
STORAGE
G113
STAIR B
G116
327 SF
VENTILATION HOOD
WORKSHOP
G102
695 SF
UTILITY SINK
TECHNICAL SERVICES
G103
1190 SF
CORRIDOR
G115
485 SF
PRINT SHOP
129
465 SF
MAIL ROOM
G101
259 SF
NEW FLOOR AT GROUND FLOOR LEVEL
EXISTING FLOOR AT GROUND FLOOR LEVEL
NEW STL PAN CONCRETE STAIR TO LOADING
AMH
G105
903 SF
LOADING DOCK
G104
1868 SF
FABRIC COVERED ACOUSTIC PANELS
MOVABLE SCREEN STORED AT CEILING
PROGRAM ROOM
G108
1092 SF
FABRIC COVERED ACOUSTIC PANELS
GLASS 2 HOUR RATED SEPARATION
INTERIOR ALUMINUM FRAME AND GLASS WALL SYSTEM
NEW MONUMENTAL STAIR
GLASS ORNAMENTAL GUARDRAIL SYSTEM
GLASS 2 HOUR RATED SEPARATION
CUSTOM GLASS 2 HOUR RATED SLIDING PANEL
GLASS 2 HOUR RATED SEPARATION
LOBBY
G112
1098 SF
ELEV 1
G118
66 SF
NEW HYDRAULIC ELEVATOR AT NEW ELEVATOR SHAFT
VENITIAN PLASTER @ ELEVATOR SHAFT
WOMEN'S
G106
68 SF
MEN'S
G107
68 SF
KITCHEN
G111
STORAGE
G117
70 SF
VESTIBULE
G109
306 SF
CONTINUATION OF EXTERIOR EXPRESSION SEE ELEVATION FOR MORE INFO
BOOK DROP
G110
76 SF
OPEN ABOVE
TRUE NORTH
PLAN NORTH

1 GROUND FLOOR PLAN

A100.2 1/8" = 1'-0"

MILLWORK KEY NOTES	
NUMBER	NOTE
M1	MOBILE DESK WITH POWER/DATA CONNECTIONS & BUILT-IN STORAGE. SOLID SURFACE MATERIAL
M2	MOBILE DISPLAY UNIT. SOLID SURFACE MATERIAL
M3	BUILT IN BENCHES WITH BACKS. FABRIC WRAPPED
M4	MOBILE BENCHES WITH FABRIC WRAPPED SEAT AND SEAT BACK. SOLID SURFACE BACK
M6	CUSTOM MOBILE BOOK BINS. SOLID SURFACE MATERIAL WITH WOOD DIVIDERS
M7	SELF CHECK STATION WITH POWER/DATA CONNECTIONS. SOLID SURFACE MATERIAL
M8	ALL PUBLIC STACKS TO HAVE SOLID SURFACE END PANELS & CANOPY TOPS. SEE FURNITURE PLANS FOR QUANTITIES
M9	LAMINATE COUNTER WITH STORAGE ABOVE AND BELOW
M10	LAMINATE COUNTER WITH SINK. STORAGE ABOVE AND BELOW
M11	SOLID SURFACE COUNTER WITH SINK
M12	SOLID SURFACE BAR HEIGHT COUNTER
M13	COFFEE COUNTER WITH SINK AND STORAGE BELOW
M14	MASONITE WORKBENCH W/ OPEN SHELVING BELOW
M15	SOLID SURFACE COUNTER W/ POWER & DATA
M16	SOLID SURFACE COUNTER & SIDES WITH FILES BELOW
M17	LAMINATE COUNTER WITH STORAGE BELOW

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GROUND FLOOR PLAN

A100.2

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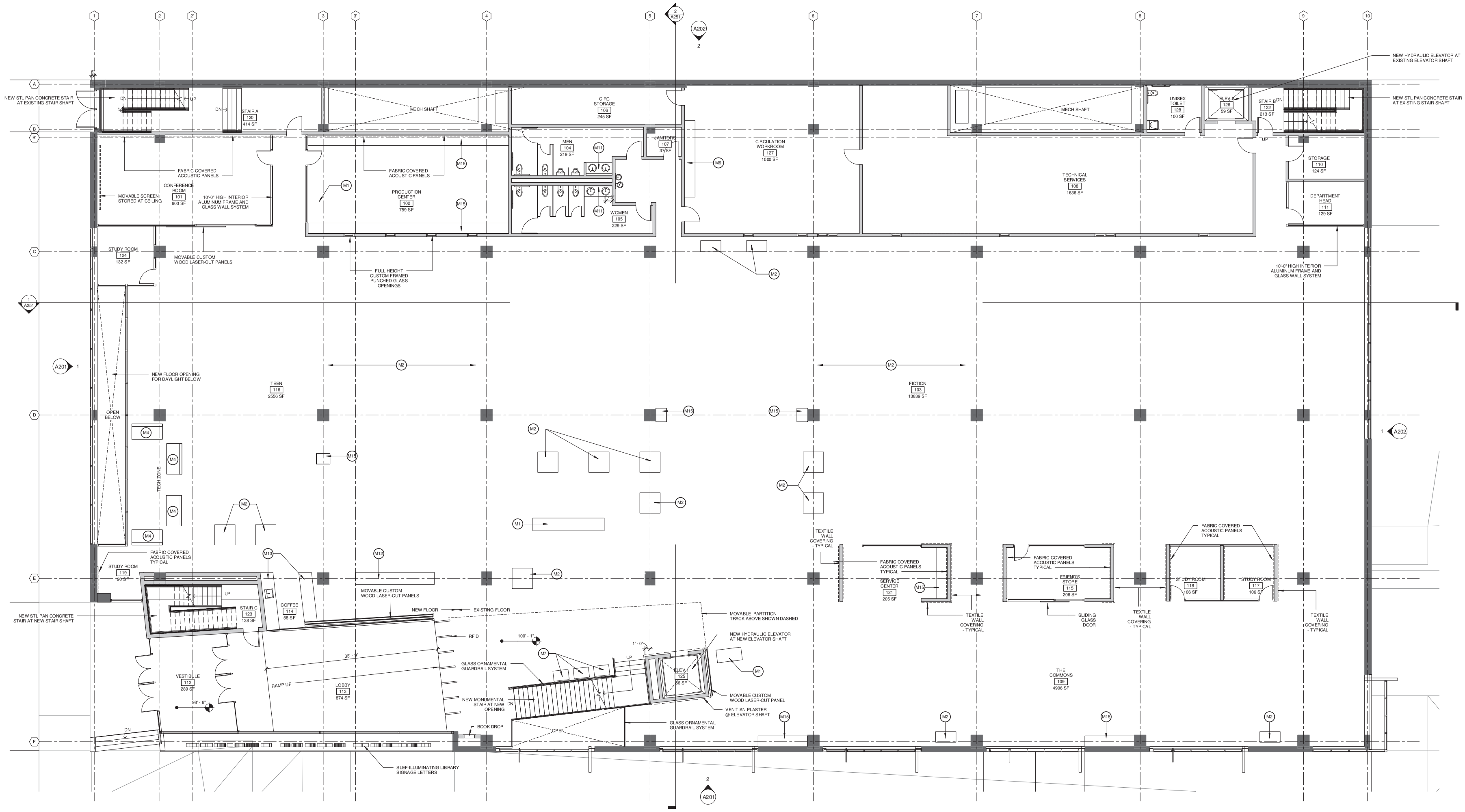
NEW STL PAN CONCRETE STAIR AT EXISTING STAIR SHAFT
STAIR A
120
414 SF
MECH SHAFT
CIRC STORAGE
106
245 SF
MEN
104
219 SF
JANITORS
107
37 SF
CIRCULATION WORKROOM
127
1000 SF
TECHNICAL SERVICES
108
1636 SF
UNISEX TOILET
128
100 SF
ELEV 1
126
59 SF
STAIR B
122
213 SF
NEW HYDRAULIC ELEVATOR AT EXISTING ELEVATOR SHAFT
STORAGE
110
124 SF
DEPARTMENT HEAD
111
129 SF
FABRIC COVERED ACOUSTIC PANELS
CONFERENCE ROOM
101
603 SF
MOVABLE SCREEN: STORED AT CEILING
10'-0" HIGH INTERIOR ALUMINUM FRAME AND GLASS WALL SYSTEM
PRODUCTION CENTER
102
759 SF
WOMEN
105
229 SF
STUDY ROOM
124
132 SF
MOVABLE CUSTOM WOOD LASER-CUT PANELS
FULL HEIGHT CUSTOM FRAMED PUNCHED GLASS OPENINGS
NEW FLOOR OPENING FOR DAYLIGHT BELOW
TEEN
116
2556 SF
FICTION
103
13839 SF
OPEN BELOW
TECH ZONE
STUDY ROOM
119
90 SF
STAIR C
123
138 SF
COFFEE
114
58 SF
NEW STL PAN CONCRETE STAIR AT NEW STAIR SHAFT
NEW FLOOR
EXISTING FLOOR
RFID
GLASS ORNAMENTAL GUARDRAIL SYSTEM
VESTIBULE
112
289 SF
RAMP UP
LOBBY
113
874 SF
NEW MONUMENTAL STAIR AT NEW OPENING
BOOK DROP
SLEF-ILLUMINATING LIBRARY SIGNAGE LETTERS
MOVABLE PARTITION TRACK ABOVE SHOWN DASHED
NEW HYDRAULIC ELEVATOR AT NEW ELEVATOR SHAFT
ELEV 2
125
66 SF
MOVABLE CUSTOM WOOD LASER-CUT PANEL
VENITIAN PLASTER @ ELEVATOR SHAFT
TEXTILE WALL COVERING - TYPICAL
SERVICE CENTER
121
205 SF
FRIEND'S STORE
115
206 SF
SLIDING GLASS DOOR
STUDY ROOM
118
106 SF
STUDY ROOM
117
106 SF
THE COMMONS
109
4906 SF
TRUE NORTH
PLAN NORTH

1 1ST FLOOR PLAN
A101 1/8" = 1'-0"

MILLWORK KEY NOTES	
NUMBER	NOTE
M1	MOBILE DESK WITH POWER/DATA CONNECTIONS & BUILT-IN STORAGE. SOLID SURFACE MATERIAL
M2	MOBILE DISPLAY UNIT. SOLID SURFACE MATERIAL
M3	BUILT IN BENCHES WITH BACKS. FABRIC WRAPPED
M4	MOBILE BENCHES WITH FABRIC WRAPPED SEAT AND SEAT BACK. SOLID SURFACE BACK
M6	CUSTOM MOBILE BOOK BINS. SOLID SURFACE MATERIAL WITH WOOD DIVIDERS
M7	SELF CHECK STATION WITH POWER/DATA CONNECTIONS. SOLID SURFACE MATERIAL
M8	ALL PUBLIC STACKS TO HAVE SOLID SURFACE END PANELS & CANOPY TOPS. SEE FURNITURE PLANS FOR QUANTITIES
M9	LAMINATE COUNTER WITH STORAGE ABOVE AND BELOW
M10	LAMINATE COUNTER WITH SINK. STORAGE ABOVE AND BELOW
M11	SOLID SURFACE COUNTER WITH SINK
M12	SOLID SURFACE BAR HEIGHT COUNTER
M13	COFFEE COUNTER WITH SINK AND STORAGE BELOW
M14	MASONITE WORKBENCH W/ OPEN SHELVING BELOW
M15	SOLID SURFACE COUNTER W/ POWER & DATA
M16	SOLID SURFACE COUNTER & SIDES WITH FILES BELOW
M17	LAMINATE COUNTER WITH STORAGE BELOW

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Potter Lawson
15 ELLIS POTTER COURT
MADISON, WI 53711
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Madison:
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1ST FLOOR PLAN

A101

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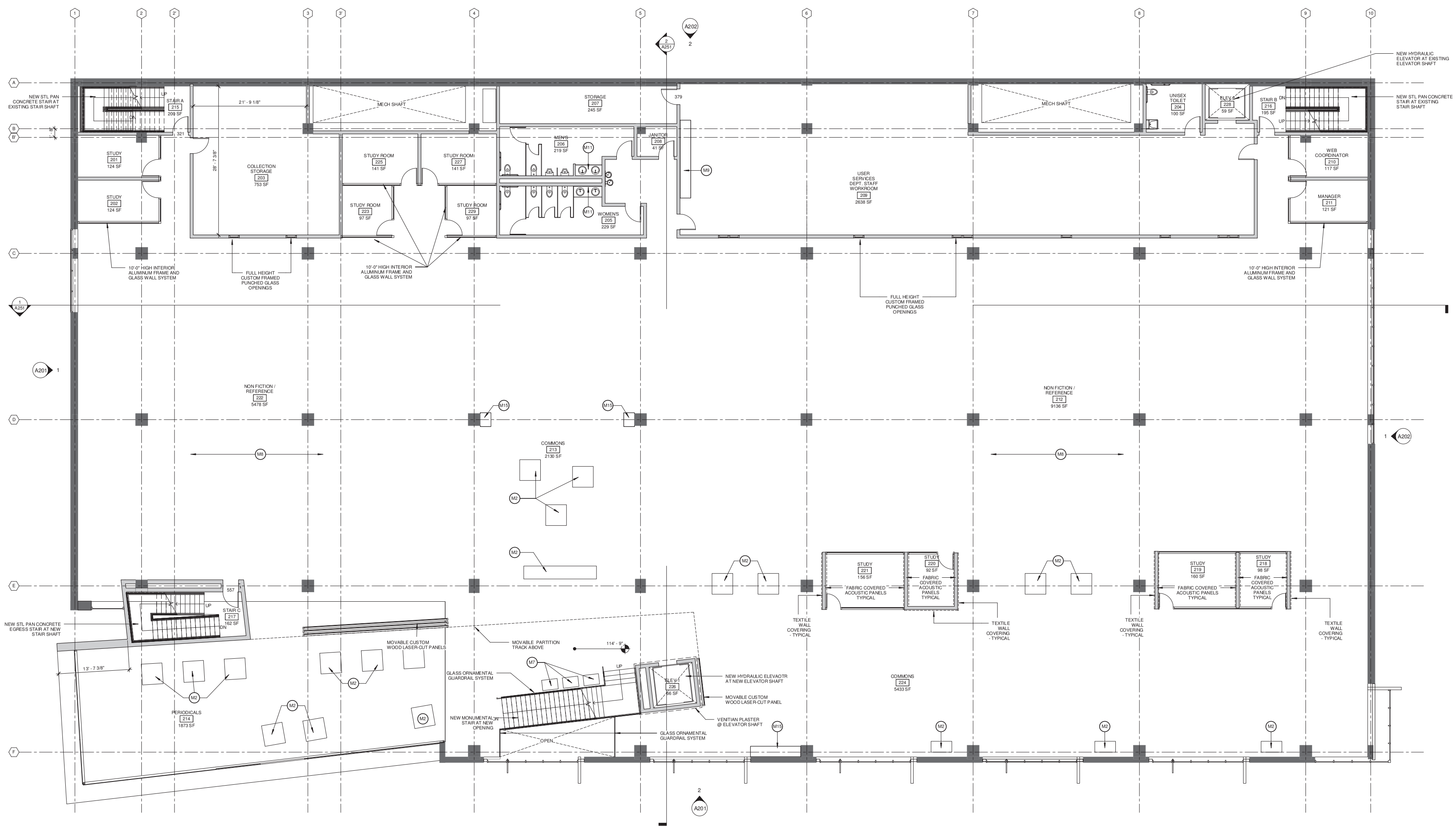
NEW STL PAN CONCRETE STAIR AT EXISTING STAIR SHAFT
STAIR A 215 209 SF
STUDY 201 124 SF
STUDY 202 124 SF
COLLECTION STORAGE 203 753 SF
MECH SHAFT
STUDY ROOM 225 141 SF
STUDY ROOM 227 141 SF
STUDY ROOM 223 97 SF
STUDY ROOM 229 97 SF
STORAGE 207 245 SF
MEN'S 206 219 SF
WOMEN'S 205 229 SF
JANITOR 208 41 SF
USER SERVICES DEPT. STAFF WORKROOM 209 2638 SF
UNISEX TOILET 204 100 SF
ELEV 228 59 SF
STAIR B 216 195 SF
NEW HYDRAULIC ELEVATOR AT EXISTING ELEVATOR SHAFT
WEB COORDINATOR 210 117 SF
MANAGER 211 121 SF
10'-0" HIGH INTERIOR ALUMINUM FRAME AND GLASS WALL SYSTEM
FULL HEIGHT CUSTOM FRAMED PUNCHED GLASS OPENINGS
NON FICTION / REFERENCE 222 5478 SF
COMMONS 213 2130 SF
NON FICTION / REFERENCE 212 9136 SF
STUDY 221 156 SF
STUDY 220 92 SF
STUDY 219 160 SF
STUDY 218 98 SF
FABRIC COVERED ACOUSTIC PANELS TYPICAL
TEXTILE WALL COVERING - TYPICAL
NEW STL PAN CONCRETE EGRESS STAIR AT NEW STAIR SHAFT
STAIR C 217 162 SF
MOVABLE CUSTOM WOOD LASER-CUT PANELS
MOVABLE PARTITION TRACK ABOVE
GLASS ORNAMENTAL GUARDRAIL SYSTEM
NEW MONUMENTAL STAIR AT NEW OPENING
ELEV 1 226 66 SF
NEW HYDRAULIC ELEVAOTR AT NEW ELEVATOR SHAFT
MOVABLE CUSTOM WOOD LASER-CUT PANEL
VENITIAN PLASTER @ ELEVATOR SHAFT
PERIODICALS 214 1873 SF
COMMONS 224 5433 SF
OPEN
TRUE NORTH
PLAN NORTH

1 2ND FLOOR PLAN
A102 1/8" = 1'-0"

MILLWORK KEY NOTES	
NUMBER	NOTE
M1	MOBILE DESK WITH POWER/DATA CONNECTIONS & BUILT-IN STORAGE. SOLID SURFACE MATERIAL
M2	MOBILE DISPLAY UNIT. SOLID SURFACE MATERIAL
M3	BUILT IN BENCHES WITH BACKS. FABRIC WRAPPED
M4	MOBILE BENCHES WITH FABRIC WRAPPED SEAT AND SEAT BACK. SOLID SURFACE BACK
M6	CUSTOM MOBILE BOOK BINS. SOLID SURFACE MATERIAL WITH WOOD DIVIDERS
M7	SELF CHECK STATION WITH POWER/DATA CONNECTIONS. SOLID SURFACE MATERIAL
M8	ALL PUBLIC STACKS TO HAVE SOLID SURFACE END PANELS & CANOPY TOPS. SEE FURNITURE PLANS FOR QUANTITIES
M9	LAMINATE COUNTER WITH STORAGE ABOVE AND BELOW
M10	LAMINATE COUNTER WITH SINK. STORAGE ABOVE AND BELOW
M11	SOLID SURFACE COUNTER WITH SINK
M12	SOLID SURFACE BAR HEIGHT COUNTER
M13	COFFEE COUNTER WITH SINK AND STORAGE BELOW
M14	MASONITE WORKBENCH W/ OPEN SHELVING BELOW
M15	SOLID SURFACE COUNTER W/ POWER & DATA
M16	SOLID SURFACE COUNTER & SIDES WITH FILES BELOW
M17	LAMINATE COUNTER WITH STORAGE BELOW

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2ND FLOOR PLAN

A102

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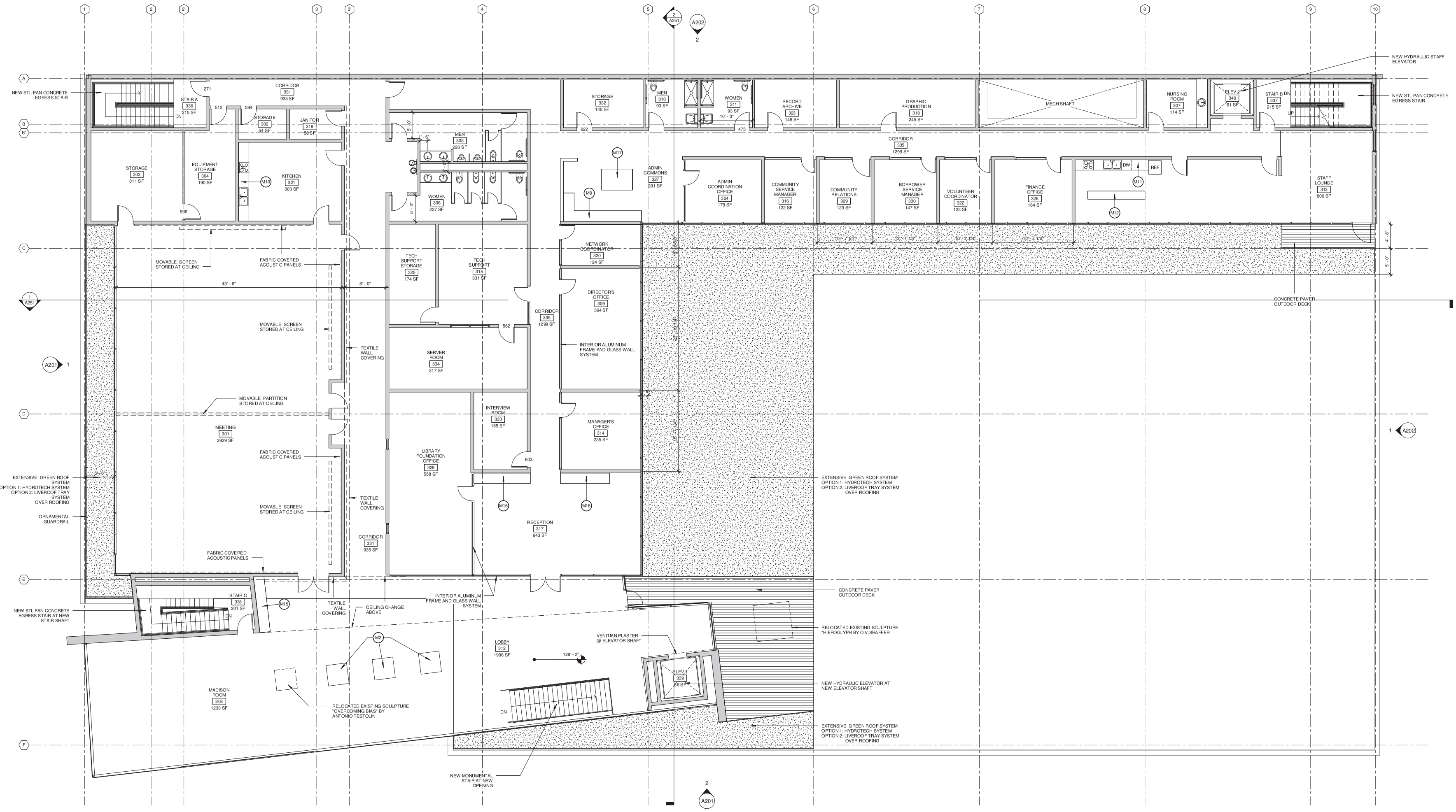
NEW STL PAN CONCRETE EGRESS STAIR
STAIR A 336 215 SF
CORRIDOR 331 935 SF
STORAGE 302 54 SF
JANITOR 319 58 SF
STORAGE 303 311 SF
EQUIPMENT STORAGE 304 190 SF
KITCHEN 321 303 SF
MEN 305 226 SF
WOMEN 306 227 SF
STORAGE 332 145 SF
MEN 310 93 SF
WOMEN 311 93 SF
RECORD ARCHIVE 325 148 SF
GRAPHIC PRODUCTION 318 245 SF
MECH SHAFT
NURSING ROOM 307 114 SF
ELEV 2 340 61 SF
STAIR B 337 215 SF
NEW HYDRAULIC STAFF ELEVATOR
CORRIDOR 335 1299 SF
ADMIN COMMONS 327 291 SF
ADMIN COORDINATION OFFICE 324 179 SF
COMMUNITY SERVICE MANAGER 316 122 SF
COMMUNITY RELATIONS 329 123 SF
BORROWER SERVICE MANAGER 330 147 SF
VOLUNTEER COORDINATOR 322 123 SF
FINANCE OFFICE 326 184 SF
STAFF LOUNGE 313 800 SF
MOVABLE SCREEN STORED AT CEILING
FABRIC COVERED ACOUSTIC PANELS
TECH SUPPORT STORAGE 325 174 SF
TECH SUPPORT 315 331 SF
NETWORK COORDINATOR 320 124 SF
DIRECTOR'S OFFICE 309 364 SF
CORRIDOR 335 1299 SF
INTERIOR ALUMINUM FRAME AND GLASS WALL SYSTEM
CONCRETE PAVER OUTDOOR DECK
SERVER ROOM 334 317 SF
TEXTILE WALL COVERING
MOVABLE PARTITION STORED AT CEILING
MEETING 301 2929 SF
INTERVIEW ROOM 333 155 SF
MANAGER'S OFFICE 314 235 SF
LIBRARY FOUNDATION OFFICE 328 558 SF
EXTENSIVE GREEN ROOF SYSTEM OPTION 1: HYDROTECH SYSTEM OPTION 2: LIVEROOF TRAY SYSTEM OVER ROOFING
ORNAMENTAL GUARDRAIL
RECEPTION 317 643 SF
CORRIDOR 331 935 SF
STAIR C 338 201 SF
NEW STL PAN CONCRETE EGRESS STAIR AT NEW STAIR SHAFT
CEILING CHANGE ABOVE
LOBBY 312 1998 SF
VENITIAN PLASTER @ ELEVATOR SHAFT
RELOCATED EXISTING SCULPTURE "HIEROGLYPH BY O.V.SHAFFER
ELEV 1 339 66 SF
NEW HYDRAULIC ELEVATOR AT NEW ELEVATOR SHAFT
MADISON ROOM 308 1233 SF
RELOCATED EXISTING SCULPTURE "OVERCOMING BIAS" BY ANTONIO TESTOLIN
NEW MONUMENTAL STAIR AT NEW OPENING
DN
UP

1 THIRD FLOOR PLAN

A103 1/8" = 1'-0"

MILLWORK KEY NOTES	
NUMBER	NOTE
M1	MOBILE DESK WITH POWER/DATA CONNECTIONS & BUILT-IN STORAGE. SOLID SURFACE MATERIAL
M2	MOBILE DISPLAY UNIT. SOLID SURFACE MATERIAL
M3	BUILT IN BENCHES WITH BACKS. FABRIC WRAPPED
M4	MOBILE BENCHES WITH FABRIC WRAPPED SEAT AND SEAT BACK. SOLID SURFACE BACK
M6	CUSTOM MOBILE BOOK BINS. SOLID SURFACE MATERIAL WITH WOOD DIVIDERS
M7	SELF CHECK STATION WITH POWER/DATA CONNECTIONS. SOLID SURFACE MATERIAL
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M9	LAMINATE COUNTER WITH STORAGE ABOVE AND BELOW
M10	LAMINATE COUNTER WITH SINK. STORAGE ABOVE AND BELOW
M11	SOLID SURFACE COUNTER WITH SINK
M12	SOLID SURFACE BAR HEIGHT COUNTER
M13	COFFEE COUNTER WITH SINK AND STORAGE BELOW
M14	MASONITE WORKBENCH W/ OPEN SHELVING BELOW
M15	SOLID SURFACE COUNTER W/ POWER & DATA
M16	SOLID SURFACE COUNTER & SIDES WITH FILES BELOW
M17	LAMINATE COUNTER WITH STORAGE BELOW

TRUE NORTH PLAN NORTH

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3RD FLOOR PLAN

A103

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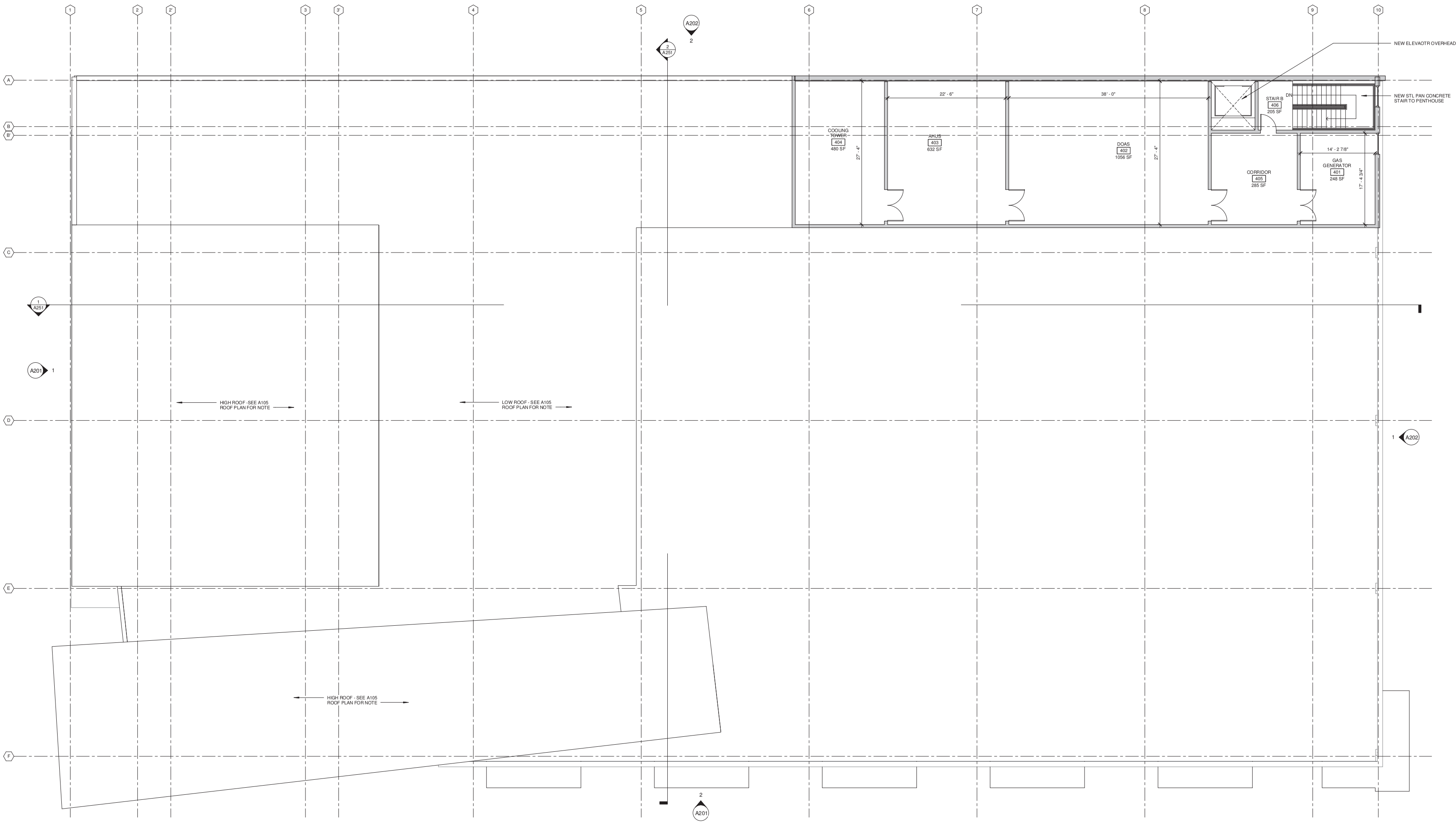

1 PENTHOUSE
A104 1/8" = 1'-0"

TRUE NORTH PLAN NORTH

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PENTHOUSE FLOOR PLAN

A104

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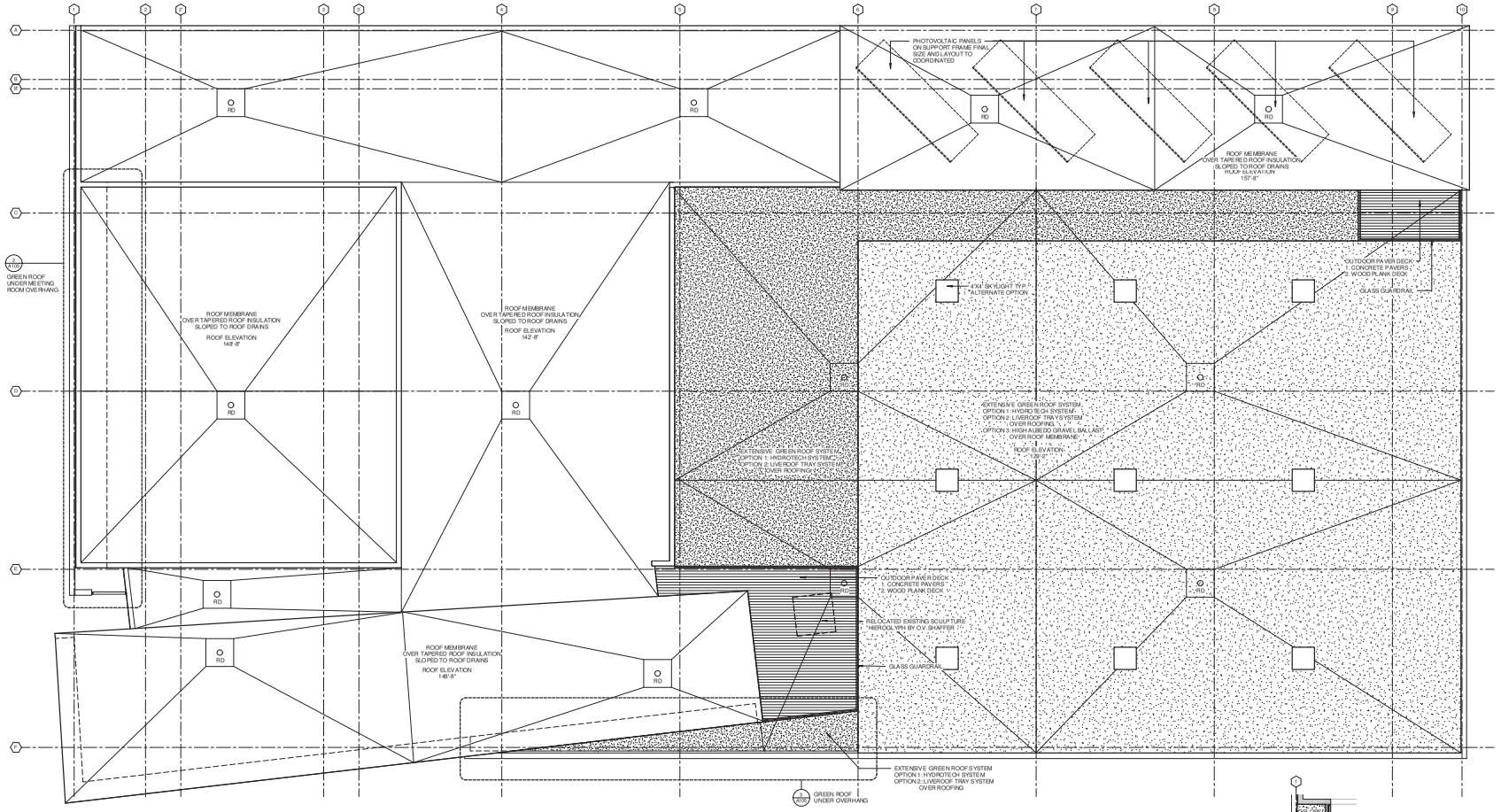
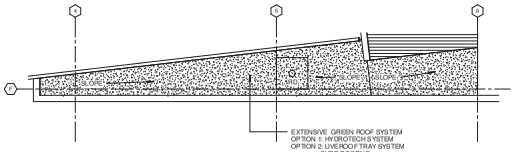


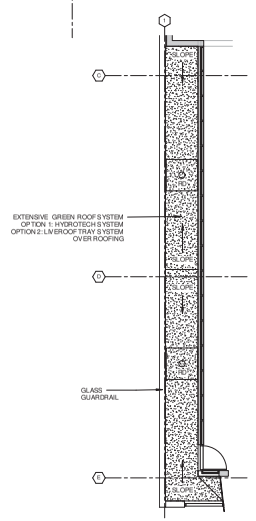
1 ROOF PLAN
A105 1/8" = 1'-0"

TRUE NORTH PLAN NORTH



3 PARTIAL ROOF PLAN
A105 1/8" = 1'-0"

TRUE NORTH PLAN NORTH



2 PARTIAL ROOF PLAN
A105 1/8" = 1'-0"

TRUE NORTH PLAN NORTH

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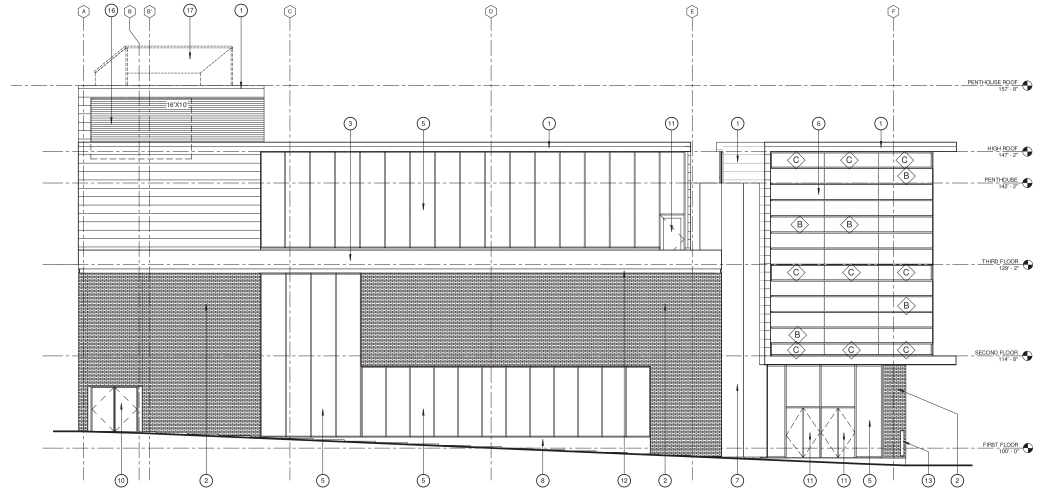
ROOF PLAN

A105

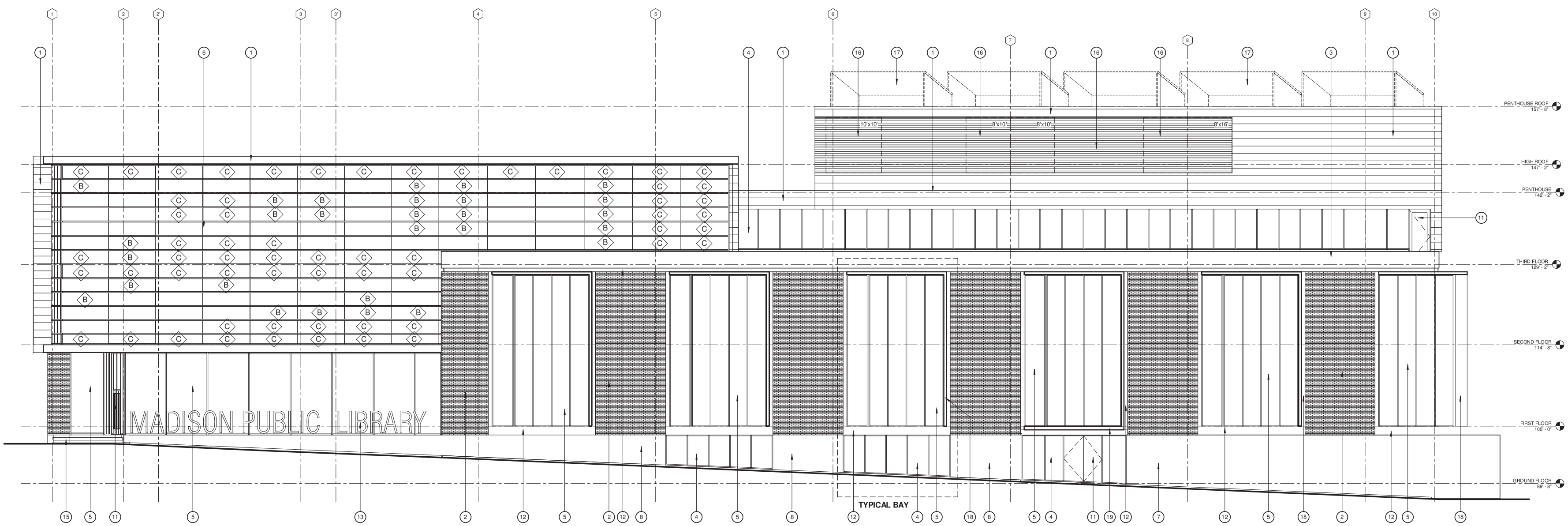


1 EAST ELEVATION - FAIRCHILD STREET
A201 1/8" = 1'-0"

ELEVATION KEYNOTES

1. METAL WALL PANEL
2. EXISTING BRICK TO REMAIN
3. EXISTING STONE TO REMAIN
4. CURTAINWALL SYSTEM - TYPICAL
5. CURTAINWALL SYSTEM - HORIZONTALLY GLAZED BUTT JOINTS
6. CURTAINWALL SYSTEM WITH VERTICALLY GLAZED BUTT JOINTS
7. LED BACKLIT GLASS PANELS - BUTT GLAZED
8. LED BACKLIT GLASS PANELS - BUTT GLAZED BASE BID 1. PRECAST PANEL - ALTERNATE
9. NEW OVERHEAD DOOR
10. NEW HOLLOW METAL DOOR
11. NEW ALUMINUM ENTRY DOOR
12. METAL INFILL PANEL
13. FREESTANDING ILLUMINATED SIGNAGE
14. BUILDING MOUNTED ILLUMINATED SIGNAGE
15. NEW CONCRETE SITE STAIR
16. ALUMINUM LOUVERS ACTUAL REQUIRED OPEN LOUVER AREA NOTED
17. PHOTOVOLTAIC PANELS ON ROOF MOUNTED SUPPORT FRAMING
18. METAL CLAD SUNSCREEN
19. NEW ENTRY CANOPY

A - KEY TYPES - TYPICAL PANEL IS TYPE A UNLESS OTHERWISE NOTED
B VISION PANEL GLASS
C TRANSLUCENT GLASS PANEL
SPANDREL GLASS PANEL



2 NORTH ELEVATION - MIFFLIN STREET
A201 1/8" = 1'-0"

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EXTERIOR ELEVATIONS

A201

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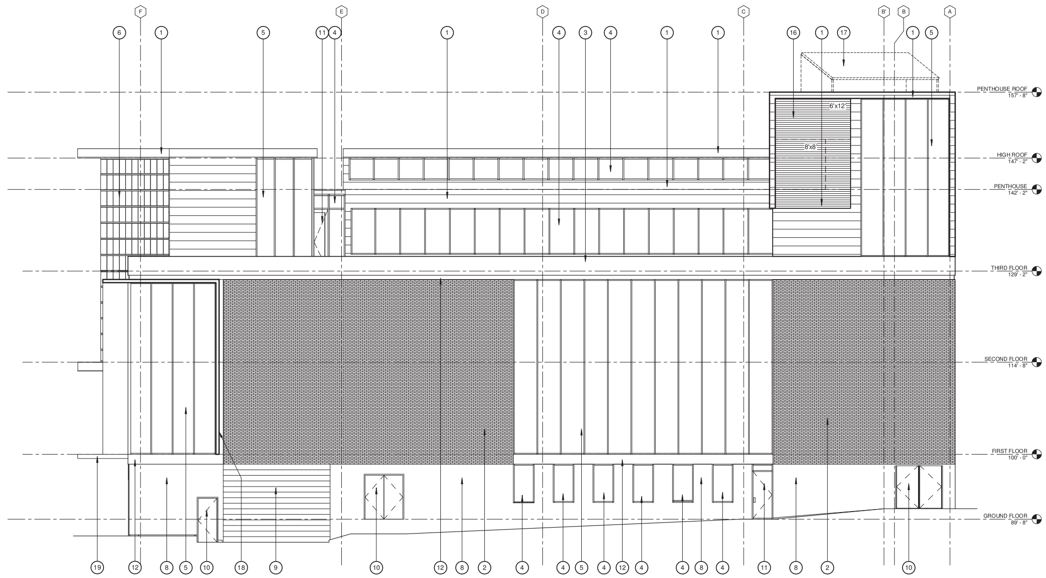
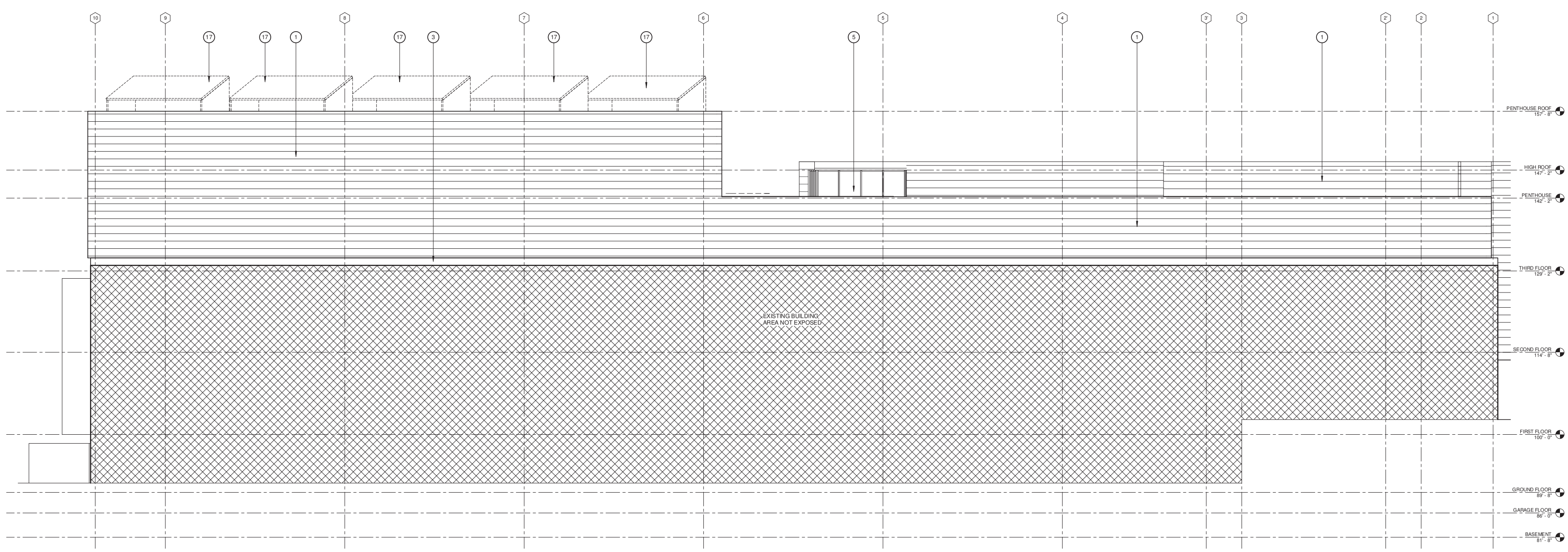


1 WEST ELEVATION - HENRY STREET
A202 1/8" = 1'-0"



2 SOUTH ELEVATION
A202 1/8" = 1'-0"

ELEVATION KEYNOTES

1. METAL WALL PANEL
2. EXISTING BRICK TO REMAIN
3. EXISTING STONE TO REMAIN
4. CURTAINWALL SYSTEM - TYPICAL
5. CURTAINWALL SYSTEM - HORIZONTALLY GLAZED BUTT JOINTS
6. CURTAINWALL SYSTEM WITH VERTICALLY GLAZED BUTT JOINTS
7. LED BACKLIT GLASS PANELS - BUTT GLAZED
8. LED BACKLIT GLASS PANELS - BUTT GLAZED BASE BID 1. PRECAST PANEL - ALTERNATE
9. NEW OVERHEAD DOOR
10. NEW HOLLOW METAL DOOR
11. NEW ALUMINUM ENTRY DOOR
12. METAL INFILL PANEL
13. FREESTANDING ILLUMINATED SIGNAGE
14. BUILDING MOUNTED ILLUMINATED SIGNAGE
15. NEW CONCRETE SITE STAIR
16. ALUMINUM LOUVERS ACTUAL REQUIRED OPEN LOUVER AREA NOTED
17. PHOTOVOLTAIC PANELS ON ROOF MOUNTED SUPPORT FRAMING
18. METAL CLAD SUNSCREEN
19. NEW ENTRY CANOPY

A/B: GLASS TYPES - TYPICAL PANEL IS TYPE A UNLESS OTHERWISE NOTED

VISION PANEL GLASS

TRANSLUCENT GLASS PANEL

SPANDREL GLASS PANEL

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EXTERIOR ELEVATIONS

A202

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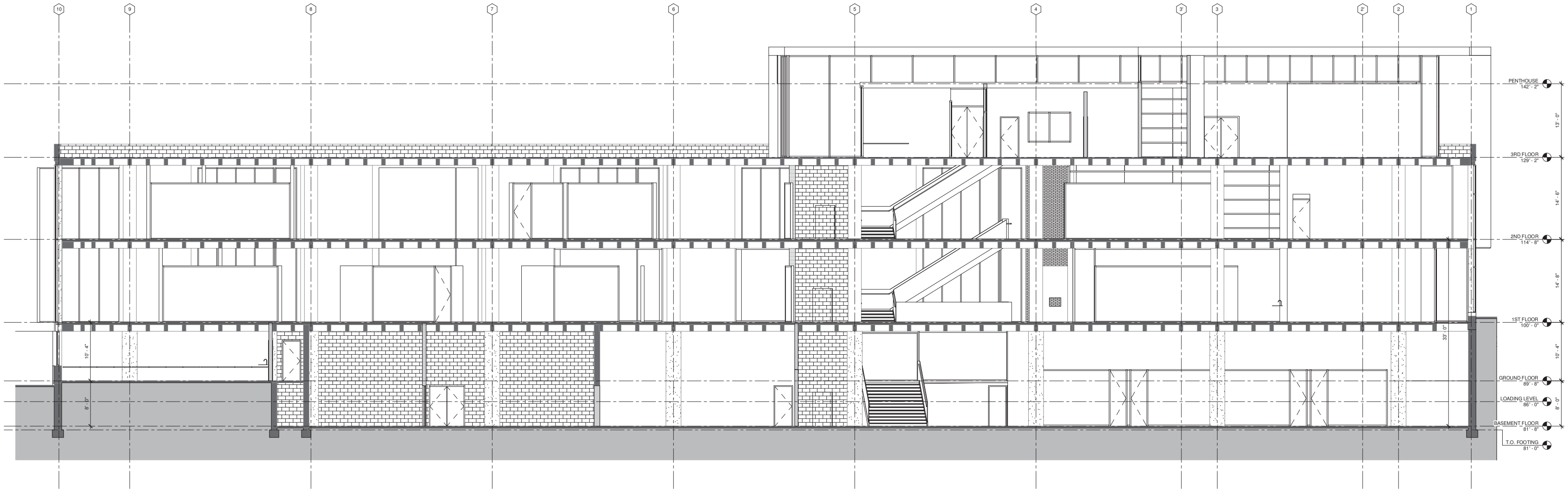
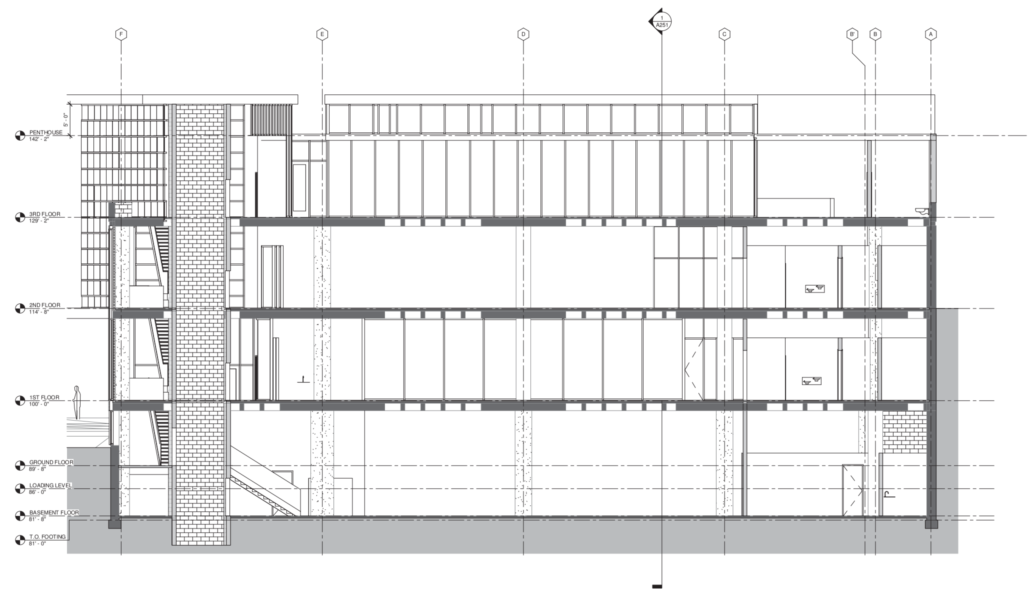


1 LONGITUDINAL SECTION
A251 1/8" = 1'-0"



2 LATITUDINAL SECTION
A251 1/8" = 1'-0"

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BUILDING SECTIONS

A251

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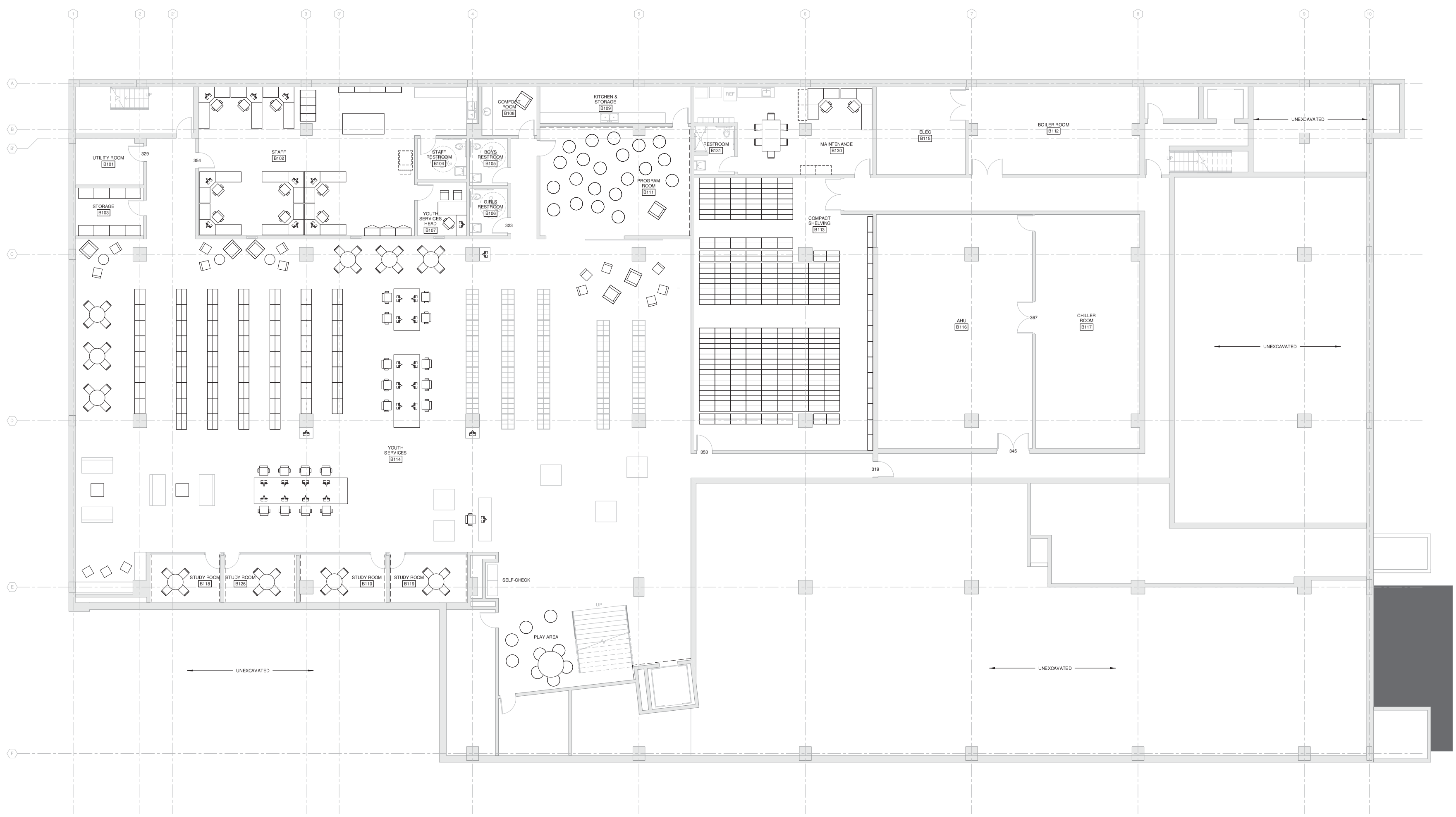

1 BASEMENT FLOOR FURNITURE PLAN

A900.1 1/8" = 1'-0"

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BASEMENT FLOOR FURNITURE PLAN

A900.1

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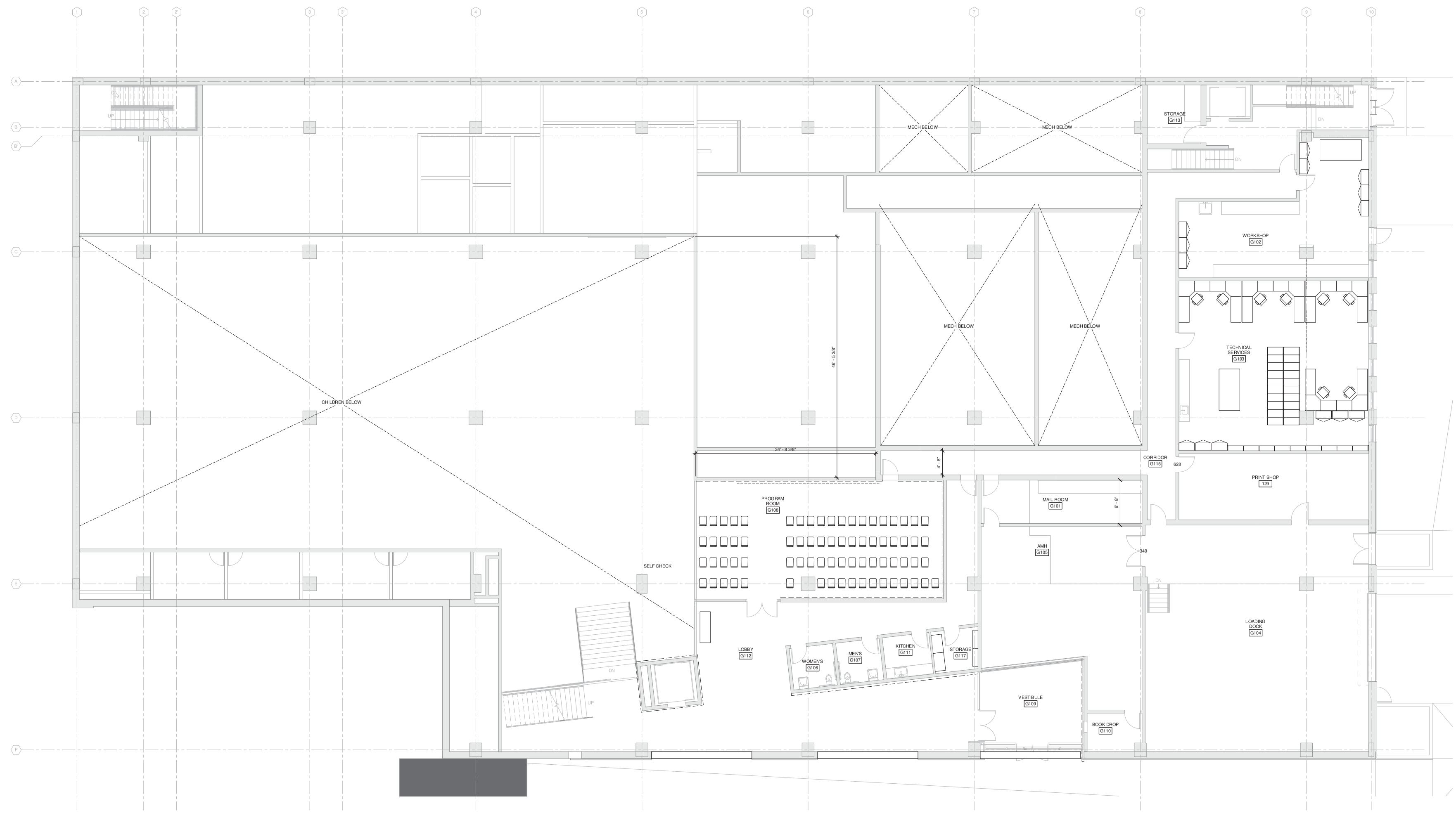

1 GROUND FLOOR FURNITURE PLAN
A900.2 1/8" = 1'-0"

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Madison:
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Madison, Wisconsin 53717-1960
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F 608.833.8996
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GROUND FLOOR FURNITURE PLAN

A900.2

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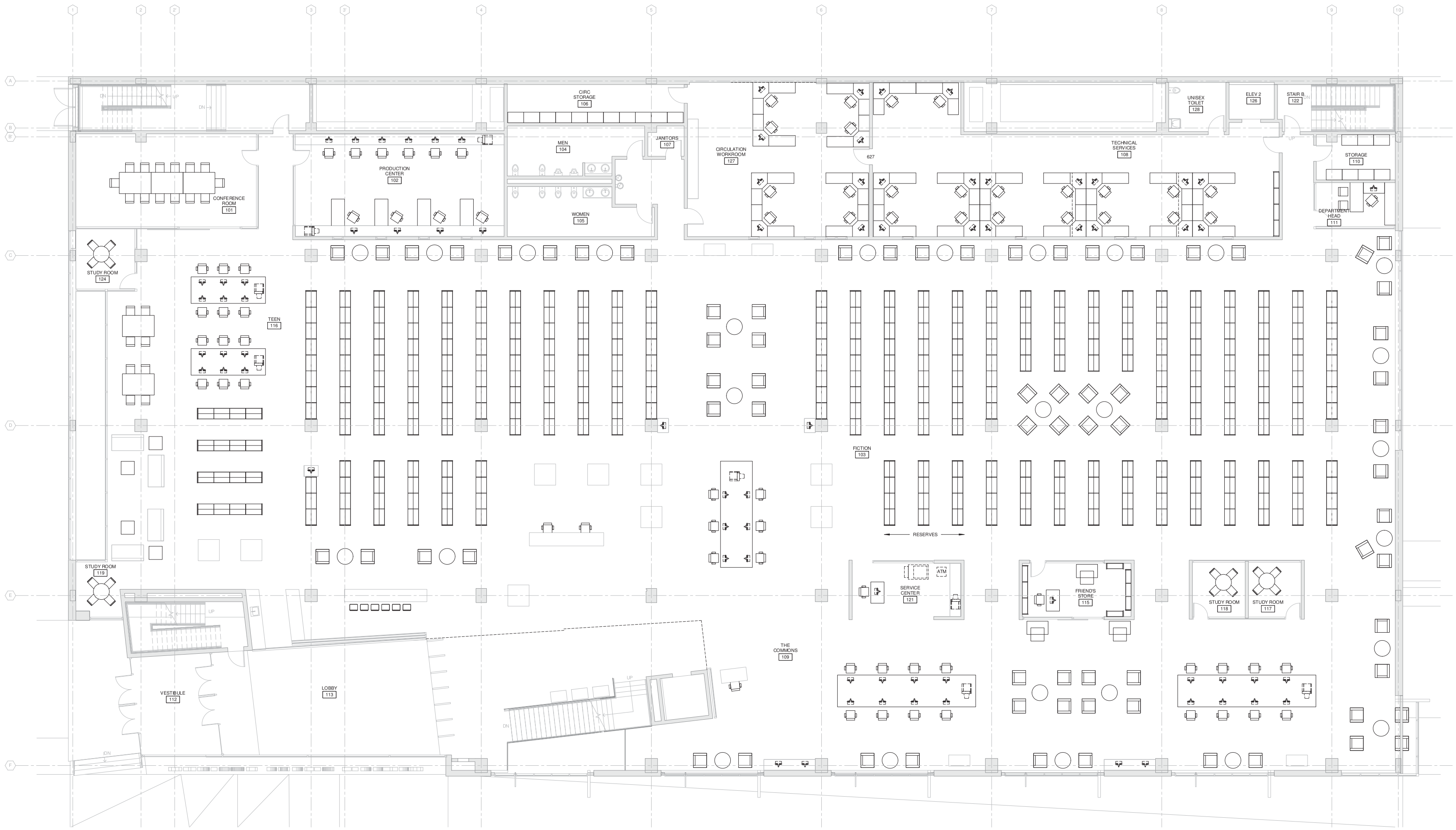

1 1ST FLOOR FURNITURE PLAN

A901 1/8" = 1'-0"

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1232 Fourier Drive, Suite 101 — T 608.833.7000
Madison, Wisconsin 53717-1960 — F 608.833.6996
Email: info@henneman.com
Website: http://www.henneman.com
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1ST FLOOR FURNITURE PLAN

A901

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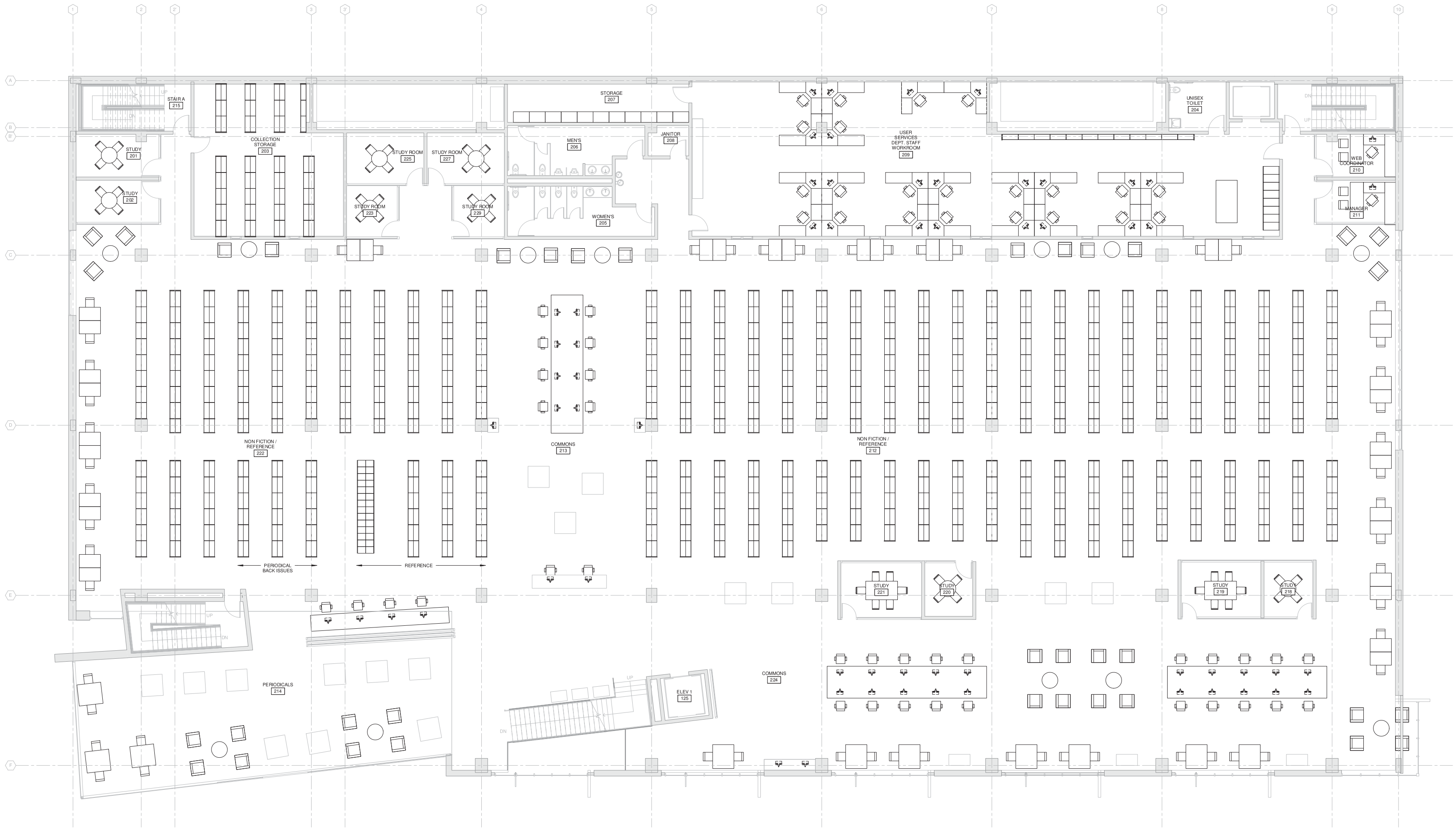

1 2ND FLOOR FURNITURE PLAN

A902 1/8" = 1'-0"

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2ND FLOOR FURNITURE PLAN

A902

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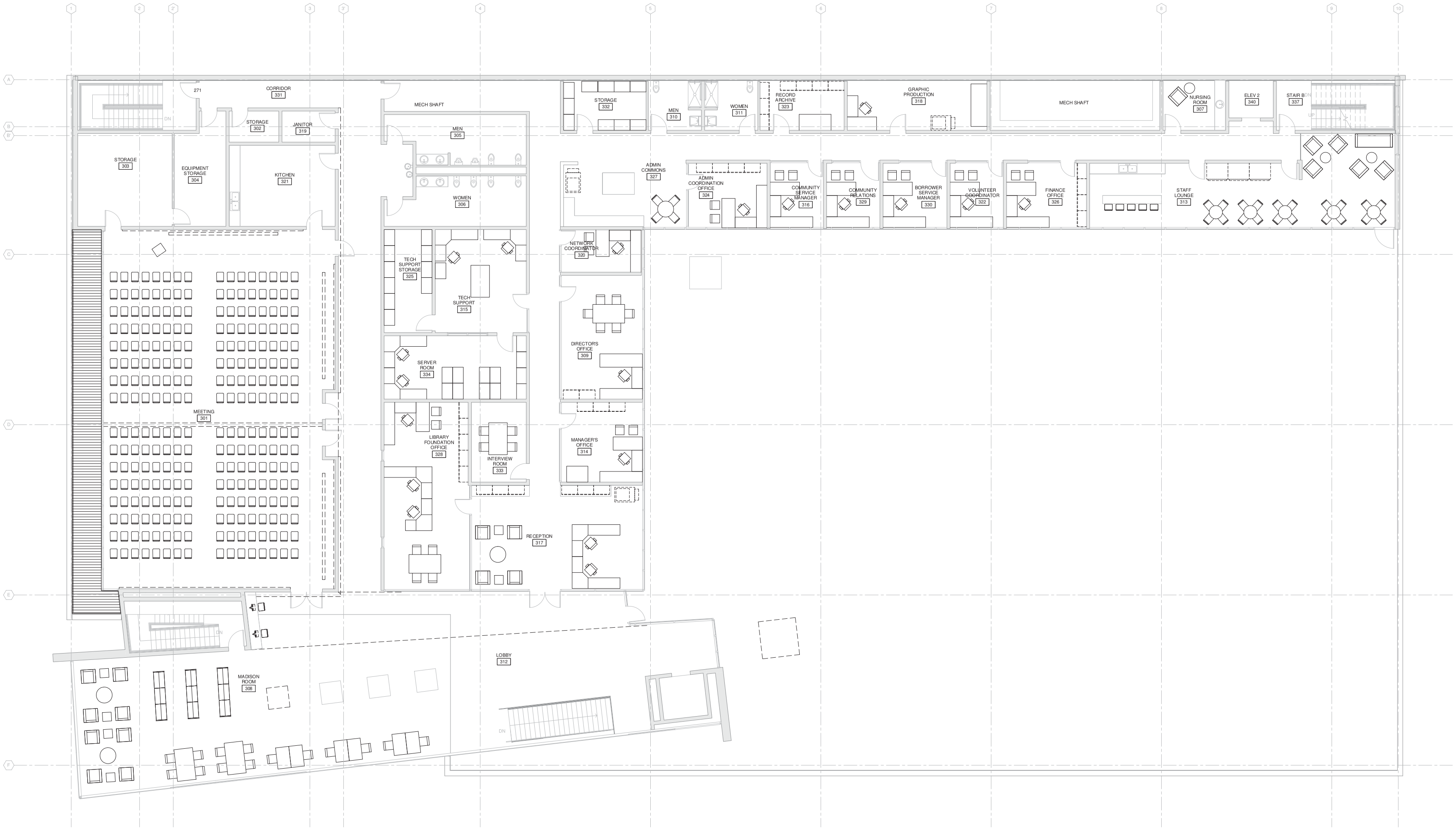
CORRIDOR
331
271
STORAGE
302
JANITOR
319
MECH SHAFT
MEN
305
WOMEN
306
STORAGE
303
EQUIPMENT
STORAGE
304
KITCHEN
321
STORAGE
332
MEN
310
WOMEN
311
RECORD
ARCHIVE
323
GRAPHIC
PRODUCTION
318
MECH SHAFT
NURSING
ROOM
307
ELEV 2
340
STAIR B
337
ADMIN
COMMONS
327
ADMIN
COORDINATION
OFFICE
324
COMMUNITY
SERVICE
MANAGER
316
COMMUNITY
RELATIONS
329
BORROWER
SERVICE
MANAGER
330
VOLUNTEER
COORDINATOR
322
FINANCE
OFFICE
326
STAFF
LOUNGE
313
TECH
SUPPORT
STORAGE
325
TECH
SUPPORT
315
NETWORK
COORDINATOR
320
DIRECTOR'S
OFFICE
309
SERVER
ROOM
334
MEETING
301
LIBRARY
FOUNDATION
OFFICE
328
INTERVIEW
ROOM
333
MANAGER'S
OFFICE
314
RECEPTION
317
LOBBY
312
MADISON
ROOM
308

1 ROOF PLAN
A903 1/8" = 1'-0"

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15 ELLIS POTTER COURT
MADISON, WI 53711
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MECHANICAL
Henneman Engineering Inc.
Madison:
1232 Fourier Drive, Suite 101 T 608.833.7000
Madison, Wisconsin 53717-1960 F 608.833.6996
Email: info@henneman.com
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ARCHITECT SEAL

Signature: ______
Print Names: ______
Date: ______ License No: ______

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	12/ 2/ 2010	SD PACKAGE

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3RD FLOOR FURNITURE PLAN

A903

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