WAYNE STATE UNIVERSITY

Division of Finance and Business Operations

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June 18, 2021

Addendum 3

RFP State Hall Renovation
dated June 4, 2021

Questions have been raised during the Pre-Proposal meeting held on **June 10, 2021** for the University's RFP for Design Services for **State Hall Renovation** for the **Facilities Planning & Management.** A summary of the questions asked and the University's responses are as follows:

Question:
Regarding section D, c (project examples), Item i says to provide 3 examples. Is the intent to provide 3 examples from the 3 projects from the last 3-5 years listed or can we use additional projects for these examples?

Answer:
There are no issues with showing alternate projects, as long as they have been completed within the past 3 to 5 years.

Should you have any questions or concerns about this Addendum or on any other aspects of the Request for Proposal, please send them by email to **Valerie Kreher**, **Senior Buyer**, Email; **rfpteam2@wayne.edu** and to **Robert Kuhn**, **Senior Buyer**, Email; **ac6243@wayne.edu**. **Copy both Valerie Kreher and Robert Kuhn on all E-Mail questions.**

Thank you,
Valerie Kreher
Senior Buyer

WAYNE STATE UNIVERSITY

State Hall Renovation Programming Study

5143 Cass Avenue
Detroit, Michigan

WSU# 016-328302
FISHBECK Project #190892

Programming Report
October 30 2019

fr&h

Project Team

The following individuals have been involved in the development of the programming, design, cost estimating, and planning for State Hall:

Design Team

Fishbeck, Thompson, Carr & Huber

Juliet Jakobowski-Maes, AIA, LEED AP, Project Director
Mark Mitchell, AIA LEED AP, Studio Leader - Learning Environments
Dan Launstein, AIA, LEED AP, Design Leader
Lauren Grzibowski, Project Designer
Dave Shaffer, Project Manager
Vincent J. Mattina, III, AIA, CDT, Project Architect
Heather M. Woodcock, EDAC, LEED AP BD+C, Assoc. AIA, Intern Architect
James Miloch, PE, LEED AP, Lead Electrical Engineer
Jerry Hirth, PE, LEED AP, Lead Mechanical Engineer
Renee Zaccagni, PE, LEED AP, Mechanical Engineer
Dan Vos, PE, SE, CCS, Lead Structural Engineer
Ryan Musch, PE, LEED AP, Lead Civil Engineer

CommTech Design

Bret Emerson, RCDD/NTS, President

Clark Construction

Rick Hutter, Senior Project Manger
Bill Cox, Senior Estimator/Planner
Garry Myers, Estimator
Robert LaLonde, LEED AP, Senior VP

Core Group

Wayne State University

Ashley Flintoff, Director of Planning and Space Management
Sean Campbell, Facilities Planner

Contents

Executive Summary

Study Overview

State Hall is in dire need of a comprehensive renovation. This study explored the necessary systems improvements as well as opportunities to more effectively align physical and programmatic elements of the existing Wayne State University's (WSU) State Hall Facility to the University's masterplan and core values. Much of the deferred maintenance backlog points to repairs needed for the mechanical, electrical, and plumbing systems as well as the building envelope. This proposed renovation will offer the opportunity to right-size and redefine existing learning spaces into flexible learning environments equip this facility with state-of-the-art technology, improve environmental comforts, and provide durable interior finishes. This study includes a preliminary space program, conceptual plans, and a program study for the comprehensive renovation of State Hall. A project budget is included to reflect the proposed scope of work outlined.

It is understood that these findings will be incorporated into WSU's formal request for funding to support the State of Michigan's Capital Outlay Program.

About State Hall

The State Hall Facility is recognized by WSU as an example of mid-century modern campus architecture. The facility was designed by Suren Pilfian-Architects, a prominent Detroit firm during the 1940's and 1950's. State Hall was designed and constructed in two phases: the original wing was constructed in 1948, and the second wing, along Cass Avenue was constructed in 1955. While both wings were designed in the same general period, their respective styles and use of materials are distinctively different. The original wing utilizes brick and a traditional style of window fenestration, while the second wing employs limited use of brick in favor of modern curtain wall glazing with glass block and metal panels (see Figures 1 and 2).

Figure 1: State Hall West Entrance

Figure 2: State Hall North Facade

The plan layouts for both wings utilize a central corridor strategy that is double loaded by program spaces. The main entrance is located at the intersection of both wings, in the northeast corner of the site (see Figure 3 below).

Figure 3: State Hall North Entrance

References and Input

This study incorporated various sources of data; consideration given to information from stakeholders, as well as site influences. The Office of the Registrar provided utilization data not only for State Hall but for all general classroom spaces on campus. The study also factored in the results from the most recent WSU master plan, as it pertains to State Hall and the surrounding site. The master plan has identified State Hall as the primary general classroom facility for the central campus. This acknowledgment informed the results of the study as it relates to type, quantity, size and variation of learning spaces and support spaces proposed for State Hall.

The masterplan also noted the optimal location of State Hall relative to adjacent campus functions, as well as its prominence along Cass Avenue (See Figure 4 below) .

Figure 4: Cass Corridor

Cass Avenue or the “Cass Corridor” as it is often referred to, is a strong connector to the adjacent community and, by extension, to the City of Detroit. The renovation of State Hall offers an opportunity to strengthen the interface between campus and community along this vital edge condition. Outdoor gathering and meeting spaces will provide opportunities for community, students and faculty to interact and collaborate.

A diverse group of stakeholders provided critical insight into the current State Hall needs for instructional pedagogy, collaboration, socialization, and WSU identity and brand. These individuals and groups include members of the Academic Senate, Student Senate, Building Services, WSU Technology Department, Offices of the Provost and Registrar.

Extents of Renovation

The extent of the proposed renovation is comprehensive as outlined in this study. The exterior envelope, mechanical, electrical and audio/visual systems are proposed to be completely replaced or substantially renovated. Floor configurations from the lower level through the third floor are proposed to be substantially altered with most interior walls reconfigured and all interior finishes replaced. The fourth floor renovation will be limited to finish updates and upgrades to mechanical and electrical systems. With the exception of ADA renovations associated with the large lecture halls, the substructure and superstructure of State Hall are not anticipated to be altered as part of this renovation. This renovation is anticipated to achieve a minimum of LEED Silver certification.

Figure 5: State Hall North Facade

The adjacent site will have targeted areas of renovation to provide outdoor seating, to facilitate collaboration and low-maintenance landscaping. Existing mature trees located on the north and east sides of the facility are expected to be preserved (see Figure 5).

The main entrance plaza located at the northeast corner of the facility and the area between the east face of the facility and Cass Avenue will also include site enhancements.

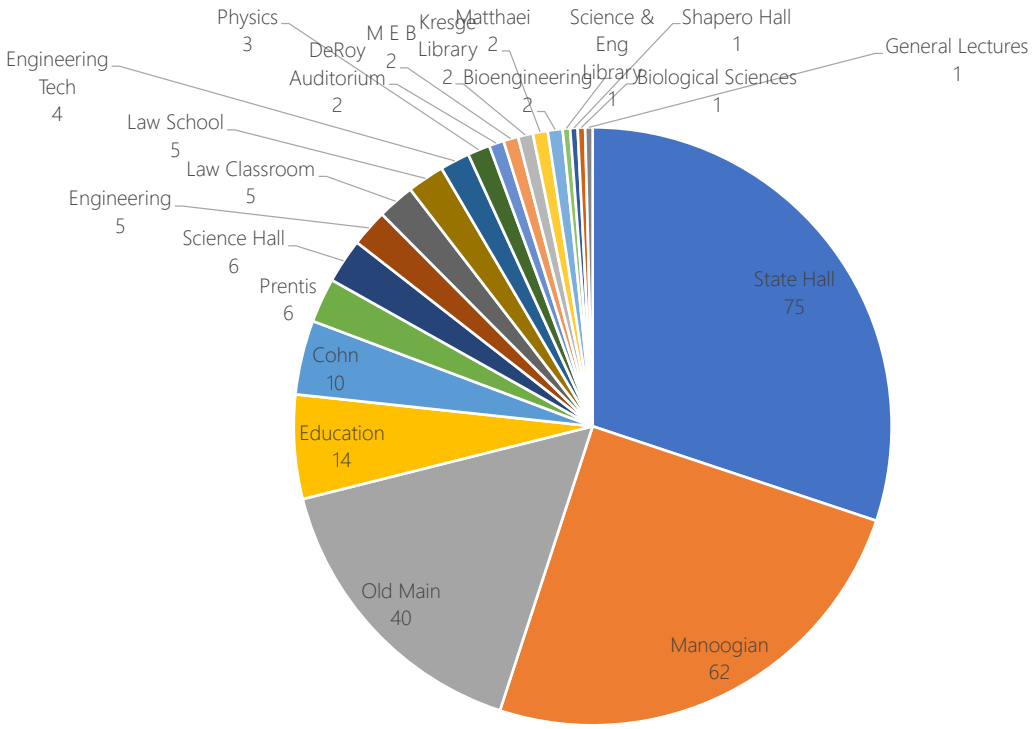
Project Justification

The WSU Masterplan identified the critical need to better utilize and 'right-size' general classroom spaces throughout the campus. Currently, WSU has sufficient quantities of classroom space on campus. However, the utilization of these spaces must be improved. Spread across a variety of campus buildings, maintaining under-utilized and outdated classroom spaces is costly and inefficient. Consolidating and right-sizing these spaces, will make State Hall a cost-effective facility that is well-utilized and reflects current instructional pedagogy, while maintaining flexibility for future change.

The renovation of State Hall represents a significant step in providing the type, quantity, size and variation of learning experiences for faculty and students. The resulting spaces and supporting infrastructure will emphasize flexibility of usage and will more effectively respond to future changes to instructional pedagogy. This strategy of flexibility will help to minimize future costs for renovation as needs change. Upon completion of this project, the University will be able reassess the use of other classroom buildings on campus and re-program those spaces to better suit other critical needs of WSU.

The WSU mission statement embraces meaningful engagement in the urban community. The renovation of State Hall not only provides opportunity to improve the student experience but to actively engage with the community by providing functions that are beneficial to the public. The outdoor plaza area will also provide a welcoming 'front door' to the community and encourage further engagement.

Programming & Planning



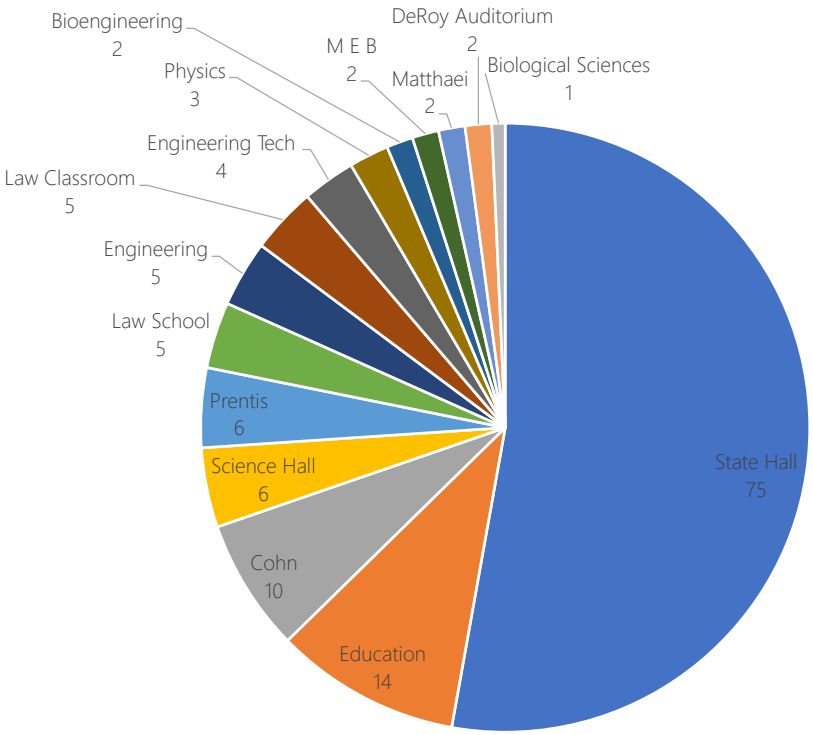


Figure 6: Master Plan Data

Master Plan Information

The Master Plan document commissioned by Wayne State University researches the quantitative needs for learning environments. This document identified the need for smaller classrooms and the correct number of classrooms to best accommodate the needs across campus, State Hall will become a general classroom facility and therefore should accommodate a cross campus need. The University is operating under the assumption that it will decommission two large-scale classroom facilities due to underutilization. These facilities are Old Main, which houses 40 classrooms and Manoogian, which houses 62 classrooms. State Hall will be renovated with the intent of taking the underutilized classroom spaces once these two facilities are decommissioned. However, the intent is not to grow the total number of classrooms in State Hall, which is currently 75, but to redistribute the correct number of classroom sizes throughout the facility to better utilize the space .

Data Analysis

Classroom Distributions

Determining the correct quantity and size of classrooms was based on analysis of the quantitative data from the Masterplan and Registrar, as well as qualitative information from the faculty. The goal was to 'future-proof' the ratio of classroom sizes to accommodate for changing pedagogy over the years. The faculty indicated that the instructional pedagogy from 10 to 20 years ago has changed, and the instructional pedagogy implemented today will likely change again in the future.

The initial investigation began with an exploration into which classroom sizes have the highest utilization. The analysis within the Masterplan determined the weekly room hour demand for each of the existing classroom sizes. The classroom sizes and utilization can be seen in the image below. (See Figure 7)

Classrooms

There is significant additional capacity across most station count ranges, except for the 21-40 range. Average seat fills show that some class sections could be moved to smaller spaces.

General Lectures, Manoogian, Old Main, Shapero

Station Count Range	Classroom Count	Current WRH
A. 1-20	22	149
B. 21-40	63	1475
C. 41-80	13	308
D. 81-150	5	90
E. 151-300	1	8

All Other Buildings

Station Count Range	Classroom Count	Current WRH	Average Seat Fill
A. 1-20	12	101	55%
B. 21-40	64	1297	60%
C. 41-80	46	883	52%
D. 81-150	17	232	49%
E. 151-300	2	27	51%
F. 301+	1	33	49%

Current WRH (above)	Combined Current WRH	Capacity	
		@ 30 WRH	@ 40 WRH
149	250	360	480
1475	2775	1920	2560
308	1207	1380	1840
90	322	510	680
8	35	60	80
-	35	30	40

School of Business, School of Medicine, and College of Pharmacy and Health Sciences are excluded

Figure 7: Master Plan Data

Based on the data, State Hall will accommodate the campus-wide demand for certain classroom sizes. The next step examines the data for Weekly Room Hour (WRH) demand across all buildings over the entire campus: (Figure 8)

Station Count Range	Combined Current WRH
1-20	250
21-40	**2775**
41-80	1207
81-150	322
151-300	35
300+	35

Figure 8: Master Plan Data

The data indicates that the highest WRH demand is for classrooms sized from 21 to 40 stations. The next highest demand is for classrooms with a 41 to 80 station capacity, but the WRH demand is only 43% for this size of space. The classroom size with the least demand is large the classroom ranging from 151 to 300+ stations.

To determine the correct ratio of classroom sizes needed in State Hall, this study assumed that the final quantity of classrooms within State Hall will remain at 75 total classrooms. The campus-wide WRH ratios of each seat count range was applied against the total State Hall classroom count.

For example, classrooms that have a 21 to 40-station capacity also have a WRH of 2,775 hours, this equals 60% of the total WRH across all classroom types, therefore, 60% of the classrooms within State Hall should have a station capacity of 21 to 40. The following chart indicates the WRH percentages applied to State Hall for all station count ranges:

Station Count	Existing Distribution	Existing Percentage	Proposed Distribution	Proposed Percentage	
1-20	8	11%	5	6%	(-3)
21-40	36	48%	45	60%	(+9)
41-80	27	36%	20	26%	(-7)
81-150	3	4%	4	7%	(+1)
150+	1	1%	1	1%	0

The data further indicates that there are too many existing classrooms within State Hall with a station count range of 1 to 20 and 41 to 80, relative to the WRH demand. Conversely, there is a need for more classrooms within State Hall that have station capacities of 21 to 40 and 81 to 150.

This conclusion is solely based off of quantitative data; therefore, qualitative information was also factored into the final ratio of classroom sizes. For example, representatives from the faculty and the Registrar's office indicated that there is no need for additional classroom spaces within State Hall that could house 81 to 150 students since there are other large classrooms on campus that are currently being underutilized.

This study also examined the current WSU station count ranges to assess if further refinement of the ranges was needed in order to finalize the correct ratio of classroom sizes for State Hall. The current seat count ranges are as follows:

1-20
21-40
41-80
81-150
150-300
300+

It was noted that a typical classroom which has a capacity of 21 - 40 stations, this is a large range to anticipate effectively within a fixed square footage. Using a ratio of approximately 20 SF/person, the classroom would need to be 800 SF to accommodate 40 stations. But if that same classroom only needed to accommodate 21 stations, the classroom size would only need to be 420 SF.

Since the average class size at WSU is 24 stations, many 20-person classes are being taught in classrooms that could essentially accommodate 40 seats; therefore, they are too large. To understand this condition further, the faculty participated in a survey regarding their existing and future habits in State Hall. The survey indicated that 100% of the faculty who taught in classrooms with a capacity of 21 to 40 stations said the classrooms were too large for their needs.

To determine the proper classroom sizes, data was taken directly from the Registrar's data to understand typical enrollment sizes. This led us to the redistribution of the classes into the following sizes:

1-20
21-35
36-49
50-70
71-150
151-300
300+

To further assist in refining the station count ranges, the Registrar's Fall and Winter data was utilized to understand how many students were enrolled within station count ranges. For instance, the data indicated that 77% of classes scheduled in 21 - 40 station classrooms only enrolled 21 to 35 students per classroom.

Therefore 77% of the total estimated number of classrooms which have a station count 21 - 40 could be re-assigned into a new smaller count range of perhaps 21 – 35 stations. Meanwhile, the remaining 23% of classrooms which had enrollment above 35 students could be added to a new station range of 36 to 49.

Since the total quantity of classrooms, which have a station count of 21 – 40 stations, is 45, we can redistribute that quantity into (34) classrooms which have a station count of 21 – 35 and (11) classrooms which have a station count of 36 – 49.

Utilizing this same analysis for all of the remaining stations count ranges, the final proposed station count ranges are as follows:

Proposed number of 21-40 classrooms : 45

77% of 45 : (34) 21-35 Classrooms Proposed
23% of 45: (11) 36-49 Classrooms Proposed

40-80 person classrooms were broken up in a similar fashion. See calculations below:

Proposed number of 41-80 classrooms : 20

52% of 20 : (10) 41-50 Classrooms Proposed
48% of 20: (10) 51-80 Classrooms Proposed

We then use the Registrar's data to redistribute these classrooms into the new classroom sizes seen below:

Station Count Range	Proposed Number of Rooms
1-20	5
21-35	34
36-49	21
50-70	10
71-150	4
150-300	1
300+	0

Organization Strategy

Program Plan

As pedagogy evolves, learning environments must be adaptable to best serve the students of today and tomorrow. The size, configuration and technology of the learning space must be flexible, as well as the location of where learning and collaboration occurs.

Current State

With few exceptions, the State Hall facility is not a flexible environment for learning or collaboration. Most of the floors lack effective collaboration or private study spaces. Within the classroom spaces, the outdated technology limits the possibilities for both the faculty and the student. Rooms are not configured to optimize flexible learning conditions. The wide hallways and double-loaded corridors which are lined with lockers, create a 'high school' aesthetic that is undesirable at a university level. The surrounding exterior space is under-utilized as opportunity for community engagement and collaboration. The net result is a facility that is only occupied during class periods and perceived by the students and faculty as an uninspiring environment that is out of touch with the modern culture and pedagogy.
This project will re-energize State Hall to create a dynamic environment for learning, collaboration and social engagement.

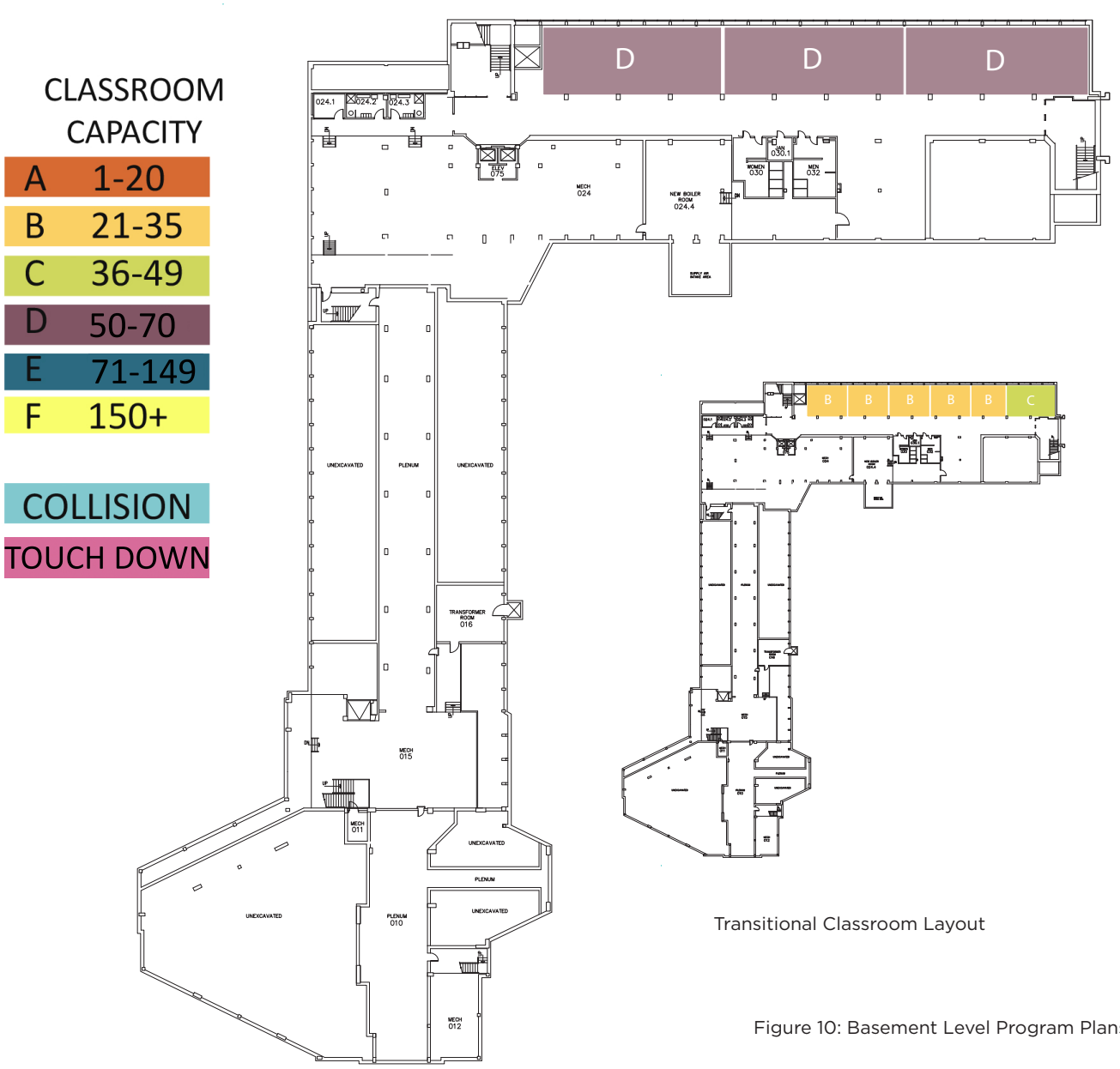
Distribution

Below is the redistributed layout of State Hall. Layouts were determined by several driving factors, including the building's current structural plan, a desire for views and daylight into classroom spaces, and the ability to create collision spaces outside the learning environments. In order to optimize the building layout and make use of certain classroom types, the seven largest lecture style classrooms have remained in their current location with the intent to make these spaces ADA accessible.

Figure 9: Program Plans

Basement Floor Plan

Since most of the basement is either unexcavated or utilized for mechanical space, there is minimal area to utilize for learning environments. The existing single loaded corridor strategy will remain on this floor to maximize usable program space. The three large classrooms will be equipped with room dividers to separate the room into six smaller classrooms. This allows for the building to accommodate a variety of classroom sizes at any given time.



Transitional Classroom Layout

Figure 10: Basement Level Program Plans

First Floor Plan

To strengthener the connection to the Cass Corridor and the location of the building as gateway into the campus, the first-floor renovation provides the highest emphasis on the variety and quantity of collision spaces to cultivate learning, collaboration and social engagement. The boundaries of the double loaded corridors will be shaped and interrupted by a variety of collision space opportunities and views to the exterior environment. The manipulation of the corridor wall boundary will optimize way-finding to the various program spaces. The existing large lecture halls such as D, E, and F will remain in their current location but will be upgraded to meet ADA requirements, improve technology needs, and provide a contemporary aesthetic that infuses the WSU brand. Restrooms, stair shafts, and elevator shafts will remain in the same location. A faculty touchdown space is provided for short-term use with access to office supplies.

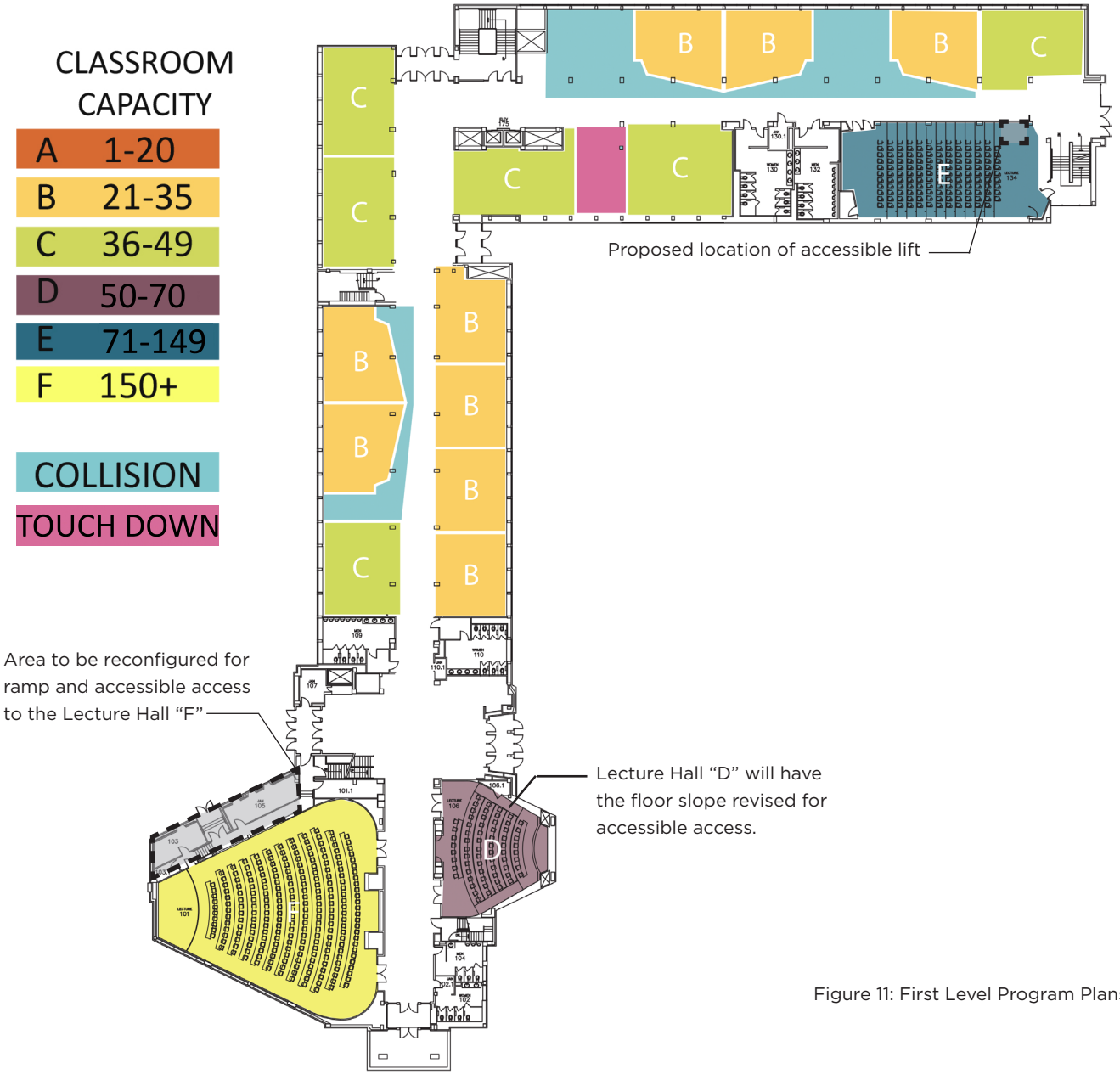


Figure 11: First Level Program Plans

Second & Third Floor Plan

The planning strategy for the second and third floor is similar to the first floor by providing a mixture of collision spaces adjacent to the circulation zones. The consistency of the planning strategy for collision and classroom spaces on each floor will aid in way finding throughout the building. In addition, a faculty touchdown space is provided for short-term use with access to office supplies on these floors. Unlike the first floor, a type 'B' classroom will also be located on the north end of the hallway.

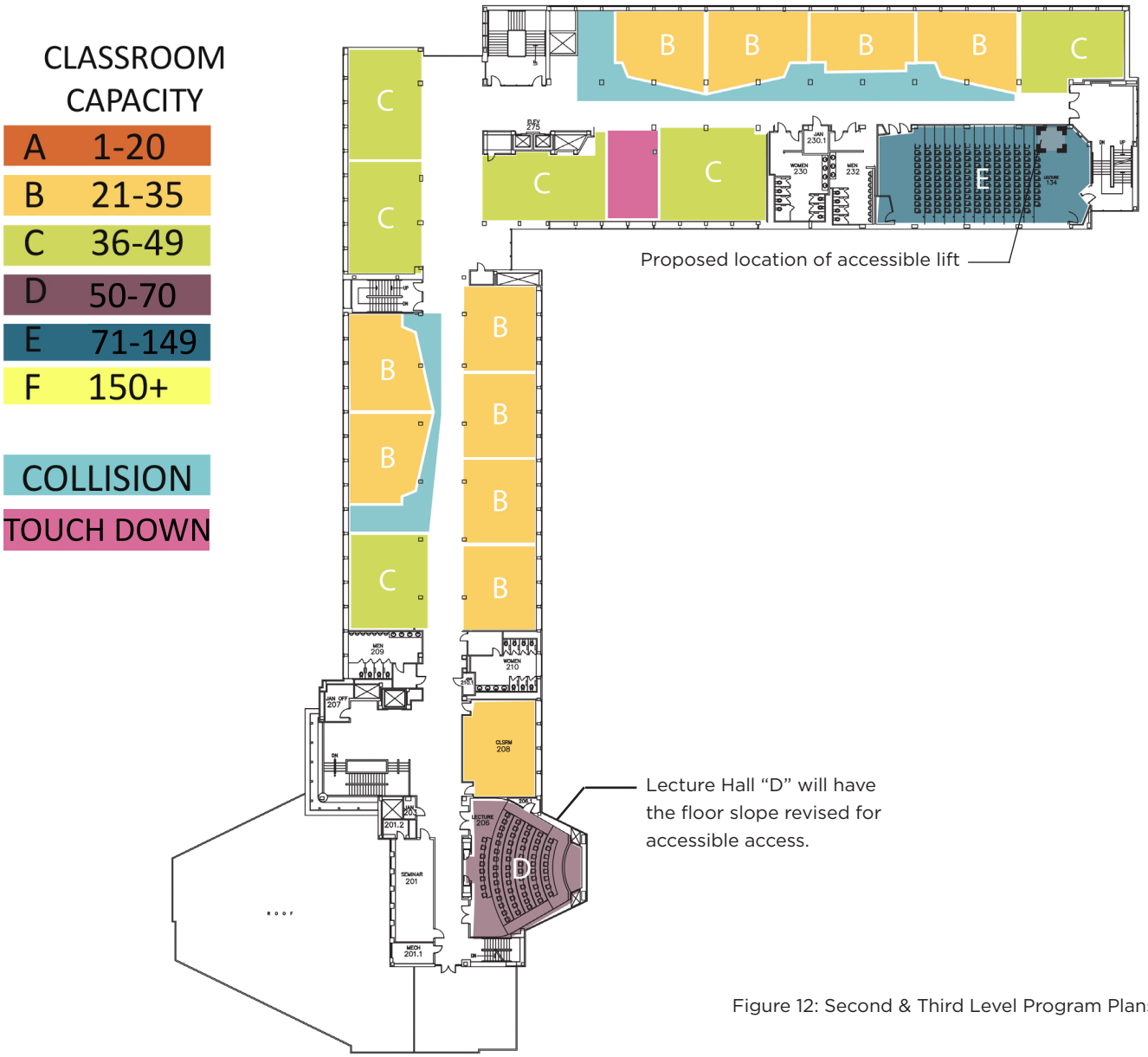


Figure 12: Second & Third Level Program Plans

Fourth Floor Plan

The layout for the fourth floor will remain, since the extent of renovations is to the mechanical and electrical system. In addition, finishes and furniture will be updated to match the overall aesthetic of the lower floors.

Figure 13: Fourth Level Program Plans

Learning Environments

As pedagogy changes, learning environments must be adaptable to best serve the students of today and tomorrow. To facilitate current and future adaptation, the classroom itself must be capable of change as well as offering a variety of available learning environments.

Classroom Layouts

The classroom spaces have been right sized based on a variety of factors: building structure, appropriate square feet per person ratio for flexible learning environments, and optimal proportioning for sightlines and distance to instructor. After the correct sizes were established, opportunities arose within the classroom layout that allow for a variety of pedagogical strategies and enrollment sizes.

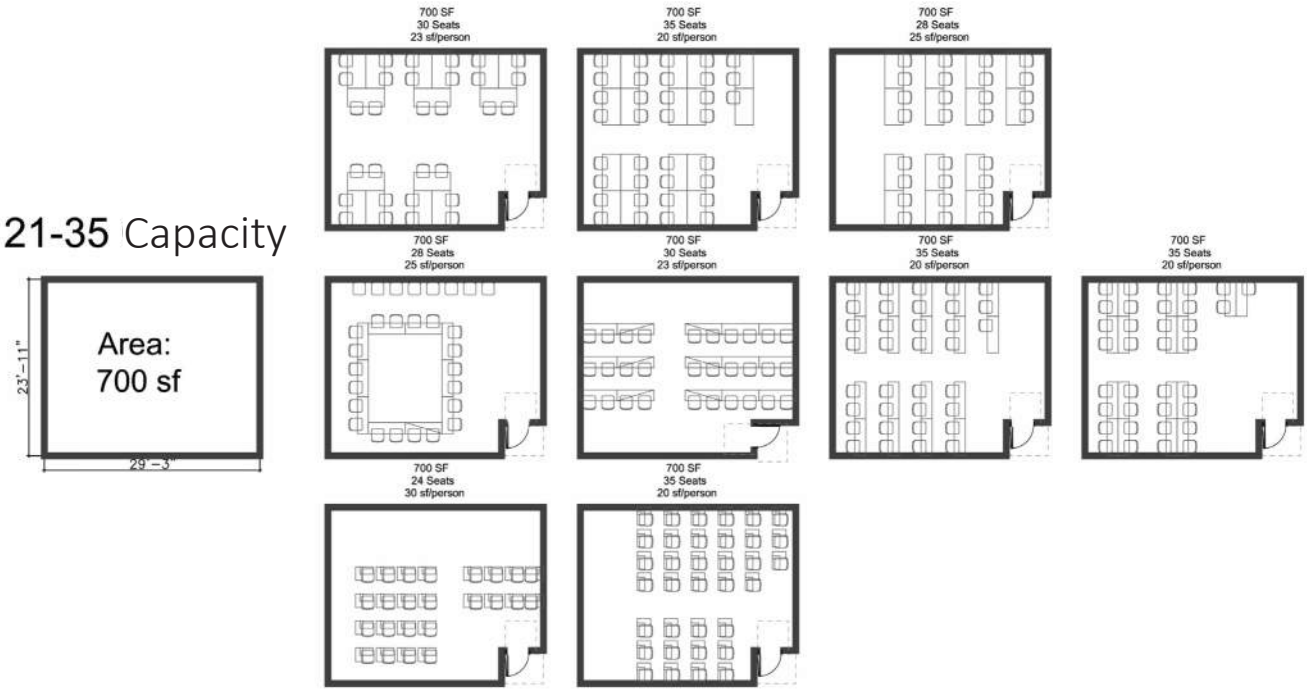


Figure 14: Classroom Layout

The depicted 700 SF classroom can accommodate 20 - 35 students comfortably while allowing for a variety of teaching methods: traditional lecture, small group work, and large group discussion. Additional layouts for 36 - 49 station classrooms and 50 - 70 station classrooms are also illustrated.

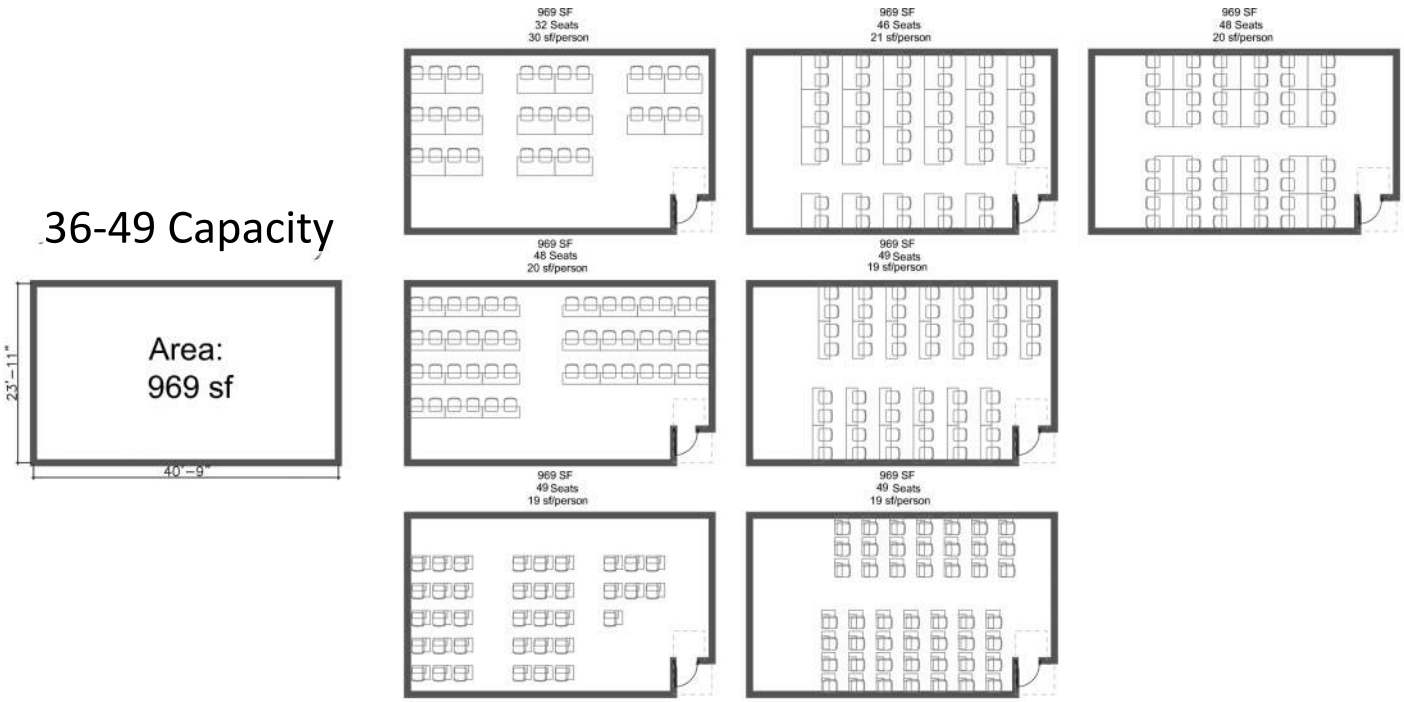


Figure 15: Classroom Layout

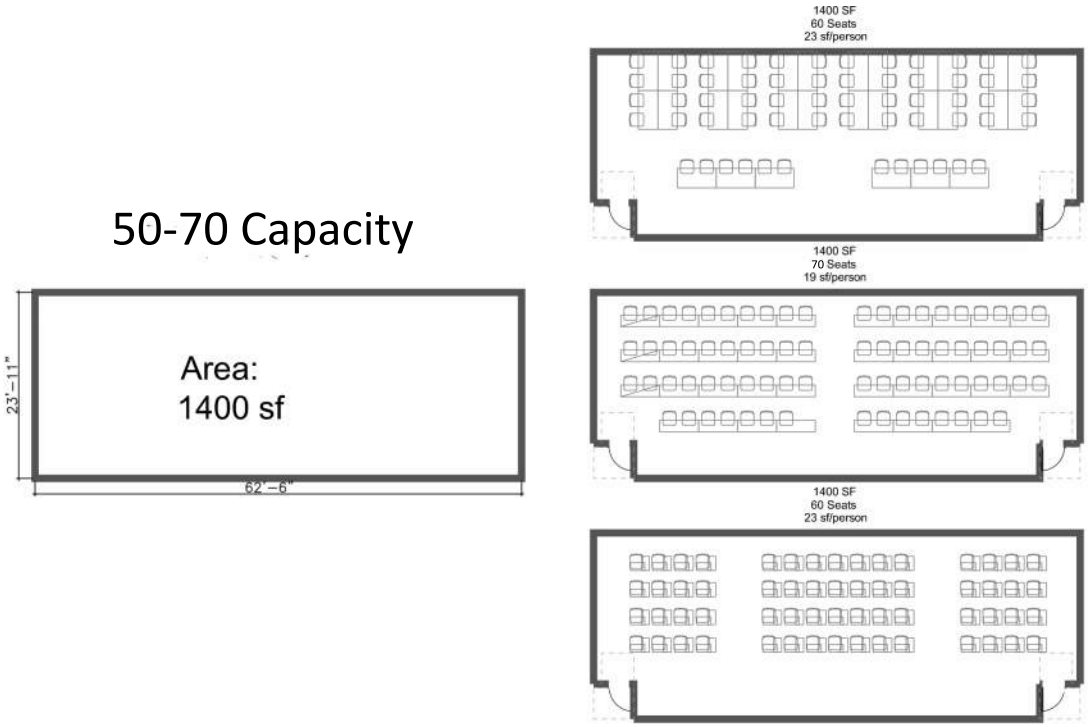


Figure 16: Classroom Layout

Classroom Flexibility

Space allocations for classrooms are designed to allow for flexible room configurations. Classrooms with a station capacity of 21 – 35 stations are allocated 700 SF which provides a ratio of 20-30 SF per station to allow multiple room configurations.

Space allocation for 50 - 70 station classrooms are a built upon a module such that two 21 - 35 station classrooms can be combined to create a single 50 to 75 station classroom while retaining opportunities for flexible furniture configuration. (See Figure 17 below).

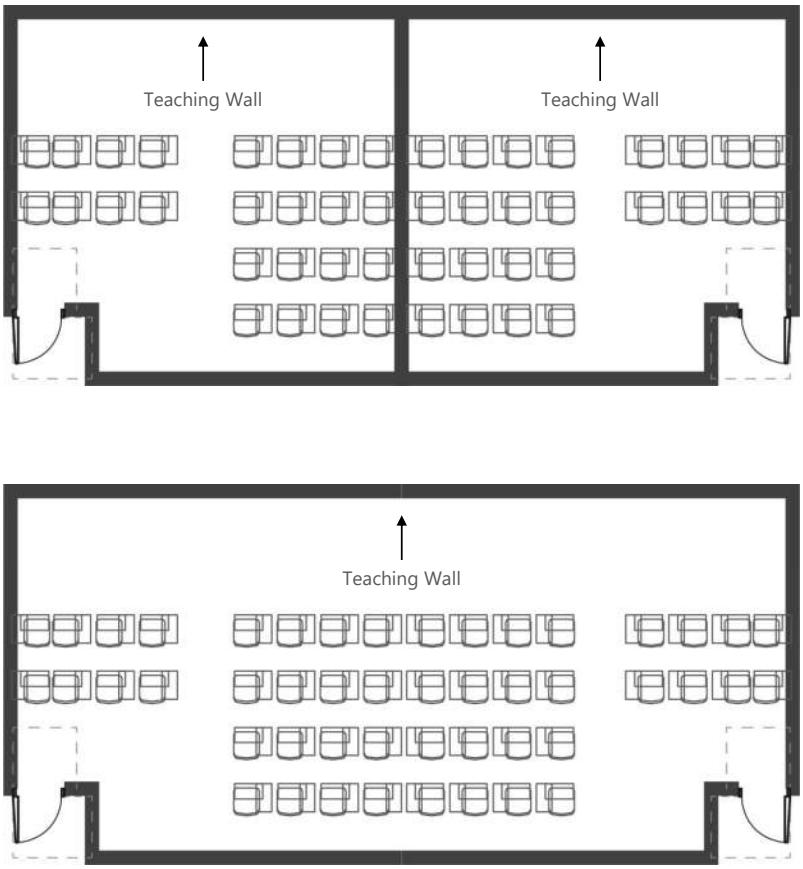


Figure 17: Classroom Layout

The State Hall strategy provides for 4 - 5 large classroom spaces that can be compartmentalized to create 8 - 10 smaller classroom spaces with the use of operable partition walls.

By allowing flexibility within classroom spaces as well as flexibility between classroom spaces, State Hall will be able to adapt to a variety of different instructional approaches as the pedagogy continues to evolve.

Collision Spaces

Co•lli•sion space: Locations outside of the formal classroom where various modalities of learning and socialization take place. Within these areas, students can gather before and after class to study, continue interdisciplinary discussion, or have a conversation with their faculty instructor.

Collision spaces are integral to the planning strategy within and around State Hall. The proposed design creates a variety of collision spaces to give faculty and students multiple ways to communicate, collaborate and learn throughout the State Hall facility. By providing these opportunities beyond the formal classroom space, the building will be better utilized and perceived as more than simply a general classroom facility. The following are precedent ideas for the proposed collision spaces:

Figure 18: Casual Seating

Figure 19: Bench Seating

Figure 20: Mixed Seating


Figure 21: Booth Seating

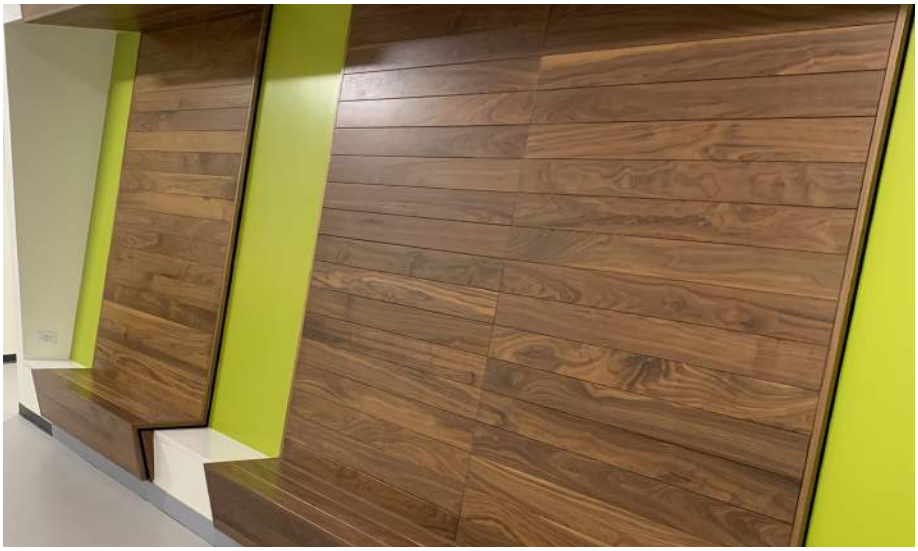


Figure 22: Bench Seating

Figure 23: Team Room

Figure 24: Team Room

Interior finishes for this project will infuse WSU's brand and create energetic environments that are durable and flexible in use. Key elements of the finishes will inform the occupants of intended space usage(s) and assist in way-finding.

Typical major spaces will include materials such as:
1. Typical Corridor: Lay-in ceiling tiles, painted walls, terrazzo flooring.
2. Typical Classroom: Lay-in ceiling tiles, painted walls, resilient flooring.
3. Typical Collision Space: Wood accents on walls / ceiling, carpet flooring / accent paints.

Cass Corridor

Cass Corridor is an excellent opportunity to further integrate WSU into the fabric of downtown Detroit. Throughout Detroit's revitalization, WSU has remained an active contributor to the community. WSU strives to extend the campus 'front door' to the pedestrians along the Cass Corridor. The front lawn located between Cass and the north facade of State Hall (highlighted in yellow below) has incredible opportunity to become an active outdoor space that can be used by students, faculty, and the public. The intent is to foster learning, collaboration and socialization at a multitude of levels.

Figure 25: State Hall Aerial

Figure 26: State Hall Cass Avenue Facade

Figure 27: State Hall Cass Avenue Entrance

The outdoor areas in front of State Hall offer many opportunities to become active, outdoor spaces, such as seating areas and learning gardens. The following images depict precedent examples of outdoor functions which were endorsed by stakeholders.

The improvements to State Hall's front lawn will come in the form of casual seating and group meeting space. The existing tree line between Cass and State Hall currently acts as a shaded buffer zone between the two communities, the intent is to blur this zone so that it becomes both part of the public realm and the academic realm. This can be achieved through similar methods seen below.

Figure 28: Plaza Precedent

Figure 29: Plaza Precedent

The north façade of State Hall provides an opportunity to improve the campus experience for students, faculty and the public. The façade will be re-skinned to provide a contemporary and cohesive aesthetic to the facility. This update will transform the mid-century facade to one that reflects the contemporary identity of WSU. The final aesthetic will be cohesive from the exterior through the interior of the facility.

The west facade will act as an initial precedent for the aesthetic on the North facade.

The north entry into State Hall will be re-envisioned to create a more inviting entrance for the public. This new entry will include a new canopy element and glass enclosed entry space that will integrate into the outdoor plaza area.

Figure 30: Existing State Hall West Facade

Figure 31: Existing State Hall North Entrance

Figure 32: Facade Precedent

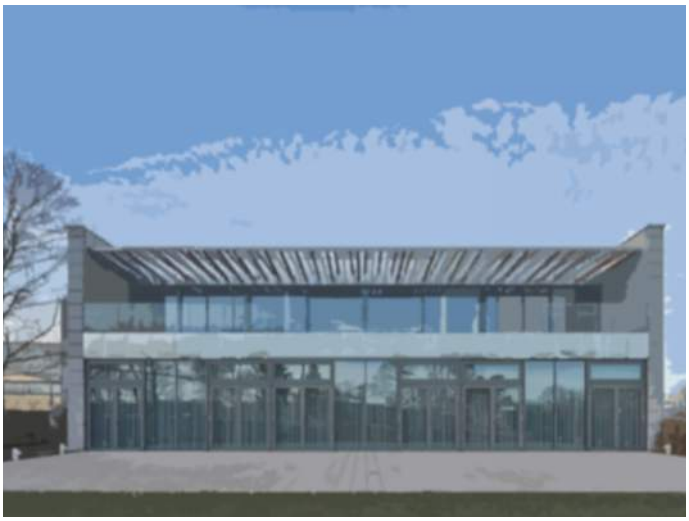


Figure 33: Facade Precedent

Feasibility & Code Study

Code Assessment

This project is under jurisdiction of the 2015 Michigan Rehabilitation Code in which any alterations that affect more than 50% of the building area, would require a Level 3 Alteration and compliance to Chapter 9 of the MRC (2015). Floor 1, 2, and 3 of this project will be considered a Level 3 Alteration for this study. Furthermore, Floor 4 includes include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose, which is considered a Level 1 Alteration and is required to comply with Chapter 7 of the MRC.

APPLICABLE CODES

REHABILITATION CODE:	2015 MICHIGAN REHABILITATION CODE (2015 MEBC)
FIRE CODE:	2015 INTERNATIONAL FIRE CODE (2015 IFC)
	2012 NFPA 101 LIFE SAFETY CODE (LSC)
MECHANICAL CODE:	2015 MICHIGAN MECHANICAL CODE (2015 MMC)
PLUMBING CODE:	2015 MICHIGAN PLUMBING CODE (2015 MPC)
ELECTRIC CODE:	2014 NATIONAL ELECTRIC CODE (NFPA 70)
ENERGY CODE:	MICHIGAN UNIFORM ENERGY CODE – PART 10A
	(2013 ANSI / ASHRAE / IESNA STANDARD 90.1)
	2015 INTERNATIONAL ENERGY CONSERVATION CODE
BARRIER FREE CODE:	2015 MICHIGAN BLDG. CODE CHAPTER 11
	(2009 ICC/ANSI A117.1)

USE GROUP

MIXED USE NON-SEPARATED: GROUPS: A-3 (ASSEMBLY) AND B (BUSINESS)
(2015 MBC – CHAPTER 3)
(NFPA 101 – CHAPTER 6)

CONSTRUCTION TYPE

BASED UPON OWNER PROVIDED RECORD DRAWINGS

TYPE 1B (ASSUMED)	(2015 MBC – SECTION 602.2)
TYPE II (222) (ASSUMED)	(2012 NFPA 220 – SECTION 4.3)

FIRE PROTECTION

AUTOMATIC SPRINKLER SYSTEMS: CURRENTLY ONLY ON THE FOURTH FLOOR.
THIS BUILDING WILL BE FULLY SPRINKLERED PER THIS PROPOSED RENOVATION.

FIRE EXTINGUISHERS: (2015 MBC – SECTION 906.1)
INSTALL IN ACCORDANCE WITH THE INTERNATIONAL FIRE CODE AND NFPA 10.

ALLOWABLE AREA – HEIGHT – STORIES

ALLOWABLE HEIGHT: 180 FT.
ACTUAL HEIGHT: 46'-10"

ALLOWABLE STORIES: 12 STORIES
ACTUAL STORIES: 4 STORIES

ALLOWABLE AREA: UNLIMITED SF
ACTUAL AREA: 160,488 SF

FIRE-RESISTIVE CONSTRUCTION:

	2015 MBC	2012 NFPA
PRIMARY STRUCTURAL FRAME:	2 HR	2 HR
EXTERIOR BEARING WALLS:	2 HR	2 HR
INTERIOR BEARING WALLS:	2 HR	2 HR
NON-BEARING EXTERIOR WALLS & PARTITIONS:	0 HR	0 HR
NON-BEARING INTERIOR WALLS & PARTITIONS	0 HR	0 HR
FLOOR CONSTRUCTION & SECONDARY MEMBERS	2 HR	2 HR
ROOF CONSTRUCTION & SECONDARY MEMBERS	1 HR	1 HR
STAIR (ENCLOSED)	2 HR	2 HR
SHAFTS	2 HR	2 HR
CORRIDOR	0 HR	0 HR

(2018 MBC TABLE 1020.1 AND 2012 NFPA 38.3.6)

MEANS OF EGRESS REQUIREMENTS

FLOOR AREA PER OCCUPANT:
(2015 MBC – TABLE 1004.1.2 / 2012 NFPA – TABLE 7.3.1.2)

	2015 MBC	2012 NFPA
ASSEMBLY (UNCONCENTRATED TABLES AND CHAIRS)	15 NET SF / OCCUP.	15 NET SF / OCCUP.
BUSINESS	100 SF / OCCUP.	100 SF / OCCUP.
CLASSROOMS	20 NET SF / OCCUP.	20 NET SF / OCCUP.
STORAGE AREAS	300 SF / OCCUP.	500 SF / OCCUP.
EQUIPMENT ROOMS	300 SF / OCCUP.	N/A

TOTAL BUILDING OCCUPANT LOAD: 4,866 OCCUPANTS

SIZING MEANS OF EGRESS

	2015 MBC	2012 NFPA
MINIMUM CORRIDOR WIDTH	0.2 IN / OCCUP.	0.2 IN / OCCUP.
MINIMUM WIDTH OF EXIT PASSAGEWAY	NOT < 44”	SIZED FOR OCCUP.
STAIRWAY WIDTH	0.3 IN / OCCUP.	0.3 IN / OCCUP.
MINIMUM DOOR WIDTH	0.2 IN / OCCUP.	0.2 IN / OCCUP.

REQUIRED STAIRWAY WIDTHS: 342”
PROVIDED STAIRWAY WIDTHS: 347” (5 STAIRS)

BASEMENT: 119”	STAIR 1: 92”
FIRST FLOOR: N/A	STAIR 2: 45”
SECOND FLOOR: 342”	STAIR 3: 60”
THIRD FLOOR: 342”	STAIR 4: 78”
FOURTH FLOOR: 200”	STAIR 5: 72”

REQUIRED DOOR WIDTHS FIRST FLOOR: 274”
PROVIDED DOOR WIDTHS FIRST FLOOR: 20 (36”)

DOORS TOTALING 720”

REQUIRED WIDTHS AT THE POINT OF CONVERGENCE FOR THE BASEMENT, FIRST FLOOR, UPPER FLOOR: 141”

PROVIDED WIDTHS AT THE POINT OF CONVERGENCE FOR THE BASEMENT, FIRST FLOOR, UPPER FLOOR: 4 (36”) DOORS TOTALING 144”

DOOR MINIMUM CLEAR WIDTH MUST NOT LESS THAN 32”
PANIC HARDWARE MUST BE INSTALLED ON ALL DOORS AT AREAS SERVING ASSEMBLY (A-3) OCCUPANCIES AND ROOMS WITH OVER 50 OCCUPANTS

TRAVEL DISTANCE:

	2015 MBC
COMMON PATH LIMIT	100’ GROUP B OR 75’ GROUP A-3
DEAD-END LIMIT	50’ GROUP B OR 20’ GROUP A-3
TRAVEL DISTANCE LIMIT	300’ GROUP B OR 250’ GROUP A-3

	2012 NFPA
COMMON PATH LIMIT	100’ GROUP B OR 75’ GROUP A-3
DEAD-END LIMIT	50’ GROUP B OR 20’ GROUP A-3
TRAVEL DISTANCE LIMIT	300’ GROUP B OR 250’ GROUP A-3

SINCE THE A-3 USE GROUP IS THE MOST RESTRICTIVE OF THIS MIXED USE NON-SEPARATED BUILDING, IT SHALL GOVERN THE LIMITS FOR EGRESS TRAVEL DISTANCES.

REQUIRED PLUMBING FIXTURES:

WATER CLOSETS	
WOMEN’S:	47
MEN’S:	43
LAVATORIES	
WOMEN’S:	27
MEN’S:	27
DRINKING FOUNTAINS:	39
SERVICE SINKS:	3

ENERGY STANDARD REQUIREMENTS:
THIS RENOVATION MUST COMPLY WITH THE ENERGY CODE AND ENERGY CONSERVATION REQUIREMENTS OF THE 2015 MEBC. WHERE ONE OR MORE COMPONENTS OF AN EXISTING BUILDING OR PORTIONS THEREOF ARE BEING REPLACED THE WORK MUST COMPLY WITH ASHRAE 90.1-2013 AND THE APPLICABLE SECTIONS OF 2015 INTERNATIONAL ENERGY CONSERVATION CODE.

IN LATER STAGES OF THE DESIGN CALCULATIONS SHALL BE PERFORMED TO ENSURE COMPLIANCE WITH THE ANNUAL ENERGY CONSUMPTION WITH THE APPLICABLE REQUIREMENTS OF SECTIONS 5, 6, 7, 8, 9, AND 10, PROVIDED IN SECTION 4.2.1.2.1

DETROIT, MICHIGAN CLIMATE ZONE: 5A
(2013 ANSI/ASHRAE/IESNA 90.1 – TABLE 5.5.5)

BUILDING ENVELOPE REQUIREMENTS	(NEW CONSTRUCTION)	
ROOF INSUL. ENTIRELY ABOVE DECK)	CONT. INSULATION	R-30
WALLS ABOVE GRADE (MASS)	CONT. INSULATION	R-11.4
WALLS BELOW GRADE	CONT. INSULATION	R-7.5
OPAQUE DOORS (SWINGING)	ASSEMBLY MINIMUM U-0.500	

BUILDING ENVELOPE REQUIREMENT (EXISTING BUILDING)

2015 MICHIGAN REHABILITATION CODE (2015 MEBC)
2015 INTERNATIONAL ENERGY CONSERVATION CODE - CHAPTER 5

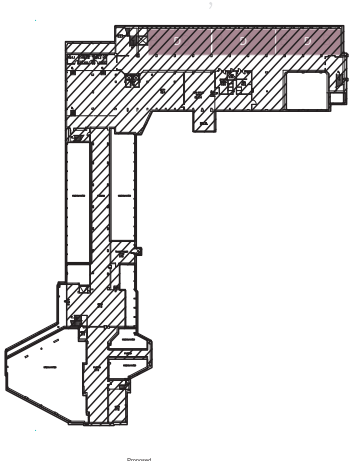
DTMB Measurements

DTMB Guidelines 42

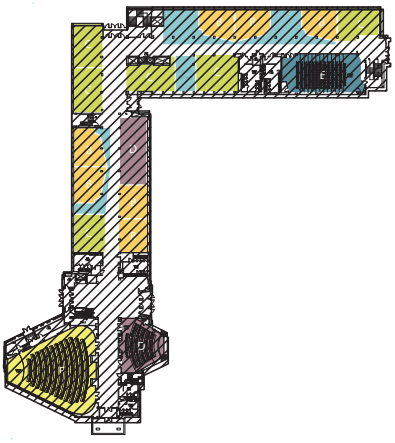
DTMB Guidelines

See images below for DTMB Calculations.

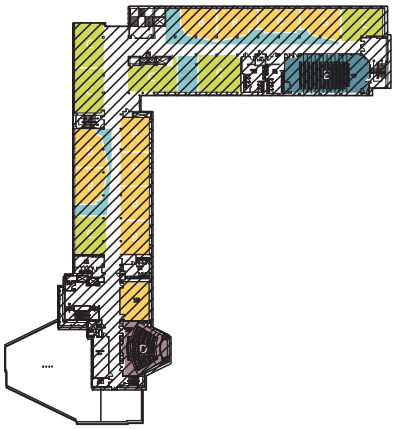
Gross Area Calculations



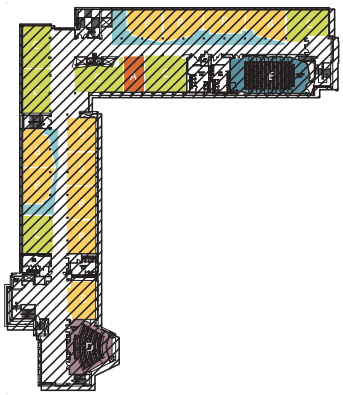
Basement Level



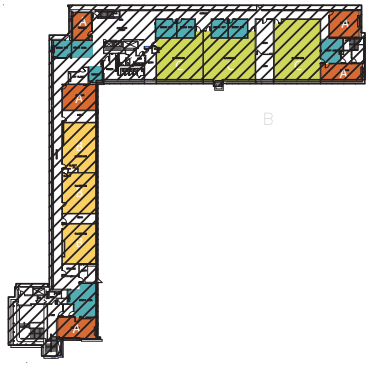
First Level



Second Level



Third Level

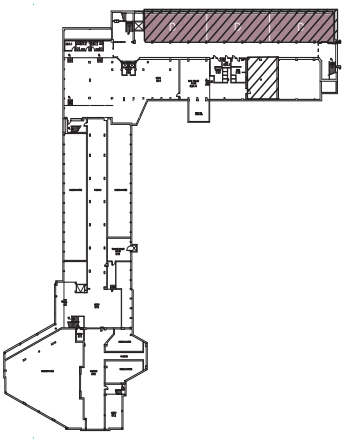


Fourth Level

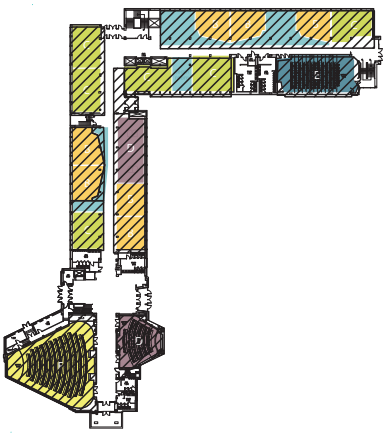
Total Gross Area: 163,539 GSF
Total Net-Assigned Area: 98,788 GSF

Utilization: 60%
The DTMB guidelines recommend a 66% utilization if possible. It is also acknowledged and accepted by the DTMB that existing structures may prevent the design from achieving this guideline percentage.

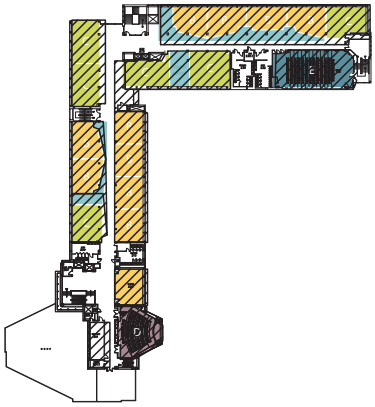
Net Assignable Area Calculations



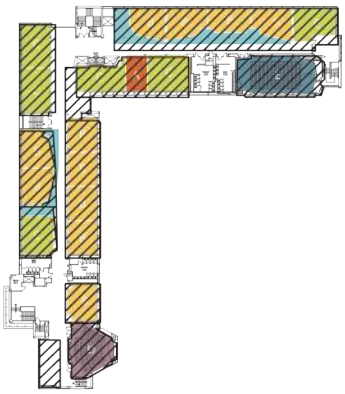
Basement Level



First Level



Second Level



Third Level

Fourth Level

Narrative

Architectural Narrative

Existing Conditions

The building is comprised of a partially excavated basement with four floors above. The original building was built in 1946, with an east wing and fourth floor added in 1955. Since the building was originally constructed, there have been upgrades to some components to the building including, portions of the exterior windows, classroom lighting, portions of the building technology and repairs to the roof system. This building is currently utilized as a general classroom academic building and this function will remain as such at the completion of the renovation.

Exterior

Foundations, Floor, and Structure
The structure of this building is comprised of a reinforced concrete and precast structural system. There is no visible evidence of floor, foundation, or structural system failure. In limited areas, telegraphing of rebar and superficial cracking was observed.

Exterior Envelope
The exterior wall system is masonry veneer with concrete masonry unit back up. Areas of water infiltration, bond breakage, and spalling have been observed, and recommendations for deferred maintenance are noted in the detailed assessment.

Roof and Roof Penetrations
The roofing system is a cold tar pitch and gravel ballast system over a concrete structure. It is assumed that the roofing system has little or no insulation. Major roof repair was performed on a portion of the building in 2000 and 2010. In limited areas, the coping appeared newer. However, in many locations ponding, failed roof flashing, active leaks, and moisture were observed. Many of the skylights from the 1955 addition were capped by a 2012 renovation. The skylights that remain are plastic dome type with significant micro-cracking. Improvised welded wire covers have been provided at some of the skylights on the 1955 addition, which are flimsy and do not appear to be particularly secure. Projected structures with internal gutters at the northwest stair tower appear to slope to drains at either end. The membrane, coping, and flashing appear to be at the end of their useful lives. Recommendations for deferred maintenance are noted in the detailed assessment. The exposed steel window washing monorail on the south, east, and north elevations is heavily rusted. It does not appear to be in use. This should be refinished or removed.

Openings
The exterior doors are vary in materials and include, hollow metal, aluminum, and wood doors and glazing. Many show signs of significant wear and disrepair. The exterior windows are a combination of single pane putty glazed units, thermally-broken, and glass block units. All are recommended to be replaced. Windows were replaced on a portion of the building in 2009 and 2011. Although recently replaced, these windows have horizontal aluminum sills below the windows which do not have backer plates where adjacent sill sections meet. This potentially allows water to enter the wall below. The original single pane aluminum or steel sash putty glazed windows do not appear to have been replaced. The putty is cracked and falling off in many

areas. In many locations, air movement could be detected through the joints. Refer to the Appendix for assessment detail and deferred maintenance recommendations.

Interior

Fourth Floor
The fourth floor was renovated in 2013. The renovation included metal stud and painted gypsum board, new hollow metal doors and frames, resilient tile, and limited areas of ceiling upgrades. Mechanical, electrical and technology systems were upgrading during this renovation. The renovation of the fourth floor in 2013 provided a fully sprinkled fourth floor and new standpipes sized with the capacity to suppress the entire building.

Life Safety
The life safety egress routes do not comply with today's codes as a non-separated, non-sprinkled building. For instance, the sitars and exit passageways do not provide the proper fire separation. In addition, many of the rooms do not have the proper door hardware for exiting. The capacity of the egress widths appear adequate for the current occupancy.

Accessibility
Many of the building entrances are at grade and are accessible. The balance of this building is not Barrier-Free/ADA Compliant: inadequate maneuvering clearance at the doors, improper door hardware, inadequate dispersion of accessible seating, improper floor slope in the auditoriums, and too few accessible toilet stalls and accessories.

Restrooms
The toilet rooms have not been upgraded since the original construction. They show heavy signs of wear and need replacement. The quantity of fixtures throughout the building appear to be adequate for the building occupancy. However, there are not enough water closets or lavatories for barrier-free/ADA access.

Partitions
The partitions are typically glazed masonry units and masonry with painted plaster veneer. Painted metal stud and drywall partitions are located in very limited areas. The basement walls are poured concrete. In many classrooms, a perforated metal acoustic panel is installed and may be removed with the renovation. The interior hollow metal and wood doors appear to be original to the building. The hardware is generally non-compliant knob-style. In some areas, outdated panic hardware was observed. The stair structure appears to be in good condition.

Finishes
The finishes throughout the building appear to be original with minor cosmetic updates. The terrazzo stair floor finish and railings require replacement. The balance of the building flooring is terrazzo, resilient flooring, or unfinished concrete. The corridors have concealed spline acoustical ceiling tile systems which are failing throughout the building. The classroom ceilings are exposed to painted deck above. Some auditoriums have acoustical ceiling tile systems.

Conveying System
The building has two elevators in need of repair and are being handled as part of another project and budget.

Hazardous Materials
Hazardous material abatement will be required for renovations. It is anticipated that the removal of some of the finishes and piping will create exposure to asbestos-containing materials and lead coatings.

Proposed New Work

Work is intended to be completed in one phase.

Exterior
WSU desires a minimum of LEED Silver certification for this renovation. (Refer to the draft LEED scorecard in the Appendix for the suggested strategy.)

Foundations, Floor, and Structure
The existing stepped or tiered classrooms will be renovated to be compliant with accessibility and exiting requirements. This will require a geofoam fill and floor topper or removal and replacement of the slabs on grade in order to produce complaint slopes within these spaces. A ramp system that will reconfigure Rooms 100, 103, and 103.1 is proposed for Auditorium 101. A wheelchair lift is proposed for Auditoriums 134, 234, and 334.

Exterior Envelope
The code analysis indicates that the improvement of the building envelope is only required in areas where the renovation affects the exterior enclosure and the cavity is exposed. For the purpose of this study and the estimate, it was assumed that all exterior masonry walls will be removed, insulated to meet current energy code requirements, and the masonry reinstalled.

Roof and Roof Penetrations
A new Thermoplastic Polyolefin (TPO) roof system is proposed throughout the building. The energy code will require the roof upgrades to comply with current insulation requirements. New coping, flashing, penetrations, and fall protection will be required. At areas where skylights are present, Michigan Occupational Safety & Health Administration (MIOSH) will require upgraded protection to prevent falling through the skylight. (Refer to the Appendix for the roof assessment.)

Openings
All exterior doors and entrances are to be replaced with new thermally-broken insulated units. At each set of entrances, an auto-operated door shall be provided to aid in accessible entrance into the space. Windows and window treatments are proposed to be replaced. A combination of curtainwall and thermally-broken storefront systems are proposed.

Interior

Fourth Floor
This space will require new finishes. The finishes include new terrazzo floors in corridors, resilient flooring in classrooms, and replacement of the acoustical lay-in ceiling system and sprayed ceiling finish is proposed.

Life Safety
This renovation will require the increased rating of stairwells and exit passageways. The communicating space and open lobby space will require corridor upgrades, such as wall ratings, extending the walls to the deck preventing smoke transmission, door and frame ratings as required for code compliance. Door hardware will be updated to comply with the code requirements.

Accessibility
The proposed interior space layout will meet barrier-free/ADA requirements. Power-assist hardware will be provided at one set of doors at each entrance location. At least one accessible stall and lavatory will be provided in each of the restrooms throughout the building.

Restrooms
Toilet Rooms: In all restrooms, a TNCA approved ceramic tile wall and flooring system will be installed. Restrooms are designed to meet accessibility requirements. The multi-occupancy restrooms will have phenolic toilet partitions. New plumbing fixtures and accessories are proposed. The project shall include a unisex toilet facility in compliance with WSU's policy.

Partitions
New partitions will primarily be gypsum wallboard on metal studs with acoustic batt insulation to achieve a minimum STC of 45 to prevent the transmission of sound throughout the building. In the basement, the series of classrooms are intended to have movable partitions to allow for collaboration and flexible use of the spaces for larger classrooms.

Openings
New interior doors and frames are proposed. The doors will be heavy-duty hollow metal or aluminum with door lites as applicable by function of the space. The frames are to be heavy-duty hollow metal or aluminum with sidelights as applicable. The new door hardware will be lever-type or panic devices, based on occupancy classification of space. In limited areas, door protection will be installed.

Finishes
New finishes and handrails are planned for the stairs to comply with code requirements. Many of the walls in this renovation will be painted. In limited areas through the collision areas, an allowance for decorative wall finishes has been provided. New terrazzo floor systems in all corridors and public spaces are proposed. A combination of resilient flooring and carpet tile are proposed in the collision, classroom, and auditorium spaces. A new acoustical lay-in ceiling system is proposed throughout the floors. In limited areas, bulkheads or soffits will be provided. The collision ceiling may have a visual accents for aesthetic interest and wayfinding.

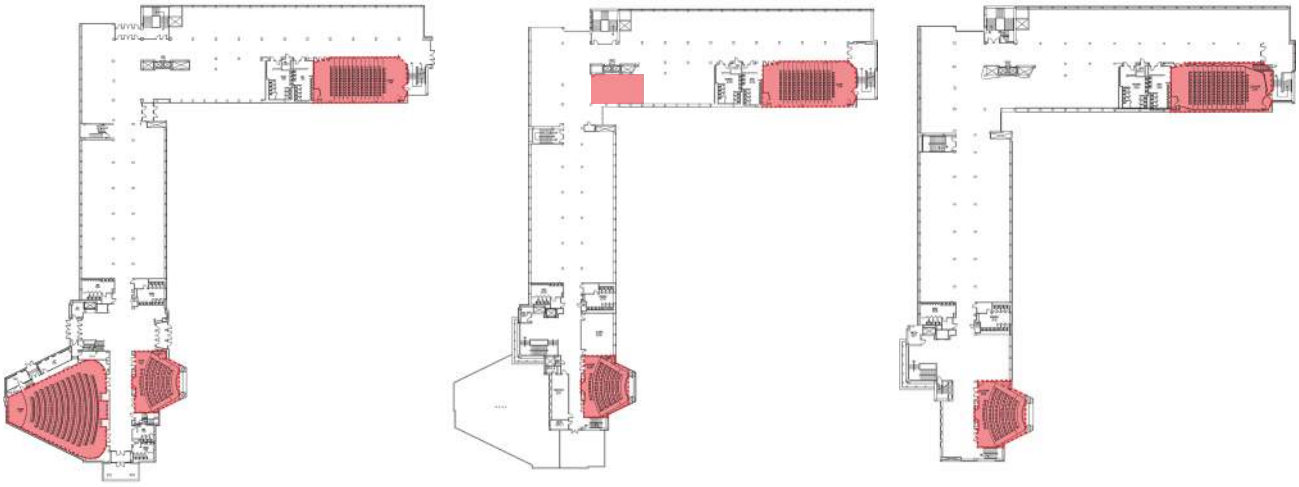
Fixed Equipment and Furnishings
Acoustical panels will be provided in auditoriums and larger classrooms. Motorized partitions will be provided in several large classrooms to offer flexibility for room sizes.

Energy and Sustainability
The proposed new window and door systems, upgraded roofing insulation, increased insulation within the exterior enclosure, and increased efficiency of the mechanical and electrical systems will contribute to the energy efficiency of this building.

Structural Recommendations

Renovations to the building shall ensure that the structural integrity of the building and its components are maintained. In particular, a structural assessment and analysis of the existing tiered classroom slabs and supports may be necessary when the ADA accommodations are determined, and if it is determined that weight will be added. To minimize the addition of weight, such as lightweight concrete, or the use of products such as USG Structural Panels over cold-formed steel framing, may be required. If an assessment of the existing concrete structure indicates that the structure may be overloaded, reinforce the structure with carbon fiber reinforced polymers.

In order to make the lecture halls ADA compliant, the rooms highlighted in red below may need to be structurally modified in order to create an appropriate slope condition or support for an accessible wheelchair lift.



First Level | Second Level | Third Level

Figure 33

Civil Recommendations

The retaining wall south of the Main Entrance Plaza has stone cap joints that are open, allowing water infiltration into the wall. The face brick below shows moisture damage with cracking, spalling, and open mortar joints. Masonry restoration is suggested for all brick. The stone cap should be removed, through wall flashing installed, stone caps reinstalled, and all head joints sealed.

The surface water drains toward the east wall on the Cass Street elevation. There are only two drains to collect the water. The concrete pavement at the Cass entry and around the building is stained and is spalling in some areas. Staining shows evidence of water collection and poor drainage. The lawn area has several mature trees, which should be preserved and worked into the new hardscape. The proposed new hardscape areas will create more stormwater runoff. New stormwater management systems should be installed to handle existing and new drainage areas.

The condition of existing utility services (domestic water, fire protection, sanitary laterals, roof drain leads) is unknown, but are aged beyond their useful life. It is recommended to replace these utility services back to the mainline(s) during building renovation to limit the deferred maintenance for the next ten years.

Mechanical Narrative

Existing Conditions

Fire Protection
State Hall Classrooms
Fire protection coverage in the current building is limited to the fourth floor. There is an existing 8 inch fire supply line that is connected to the fire pump assembly and routed up to the fourth floor.

Plumbing
The current plumbing system supplying the basement through the third floor is operational but is dated back to the original construction of the building (1948 and 1955). During the 2012 fourth floor renovation a booster pump and expansion tank were added to the CW loop.

Sanitary
The current sanitary system is operational but is dated back to the original construction of the building (1948 and 1955).

Storm
The current storm system is operational but is dated back to the original construction of the building (1948 and 1955).

Domestic Water
A 6 inch water service line enters the building in the basement mechanical room. The water system is dated back to the original construction of the building in 1948.

Natural Gas
A natural gas service line enters the building in the basement mechanical equipment room. The natural gas system is in good condition.

HVAC
Four air handling units (AHU's 1, 2, 4, and 5) in the basement mechanical rooms provide heating and cooling for the first, second, and third floors. Ductwork extends from these units to a reheat coil that then extends to a variety of spaces throughout State Hall. The spaces have ducted return. The AHUs contain HW/CW coils provided by steam and chilled water. AHU-1 and AHU-2 are original to the 1948 building construction and AHU-4 and AHU-5 are original to the 1955 building addition. AHU-2 serves the basement and first floor of the original 1948 wing. AHU-1 serves the second and third floors of the 1948 original wing. AHU-4 serves the first, second, and third floors of the 1955 addition. AHU-5 serves the lecture halls of the 1955 addition. Based on the age and appearance, the air handling units likely have exceeded their useful life. Each AHU supplies air into the plenum chamber located in the basement. Existing reheat coils are located within the plenum chamber and supply the classroom spaces. HHW piping supplying the reheat coils are uninsulated and do not have an isolation valve. The return air for the classroom spaces are discharged through relief hoods located on the roof. Bathroom exhaust is connected to an exhaust fan located within the fan room on the roof level.

The fourth-floor mechanical system has always been separated from the existing building mechanical system. It is served by a combination of unit ventilators, fan coil units, finned tube radiators, IT closet AC units, relief hoods, and toilet exhaust fans. The equipment is dated back to 2012, when the most recent classroom renovation took place. The unit ventilators and fan coil units are supplied with HHW and CHW.

Hydronic

The cooling chilled water system is supplied from the WSU Chemistry building. The chilled water supply/return pipes enter the building at the basement level within Boiler Room 024.4. The existing four chilled water booster pumps located in Mechanical Room 024 and Boiler Room 024.4 are no longer in use since the chemistry building CHW system has been upgraded. For the fourth-floor renovation included 4" CHWS/R lines tapping off of the existing 8" mains to supply the unit ventilators and fan coil units.

The heating hot water system is provided by two Cleaver Brooks boilers located in Boiler Room 024.4. The boilers were operational, and no problems were reported. The boilers were replaced in 2007.

Recommendations

Natural Gas

The proposed renovations will not require a new gas service but will require reconnection to the new water heaters.

Fire Protection

State Hall Classrooms

The first, second, and third floors will require a fully sprinklered system, designed in accordance with the Michigan Building Code and NFPA 13, 14, and 20. This new system will tie into the existing fire pump system installed for the fourth floor.

Plumbing Renovation

A complete plumbing system replacement will be provided in accordance with the 2015 Michigan Plumbing Code and applicable local ordinances. Piping systems will include sanitary waste and vent, stormwater, domestic hot and cold water with recirculating hot water return, and natural gas. Full replacement of plumbing fixtures, sanitary sewage ejector pump, and storm pump. Revise the fourth-floor plumbing systems to be incorporated into the rest of the buildings plumbing system.

Plumbing Systems

Piping Systems

1.Chilled Water and Hydronic Heating Water:
    a. Schedule 40 black steel.
2.Sanitary and Storm Systems (below grade):
    a. Cast iron DWV or PVC DWV Schedule 40 piping to match existing site sanitary and storm system piping.
3.Sanitary and Vent Systems (above grade):
    a. Cast iron.

4.Stormwater Systems (above grade):
    a. Service weight cast iron for primary roof drainage systems, PVC Schedule 40 for secondary roof drainage systems that are not located within air plenum spaces or noise sensitive areas. Where located in plenum spaces, pipe shall be cast iron.
5.Domestic Hot and Cold Water (above grade):
    a. Type L hard drawn copper piping.
    b.Hot water will be recirculated system.
6. Domestic Hot and Cold Water (below grade):
    a. 'Type K' annealed copper piping.
7. Natural Gas:
    a. Schedule 40 black steel.

Fixtures and Equipment

1. Water Closets:
    a. Vitreous china, wall hung, 1.28 gpf high efficiency sensor flush valve.
2. Urinals:
    a. Vitreous china, wall mount, high efficiency 0.125 gpf sensor flush valve.
3. Lavatories:
    a. Vitreous china, counter drop in, under mount, or wall-mounted.
    b. Fixture trim shall be manual metering type.
4. Sinks:
    a. Stainless steel, 18 gauge, 'Type 304', under mount or drop in.
    b. Manually operated faucets with either gooseneck or pull out spouts.
5. Electric Water Coolers:
    a. High low barrier free, stainless steel, wall-mounted.
    b. Provided with water bottle filler located above barrier free fountain.

Heating, Ventilating, and Air Conditioning (HVAC)

HVAC System

A new full building HVAC system is required. This will require revisions to incorporate the fourth floor, creating one building system. Full replacement of equipment includes AHUs, reheat coils, relief hoods, exhaust fans, and diffusers associated with the basement through third floor. The AHUs will be a variable air volume (VAV) style and will provide heating, cooling, filtration, and fresh air ventilation. Conditioned airflow will be delivered to the existing plenum chases that will house reheat coils and the space with have a ducted return. Supply, return, and exhaust ductwork will be reused unless adjustments to accommodate the revised floor plan are needed. Any ductwork routed underground shall remain. Existing ductwork being reused shall be cleaned and reinsulated. All systems supporting the fourth floor will remain as is. All abandoned equipment shall be removed to allow for space for new equipment.

Piping Systems
A full replacement of the mechanical piping is proposed. Revise the fourth-floor piping systems to be incorporated into the rest of the buildings HVAC piping system. The existing CHW connection from the Chemistry Building will remain State Hall's source of chilled water. Existing boilers/pumps replaced in 2007 will remain as is. Mechanical piping (chilled water and heating water) shall be replaced with welded Schedule 40 steel or 'Type L' seamless copper. Pipe size 2 1/2 inch and above shall be welded Schedule 40 steel. Grooved piping systems shall not be permitted. All mechanical piping shall be insulated. Reheat coils shall have individual isolation valves associated with each. Provide new finned tube radiators along perimeter and cabinet unit heaters within vestibules.

Duct Construction
New ductwork will be provided as needed to accommodate the revised floor plan. Ductwork shall be galvanized steel throughout and constructed to Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) standards. Ductwork shall be sealed and leak tested in accordance to Leadership in Energy & Environmental Design (LEED) requirements and the American Society of Heating, Refrigerating and Air Conditioning Engineers (AHSRAE) standards (i.e., AHSRAE 90.1 2007). Duct pressure class is to be 6 inch water column (W.C.) for all ductwork; except for exhaust ductwork and supply ductwork downstream of VAV terminal units, which shall be 2 inch W.C. pressure class. All supply air ductwork shall be insulated. Flexible runouts to diffusers will allow ease of installation and provide final sound attenuation of terminal unit and duct generated noise.

Exhaust Systems
A new central exhaust system shall be provided to accommodate the general exhaust needs. The new exhaust fans will accommodate toilet rooms, janitor closets, and other spaces where return air recirculation is not acceptable. Revise the fourth-floor exhaust system to be incorporated into the buildings central exhaust system.

HVAC Control System
A new direct digital control (DDC) system should be provided to control the HVAC system. Existing pneumatic controls will be replaced with electric controls. Space temperature sensors will be installed in each zone to control the operation of the HVAC units. The system will be compatible with the existing buildings management system and allow full interface from the central campus controls interface.

Energy Savings Measures
The following energy savings measures will be implemented for this project:

1.Airside economizer for all central AHUs.

2.Demand controlled ventilation (via CO2 sensors) in high density spaces, such as classrooms.

3.Occupancy sensor control for zone level HVAC systems.

Electrical Narrative

Existing Conditions

Electrical Site Power

At the time of our field investigation, the building was served electrically from a DTE Energy vault in the basement that was formerly owned by the Detroit Public Lighting Department (PLD). Wayne State University is currently working with DTE Energy to replace the transformers within the vault with a new pad mounted transformer located on grade, adjacent to the area well for the transformer vault.
The replacement transformer is a 500 KVA transformer with a dual wound primary at 13.2/4.8 KV. The transformer secondary voltage is 240 V, three phase, 4 wire. The existing utility transformers in the vault consist of (2) 167 KVA transformers at 240 V and (1) 167 KVA transformer at 120/240 V.

Figure 34

Power Distribution

Most of the existing electrical distribution is old and in poor condition. The main distribution consists of a series of large fused disconnect switches that are served from the transformer vault. The fused disconnect switches serve distribution panels, many of which are located in mechanical spaces and are beyond their useful life expectancy. Most of the original panelboards are nearly 50 years old.
The fourth floor was recently renovated, and new panelboards were installed. These panels will not require replacement.

Grounding and Bonding

The existing grounding and bonding system is original to the building.

Emergency Power

The facility does not have an emergency generator. Selected emergency lighting luminaries and exit signs have integral batteries to fulfill emergency lighting requirements, or emergency lighting is obtained from self-contained emergency battery units.

Lighting and Lighting Control
The existing lighting system consists primarily of fluorescent sources. Some of the luminaries are newer and have been designed around T8 lamp technology. Many of the T12 fluorescent luminaries have been retrofitted with T8 technology through previous renovations.
The fourth floor has been recently renovated and has been equipped with T8 technology luminaries.
Some of the building mounted exterior lighting is LED and is in good condition.

Data/Telecommunications - Raceways
The existing data / telecommunications raceway consists of a variety of avenues, including conduit, cable tray, and loose wiring.

Fire Alarm and Detection System
The building is equipped with a newer Siemens Fire Finder XLS fire alarm system. The fire alarm system is in good shape and is capable of accommodating renovation of the facility.

Recommendations

Electrical Site Power
There is a current project to replace the electrical distribution system and tie the building into the DTE transformer. The project includes the installation of a new metering section and main switchboard and the installation of (3) new 250 KVA, 120/240V single phase transformers to back-feed the existing loads.
The replacement electrical distribution system shall serve the fire pump, as long as the following loads: (3) 2P800A, (1) 3P400A, (1) 3P500A, (1) 3P600A, and (1) 3P800A are achieved.
The new replacement utility transformer is 500 KVA. At a square footage of 163,350, this equates to 3.06 VA per square foot, which appears to be inadequate to accommodate the renovation of the facility.

The utility company would have to increase their transformer capacity to 1500 KVA, which would accommodate the fire pump and the main distribution panel. This would provide approximately 8.14 VA per square foot of capacity for the facility. The fire pump would have to be replaced, along with the fire pump controller.

Power Distribution
The replacement main distribution panel has been designed as a 600V system to allow for an easier upgrade to a 277/480V, 3 phase, 4 wire system in the future.
Any substantial renovation to the facility or change in usage would likely require an increase in the electrical service. Anticipate that the service shall be upgraded to 277/480 volt, at 1600 amperes.

The entire electrical distribution system should be replaced during the renovation, with the exception of the aforementioned new distribution equipment and the newer equipment that is on the fourth floor.

Grounding and Bonding
A new grounding / bonding system will be established with the installation of the new utility transformer and service. The existing grounding and bonding system shall be extended to serve the renovated areas. Each conduit shall include an insulated, green equipment ground.

Emergency Power
The facility does not have an emergency generator. A natural gas generator should be installed to provide power for the 100 HP fire pump, as well as to serve emergency lighting loads. The generator could be located adjacent to the pad mounted utility transformer. A separate room would be required to accommodate the emergency distribution and transfer switches.

Lighting and Lighting Control
Lighting systems will utilize solid state, LED technology and will be designed to reduce energy consumption, provide flexible operation, and reduce complexity. Lighting levels and lighting power densities will be chosen to support best energy performance, Michigan Energy Code, and the recommendations of the Illuminating Engineering Society (IES). Lighting controls will be a blend of low voltage switching, timeclock controls, and occupancy controls. The occupancy sensors will be configured as vacancy sensors to manually turn lighting on/off and automatically turn lighting off when a space is unoccupied, in conformance with the energy code. Public spaces will be controlled using automatic time of day control or other means in conjunction with occupancy sensors and daylight harvesting sensors, as appropriate. Specifications for the commissioning of systems will be included in the design documents.
Building mounted exterior luminaries will be designed with LED technology and shall provide egress lighting. Although some of the building mounted exterior lighting is LED, it may lend itself to replacement for aesthetic purposes.
Emergency lighting and exit signs will be installed to serve the code required egress light levels and shall be served from the generator. Emergency lighting shall be controlled with the normal lighting through the use of UL 924 listed relays.

The fourth floor has been recently renovated and has been equipped with T8 technology luminaries. Although replacement of this lighting and controls is not required, there would be benefits such as reduced energy consumption and reduced maintenance that would be benefit to the University. .

Decorative and functional pedestrian lighting shall be added the Cass Avenue entrance plaza. The new lighting would provide a safe and inviting entrance into the renovated facility at night. The lighting will be controlled dusk to dawn with a minimum 30% lighting reduction between midnight and 6 AM.

Data/Telecommunications – Raceways
Cable trays will be installed in corridors to provide reasonable management of the horizontal cabling and workstation connections. Grounding and bonding will comply with Electronic Industries Alliance/Telecommunication Industries Association (EIA/TIA) standards.
Rough in conduit and boxes shall be installed for voice and data outlets, including wireless access points.
All fire rated penetrations shall utilize Hilti EZ Pass systems for penetrations.

Fire Alarm and Detection System

The existing Siemens Fire Finder XLS fire alarm system shall be utilized to accommodate the renovation of the existing facility. The system shall be a voice annunciation type fire detection and alarm system, and be connected to pull stations, smoke/heat detectors, duct type smoke detectors, fire protection flow and tamper switches, visual alarms, and voice annunciation speakers, as required for a complete and functioning system.

AV/Technology Narrative

Concept

Wayne State University desires to build a learning environment that is engaging and improves the common classroom tasks; making better use of the faculty and student instructional time. Many technologies can positively affect the experience of students and faculty in classrooms and in casual collaboration spaces. Benefits include efficiency, learning experience, and comfort. Smart classrooms will offer faculty and students a technology-rich space with the ease of use.

To achieve these goals, smart solutions should:
1. Disconnect the instructors from the room's podium, allowing them control from anywhere in the room to engage with students.
2. Provide small-group collaboration displays, allowing student and faculty to easily route content to and from these displays.
3. Deliver user-friendly reliable technology through a simple technology interface.

Communications Overview
Technology systems include:

New communications rooms, as required on each floor. Connections via new cabling shall be Cat-6E cabling infrastructure. Fiber optic cable backbone, extending to an existing Communications room already in place on the first floor of State Hall.

Classroom AV upgrades in each classroom to match latest WSU AV Standards.

New clock and paging system throughout building. A new access control system for external doors on the WSU standard system. Video security system will be implemented throughout the building and is intended to tie into WSU's existing system.

Communications Room
Each communications room will consist of the following: New 7' tall communications rack and cable ladder around the room to support cables. New power outlets will be required on the wall and at the rack. A plywood backer shall be provided for equipment mounting.

Electrical/Mechanical: Ground bars and connection to electrical ground shall be provided. In addition, constant cooling is proposed each in communications room based on heat load.

Communications Grounding
Ground bars shall be by the electrical contractor, each rack and all cable ladder will be connected to the ground bar.

Fiber Cabling
A new fiber backbone will be required. New fiber will need to be installed from the existing first floor communications room to the communications room on each floor. Singlemode and Multimode fibers shall be installed. Fiber cabling shall be plenum rated, 24 strands. Terminate on new fiber optic patch panels in racks in each communications room. Testing shall occur for all fiber cables.

Cat-6 Cabling
All new cabling shall be Cat-6E or above. All cables shall be plenum rated and shall meet all WSU Cabling Standards and Color Code as per WSU Cabling Standards Cables shall be installed to support one per security camera, one per wireless access point, two at each teacher location, and one per LCD display at digital signage locations.

Clock System
All new areas and renovated areas shall have a new clock. Hallway clocks shall be two-sided digital clocks and classroom clocks shall be digital clocks on the wall. All clocks will be 120-volt or power over ethernet.

Paging Bell System
A new paging system will be installed throughout the building. Install speakers in common areas and in each classroom. Speakers will not be installed in each office or other non-occupied rooms. System shall be on the network and shall allow stored messages to be played.

Access Control
An upgraded access control system will be installed. Many doors will be controlled via access control. This shall include electrified door hardware and card readers, where appropriate. Each communications room shall have a card reader and electrified hardware. The main entry to the building will be via a secure vestibule. The classrooms will not be electronically controlled, with the exception of Computer Labs.

Security Recording
There will be an expanded video security solution. Security cameras will be installed throughout the common areas and outdoor areas of the building. The video security storage solution will be enlarged to support the new cameras. This cost shall be born by the project. C&IT will provide the servers and camera licenses. All security cameras will be ethernet network connected.

Security Cameras
All new cameras will be IP cameras. All will be a minimum of 1080HD resolution and will be recorded centrally at the data center on servers.

Classroom Video
Classroom video will be based on the latest WSU standards and specialized to meet the schools needs. A teacher lectern shall be installed in each classroom. Each classroom will have a teaching station that will consist of connections to the display devices in the classroom. Each classroom will have an in-room audio system, consisting of speakers and amplifiers; larger rooms will have microphones, a backbox at each LCD that supports power, and scheduler outside the door to show if the room is in use and when the next class will be in the room. Some classrooms may have specialized AV inputs and outputs.

Typical Classroom Hardware

Type A Classrooms – 1 to 20 people
1) Teacher station
2) Classroom audio
3) 70" LCD

Type B Classrooms – 21 to 35 people
1) Teacher station
2) Classroom audio
3) Projector and projection screen
4) Control system

Type C Classrooms – 36 to 49 people
1) Teacher station
2) Classroom audio
3) Projector and projection screen
4) One or two LCD displays
5) AV switching system and control system

Type D Classrooms – 50 to 70 people
1) Teacher station
2) Classroom audio
3) Two projectors and projection screens
4) Two LCD displays
5) AV switching system and control system

Type E Classrooms – 71 to 149 people
1) Teacher station
2) Classroom audio
3) Two projectors and projection screens; large projectors and ceiling recessed electric screens
4) Two LCD displays
5) AV switching system and control system

Type F Classrooms – 150+ people (Lecture Hall)
1) Teacher station
2) Classroom audio
3) Two projectors and projection screens; large projectors and ceiling recessed electric screens
4) Four LCD displays
5) AV switching system and control system

Classroom Audio
Each classroom shall have an audio system. Each classroom will have an in-room audio system consisting of speakers and amplifiers; larger rooms will have microphones.

Video Equipment
Specific rooms shall have different video systems. Small conference rooms and team rooms shall include large LCD displays and input plates for connection to laptops and other devices. Each room shall include wireless video connectivity for users and control system for each space to control the LCD and display. Digital signage at areas throughout the building. Assume 55" LCD's at six locations.

Audio Equipment
Specific rooms shall have different audio systems. Paging system throughout the building for emergency and general announcements.

Audio Speakers
Speakers shall be designed into the space to fit the space.

AV Cabling
All cabling shall be plenum rated and cabling shall be installed to best support the transmission of the systems.

Technology Submittals
Contractor shall provide submittals, including one-line diagrams and product cutsheets for all equipment.

Technology Labeling
All cabling shall be labeled with laser-printed labels at each end of the cable. All AV equipment shall be labeled on the front to note what the equipment does.

Technology Testing
All cables shall be tested for CAT-6 and CAT-6A standards, respectively. All AV cables shall be tested for polarity and signal transmission.

Technology Training
Each system shall include training for the owner.

Technology Warranty
Each system shall include a warranty for equipment and workmanship. No less than one year for all workmanship. Some manufacturers may provide longer equipment warranties.

Appendix

A | Envelope Assessment
B |Proposed LEED Score Card

Envelope Assessment

Envelope Assessment

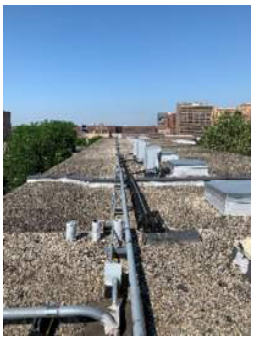
The intent of the Facilities Conditions Assessment (FCA) is to evaluate conditions of the existing site, building, and building systems and propose recommendations for improvements. State and local building codes do not require that any work be conducted at this time. The improvements proposed are at Wayne State University's discretion.

Existing Conditions

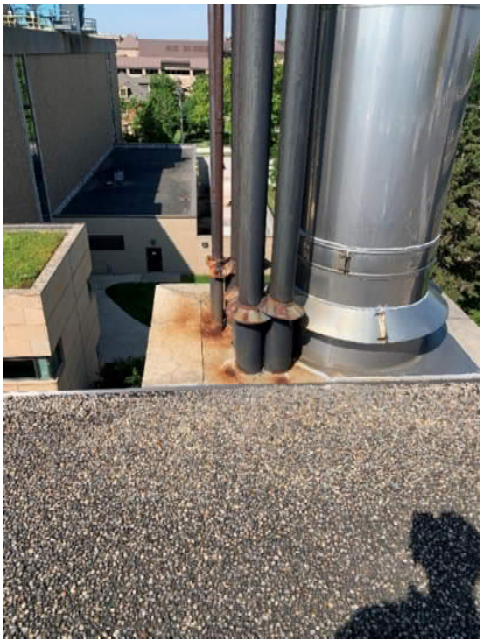
Location: Wayne State University State Hall — 5143 Cass Ave, Detroit, MI 48202

Site Plan and Photo Key

UniFormat Section:	B3010 – Roof Coverings
Location:	Entire Flat Roof
Name:	Built-up Roofing
Observation:	All roofing appears to be built-up roofing with gravel ballast over insulation on a concrete deck with minimal insulation. Roof replacement over the auditorium occurred in 2000 and the third-floor roof over the 1948 building occurred in 2010. Several soft spots were observed on the third-floor roof replaced in 2010. Other than some flashing around skylights, there is no indication of roof patching.
Recommendations:	Roof replacement is recommended. Remove built-up roofing with gravel ballast and everything below it down to roof deck. Install new polyisocyanurate insulation and Ethylene Propylene Diene Monomer (EPDM) roofing or Thermoplastic Polyolefin (TPO) membrane.
Reason for Replacement:	System at end of life, failure observed with water infiltration in limited areas.
Priority:	Immediate (within 1 to 2 years)


UniFormat Section:	B3010 – Roof Coverings
Location:	West End of 1955 Addition
Name:	Exterior Chase
Observation:	On the west edge of the fourth floor roof at the 1955 addition, there are a number of pipe and duct penetrations through a concrete slab area. There is heavy rusting on the face of the stone cap adjacent and significant staining of the masonry below. It is likely that water is infiltrating the stone into the wall below.
Recommendations:	Replace existing piping as part of renovation of mechanical systems. Provide new concrete slab or insulated roof system. Provide proper flashing and sealants to prevent infiltration of water into spaces below.
Reason for Replacement:	Water infiltration observed
Priority:	Immediate



UniFormat Section:	B3010 – Roof Coverings
Location:	Entire Flat Roof
Name:	Skylights
Observation:	Many of the skylights from the 1955 addition were capped by a 2012 renovation. The skylights that remain are plastic dome type with significant micro-cracking. Improvised welded wire covers have been provided at some of the skylights on the 1955 addition, they are very flexible and do not appear to be particularly secure.
Recommendations:	Replace existing skylights. Provide new flashings as part of this project and the roof project.
Reason for Replacement:	Unsafe building condition and failure observed with water infiltration in limited areas.
Priority:	Immediate



UniFormat Section:	B3010 – Roof Coverings
Location:	Entire Building
Name:	Metal Fascia
Observation:	Metal fascia is somewhat faded, minor paint chipping, and dented in some areas. The fascia is oil canning above the main entrance.
Recommendations:	Metal fascia will need to be replaced as part of new roof replacement and upgrades to exterior.
Reason for Replacement:	Deferred Maintenance
Priority:	Immediate



UniFormat Section:	B2010 – Exterior Walls
Location:	Entry Canopies, Building Overhangs
Name:	Soffits
Observation:	The soffit area at the main entrance, miscellaneous entrance canopies, and building overhangs appear to be the underside of the cast in-place roof deck. The finish is peeling and heavily stained, presumably from moisture.
Recommendations:	Remove existing finish on underside of all soffits and overhangs around entire building. Prep surface for recoating of new finish.
Reason for Replacement:	Observed moisture infiltration and deferred maintenance
Priority:	Immediate (within 1 to 2 years)

UniFormat Section:	B2010 – Exterior Walls
Location:	Main Entrance
Name:	Granite Columns
Observation:	Granite clad columns are chipped at some locations and some loss of mortar bond between sections of granite.
Recommendations:	Remove existing granite panels. Provide new ACM metal panel attached to existing concrete columns.
Reason for Replacement:	Cosmetic and deferred maintenance
Priority:	Immediate

UniFormat Section:	B2010 – Exterior Walls
Location:	North and West Entrances
Name:	Stone Base
Observation:	Near the north and west entrance of the 1946 building, the stone base below masonry is deteriorating from salt, is stained, and appears to have significant water infiltration near the top from the canopy above.
Recommendations:	Remove lower pieces of stone all along entrance. Remove stone curb below. Replace with new concrete or stone base 8” high above concrete slab that is resistant to salt and other elements.
Reason for Replacement:	Moisture infiltration, disrepair, damage, and deferred maintenance
Priority:	Immediate

UniFormat Section:	B2010 – Exterior Walls
Location:	Masonry Walls
Name:	Masonry
Observation:	Masonry walls in the original 1946 building are in fair condition for their age, but there is cracking typically aligned with window jambs, cracking / spalling near the foundation, and loss of mortar bond at mortar joints. Surface moss was observed in some shaded areas where the walls do not readily dry out. There is heavy damage to the fourth-floor walls above the third-floor roof of the original 1946 building. The masonry at the 1955 addition appears to be in better condition, however, there is still cracking / spalling / loss of mortar bond at some locations. The exterior walls do not have insulation or an air space to allow for proper ventilation and drainage.
Recommendations:	Remove and salvage the exterior masonry for. Insulation will be provided in the air space behind the brick to meet today's energy code requirements.
Reason for Replacement:	Age and useful life
Priority:	Immediate



UniFormat Section:	B2010 – Exterior Walls
Location:	Roof Overhang along Perimeter of Building
Name:	Steel Window Washing Rail
Observation:	The exposed steel window washing monorail on the south, east, and north elevations is heavily rusted and does not appear to be in use.
Recommendations:	It is recommended that this rail be removed, and the concrete soffit be patched and refinished.
Reason for Replacement:	Age and useful life
Priority:	Immediate

UniFormat Section:	B2010 – Exterior Walls
Location:	Exterior Foundation
Name:	Foundation
Observation:	Some cracking of the concrete foundations but nothing that seemed to indicate significant settling issues.
Recommendations:	None (no planned replacement)

UniFormat Section:	B2020 – Exterior Windows
Location:	Entrances and Stair Towers
Name:	Windows
Observation:	Storefronts, windows, and entrances at the main entrance and stair towers appear to be original single pane aluminum, and in some cases original steel sash.
Recommendations:	These are thermally inefficient and do not seal against air infiltration. These should be replaced with insulated glazing in thermal break frames. Assure voids are filled around window perimeter and openings are equipped with through wall flashing.
Reason for Replacement:	Energy Efficiency/Deferred Maintenance
Priority:	Immediate (within 1 to 2 years)

UniFormat Section:	B2020 – Exterior Windows
Location:	Northwest Stair Tower
Name:	Windows and Metal Window Projections
Observation:	The windows on the stair tower appear to be original single pane aluminum, and in some cases original steel sash. There is also a projected sun shading structure with internal gutter that is deteriorating.
Recommendations:	The windows are thermally inefficient and do not seal against air infiltration. These should be replaced with insulated glazing in thermal break frames. Recommend removing the projected structures as part of this work and replace the corrugated metal panel at the bottom of the glazing with a new ACM metal panel.
Reason for Replacement:	Energy Efficiency/Deferred Maintenance
Priority:	Immediate (within 1 to 2 years)



UniFormat Section:	B2020 – Exterior Windows
Location:	East and West Elevations of 1955 addition
Name:	Windows and Metal Panel
Observation:	The windows on the east and west elevations of the 1955 addition appear to be original single pane aluminum windows that are glazed with putty. The putty is cracked and falling off in many areas. Many locations air movement could be observed through the joints. The flashing adjacent to these windows is starting to show signs of rust. The horizontal aluminum sills below the windows do not have backer plates. At the metal panels, many of the putty joints are in disrepair and the panels are faded, stained, and the joint seals are deteriorating.
Recommendations:	The windows are thermally inefficient and do not seal against air infiltration. These should be replaced with insulated glazing in thermal break frames. Assure voids are filled around window perimeter and openings are equipped with through wall flashing. The aluminum sills below the window should also be removed to allow the addition of appropriate flashing to protect water infiltration of the wall below. The metal panels should be replaced with an ACM metal panel with adequate insulation behind to meet today's requirements.
Reason for Replacement:	Energy Efficiency/Deferred Maintenance
Priority:	Immediate (within 1 to 2 years)



UniFormat Section:	B2020 – Exterior Windows
Location:	1946 Original Building
Name:	Windows
Observation:	It appears that several of the original single pane windows of the original 1946 building were replaced with newer insulated glass, in aluminum frames, as part of a past renovation.
Recommendations:	Although many windows are thermally broken, they are not as thermally efficient as new systems used today. These should be replaced with insulated glazing in thermal break frames to match the rest of the windows that are being replaced. Assure voids are filled around window perimeter and openings are equipped with through wall flashing.
Reason for Replacement:	Energy efficiency and cosmetics
Priority:	Immediate

UniFormat Section:	B2020 – Exterior Windows
Location:	West Elevations of 1946 Building
Name:	Windows
Observation:	The punched opening windows on the west wall of the original 1945 building addition appear to be the original single pane / steel sash windows.
Recommendations:	The windows are thermally inefficient and do not seal against air infiltration. These should be replaced with insulated glazing in thermal break frames. Assure voids are filled around window perimeter and openings are equipped with through wall flashing.
Reason for Replacement:	Energy efficiency/deferred maintenance
Priority:	Immediate (within 1 to 2 years)

UniFormat Section:	B2020 – Exterior Windows
Location:	East and West Elevations of 1955 Addition
Name:	Glass Block
Observation:	The glass block on the east and west elevations, above the aluminum windows, are thermally inefficient and outdated.
Recommendations:	The windows are thermally inefficient and do not seal against air infiltration. These should be replaced with insulated glazing in thermal break frames or an insulated metal panel system. Assure voids are filled around window perimeter and openings are equipped with through wall flashing.
Reason for Replacement:	Energy efficiency, disrepair, damage, and deferred maintenance
Priority:	Immediate (within 1 to 2 years)

UniFormat Section:	B2020 – Exterior Windows
Location:	South and East Elevations of 1946 Building
Name:	Glass Block
Observation:	The glass block on the south and east elevations, above the aluminum windows, are thermally inefficient and outdated. There are individual block pieces in portions of the masonry wall that would remain.
Recommendations:	The windows are thermally inefficient and do not seal against air infiltration. These should be replaced with insulated glazing in thermal break frames or an insulated metal panel system. Assure voids are filled around window perimeter and openings are equipped with through wall flashing. There are some other punched window openings on the north elevation that will remain at this time.
Reason for Replacement:	Energy efficiency, cosmetic, and deferred maintenance
Priority:	Immediate (within 1 to 2 years)



UniFormat Section:	B2010 – Exterior Walls
Location:	Entire Building
Name:	Expansion and Control Joints
Observation:	Expansion joint material at walls seemed intact at most locations except one. Caulking / sealing has been updated in many areas, but there are some areas where the old drying caulk is deteriorating.
Recommendations:	The sealants and caulk should be looked at for the building for deterioration and failing. The caulk should be removed, surfaces prepped, and new sealant installed where applicable.
Reason for Replacement:	Disrepair, damage, and deferred maintenance
Priority:	Immediate

UniFormat Section:	B2030 – Exterior Doors
Location:	South Entrance of 1946 building
Name:	Entrance Doors
Observation:	The existing entrance doors and panels adjacent to the doors are deteriorating and have different kinds of hardware on the doors.
Recommendations:	Replace the entrance doors with new storefront system along entire width of entry between the stone. Provide ADA accessible push buttons on the new door configuration.
Reason for Replacement:	Moisture infiltration, disrepair, damage, and deferred maintenance
Priority:	Immediate (within 1-2 years)


Proposed Leed Scorecard

Y	?	N	Prerequisites/Credits		
			Project Information		-
Y			PIf1	Project Information	-

1	2	36	**Integrative Process**		1
1			IPc1	Integrative Process	1

12	2	18	**Location and Transportation**		16
		16	LTc1	LEED for Neighborhood Development Location	16
1			LTc2	Sensitive Land Protection	1
		2	LTc3	High Priority Site	2
5			LTc4	Surrounding Density and Diverse Uses	5
5			LTc5	Access to Quality Transit	5
1			LTc6	Bicycle Facilities	1
	1		LTc7	Reduced Parking Footprint	1
	1		LTc8	Green Vehicles	1

2	2	6	**Sustainable Sites**		10
Y			SSp1	Construction Activity Pollution Prevention	Required
1			SSc1	Site Assessment	1
		2	SSc2	Site Development - Protect or Restore Habitat	2
1			SSc3	Open Space	1
		3	SSc4	Rainwater Management	3
	2		SSc5	Heat Island Reduction	2
		1	SSc6	Light Pollution Reduction	1

8	1	2	**Water Efficiency**		11
Y			WEp1	Outdoor Water Use Reduction	Required
Y			WEp2	Indoor Water Use Reduction	Required
Y			WEp3	Building-Level Water Metering	Required
2			WEc1	Outdoor Water Use Reduction	2
6			WEc2	Indoor Water Use Reduction	6
		2	WEc3	Cooling Tower Water Use	2
	1		WEc4	Water Metering	1

5	15	13	**Energy and Atmosphere**		33
Y			EAp1	Fundamental Commissioning and Verification	Required
Y			EAp2	Minimum Energy Performance	Required
Y			EAp3	Building-Level Energy Metering	Required
Y			EAp4	Fundamental Refrigerant Management	Required
	6		EAc1	Enhanced Commissioning	6
4	6	8	EAc2	Optimize Energy Performance	18
	1		EAc3	Advanced Energy Metering	1
	2		EAc4	Demand Response	2
		3	EAc5	Renewable Energy Production	3
1			EAc6	Enhanced Refrigerant Management	1
		2	EAc7	Green Power and Carbon Offsets	2

1	4	7	**Materials and Resources**		13
Y			MRp1	Storage and Collection of Recyclables	Required
Y			MRp2	Construction and Demolition Waste Management Planning	Required
		5	MRc1	Building Life-Cycle Impact Reduction	5
	1	1	MRc2	Building Product Disclosure and Optimization - Environmental Product Declarations	2
	1		MRc3	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
	1	1	MRc4	Building Product Disclosure and Optimization - Material Ingredients	2
1	1		MRc5	Construction and Demolition Waste Management	2

8	5	1	**Indoor Environmental Quality**		16
Y			IEQp1	Minimum Indoor Air Quality Performance	Required
Y			IEQp2	Environmental Tobacco Smoke Control	Required
2			IEQc1	Enhanced Indoor Air Quality Strategies	2
3			IEQc2	Low-Emitting Materials	3
1			IEQc3	Construction Indoor Air Quality Management Plan	1
	2		IEQc4	Indoor Air Quality Assessment	2
1			IEQc5	Thermal Comfort	1
1		1	IEQc6	Interior Lighting	2
	1		IEQc7	Daylight	3
	1		IEQc8	Quality Views	1
	1		IEQc9	Acoustic Performance	1

4	2	0	**Innovation (5 points requires 1 pilot credit. Max 2 exemplary performance)**		6
1			INc1	Innovation : Green Building Education	5
1			INc2	Innovation : Design For Active Occupants	
1			INc3	Innovation : Occupant Comfort Survey	
	1		INc4	Innovation : Walkable Project Site	
	1		INc5	Innovation : Green Housekeeping + Additional Policy	
1			INc2	LEED Accredited Professional	1

2	0	0	**Regional Priority**		2
1			RPc1	Regional Priority: LTc4 Surrounding Density and Diverse Uses	1
1			RPc2	Regional Priority: EAc2 Optimize Energy Performance	1

43	31	47	**Certified TOTALS**	Possible Points:	108

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

			TBD Items

43			**Certified**
53			**Silver**
63			**Gold**