University of Oregon

2017 Deferred Maintenance Building Assessment
Villard Hall/ Miller Theatre Complex

November 3, 2017

FFA Architecture + Interiors

UNIVERSITY OF OREGON
Campus Planning and Facilities Maintenance

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1.01 Executive Summary

Project Description

The University of Oregon Campus Planning and Facilities Management (CPFM) – Design and Construction engaged FFA Architecture + Interiors and their consultant team to perform a deferred maintenance building assessment for campus buildings Villard Hall (1885) and the Robinson Theater (1949) portions of the Miller Theatre Complex. The building assessment will provide the background condition descriptions and professional recommendations for CPFM to develop a comprehensive scope of work for a deferred maintenance renovation project and associated project budget. The assessment scope of work elements included:

- Review of the University of Oregon Campus Plan and incorporation of plan elements into the assessment evaluations and recommendations
- Evaluation of the basic building programs to be housed in the buildings with the intent to revitalize building spaces to meet current campus standards
- Evaluation of the building exterior envelope conditions with recommendations for deferred maintenance improvements including historic preservation treatment

Villard Hall

- Evaluation of the building interior environment, including finishes, lighting, and quality of space with recommendations for improvement to meet campus standards
- Review for building code compliance including life/safety and accessibility and provide corrective recommendations
- Evaluate all building systems (mechanical, electrical, plumbing, fire protection, computer network, access controls, and security) for existing conditions. Provide recommendations for improvement including repair, replacement and upgrade to meet energy performance requirements of the Oregon Model for Sustainable Development as well as achieving LEED Gold certification
- Evaluation of building structural systems for compliance with current building code, including gravity, seismic, and nonstructural elements, and provide improvement recommendations as well as necessary system upgrades required to achieve code compliance
- Review of building utility systems (stormwater, sanitary sewer, domestic water, fire protection water, and natural gas) and provide recommendations for corrective improvements

Working in coordination with the third-party Construction Manager, Fortis Construction, FFA is providing herein the assessment findings and corrective recommendations to develop a comprehensive cost model for direct construction costs associated with a deferred maintenance renovation project. The cost model is presented as both a single construction project event designed to maximize construction schedule and a series of phased construction projects organized to minimize disruption to academic programs.

Primary Recommendations

Villard Hall is the second oldest building on the University of Oregon campus approaching a calendar age of one-hundred and thirty-three years. Although improvements over the building's lifetime, most notably the 1949 Robinson Theater addition and restoration activities from the late 1980s, have protected the building from significant deterioration and extended its academic functionality, the building has not received a comprehensive rehabilitation effort during its lifetime. While the building's mass masonry and wood frame construction have performed over time without catastrophic failure, the lack of capacity to resist large seismic forces within the building's structural frame places the building and occupants at significant risk and would likely render the building unusable after a large earthquake event. As a National Historic Landmark building, Villard Hall is a significant cultural resource at the university, local, state and national levels but due to its remoteness from the campus center, lack of indoor or outdoor social gathering spaces and limited use by only two campus departments the building is under acknowledged by the greater campus community. Much of the historic building interior has been lost to numerous, characterless renovations throughout the building's history resulting in a diminished experience neither representative of the building's historic significance or commensurate with other campus buildings. While the Robinson Theater addition at the west side of Villard provides circulation connections between the two buildings that enhance the Department of Theatre Arts use of both buildings, the physical collision between the structures prevents views of Villard's west elevation as well as the greater perception of the building as a unique architectural resource on the campus. Efforts have been made to provide for universal access at both buildings but the existing accessible entry at the south side of Villard relies on elevator use inside the building to reach any floor and all restroom facilities are noncompliant with the Americans with Disabilities Act guidelines. From a building systems perspective, much of the existing mechanical, electrical and plumbing equipment in Villard is decades old and lacking in both energy conservation performance and flexibility for modern academic needs. Maintenance of systems is complicated due to the existing patchwork of system layouts, difficulty in procurement of replacement parts and limited controls at heating equipment.

In response to these condition assessment observations, the following are essential recommendations to be included as part of a deferred maintenance renovation project:

- Remove portions of the 1949 Robinson Theater addition at the west elevation of Villard Hall including the north stair tower and first floor entry porch, backstage roof and wall connections and mezzanine offices and storage spaces to allow for restoration of Villard's historic west elevation. Redesign building connections between Robinson and Villard to minimize the architectural impact of Robinson on Villard
- Install structural upgrades throughout Villard Hall and specific areas of Robinson Theater to meet modern code standards for seismic performance
- Renovate the interior of Villard Hall to provide contemporary academic use spaces commensurate with other recently renovated campus buildings
- Renovate the south building entry at Villard to provide for universal access as part of a new outdoor social gathering space serving the greater campus community
- Replace in their entirety the mechanical, plumbing, electrical and IT infrastructure systems throughout Villard Hall and at system extensions into Robinson Theater with high performance equipment and systems exceeding code standards

High Level Cost Summary

SCOPE OF WORK	PRIORITY	ESTIMATED NET COST ($$)	COMMENTS
STRUCTURAL		2,000,000	SEISMIC UPGRADE, ELEVATOR AND STAIRS
ACCESSIBILITY		350,000	BARRIER REMOVAL AT SOUTH ENTRY, STAIRS AND RESTROOMS
BUILDING ENVELOPE		1,500,000	MISCELLANEOUS CRACK/STUCCO COAT REPAIRS AND ENVELOPE UPGRADES
MEP		6,300,000	COMPLETE SYSTEMS REPLACEMENT
HISTORIC PRESERVATION		500,000	RESTORATION OF WEST ELEVATION AND MISSING DETAIL COMPONENTS
SITE IMPROVEMENTS/UTILITIES		750,000	NEW SOUTH ENTRY
PROGRAMMING		1,800,000	COMPLETE RENOVATION OF BUILDING INTERIOR
SUSTAINABILITY		100,000	LEED V4 GOLD CERTIFICATION
CODE/LIFE SAFETY		1,000,000	FIRE SEPARATION OF BUILDINGS

LOW (5-10 YEARS)

MODERATE (2-5 YEARS)

CRITICAL (0-2 YEARS)

Scopes of work are prioritized based on risk to occupants and criticality of needed repairs. Costs are approximate and do not include markups and adjustments. Matrix is intended to convey the relationship between deferred maintenance need and anticipated cost.

Budget Summary

Fall 2017

Building Name:	UO Villard/Robinson Hall
Building GSF	51153

CSI SECTION	BUDGET CATEGORY	From Cost Model
DIV 01	General Requirements	$ 276,084
DIV 02	Existing Conditions (Demolition)	$ 994,266
DIV 03	Concrete	$ 701,926
DIV 04	Masonry	$ 1,788,248
DIV 05	Metals	$ 2,249,984
DIV 06	Wood, Plastic, and Composites	$ 2,019,043
DIV 07	Thermal and Moisture Protection	$ 232,957
DIV 08	Doors and Windows	$ 856,385
DIV 09	Finishes	$ 1,645,836
DIV 10	Specialties	$ 162,881
DIV 11	Equipment	$ 6,751
DIV 12	Furnishings	$ 38,550
DIV 13	Special Construction	$ 58,266
DIV 14	Conveying Equipment	$ 387,476
DIV 21	Fire Suppression	$ 221,220
DIV 22	Plumbing	$ 406,062
DIV 23	HVAC Systems	$ 2,694,677
DIV 25	Integrated Automation	$ 509,469
DIV 26	Electrical	$ 1,888,605
DIV 27	Communications / IT	$ 438,207
DIV 28	Electronic Safety / Security	$ 328,400
DIV 31-33	Site Work (Excavation, Landscaping, Flatwork)	$ 812,418
Subtotal:	Direct Costs	$ 18,717,712
	Construction Contingency	$ 552,167
	General Conditions incl. Precon	$ 1,407,983
	Contractor Fee (3.5%) incl. GL	$ 643,823
	Builders Risk (.8%)	$ 139,094
	Performance Bond (.9%)	$ 159,153
	Subcontractor Default Insurance (1%)	$ 157,762
Total Direct Construction:		$ 21,777,694

Estimating Firm: Fortis Construction

Yellow Cells are Self-Calculating

BUDGET RANGE (Assume Summer 2021 Mid Construction)		Cost Per SF	
Low	High	Low	High
$ 248,475	$ 317,496	$ 5	$ 6
$ 894,839	$ 1,143,406	$ 17	$ 22
$ 631,733	$ 807,215	$ 12	$ 16
$ 1,609,424	$ 2,056,486	$ 31	$ 40
$ 2,024,986	$ 2,587,482	$ 40	$ 51
$ 1,817,139	$ 2,321,900	$ 36	$ 45
$ 209,661	$ 267,901	$ 4	$ 5
$ 770,746	$ 984,842	$ 15	$ 19
$ 1,481,252	$ 1,892,711	$ 29	$ 37
$ 146,593	$ 187,313	$ 3	$ 4
$ 6,076	$ 7,764	$ 0	$ 0
$ 34,695	$ 44,333	$ 1	$ 1
$ 52,440	$ 67,006	$ 1	$ 1
$ 348,729	$ 445,598	$ 7	$ 9
$ 199,098	$ 254,403	$ 4	$ 5
$ 365,456	$ 466,972	$ 7	$ 9
$ 2,425,209	$ 3,098,878	$ 47	$ 61
$ 458,522	$ 585,890	$ 9	$ 11
$ 1,699,744	$ 2,171,895	$ 33	$ 42
$ 394,386	$ 503,938	$ 8	$ 10
$ 295,560	$ 377,660	$ 6	$ 7
$ 731,176	$ 934,280	$ 14	$ 18
$ 16,845,941	$ 21,525,368	$ 329	$ 421
$ 496,950	$ 634,992	$ 10	$ 12
$ 1,267,185	$ 1,619,181	$ 25	$ 32
$ 579,441	$ 740,396	$ 11	$ 14
$ 125,185	$ 159,958	$ 2	$ 3
$ 143,237	$ 183,026	$ 3	$ 4
$ 141,986	$ 181,426	$ 3	$ 4
$ 19,599,924	$ 25,044,348	$ 383	$ 490

General Summary

Villard Hall was built in 1885 in the Second Empire Style and is the second oldest building constructed on the University of Oregon campus. The building is listed as a National Historic Landmark on the National Register of Historic Places and is considered a primary historic resource for the University of Oregon campus and the City of Eugene. The three-story building is approximately 32,000 square feet with rectangular plan dimensions of approximately 116 feet by 70 feet oriented with the long sides of the building in the north-south direction. Villard Hall is located at the northwest end of campus between Old Campus Quadrangle to the east and Villard Green to the north. Over the course of the building's history, numerous remodels and additions have fundamentally altered its historic character and interior functioning. In 1949, a significant addition was built onto the west side of the building to house the Robinson Theater. The original large auditorium and monumental stairs located at the north entry were removed during the Robinson addition and a third floor was inserted between the highest floor and the attic space. Additionally, a connecting stair tower was added at the northwest corner of the building, a full basement was constructed, and a south elevation entry door with rain canopy was installed in place of the original windows. Renovations to the building in the late 1980s and late 1990s included a complete alteration of third floor interior finishes and room layout along with an elevator addition adjacent to the south entry stair. In 2009, significant additions were added to the west and south elevations of the Robinson Theater, including a revised and expanded theater lobby as well as additional theater and workshop spaces, and the entire building grouping became known as the Miller Theatre Complex.

The historic entry points into Villard Hall were located on the north, east and west elevations at the first floor. The 1949 addition removed the west entry and the evolving use of the building along with its orientation to the greater campus have shifted the main student entry point to the south elevation. Currently, the only accessible exterior entry into the building is through the south entry.

Villard Hall contains classrooms, offices and stage support spaces including a small performance space at the ground floor (basement) level. The Department of Theatre Arts occupies the ground, first and second floors of the building with the Department of Comparative Literature located on the third floor. Primary stairway and elevator circulation spaces are at the south side of the building with a secondary stair tower located at the northwest side of the building serving both Villard and Robinson. All floor levels, including the ground floor, are similar in layout with building corridors running north-south through the length of the building and classrooms or offices located on both sides of the corridor. A large attic space occurs over the third-floor housing large, wood roof trusses, elevator overtravel and extensive mechanical equipment.

The Miller Theatre Complex contains two theaters, entrance lobby and associated workshop and support spaces. The primary performance space is the Robinson Theater with three-hundred seats and a seventy-one foot tall flytower. The Robinson Theater structure connects to the west side of Villard Hall along most of its length with the stage level placed at the ground floor elevation of Villard Hall. The theater has a partial basement located below the stage as well as backstage workshop and green room spaces.

Overall, the building complex including Villard Hall and Robinson Theater serves the basic needs of the Department of Theatre Arts and the Department of Comparative Literature providing academic use spaces in a manageable but outdated arrangement of cramped classrooms, dark corridors, non-compliant stairways, insufficient social gathering spaces and inconsistent heating systems. At a student experience level, Villard Hall is not commensurate with other academic buildings on campus as it is lacking in modern classroom design and daylighting features as well as barrier-free circulation throughout the building. From a historic building perspective, Villard Hall has been significantly compromised by the insensitive Robinson Theater addition as well as multiple renovations that have virtually eliminated the interior historic character. Fundamentally, Villard Hall is experienced on the campus as an exterior facade building without the corresponding interior grandeur appropriate for the building's age and importance to the University of Oregon.

Envelope

Villard's building envelope is weather-resistant and in visibly good condition but requires cyclical restoration to maintain its unique historic details. Much of the decorative woodwork needs restoration to avoid exposure to moisture and prevent deterioration. Robinson Theater is a concrete building requiring minimal envelope repair beyond roof maintenance and general surface cleaning but which contains numerous areas where moisture accumulation and deterioration are apparent.

Villard Hall

The exterior walls and detail features of Villard Hall are primarily constructed of multi-wythe brick masonry coated with an unreinforced stucco parging layer applied directly over the exterior surface of the brick to resemble cut stone masonry. The brick is the underlying structural substrate that provides the general form of the building and decorative exterior elements with the stucco parging providing the finished weathering surface. Many of the decorative features of the building including the porches, pediments, urns, frieze details, and balustrade rails are built of wood with an applied "sanded" paint coating to resemble the masonry finish. The low-slope upper roof portions of the building, including the main roof and the tops of the corner towers, are protected by a Firestone 60 mil ethylene propylene diene monomer (EPDM) membrane roof covering adhered to wood substrate and enclosed by a decorative cast iron railing spanning between corner towers. The steep slope lower portion of the roof as well as the sides of the corner towers are covered with painted wood shingles and decorative wood trimwork. A waterproofing underlayment at shingle areas may be present but was not observed from roof or attic vantage points. The four corners of the building are enclosed by towers sided with painted wood shingles and protected at the low slope areas with EPDM membrane roofing. Roof areas are uninsulated at all observed locations. Windows are double-hung operation at first and second floors and fixed windows are installed at the third floor. Exterior doors are hinged, stile and rail with glass lites in each leaf. Both windows and doors are constructed of wood and painted.

Overall, the building envelope is performing well considering the age of the building. The stucco finish is cracked and spalling at various locations due to thermal expansion and contraction, particularly on the east side of the building near the corner towers, but the coating system and underlying brick substrate are substantially intact. There are no areas observed at the exterior or interior of the building indicating the waterproofing function of the stucco and brick is failing. Some repair of the stucco coating was performed by historic preservation students in the late 1980's addressing areas which may have been more deteriorated at that point in time.

The decorative features that remain on the building are mostly intact, having either survived through the years or, likely, having been restored during undocumented construction periods. Some of the exterior details were restored by historic preservation students during the late 1980's and early 1990's including the wood balustrades and cast iron railings at the roof level, the wood porch at the east entry and windows throughout the building. Most of the decorative urns originally located on the building and many smaller sculptural elements at pediments and column capitals are missing and require replacement. Decorative balustrades at the north and east entry stairs have been modified from their original appearance and require restoration. The membrane roof is in good condition but requires spot repairs to maintain water-tightness. Roof level shingles are in various conditions ranging from areas which are fully painted and shedding water to wind-scoured, bare wood areas in critical need of repair or replacement. The exterior of the below grade portions of the building were only observed from the interior in limited locations due to locked rooms or equipment/furniture obstructing views of the walls. Those areas that were observed did not exhibit any signs of water infiltration. While the wood windows were restored within the previous twenty years and appear to operate in most rooms, it is recommended as part of the renovation to completely remove all of the windows and doors, including sash and frame, to perform shop-based restorations. Complete restorations of windows would include the addition of Slim Line Insulating Pane (SLIM) glazing panels at the exterior of windows to provide improved energy efficiency as part of an overall envelope sustainability performance strategy. Historic exterior doors and hardware at the north and east entries would be restored along with the installation of improved weatherization seals and security hardware.

Robinson Theater

The walls of the Robinson Theater are solid cast-in-place concrete walls, typical 8” thickness with a finish parging coat. In general, the walls are in fair to good condition with various deficiencies throughout including surface cracking due to thermal movement and separation at construction cold joints, spalling at the parge coat and deteriorated paint coating.

The primary roof drain at the north elevation is clogged causing wall staining at the overflow drain location. Additionally, their is efflorescence at the north parapet due to water infiltration at the unprotected top side of the parapet. At parapet locations above the backstage workshop area, corroding wall reinforcement is cracking and spalling the concrete wall surfaces likely due to water infiltration at roof locations.

The sloped skylight glazing located in the Green Room at the north elevation is composed of single pane wire security glass EPDM seal gaskets, sealant, painted steel bar frame and metal flashing. The skylight system is leaking and many of the system components are deteriorating due to age. The metal gutter at the Green Room roof is not effectively draining water due to tree debris as well as inadequate slope causing the wood fascia to warp and deteriorate.

The EPDM membrane roof over the Robinson Theater addition is in fair condition with no apparent work required beyond routine maintenance and minor isolated repair.

Structural System

Based on review of the visible site conditions and available structural drawings, the buildings appear to be in fair condition in their current state, however, based on the age and type of construction, we would expect poor and fair seismic performance for Villard and Robinson, respectively. Extensive structural and non-structural damage would be expected, particularly for Villard Hall which is constructed with unreinforced masonry walls. These types of structures have historically performed very poorly in large seismic events.

Villard Hall

The structure for Villard Hall consists of wood framed floors with sawn lumber joists, beams and posts and tongue and groove straight floor sheathing. Some limited bearing walls may occur above the wood girder lines on levels 1 and 2 but this could not be confirmed. The joists span in the east-west direction with several interior bearing lines. The steep mansard roof is framed with heavy timber trusses and intermediate purlins with straight sheathing. Limited connection to the existing walls was observed except at the truss connections. Floor and roof framing is supported at exterior walls constructed of unreinforced brick masonry (URM). The basement floor is a concrete slab-on-grade and the existing foundations are brick. A perimeter concrete foundation grade beam was added to encapsulate the original brick foundation during the basement addition in 1946. It is unclear if the grade beam is reinforced, and it is assumed that it was added to act as the finished basement wall where the existing brick foundation was undermined.

As part of the new floor plan modifications in Villard, new structural floor framing will be required at the vertical circulation areas. A new elevator pit will also be required. Structural supports and opening framing will also be required at new floor openings, notably the double height lobby space at the south entrance.

Robinson Theater

The structure for the Robinson Theater consists of 8” thick cast-in-place concrete walls around the stage, flytower and seating area. The theater floor is framed with steel beams and sawn wood decking. The roof structure over the flytower is wood beams and joists connected to the concrete walls with intermediate posts supported on concrete beams that span over the stage at the rigging support level. The roof structure over the seating area consists of bowstring shape heavy timber trusses with wood joist secondary framing and plywood decking. The ground floor consists of a concrete slab-on-grade with concrete foundations supporting the bearing walls and columns. At the connection to Villard Hall, steel posts are added to support the theater gravity support and no visible connection was observed between the two structures.

No signs of significant distress or damage in the primary building frame were observed. This includes foundation settlement, large cracks in the exterior URM walls, large cracks in the interior partition walls, significant floor deflections or sloping floors and excessive floor vibrations. Some minor cracking was observed in existing concrete walls.
As part of the new floor plan modifications in Villard, new structural floor framing will be required at the vertical circulation areas. A new elevator pit will also be required. Structural supports and opening framing will also be required at new floor openings, notably the double height lobby space at the south entrance.

Seismic Evaluation

Both buildings were constructed before seismic forces were considered as part of the structural design. Additionally, URM buildings have historically performed very poorly in seismic events. Therefore, it is highly likely that Villard Hall in its current state would perform poorly in an earthquake and experience significant damage. Robinson Theater would be expected to perform better than Villard however, the building could experience significant damage due to some of the tall, unbraced concrete walls and limited connections between the walls and wood diaphragms. This lack of positive connection could cause the heavy walls to separate from the roof structure during strong shaking associated with a large seismic event. Significant seismic upgrade work to both buildings (e.g. installation of concrete shear walls, strengthening of floor diaphragms, strong-backing of URM walls, providing connections between the wood floors and URM/concrete walls) would be required to bring the buildings up to the Life Safety standards of modern building codes including ASCE 41, "Seismic Evaluation and Retrofit of Existing Buildings". Providing seismic separation of the structures will simplify the load paths and remove the need to transfer seismic forces between the buildings. The current connection does not occur at the same level between structures (except for the stair) which could cause pounding damage unless large struts are incorporated to tie the buildings together which could affect ceiling heights and other architectural space programming. Providing a seismic joint will likely limit increased potential for localized damage due to irregularities and the stiffness incompatibilities between the building types.

Soil Liquefaction

It should be noted that according to the hazard maps produced by Oregon's Department of Geology and Mineral Industries (DOGAMI), the building site is near an area that has a moderate risk of liquefaction. These hazard maps are very general and do not always accurately predict geological hazards at a particular site. We would recommend consulting with a qualified geotechnical engineer to verify if this is an actual risk for the site as it could have significant impacts on the foundations and building performance. Liquefaction induced settlements could cause differential movements over the footprint of the building resulting in damage to structural and non-structural elements.

HVAC System

Villard Hall is connected to the campus steam system which provides heating to the building. Steam is distributed through the campus utility tunnel to single-pipe cast iron radiators located at the building perimeter on the ground, first, second and third floor as well as to duct-mounted steam coils in the attic that provide ducted hot air to the third floor and portions of the second floor. Steam condensate is pumped back to the campus boiler plant for reuse. Radiators are controlled by thermostatic valves located on each radiator with limited user control. Chilled water is provided to the building from the campus chilled water plant and distributed to the duct coils located in the attic to provide ducted cool air to the third floor and portions of the second floor. The attic of Villard Hall houses an array of ductwork and three air-handling units, one of which is abandoned in-place. The original system was installed in the 1949 Robinson Theater addition to provide ducted heat to the third floor and a portion of the second floor. A renovation in 1965 removed the original units and replaced them with the existing units to provide both heating and cooling. In 1997 another renovation removed all the internal components of two of the air handlers and installed new fans and filter sections. The third air handler was abandoned in-place. The heating and cooling function of these units was transferred to duct-mounted steam and chilled water coils. These coils provided improved zone temperature control at the second and third floors.

Included in the 1949 Robinson Theater addition was the installation of a dedicated heating and ventilation unit for the small theater space located at the ground floor of Villard Hall. This space is still served by a heating and ventilation unit but available information does not indicate whether it has been replaced suggesting it may be the original unit from the addition.
The mechanical equipment in Villard Hall is well beyond life expectancy and shows signs of fatigue and failure. The existing system types are out of date and very inefficient by current standards. The existing campus heating and cooling systems are still a viable source for heating and cooling the building and should be utilized to improve overall HVAC performance. There are two options to consider for utilizing these campus systems and provide an energy efficient building system.

The two options recommended for consideration are an all air heating and cooling system or an active chilled beam system with Dedicated Outdoor Air System (DOAS). Both options would replace the existing air handling units, distribution systems and radiators with new equipment and distribution.

Option #1: Chilled Beam with DOAS

An active chilled beam system is predominantly a water-based system supplying hot and cold water to ceiling-mounted distribution equipment which regulate the space temperature for a specific building zone.
The main benefits of this system include improved energy efficiency along with significant size reductions in the air handling unit and supply ductwork. The chilled beam system is the best opportunity to meet the Advanced Energy Threshold (AET) of 35% above code minimum for this project. The chilled beam system is the preferred system approach for the HVAC system for this building. Chilled beams utilize hydronic systems as the primary cooling and heating systems providing a more efficient means of heat transfer than air movement systems. With a chilled beam system, the ductwork and air handling systems are reduced up to 50% of the size of a traditional VAV system which allows for higher ceilings and overall smaller mechanical spaces.

Option #2: All Air Heating and Cooling System

A Variable Air Volume (VAV) system utilizes a main air handler(s) to provide tempered air to terminal units for regulating the volume and temperature of air delivered to specific building zones.
This system will provide good zone temperature control while at the same time being an efficient system to operate. However, it is anticipated the system will require additional mechanical equipment space at each floor as well as ductwork shafts to conceal equipment throughout the building.

Hazardous Materials

Due to the age of the mechanical systems in the buildings there is evidence of asbestos materials in the duct, piping and equipment insulation. A hazardous material survey was not made available to the assessment team and is beyond the scope of this assessment but is an essential document to be included as part of the renovation project.

Plumbing System

Domestic water service enters Villard Hall on the south side of the building and is distributed to plumbing fixtures throughout the building. Hot water is provided by dual electric hot water heaters located in the basement. The existing domestic cold and hot water systems appear to be functioning properly however, due to the age of the system and use of galvanized distribution piping, it is reasonable to assume scale buildup or corrosion at the interior lining of the piping. Selective testing of individual pipes should be conducted if piping is to be retained, but it is recommended to replace the entire piping system throughout the building to ensure piping is free of lead and other contaminants.

A new electric domestic hot water heater is recommended with a storage tank and circulating pump system. A circulating pump system will ensure the water temperature remains a constant 140 degrees Fahrenheit minimizing any potential for water-borne bacteria. A mixing valve at each fixture will ensure that the hot water is mixed down to 120 degrees Fahrenheit to prevent scalding. As an alternate steam could be used as the heat source in lieu of electric.

Existing plumbing fixtures are outdated and do not meet current water-efficiency standards. It is recommended to replace all plumbing fixtures with new water efficient fixtures and automatic sensors, either battery or hard-wired, and provide dual-height, accessible drinking fountains with bottle filler per code-required fixture counts.

Provided the existing sanitary sewer system connection to the building is not compromised, it is anticipated that the existing connection to the exterior of the building is adequate. While no problems with the existing sanitary system were reported to the assessment team or observed while onsite, due to the age of the building and anticipated reorganization of restroom layouts associated with a future renovation project, it is recommended to remove and replace the existing cast iron sanitary sewer piping within the building with a new, code-compliant piping system. All new waste and vent piping will be cast iron soil pipe with no-hub fittings.

Electrical System

The main electrical service is brought into the electrical room located on the ground floor at the southwest corner of Villard Hall. Similar to other buildings on campus, the electrical switchboard is fed from the main campus medium-voltage loop and is not individually metered. The campus owned 500kVA step-down transformer is mounted on a concrete pad outside and adjacent to the south building elevation.

The main electrical service is rated at 1600 amps capacity, 208Y/120V, 3 phase, 4 wire. The main Siemens electrical switchboard is 24 years old with approximately 40% useful life remaining. The main switchboard has a Square D Powerlogic PM 8000 digital meter installed. The current basis-of-design for the campus metering system is the Powerlogic ION 7650.

The main service disconnect/breaker is rated at 1400 amps which is lower than the full switchboard capacity and does not have ground-fault protection as required by current electrical code. The main breaker also appears to be a non-adjustable type which most likely is contributing to the very dangerous arc flash rating of the switchboard. The 2008 arc flash study lists the flash hazard boundary at over 16 feet from the electrical switchgear placing it far outside the boundary of the electrical room. As a result of this dangerous arc flash condition the electrical switchgear cannot be worked on in an activated state, requiring building electrical shutdown for switchgear repairs, and the high potential energy of the system poses a hazardous condition to outdated downstream electrical panels.

The main switchboard location in the electrical room does not provide for the required working clearances at electrical equipment nor is the required seismic bracing installed. Clearance within the room is constrained and the sole egress door is missing panic hardware. Due to the size of the electrical gear, two exits are required from the room per the National Electrical Code/NFPA 70. The bus-riser route from the electrical room to the dimming panel located in the Robinson Theater basement appears to be over fifty percent in excess routing legnth contributing to substantial voltage drop for the dimming hpanel. Additionally, there is a ground level vent located on the west wall of the room allowing exterior water to enter the room and present a significant electrocution hazard to room occupants.

There is a significant quantity of outdated electrical equipment located in the building, ranging from 60-80 years old, still in use without the availability of spare or replacement parts.

Egress lighting is supplied with emergency power via two central battery inverters. Both inverters are in areas inappropriate for life-safety equipment including servicing difficulty and a lack of notification during equipment failure. Unlike many buildings on campus, Villard Hall has no connection to the campus emergency loop. As part of the Villard electrical service replacement and upgrade to the campus CPS emergency source, the Robinson Theater centralized lighting inverter is recommended to be removed and replaced with a new life-safety branch panel. Exit signs appear to be battery powered but failed to turn on during onsite testing.

Automatic lighting controls appeared mostly nonexistent except for infrared occupancy sensors located in a few of the classrooms. It did not appear that the coverage or quantity of sensors was adequate. In most rooms, a simple on/off wall switch was all that was available for control. No lighting zones, room dimming controls, or daylight sensors were observed anywhere in the building. This condition does not meet current energy code or campus energy/sustainability goals.

Lighting sources in the building are all fluorescent-based. Most classrooms had either lay-in 2x4 fluorescent luminaires or surface-mounted lighting.

Fire Alarm/ Sprinkler System

The existing fire alarm system is based on the Cerberus brand family of products with a Siemens VoiceCom panel added sometime after the fire alarm control panel (FACP) was installed. The Siemens panel allows tone and voice control but the horn-strobes installed throughout the building do not appear to have voice capability. The smoke detectors are an older style and do not meet the University's standards for fire alarm manufacturers.

Both Villard Hall and the Robinson Theater are fully sprinklered including the attic spaces. Fire water enters the building at the southeast corner of Robinson Theater near the building connection to Villard and serves both buildings with a 4" service main. The system is provided with all necessary devices, including check valves for FDC and valves and gages, with the exception of what is required for forward flow testing. The system as installed is not configured for forward flow testing as required by NFPA 13 and NFPA 25. A visual inspection of the exterior of the pipe shows little to no sign of exterior corrosion but it is recommended to perform an internal inspection of the pipe.

The existing fire service main entering the building will remain however the area surrounding the main will need to be updated to meet current code and access requirements. All occupied areas of both buildings will be protected by automatic sprinklers but existing sprinkler heads and piping will be modified as necessary to provide code required coverage. Automatic sprinklers will be provided throughout the building in accordance with National Fire Protection Association (NFPA) 13 and 2014 Oregon Fire Code. Room design densities will be compliant with NFPA 13, Authorities Having Jurisdiction, and the Owner's insurance carrier. Sprinkler piping will be schedule 40 or schedule 10 black steel piping.

IT Infrastructure

The main MDF/IDF room for Villard Hall is located at the south side of the building beneath the ground floor stairs in a space with limited head height and access. The main telecom switch for the building in located in this space as well as the Altronix power supplies, telephone gear, and low voltage control panels. The space is unconditioned and does not have the required working clearances.

Due to the extensive amount of issues found on site with the age of equipment, code violations, safety concerns, and operational issues, it is recommended that the electrical system, including lighting and controls, technology equipment, fire alarm system and devices, and electrical panels, be removed and completely replaced as part of a significant renovation project.

A new properly sized, dedicated electrical room and accompanying new MDF room would provide the space for reliable electrical and IT performance for the next 40+ years. These improved spaces would also protect the equipment and facilities personnel, while minimizing arc-flash and other electrical potential hazards.

The electrical distribution system revision would depend on the level of renovation. Complete removal of all interior walls provides the opportunity to relocate branch panels to serve the building comprehensively with an organized layout.
The main service should be revised to utilize the existing campus CPS emergency medium voltage loop. This central generator fed system provides both life-safety emergency power as well as optional stand-by power sources through the addition of new automatic transfer switches. These new transfer switches would feature bypass isolation for ease of maintenance and 4-pole, closed transition options to ensure maximum performance. This new service line into the building would allow the removal of all emergency lighting inverters and integral battery packs in exit signs and other lighting. The optional stand-by system would also provide backup power for additional items, such as IT closets and elevators, important to the university.
The existing main transformer is recommended to be relocated to an appropriate screened location along with the addition of the new transformer needed for the emergency branch service.

New lighting controls are recommended to be digital style and would benefit from the new LED lighting installed throughout the building. Building mounted lighting would consist of appropriate LED sources.

Interior Program and Finishes

Interior wall finishes at Villard Hall are either utilitarian in nature, such as painted concrete at the ground floor level and stairways, or standard painted gypsum board at partitions, corridors, offices, classrooms and restrooms. Ceilings are typically acoustic ceiling tile of various vintages and floors are vinyl composition tile at the ground floor and first floor corridors with linoleum at restrooms. Second and third floor corridors are carpeted along with offices and classrooms. Interior doors are a mix of painted wood in stile and rail and flush configurations along with hollow metal and metal skin in both rated and non-rated applications. Door hardware is typically satin brass with a wide range of locksets, door handles, pulls, hinges, kickplates and closers. Restroom toilet partitions are both painted metal and plastic composite. The third floor level finishes were renovated in 1997 and included oversized wall and door trim with a bright, peach colored paint scheme and faux-historic arches. With the exception of woodwork trim at exterior doors and windows and some areas of plaster, there is no indication of intact historic finishes throughout Villard Hall. Finishes condition is typically fair with little indication of significant damage or failure. Rather, the finishes at ground, first and second levels convey an outdated appearance, more utility in character than representative of a contemporary academic interior. As a deferred maintenance renovation approach for the interior of Villard, the project assessment team was provided direction by university staff to reimagine the entire interior of the building with a modern academic layout while incorporating existing program spaces and approximate areas. The redesigned program layouts account for necessary mechanical and electrical service spaces and structural upgrades while introducing new student gathering areas and gender-neutral restrooms at each floor. Existing corridor structural walls are replaced in their same locations but stairways are relocated to the building corners and the elevator is moved adjacent to the south student gathering areas. A primary design goal for the reorganization of building program is to emphasize the historic character of the building by exposing tall windows, introducing daylight through skylights and connecting the interior spatial experience to the exterior architectural expression. The general character of interior spaces will embrace modern detailing utilizing glass, wood and painted gypsum board surfaces but expose historic materials wherever possible.

Vertical Transportation

The existing elevator is an Otis hydraulic piston type rated at 2500 pound capacity serving the ground, first, second, third and attic floors of the building. As-constructed drawings from 1989 indicate its initial installation including a concrete shaft pit and sump pit, wood framed and gypsum board shaft and ground floor level machine room located adjacent to the elevator. Elevator assessment was limited to the elevator cab and floor stop areas and did not include the elevator pit, shaft, or machine room. Door and operating panel finish is brushed stainless steel with plastic laminate cab walls. Existing condition of the elevator cab and floor stop areas are good with no noted finish damage, broken or missing operation parts, operational problems or reported problems from facility personnel. There are minor accessibility issues at the elevator including missing Braille lettering at operating controls and audible controls sequencing but no issues reported for the path of travel or control mounting heights. While the existing elevator appears adequate and functional for current needs, the proposed renovation project would reorganize floor plan layouts necessitating a removal and replacement of the elevator in a new location. With a new elevator, it is recommended to install a Machine-Room-Less (MRL) traction type elevator in lieu of a hydraulic type due to greater energy efficiency, reduced space needs associated with the elimination of a dedicated machine room, and avoidance of the maintenance and environmental concerns involved with hydraulic fluid.

Site Work/ Utilities

Stormwater

Roof drainage and surface drainage collected in area drains around the Villard Hall/Miller Theatre Complex are collected in either the west or east side piped storm drain systems. The west side system provides manhole treatment for the Villard-Miller Theatre Complex and the parking lot, driveway, and walkways to the south and west of Villard. The east side system drains Villard's east half but is not well documented and will require additional mapping investigation. Stormwater management requirements are set forth by Eugene Code Section 9.6790-9.6796 and the 2014 Eugene Stormwater Management Manual. Runoff from new impervious surfaces are subject to stormwater treatment requirements with onsite treatment encouraged by the City of Eugene. However, the renovation project is not projected to result in a significant net increase in impervious surface so onsite detention is not anticipated.

Potential site stormwater management improvements associated with redevelopment include system inspection, system repair and reconstruction (particularly at the east side system), positive drainage away from buildings, surface drainage improvements, including new area drains, catch basins, manholes and piping, and stormwater treatment improvements including vegetated systems.

Sanitary Sewer

Based on discussions with UO staff, the existing sanitary sewer systems for Villard and Miller Theatre Complex have been recently reconstructed and are in good condition. Further discussion with UO engineering staff is needed to confirm age of north Miller system and confirm separation between storm and sanitary, but based on the available information, significant improvements to the sanitary sewer system aren't expected to be necessary.

Domestic Water

Domestic water for Villard Hall and the Miller Theatre Complex is supplied by a 4" pipe extending from the campus utility tunnel located just north of Deady Hall and branches to enter both the southeast corner of Villard and the southeast corner of Robinson adjacent to the fire riser. UO staff has indicated there are no concerns with stagnation, water quality or pressure in the domestic water line but should be consulted further to determine if there are lead concerns with the domestic supply. Building-wide backflow preventers isolating Villard and Miller from Deady do not appear to be present.

The existing fire service is steel piping and the condition is unknown. Physical inspection of the line to assess condition and longevity is recommended. Depending on the findings of the system inspection, system repair or reconstruction may be required.

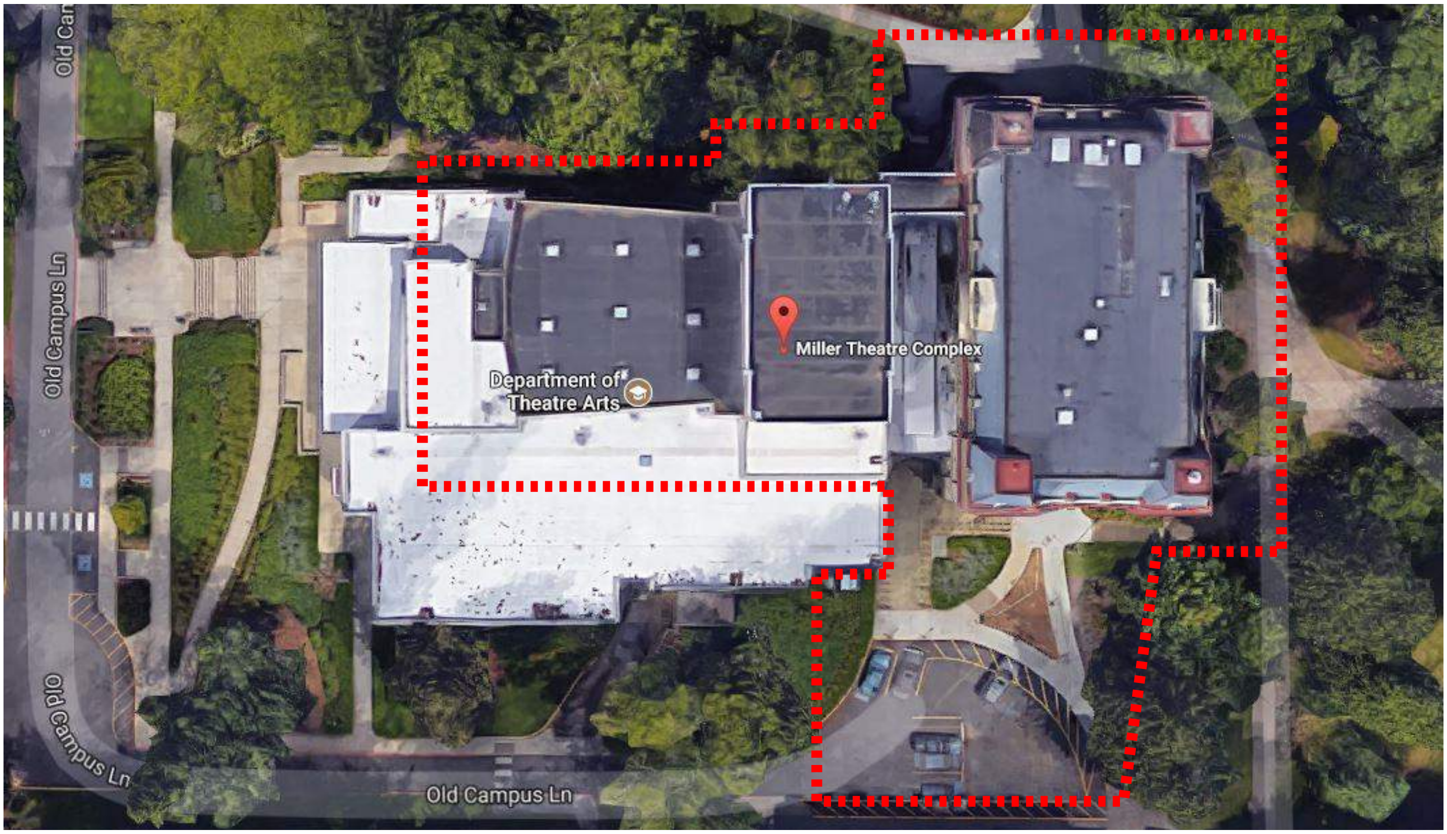
Fire Service

The Villard and Miller Theatre Complex fire sprinkler systems are served by a single 4" fire riser located at the southeast corner of the Robinson Theater. The fire protection water is supplied by an 8" fire service that is fed from a 16" public EWEB main located in Franklin Boulevard. The 8" fire service begins at the south side of Franklin, between Villard and Lawrence Halls, and extends to a fire hydrant located to the southeast of Villard, just to the east of the utility tunnel, where it is reduced to a 4" pipe and enters the building. The 2009 Miller Theatre Complex project extended a fire department connection (FDC) line out to the fire lane located west of Miller to provide for more direct fire department access. The older FDC located at the southwest corner of Villard Hall is still intact and appears to be fully connected to the fire riser. Flow test information should be obtained from the UO-owned hydrant near Villard to assess system characteristics and confirm the available pressure is adequate. There is a private fire hydrant located approximately 80' southeast of Villard and a public fire hydrant on Franklin located approximately 140' north of Miller. Assuming the Miller and Villard buildings are fully sprinklered with code compliant systems, these two existing fire hydrants meet current code requirements.

1.02 Assessment - General

Overview/Assessment Methodology

The project boundary for the assessment scope of work encompasses the entire perimeter of Villard Hall for a distance of approximately twenty feet from the building walls. The original remaining building elements (auditorium, stage, flytower, scene shop and offices, and north stair tower) from the 1949 Robinson Theater addition to Villard Hall are also included as part of the assessment, but the 2009 Miller Theatre Addition building elements are excluded. Buildings were evaluated from the Basement Level up through the Roof Level including attic spaces where accessible.



Project Assessment Boundary

The University of Oregon Campus Planning and Facilities Management provided the assessment team with background documentation for both Villard Hall and the Miller Theatre Complex as well as campus planning policy documents. Documentation consisted of the following items:

- As-built drawings (1946-2009)
- UO Book Plans (Basement Level to Roof Level, Villard Hall)
- Historic American Building Survey - Exterior Elevations (c. 1988)
- Historic Photos (1885-2007)
- National Register of Historic Places – Nomination Form (1972)
- Historic American Building Survey (1964)
- UO Historic Resource Survey Form, Villard Hall (2006)
- Campus Heritage Landscape Plan (2008)
- University of Oregon Campus Plan - Third Edition, 2014
- "Geotechnical Investigation, Miller Theater Complex Addition, University of Oregon, Eugene, Oregon" (2007)

The FFA assessment team visited the buildings during September 2017 to perform a series of non-destructive, visual observations. Exterior observations were performed from the ground and roof levels of Villard Hall and Robinson Theater and interior observations were recorded throughout all interior spaces accessible without the use of personal protection equipment.

During the project kickoff meeting on September 7, 2017 held at the University of Oregon, Eleni Tsivitzi (CPFM) presented a general outline of campus planning principles including a discussion of the Campus Plan policies applicable to the assessment scope of work. The assessment team also met with UO employees from CPFM representing civil, mechanical and electrical disciplines who responded to questions from the FFA team regarding fire truck access, the campus utility tunnel, underground utilities, mechanical and electrical equipment, lighting, fire alarm and the building computer network.

The assessment is organized to initially provide general evaluation information applying to the entire building grouping with subsequent sections devoted to separate assessments and recommendations for Villard Hall and the Robinson Theater.

Campus Plan Guidance

At a campus level, the assessment project attempts to identify the Campus Plan policy statements which will most deeply inform and guide this deferred maintenance renovation project. Particular emphasis is placed on the allocation of appropriate budgetary allowances associated with campus open space improvements at Villard Hall and the Miller Theatre Complex.

The UO *Campus Plan*: The Twelve *Campus Plan* Policies

Policy 1: Process and Participation

Planning decisions are made by following a process rather than a fixed image of the campus. Plan provisions go well beyond what is typical for soliciting meaningful input from students, faculty, staff, and others.

Policy 2: Open Space Framework

The University of Oregon campus is organized as a system of quadrangles, malls, pathways, and other open spaces. As opportunities arise, the fundamental and historic concepts of the University's open space framework and its landscape shall be preserved, completed, and extended.

Policy 3: Densities

The Plan defines maximum allowed densities for each design area. These help preserve the university's historic character while at the same time accommodating new facilities.

Policy 4: Space Use and Organization

The Plan ensures preservation of the instructional core and a walkable campus.

Policy 5: Replacement of Displaced Uses

The Plan ensures all university uses are treated with importance. A new use must not benefit at the expense of an existing use.

Policy 6: Maintenance and Building Service

The Plan requires a long-term and flexible design approach. The viability of the university depends on the creation of a campus that is long lasting, easily maintained, and easily serviced.

Policy 7: Architectural Style and Historic Preservation

The Plan ensures preservation and enhancement of the campus's overall visual continuity. Furthermore, the university's historic buildings and landscapes are artifacts of the cultural heritage of the community, the state, and the nation.

Policy 8: Universal Access

The Plan is committed to making all new facilities accessible to all. This inclusive environment enables all users to participate equally in the university's programs, activities, and services.

Policy 9: Transportation

The Plan reaffirms longstanding, innovative transportation policies that have created a pedestrian and bike-friendly campus.

Policy 10: Sustainable Development

The development, repair, maintenance, and operations of the University of Oregon today have an impact on the local environment and the ability of future generations to thrive. All developments, redevelopments, and remodeling on the University of Oregon campus shall incorporate sustainable design principles.

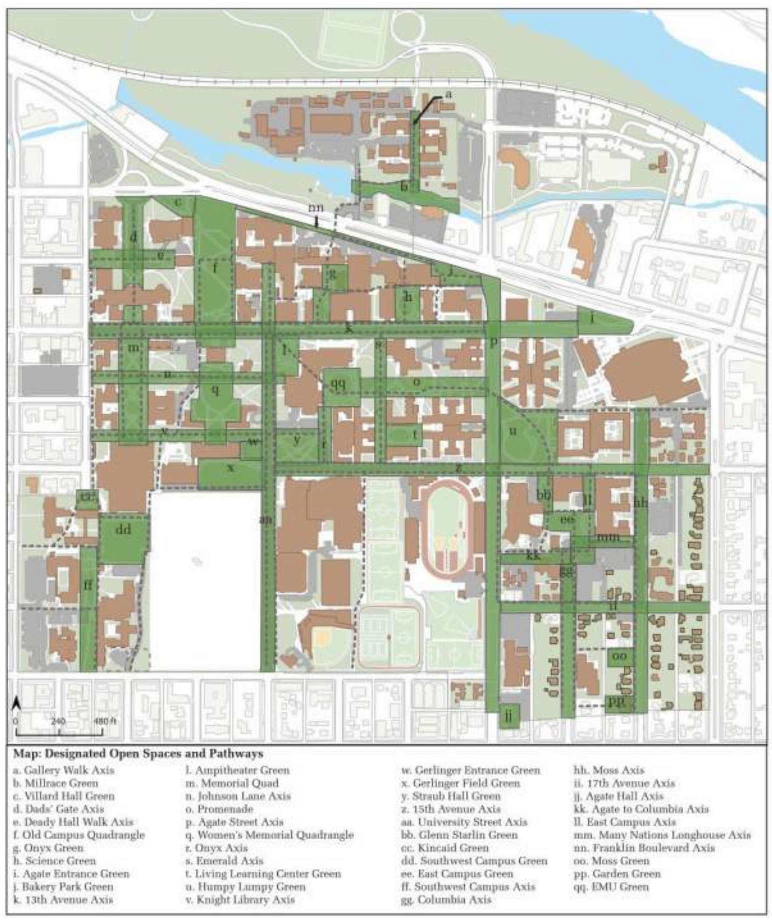
Policy 11: Patterns

Patterns are design statements that describe and analyze design issues and suggest ways to resolve them. There are twenty-one patterns that must be considered for every project. Many more are used as applicable.

Policy 12: Design Area Special Conditions

The campus is divided into smaller design areas. For each of these areas the Plan identifies special conditions that should be addressed when construction occurs.

Prepared by Campus Planning

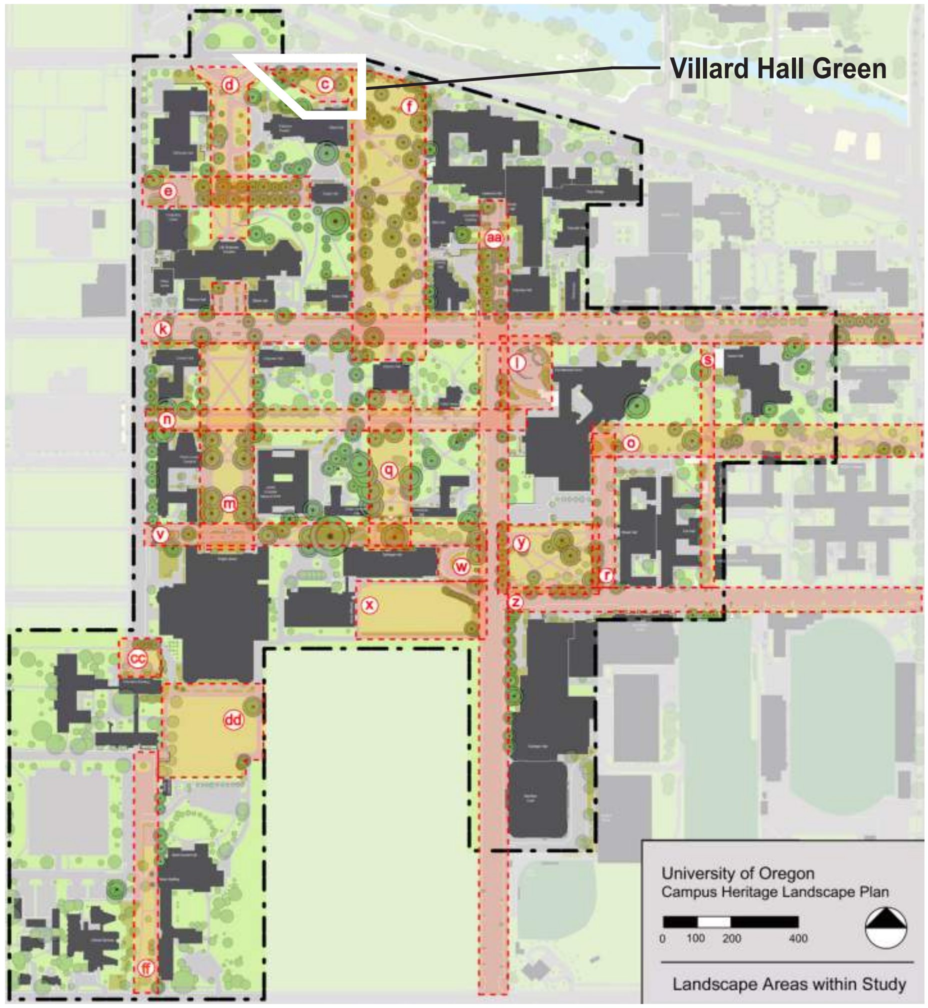


The following policies will likely shape the outcome of the deferred maintenance renovation project:

Policy 2 – Open-Space Framework

The campus is a series of connected open spaces framed by buildings. It is essential to preserve the campus character and extend this aesthetic to other areas on campus

The fundamental and historic concepts of the university's open-space framework and its landscape shall be preserved, completed, and extended



(Applicable Patterns)

- Historic Landscapes – Preserve and protect the Villard Hall Green and Old Campus Quadrangle
- Open-space Framework – Repair and extend the northern end of the Old Campus Quadrangle with particular emphasis on the historic stairway and campus edge along Franklin Boulevard
- Positive Outdoor Space – The outdoor space between Villard and Deady halls does not create a usable space for pedestrians. **Reimagine the parking area to accommodate uses primarily for pedestrians while maintaining the parking allocation**
- Main Building Entrance – The historic north and east entrances to Villard are not the main building entrances. **Create a main building entrance as approached from the south of the building**
- South Facing Outdoors – The south side of Villard receives a significant amount of sunlight. **Create an outdoor area which allows users to enjoy this sunny spot.**

Policy 5 – Replacement of Displaced Uses

All plans for new construction (buildings or remodeling projects) shall keep existing uses intact by developing and funding plans for their replacement

(Applicable Patterns)

- Existing Uses/Replacement – Plan for both the temporary and permanent displaced uses impacted by the renovation project

Policy 6 – Maintenance and Building Services

The university's campus and facilities shall be designed to meet long-term university needs and to be efficiently maintained and operated

(Applicable Patterns)

- Flexibility and Longevity – Historic buildings are inherently difficult to adapt to new uses. Villard Hall has heavy exterior walls, relatively small window openings, and limited floor-ceiling space for utilities. A rehabilitation project shall provide structural and mechanical systems for long term use and durability while creating interior spaces which are flexible and easily adaptable.

- Materials and Operations – Equipment and interior spaces shall utilize easily maintained products and assemblies to minimize the operating budget and maximize energy performance. Villard Hall does not contain a service area associated with the building. Explore options for providing a dedicated service area for Villard Hall

- Sustainable Development – Provide rehabilitation strategies that promote energy efficiency and reduce waste. Adhere to the UO Model for Sustainable Development

Policy 7 – Architectural Style and Historic Preservation

The university's historic buildings and landscapes are artifacts of the cultural heritage of the community, the state, and the nation

(Applicable Patterns)

- Architectural Style – Provide any new construction included in the renovation project to be compatible and harmonious with the character of Villard Hall. Adhere to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings

- Building Character and Campus Context – The interior character of Villard Hall does not relate to the exterior historic character of the building or campus landscapes. Design renovated building spaces to complement the historic character of Villard Hall and connect building users to the surrounding campus, Improve the south building entry to provide universal accessibility and enrich the entry experience into the historic building

- Future Expansion – As a designated National Historic Landmark, Villard Hall is limited in potential expansion opportunities at the building exterior. A renovation project shall consider the need for program flexibility and design interior spaces for future adaptability

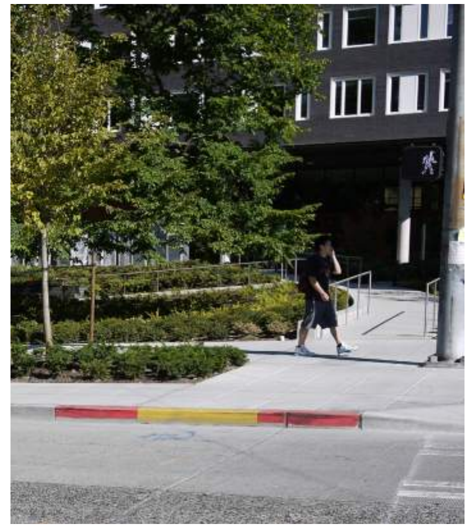
- Operable Windows – Most of the windows in Villard Hall are operable but in need of restoration for full functionality and energy conservation. Third floor windows are not operable but could be adapted to provide operability

- Site Repair – The addition of Robinson Theater onto Villard Hall in 1949 significantly changed the experience of Villard Hall and its relationship to campus. A renovation project shall repair the connection between Villard and the northwest corner of campus and provide for improved interaction with the historic building

- Wholeness of Project – Villard Hall will require significant improvements, structurally and functionally, to provide for contemporary academic programs. A renovation project shall strive to include all the necessary improvements as part of a single construction project rather than phased improvements completed individually

- Wings of Light – The addition of Robinson Theater onto Villard Hall greatly obscured windows at the first and second floors of the building limiting the amount of natural light provided to the building. Provide natural light to all building spaces located at the exterior of the building and investigate ways of bringing natural light into all the interior building spaces

Policy 8 – Universal Access



Enable all users to participate equally in the university's programs, activities, and services

(Applicable Patterns)

- Universal Access – The historic north and east entries to Villard Hall are not fully accessible and the south entry requires mobility impaired users to travel in the elevator to reach each of the floors of the building. Users needing to access the backstage areas of the Robinson Theater must travel through the Miller Theatre Addition or follow a circuitous route through Villard. All the restrooms in Villard are only partially accessible. Provide a new, universally accessible entry at the south side of the building and interior spaces which are universally accessible and seamlessly integrated into the historic fabric. Consult with the Physical Access Committee in the schematic design phase of the project

Policy 10 – Sustainable Development

All development, redevelopment, and remodeling on the University of Oregon campus shall incorporate sustainable design principles

All construction projects shall adhere to the university's Oregon Model for Sustainable Development

(Applicable Patterns)

- Quality of Light – The addition of Robinson Theater onto Villard Hall greatly obscured windows at the first and second floors of the building limiting the amount of natural light provided to the building. Provide natural light to all building spaces located at the exterior of the building and investigate ways of bringing natural light into all the interior building spaces. Provide shading to reduce and eliminate glare

(Oregon Model for Sustainable Development)

- Energy Goal – Implement energy saving measures to offset the building's energy use. Project must meet the Advanced Energy Threshold (AET) requiring the facility perform 35% more efficient than Oregon Energy Code
- Water Goal – Treat stormwater runoff from parking lot between Villard Hall and Deady Hall
- LEED Goal – Achieve Gold certification

Policy 11 – Patterns

(Additional Project-Specific Applicable Patterns)

- Bike Paths, Racks, and Lockers – Bike racks serving Villard Hall are located in the middle of a parking lot without cover from the elements. A redesign of the south entry to Villard Hall shall include a covered bicycle parking area coordinated with surrounding pathways

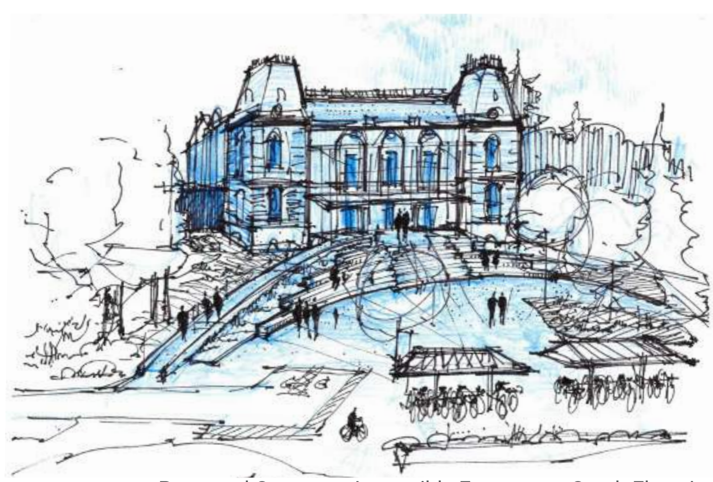
- Building Hearth – Villard Hall lacks a social hearth connected to the main pathways in the building. The Green Room located at the Ground Floor Level of the Miller Theatre Complex functions as a social hearth for students of the theater department but is disconnected from the main areas of Villard Hall. A significant renovation project shall establish a building space which functions as a social hearth for Villard Hall and the Miller Theatre Complex

- Organizational Clarity – The existing layout of Villard Hall is organized around central corridors leading to exterior doors, stairways or additional corridors with no visual connections between floors. Provide floor plan layouts which clarify connections between building floors and organize building spaces for simplified wayfinding

- Places to Wait – Villard Hall is dominated by corridors and separate rooms without adequate spaces for students to wait outside classrooms or offices. Include small gathering areas near classrooms and offices for use by students and faculty.

Existing Campus Bike Canopy Structures

Existing Campus Bike Canopy Structures



Proposed Concept - Accessible Entrance at South Elevation

Building Code/Life Safety

Villard Hall and the 1949 Robinson Theater buildings were evaluated for code compliance in the areas of Occupancy Type, Construction Type, Egress and Fire Protection components under the 2014 Oregon Structural Specialty Code (OSSC). The Fire Protection (Fire Suppression and Fire Notification) components were evaluated under the 2014 Oregon Fire Code (OFC). Both Villard Hall and the Miller Theatre Complex (including the 1949 Robinson Theater) are protected throughout with wet type fire suppression and fire notification systems. Detailed descriptions for the Fire Protection components are included in the Building Elements Assessments sections of the report.

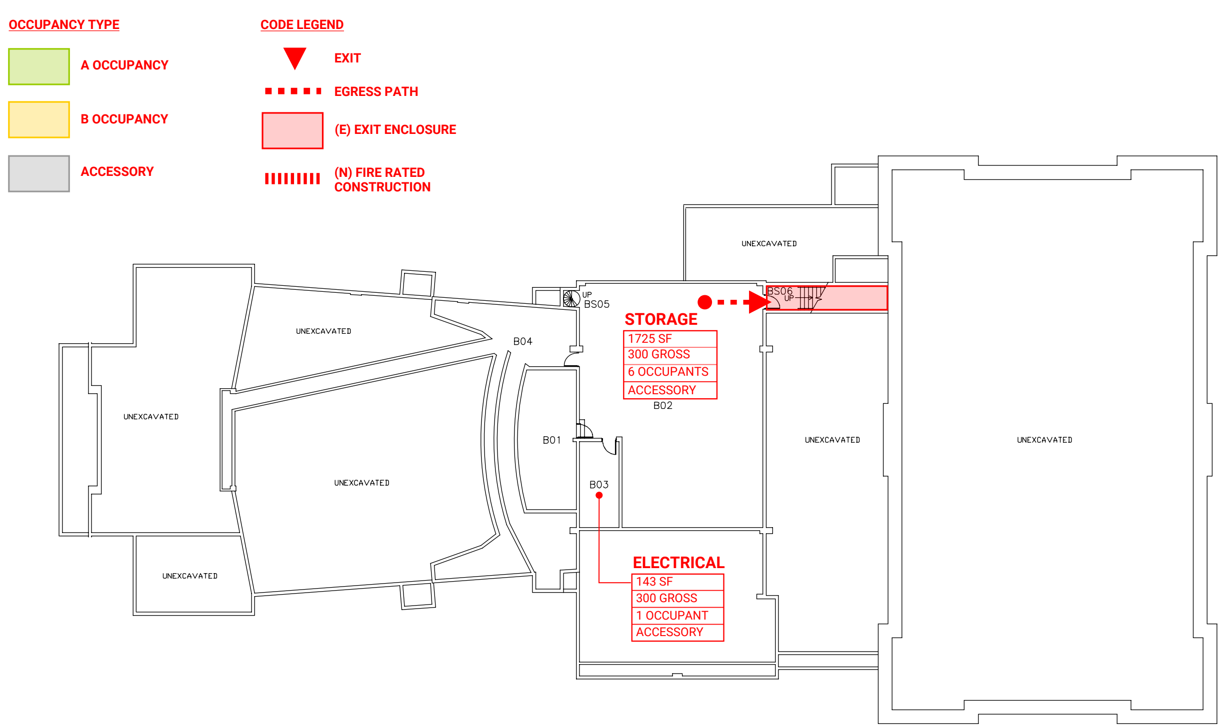
Occupancy and Construction Type

The 2009 Miller Theatre Addition listed the construction type as Type IIIB and calculated the allowable building height and area based on an overall building occupancy classification of Assembly (A-1). The area calculations included Villard Hall in the overall building area calculations but the height calculations did not include the existing height of Villard Hall (approximately 72'-0") or the Robinson Theater flytower (approximately 66'-0"). While the listing of the construction type as Type IIIB served the purposes of the 2009 addition, the allowable area per floor associated with an A-1 occupancy and Type III construction will limit future addition possibilities for both Miller Theatre Complex and Villard Hall. **Future building projects should consider treating the Miller Theatre Complex and Villard Hall as separate buildings with code compliant fire wall separations installed at the interface between buildings. Installation of the fire wall separation would include treatment of the required Villard Hall window openings above the Miller roof line with sprinkler protection or fire-rated glazing.** The predominant occupancies in Miller Theatre Complex are Assembly (A-1 and A-3) and Business (Vocational/Shops/Offices) while Villard is almost completely Business (Offices and Classrooms) with a smaller Assembly (A-1) occupancy. The Miller Theatre Complex functions require large openings between adjacent spaces for moving stage sets and performance equipment around the building. A non-separation code strategy between building occupancies allows for these large openings without supplemental fire-rated separation construction. On the other hand, Villard Hall is filled with small offices, classrooms, storage areas, corridors and a medium-sized theater requiring sound and physical barriers between spaces. While a separated occupancy code strategy between the building occupancies would allow for flexibility in the allowable building area, there is no significant benefit to separating building occupancies with fire-rated construction. While any building project associated with Villard Hall is not defined at this point in time, **consideration should be given to a programmatic revision which places the larger classroom occupancies on the lower floors of the building which can both provide more direct egress routes for larger numbers of occupants and cluster the classroom spaces with the theater assembly space for acoustic and construction efficiencies.**

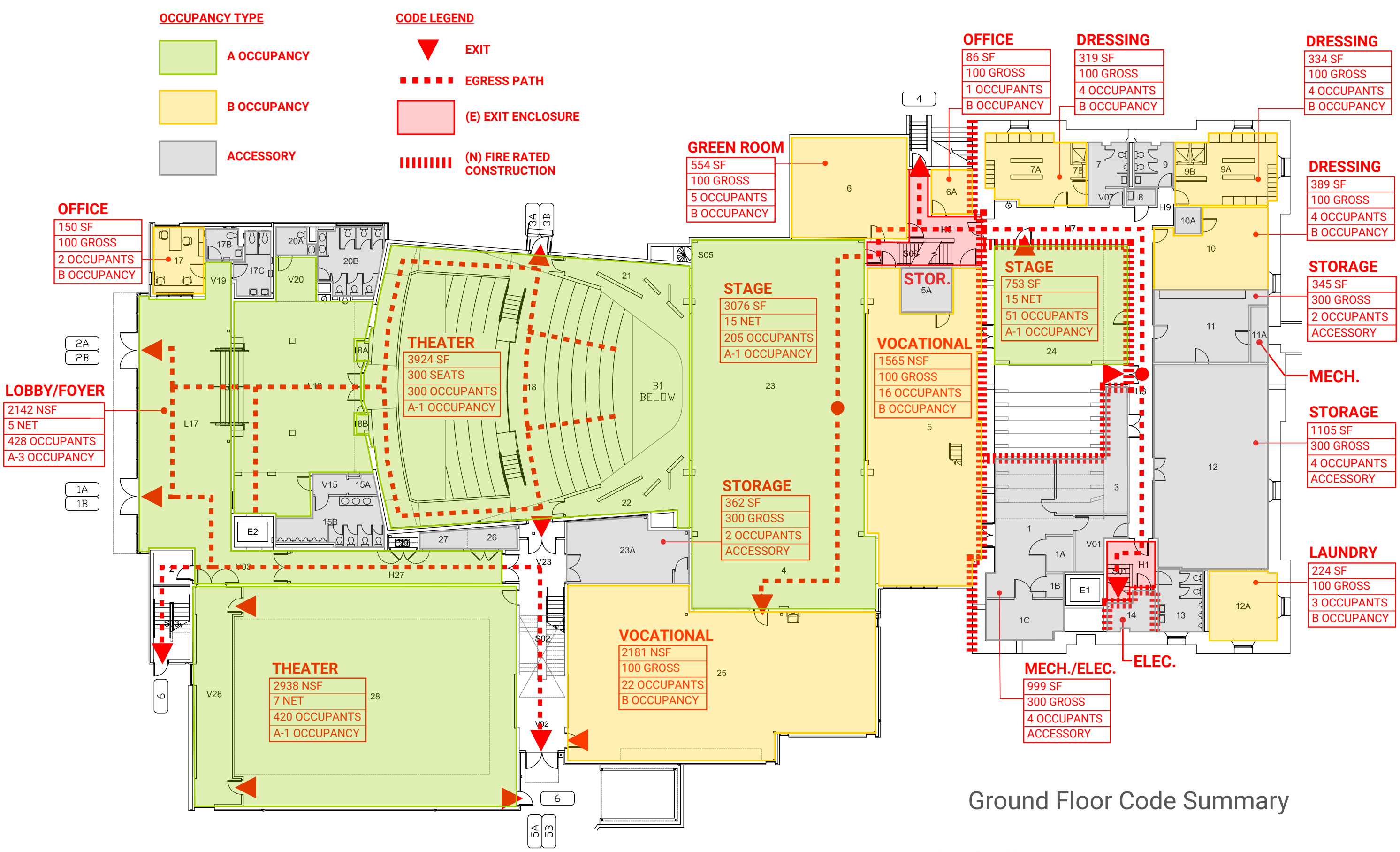
Egress and Exits

The Miller Theatre Complex egress paths and exits for the Robinson Theater audience areas were revised for code compliance with the 2009 addition project. However, the backstage areas were not revised and still present some egress issues. All Ground Floor (Level 1) backstage areas are provided with two exits but the egress path from Stage 23/Scene Shop 5 to the north stair tower exterior door is routed through an intervening space Green Room 6 rather than into a protected exit enclosure. **Modifying the wall layout within Green Room 6 is recommended to rectify this deficiency.** The Theater 18/Stage 23 exit at the north wall of the theater discharges into a sunken paved area in the exterior landscape without an accessible path leading away from the building. **While an accessible exit is provided elsewhere in the Miller Theatre, this exit should be revised to provide a more universal access approach for theater exiting.**

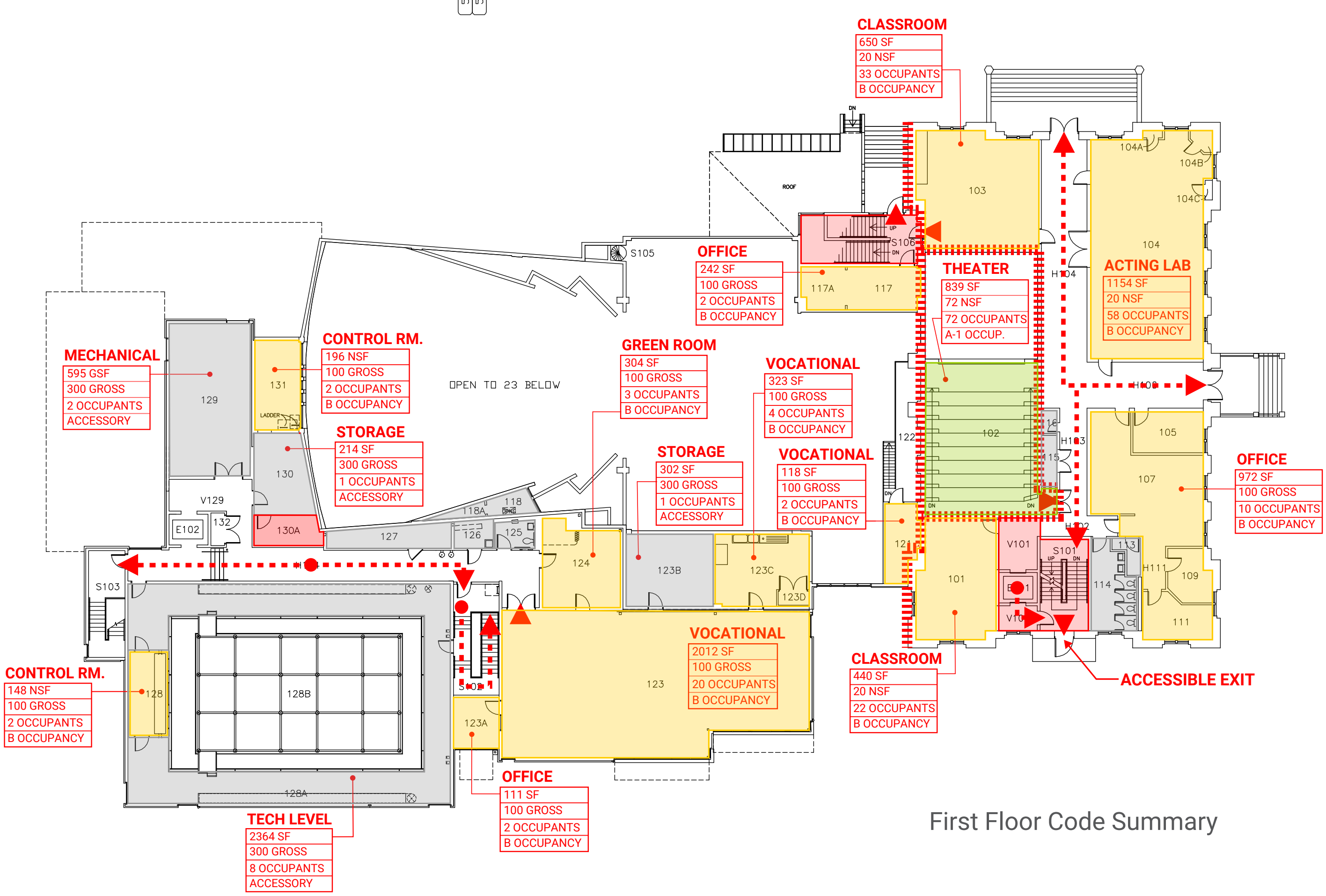
The ground floor level of Villard (First Floor as indicated on plan drawings) provides multiple exit routes with line of sight egress towards the north, east and south. All three exits at the ground floor require occupants to traverse down a flight of stairs to reach exterior grade. The accessible egress path from the building at all floors requires the use of the elevator located at the south end of the building. The south stairway is the only circulation stair located within the historic walls of Villard Hall. The stair walls and treads are constructed of concrete and stair doors appear to be older versions of fire-rated doors. Basement entry to the south stairway is not protected with a fire-rated door. The north stairway is located outside the historic walls and provides egress for both Villard Hall and the backstage areas of Robinson Theater. The north stairway walls and treads are constructed of concrete and stair doors are older versions of fire-rated doors. Egress capacity width is adequate for the occupant count at all exits. **Although stair construction, width, and fire protection appear adequate, stair handrails at both north and south stairways do not meet current 2012 OSSC building code and should be replaced.**



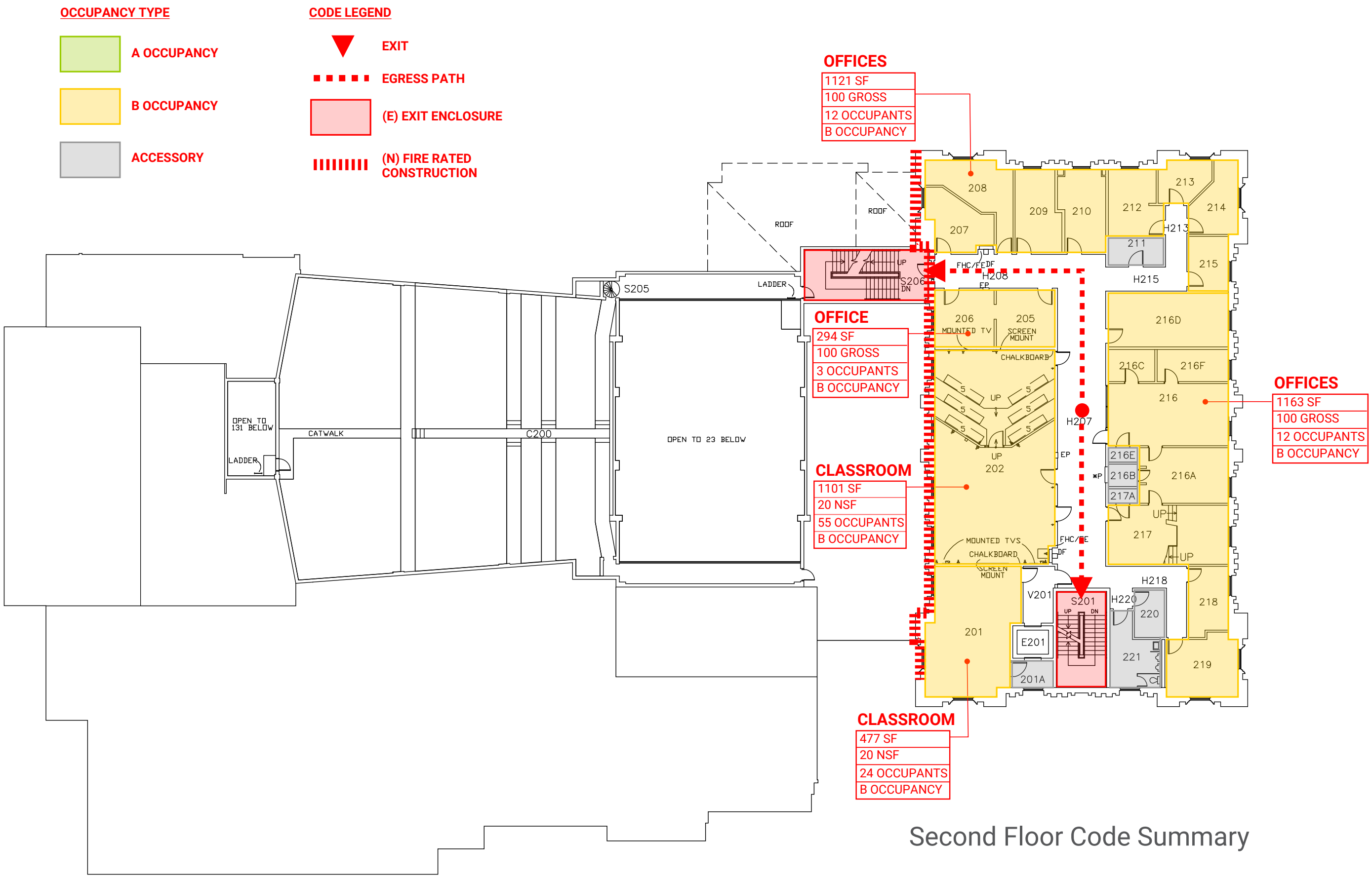
Basement Code Summary



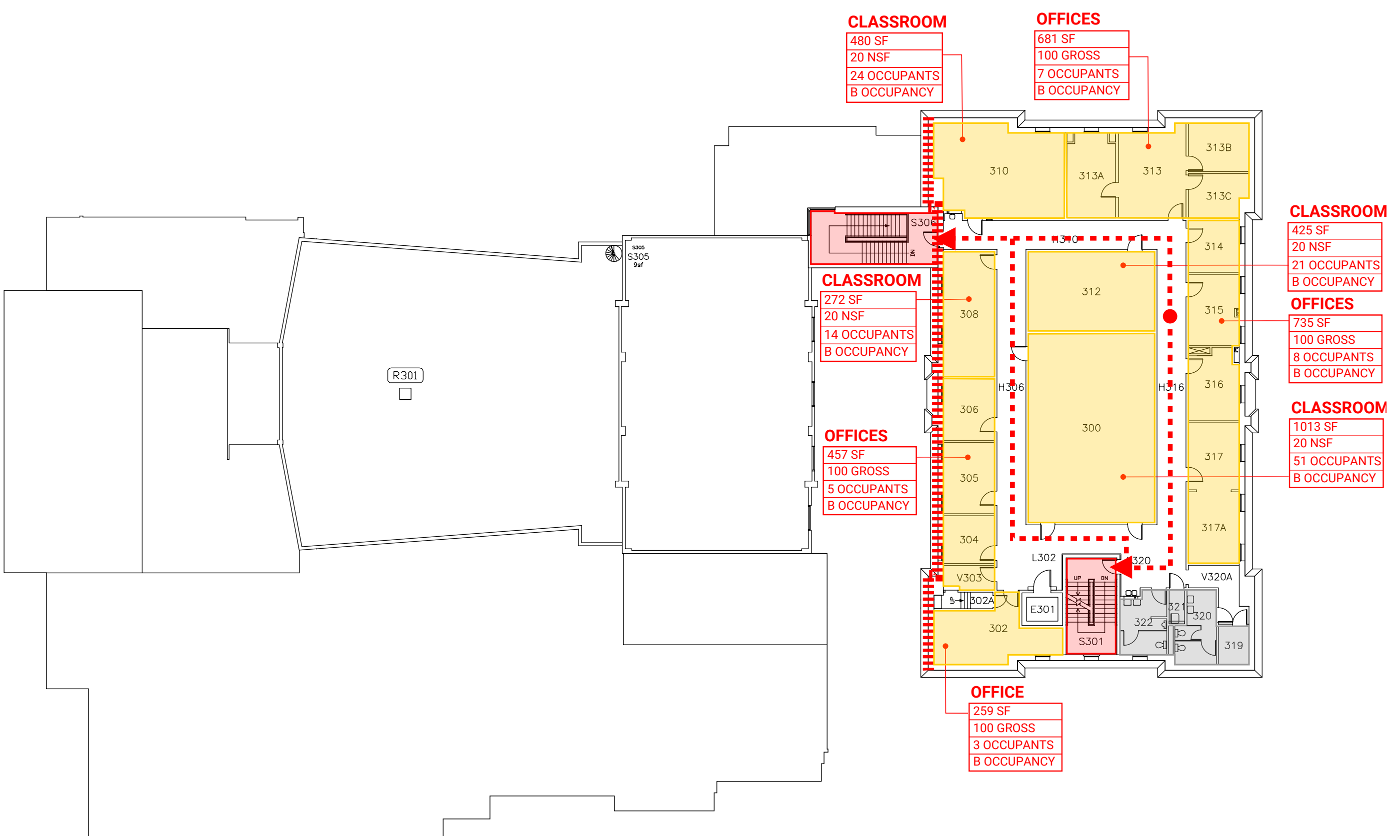
Ground Floor Code Summary



First Floor Code Summary



Second Floor Code Summary



Third Floor Code Summary

Accessibility

Villard Hall and the Robinson Theater portions of the Miller Theatre Complex have been assessed to identify the accessible barriers present in the building. Existing facilities conditions have been compared to the codes and standards contained in the 2010 American with Disabilities Act (ADA) Standards for Accessible Design and Chapter 11 – Accessibility of the 2014 Oregon Structural Specialty Code (OSSC). The full Facility Assessment Report provided by MIG, Inc. is presented in the appendix of this report with a summary of the primary barriers described briefly and illustrated graphically herein.

While an accessible route from parking to the accessible entry exists at the south elevation of Villard Hall, a minimum of sixty percent of the available entrances into the building are required to be accessible. Neither of the entrances located at the east and north elevations of the building provide for wheelchair accessibility or the required clear passage area at entry doors. The south elevation entry conveys a perception of "back door" entry into the building and forces wheelchair users, once inside the building and confronted with the south stairway, to use the building elevator for accessing academic classrooms and faculty offices.

Stairways in the building are noncompliant and present accessible barriers at multiple locations. In general, stair treads are too narrow and riser heights too tall. Handrails are mounted outside height ranges, do not provide handrail extensions at landings and are not continuous at the inside turns. Doors into the stairways do not provide required strike edge clearances and tactile signage is missing.

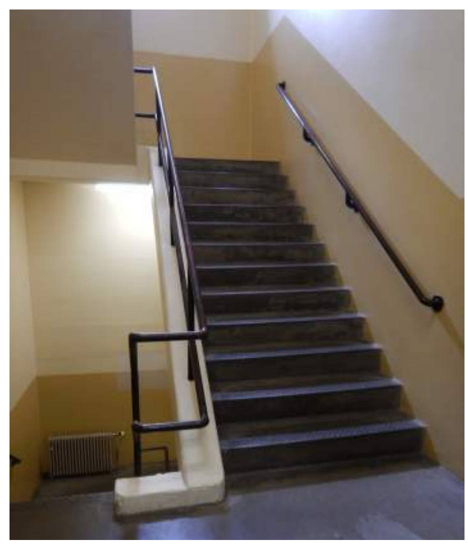
Restrooms in Villard Hall are entirely noncompliant and require complete renovation to correct the multiple barrier deficiencies at each restroom location. Typically, accessible toilet stalls, if present, do not meet maneuvering clearances, urinals and lavatories are mounted at incorrect heights and do not provide adequate knee space, floors are sloped greater than two percent and toilet accessories are mounted at incorrect heights or present protruding object hazards.

At the Robinson Theater, primary accessible barriers include areas of ramping floor which exceed the maximum allowable slope, narrow doors not meeting the minimum clear opening dimensions, circulation routes which do not provide for accessible paths of travel and audience accessible seating areas not fully meeting accessible requirements.

In an effort to apply universal design principles across campus facilities, it is recommended to replace the existing south entry into Villard Hall and replace it with a fully accessible path of travel. Exterior grading would be modified to accommodate a ramped approach to the raised south exterior door allowing for direct entry by wheelchair users into the first floor. The exterior ramp would be designed comprehensively with south plaza site improvements to provide a celebrated entry and gathering space commensurate with the historic Villard Hall and other campus building entries.

Existing Accessible Parking at South Elevation

Existing Accessible Entrance at South Elevation



Existing Interior Stair

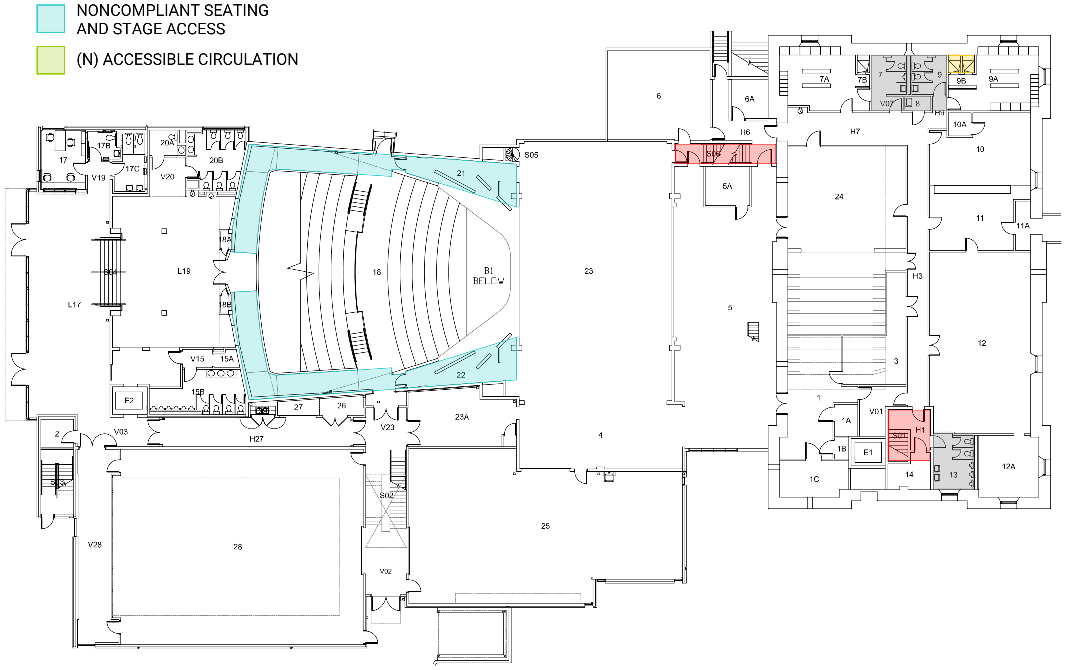
NONCOMPLIANT STAIRS

NONCOMPLIANT RESTROOMS

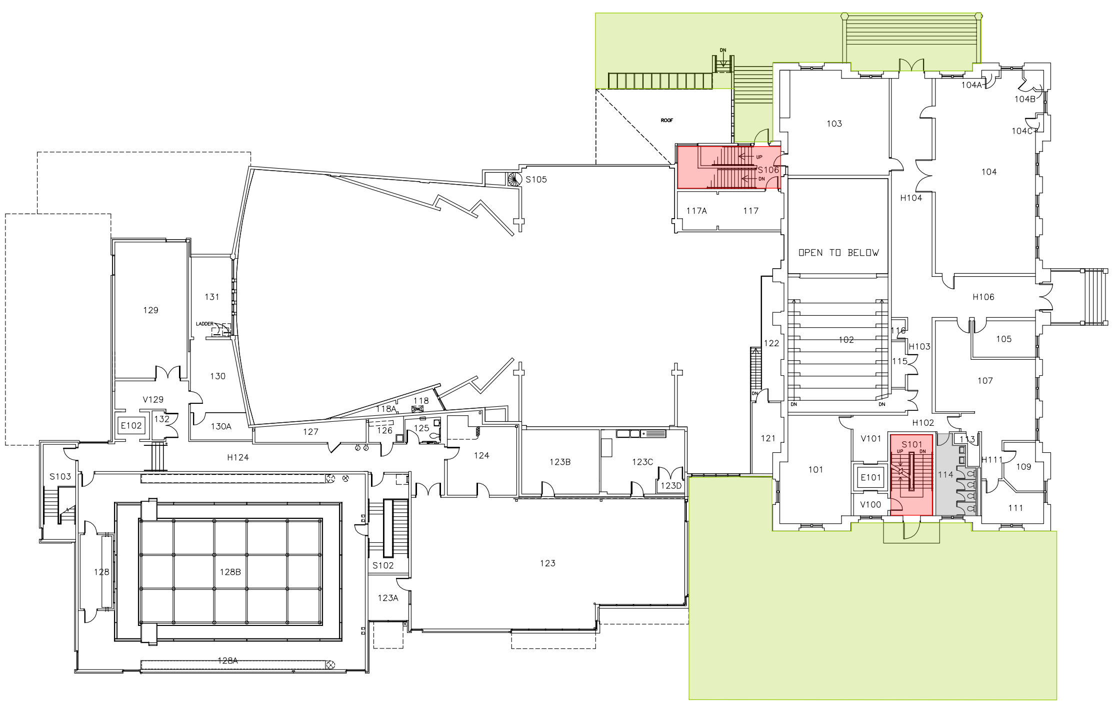
NONCOMPLIANT SHOWERS

NONCOMPLIANT SEATING AND STAGE ACCESS

(N) ACCESSIBLE CIRCULATION



Ground Floor ADA Summary



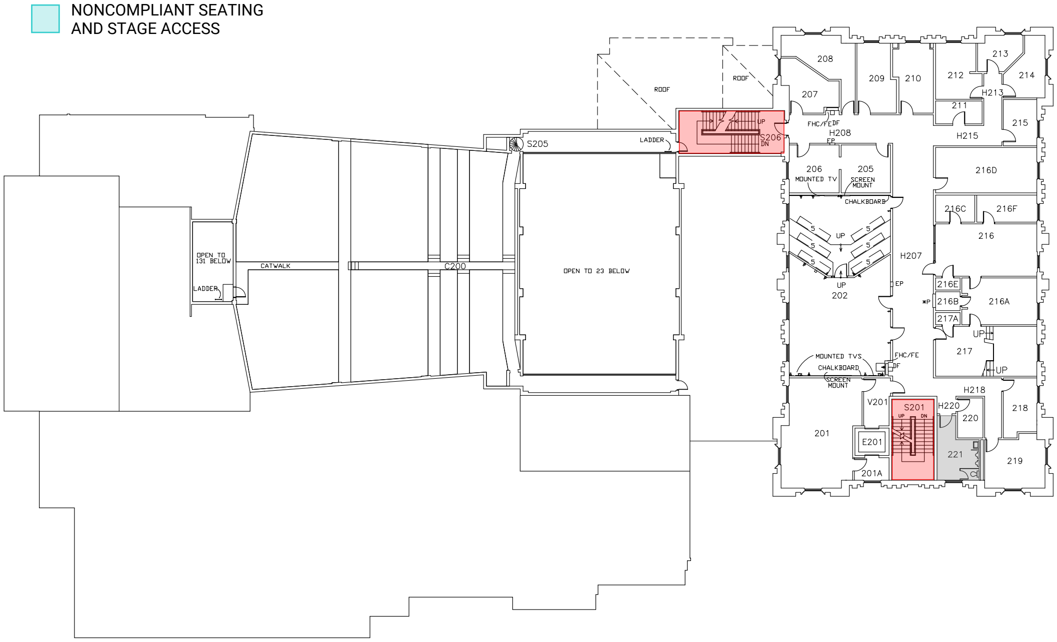
First Floor ADA Summary

NONCOMPLIANT STAIRS

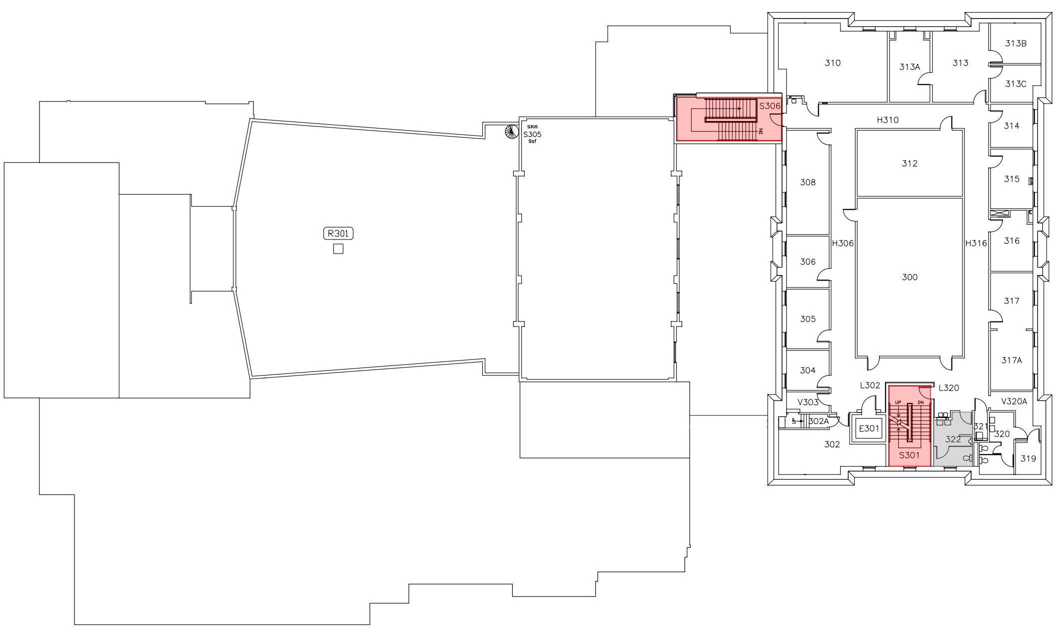
NONCOMPLIANT RESTROOMS

NONCOMPLIANT SHOWERS

NONCOMPLIANT SEATING AND STAGE ACCESS



Second Floor ADA Summary



Third Floor ADA Summary

Sustainability

The university is requiring this project to achieve LEED Gold certification under the LEED v4 project certification while also adhering to the University of Oregon Model for Sustainable Development. The proposed deferred maintenance renovation project will provide opportunities for improving the energy efficiency of the Villard Hall through envelope improvements that conserve energy and mechanical equipment upgrades that use energy efficiently.

The existing exterior masonry walls have a calculated R-value of approximately R-14. By adding additional insulation to the interior face of the walls the renovated wall assembly could achieve an approximate value of R-24. Additionally, the entire roof and attic space of Villard Hall are uninsulated and have been uninsulated since original construction. New insulation at the underside of roof sheathing or the topside of third floor ceiling framing will greatly improve the envelope performance of the building. These wall and roof improvements in concert with window energy efficiency upgrades utilizing Slim Line Insulating Pane (SLIP) glazing panels would boost overall envelope performance and significantly reduce the heating and cooling demands of new mechanical equipment.

The project is tasked to meet or exceed the Advanced Energy Threshold (AET) which is defined as 35% more efficient than the Oregon Energy Efficiency Specialty Code requirements. Air handling equipment will need to be upgraded with premium efficiency motors and the ventilation system will need to be upgraded to provide the code required minimum ventilation. Heating and cooling systems will need to be upgraded to utilize the central plant systems more efficiently.

As indicated below in the LEED v4 Project Checklist, initial assumptions of potential credits place the project at Silver level certification. Additional credits will need to be explored during schematic design and design development phases of the project particularly in the Energy and Atmosphere and Water Efficiency categories.

LEED v4 for BD+C: New Construction and Major Renovation
Project Checklist

Project Name:
Date:

Y	?	N			
1			Credit	Integrative Process	**1**
5	**1**	**0**		**Location and Transportation**	**16**
			Credit	LEED for Neighborhood Development Location	16
			Credit	Sensitive Land Protection	1
			Credit	High Priority Site	2
			Credit	Surrounding Density and Diverse Uses	5
3			Credit	Access to Quality Transit	5
1			Credit	Bicycle Facilities	1
1			Credit	Reduced Parking Footprint	1
	1		Credit	Green Vehicles	1
1	**0**	**0**		**Sustainable Sites**	**10**
Y			Prereq	Construction Activity Pollution Prevention	Required
			Credit	Site Assessment	1
			Credit	Site Development - Protect or Restore Habitat	2
			Credit	Open Space	1
			Credit	Rainwater Management	3
			Credit	Heat Island Reduction	2
1			Credit	Light Pollution Reduction	1
5	**3**	**2**		**Water Efficiency**	**11**
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
1			Credit	Outdoor Water Use Reduction	2
3	3		Credit	Indoor Water Use Reduction	6
		2	Credit	Cooling Tower Water Use	2
1			Credit	Water Metering	1
17	**9**	**3**		**Energy and Atmosphere**	**33**
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
6			Credit	Enhanced Commissioning	6
9	4	3	Credit	Optimize Energy Performance	18
1			Credit	Advanced Energy Metering	1
	2		Credit	Demand Response	2
	1		Credit	Renewable Energy Production	3
1			Credit	Enhanced Refrigerant Management	1
	2		Credit	Green Power and Carbon Offsets	2
11	**0**	**0**		**Materials and Resources**	**13**
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
3			Credit	Building Life-Cycle Impact Reduction	5
2			Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
2			Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
2			Credit	Building Product Disclosure and Optimization - Material Ingredients	2
2			Credit	Construction and Demolition Waste Management	2
10	**4**	**0**		**Indoor Environmental Quality**	**16**
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
1	1		Credit	Enhanced Indoor Air Quality Strategies	2
3			Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
1	1		Credit	Indoor Air Quality Assessment	2
	1		Credit	Thermal Comfort	1
1	1		Credit	Interior Lighting	2
1			Credit	Daylight	3
1			Credit	Quality Views	1
1			Credit	Acoustic Performance	1
4	**0**	**0**		**Innovation**	**6**
3			Credit	Innovation	5
1			Credit	LEED Accredited Professional	1
0	**0**	**0**		**Regional Priority**	**4**
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
54	**17**	**5**		**TOTALS** Possible Points:	**110**

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

1.03 Assessment - Villard Hall

Historic Description

Historic West Elevation

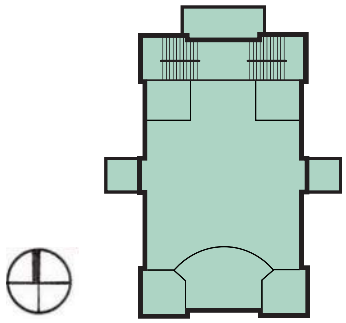
Historic East Elevation

Villard Hall was listed as a National Historic Landmark on the National Register of Historic Places in 1977 and is the second oldest building constructed on the University of Oregon campus. Areas of significance listed on the National Register nomination include "architecture" and "education" from the 19th Century. Construction of the "New College Building" was completed in 1886 and named after university patron Henry Villard who assisted the university with financial donations during its early years including a seven-thousand dollar donation to erase the remaining university debt associated with the oldest building on campus, Deady Hall. Designed by notable Oregon architect Warren Heywood Williams in the Second Empire style and constructed by contractor W.H. Abrams, Villard Hall is one of the few remaining examples of Second Empire academic buildings on a western American campus. Building form is rectangular consisting of two long sides oriented north to south and the two short sides oriented east to west. A mansard-roofed tower is located at each of the four corners with mansard roof infill placed between the towers. Originally, exterior entries were located at the north, east, and west sides of the building in response to the predominant approach directions of the early campus layout. The north entry from Franklin Boulevard was the dominant entry including both a monumental set of concrete stairs and pathway from the street leading to a three-door, uncovered entry porch spanning most of the north elevation. The north entry opened into a foyer with flanking stairways leading to the first floor auditorium. East and west entries are centered on the long sides of the building and were covered with balustraded porticos over the concrete entry stairs. The south elevation was not a originally a point of entry but, rather provided with large ground floor windows facing Deady Hall.

The building's exterior walls are constructed of brick masonry with a cement stucco coating as a finish weathering surface. Detail elements are fabricated from either wood or cast metal and windows and doors are wood construction with single pane glazing. The typical wood window at the ground, first and second floors is a double-hung, one-over-one sash configuration while the third floor windows are fixed, round oculus windows. Windows at the first floor are either framed in aedicules at building corners or flanked by square pilasters of the Corinthian order. A balustrade is located at the base of the mansard roof between corner towers and was originally decorated with large urns placed on the balustrade pedestals.

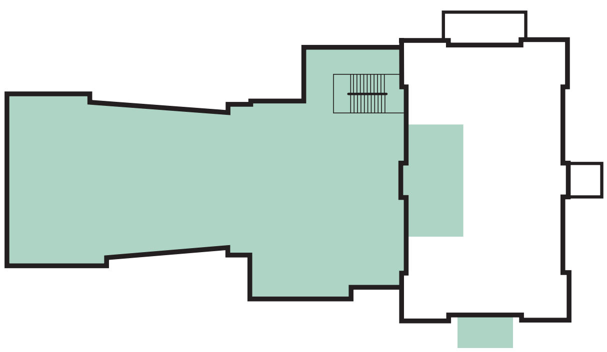
In 1949 the Robinson Theater was constructed onto the west elevation of Villard Hall obscuring the original architecture below the second floor. A concrete stair tower was built at the exterior of Villard Hall's northeast corner providing circulation between floors and into Robinson Theater along with walls and roof enclosing the backstage theater areas. Window and door openings affected by the construction were filled in with brick or concrete masonry and new openings were created to connect spaces between buildings.

Chronology of Development



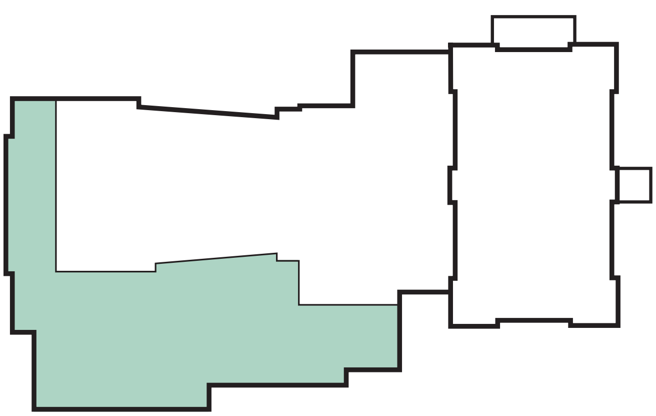
Villard Hall 1885 - 31,173 sf

- Second oldest building on campus
- Primary entrance at North elevation
- Secondary entrance at East & West elevations
- Monumental double stairs at North entry lead to second floor atrium
- Built in Second Empire style
- Originally two floors of academic space



Robinson Theater 1949 - 19,980 sf

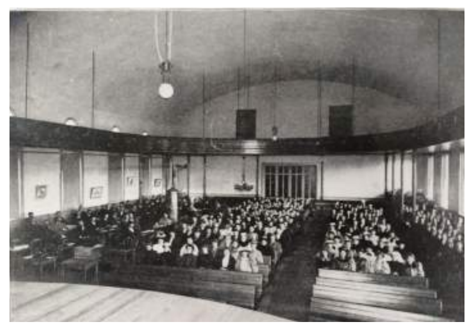
- West porch removed
- Main theater, fly tower, and backstage added to west elevation of Villard
- North stair tower added
- South entrance added to Villard
- Auditorium and monumental stairs removed
- Third floor and full basement added to Villard
- Built in modern style
- Small theater added to Villard ground floor



Miller Theatre Complex 2009 - 18,205 sf

- Remodeled & expanded original West theater entrance & lobby
- Miller Theatre vocational classrooms and support spaces added to South side of Robinson Theater

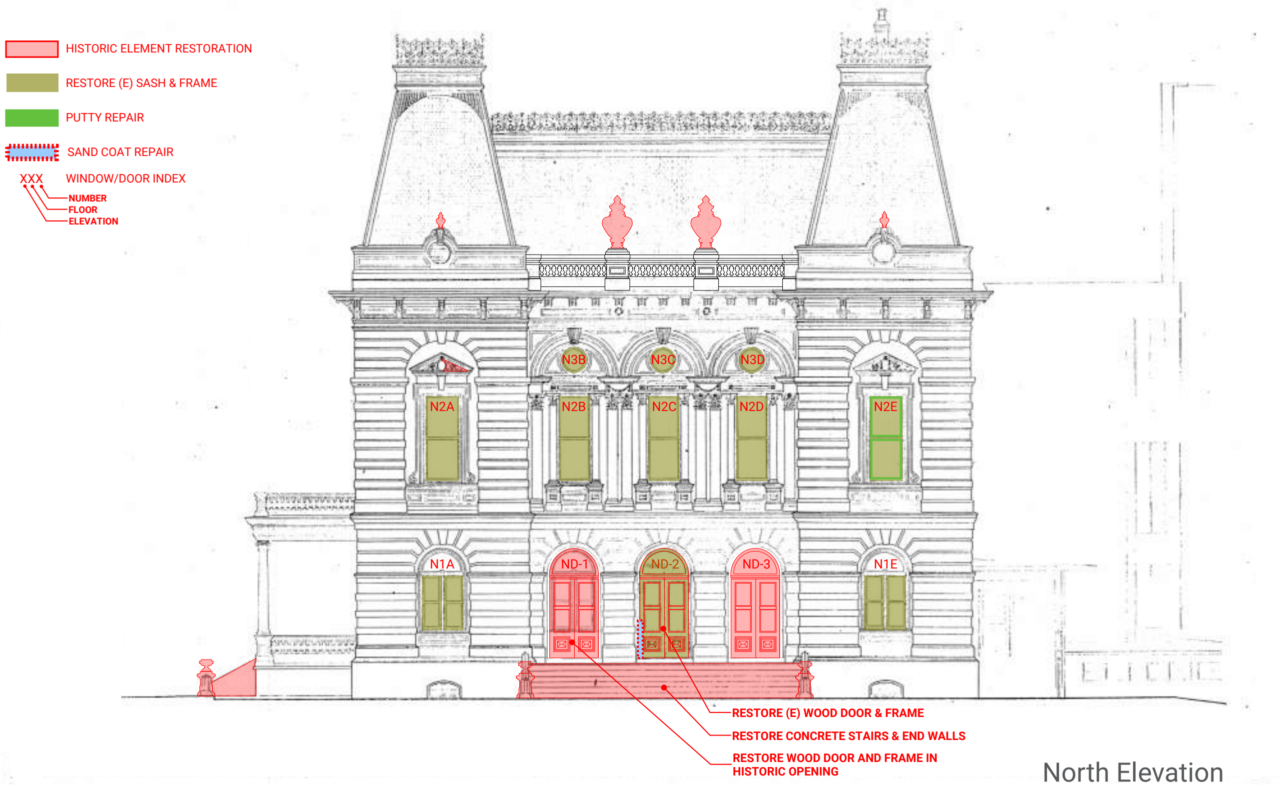
Treatment Recommendations



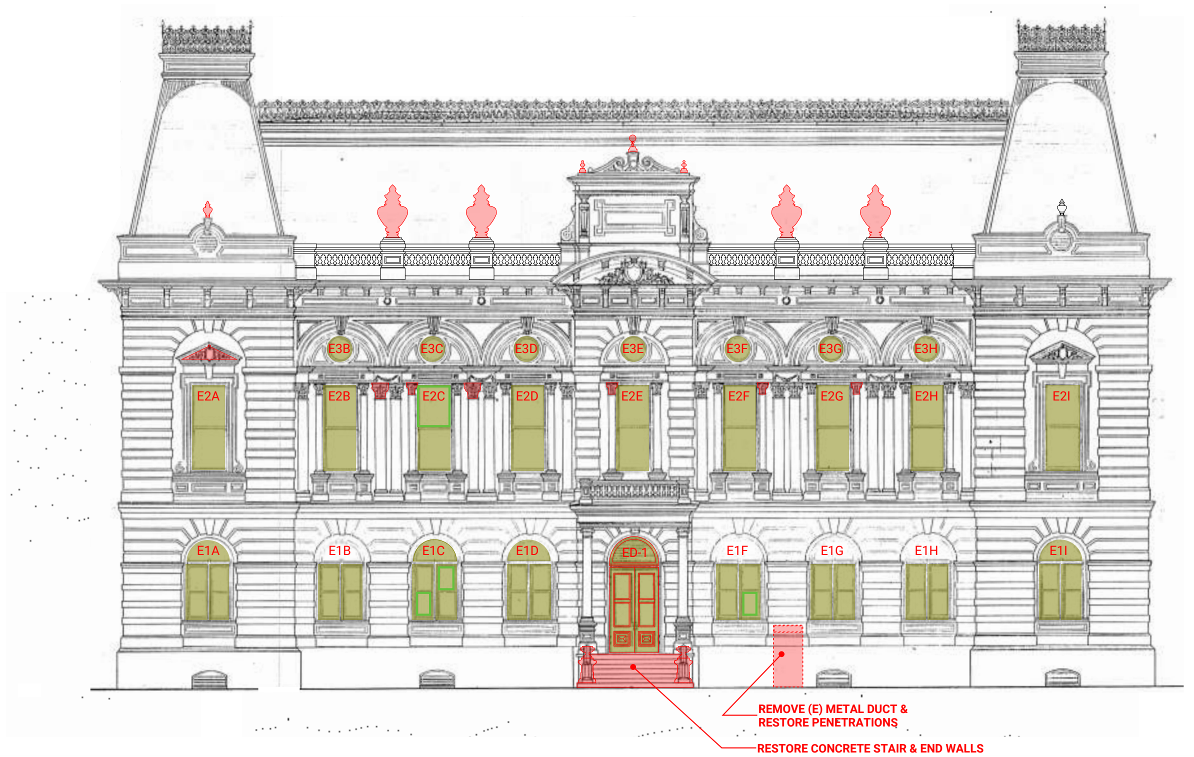
Villard Hall is a listed National Historic Landmark on the National Register of Historic Places and is the second oldest building on the University of Oregon campus. The primary historic assessment documents for the building are the National Register nomination dating from 1972 and the "Historic Resource Survey Form" from the University of Oregon Cultural Resource Survey dated Summer 2006. A single period of significance is identified for the building in the survey form as 1886, the date of its construction, but no ultimate treatment recommendation has been made in either document. In the absence of a more complete historic structure report, discussions with Campus Planning and Facilities Maintenance staff suggest a **Restoration** treatment be pursued for the historic facades ranked as primary (north, east, and the unaltered portion of the west elevation) while a **Rehabilitation** treatment be applied to the south elevation and interior portions of the building found to be historically intact. A **Restoration** treatment would entail both repair/replace in kind those portions of the facades which are still intact while also reconstructing new elements based on historic documentation of missing elements. Essentially, the north and east facades in their entirety as well as the upper portion of the west façade would be restored to their 1886 appearance. The **Rehabilitation** treatment would allow flexibility in restoring some elements of the building while adapting other elements for new uses and functionality. **Strategies for restoration or rehabilitation are as follows:**

- The Robinson Theater addition would be separated from the west elevation of Villard and the west façade would be rehabilitated to its original appearance
- Exterior cement stucco walls along with existing exterior wood and metal detail elements would be restored to their original appearance using in-kind materials and workmanship
- New detail elements would be constructed using in-kind materials and workmanship
- Windows and doors would be restored to their original functionality and interior appearance with additional window energy enhancements provided with the use of Slim Line Insulating Pane (SLIP) storm windows
- Exterior opening locations at primary facades would be restored to their original function
- Exterior window/door openings which have been closed up as a result of later additions or remodeling would be returned to their original appearance and function
- Roof areas exposed to view would be restored but allowed to incorporate concealed waterproofing systems for long term durability
- Extensive interior renovations are allowed but would incorporate and restore areas of historic integrity into the overall design

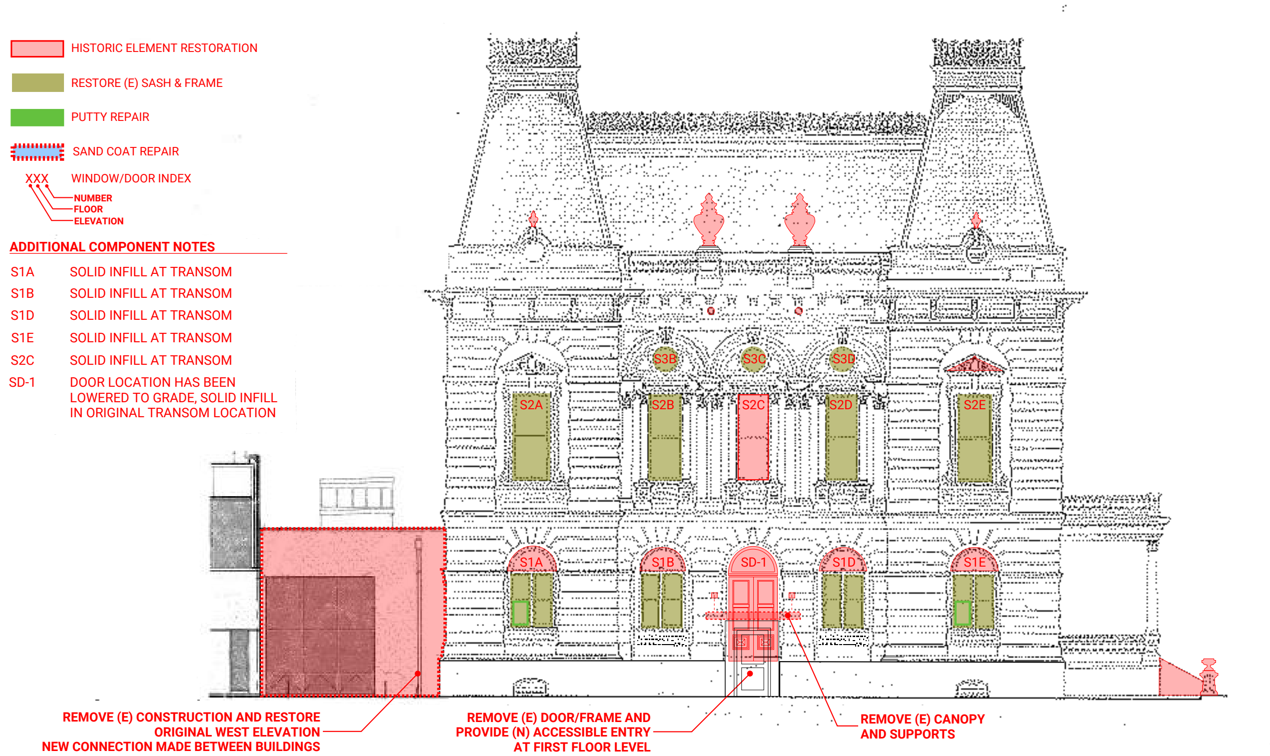
Restoration Elevations



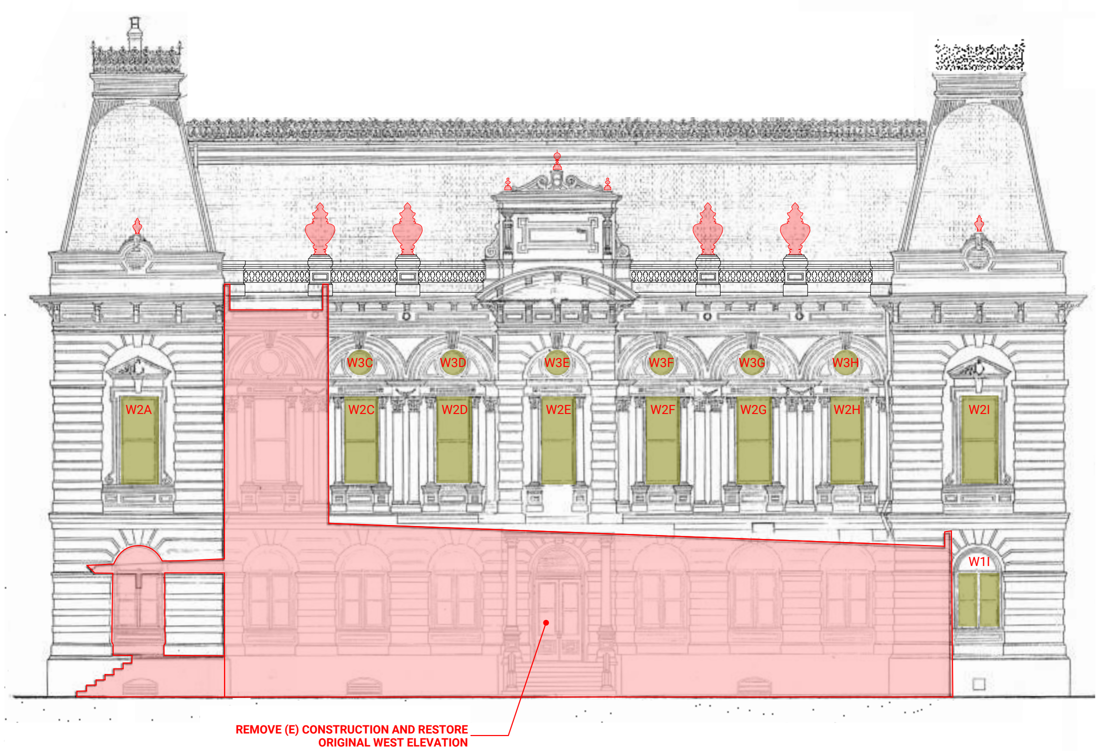
North Elevation



East Elevation



South Elevation



West Elevation

Proposed Resolution Strategies

Site Concept

A new main entrance will be created along the south side of Villard Hall. The current south entry is designed more as a service entry, where one enters into a mid-level stair landing split between the ground and first levels and accessible circulation into the building is provided by an adjoining elevator. However, this entry sequence does not coincide with overall campus goals as expressed in the the Campus Plan. The main entry floor into the building is the first floor level and it should function as the primary floor level for welcoming buildingusers and visitors.

To provide Villard Hall a dignified, accessible entry, the building deserves a new south porch to compliment the original main north entry. The first floor is located several feet above the existing grade so a sloping pathway and exterior stairway integrated into a terraced landscape seating area would help to mitigate the grade differential. This solution would also allow for access without using up valuable area within the building for ramping and transition space. The terraced seating would create a simple amphitheater plaza feature helping to define this place as an outdoor room and as a functional element for formal and informal gatherings catering to individuals and large groups.

As for parking, two ADA parking stalls and a service/loading zone would be established in a well-defined parking court at the end of the service drive to the west of the entry plaza.

Two bicycle canopy structures could be placed near the parking court to provide easy accommodation for bicycles at Deady and Villard Halls. To honor the strength of the original architectural character while providing for a compatible entry solution, the new entry stairs, terraced seating and bicycle canopy structures would be placed in a symmetrical alignment with the south façade of Villard Hall.

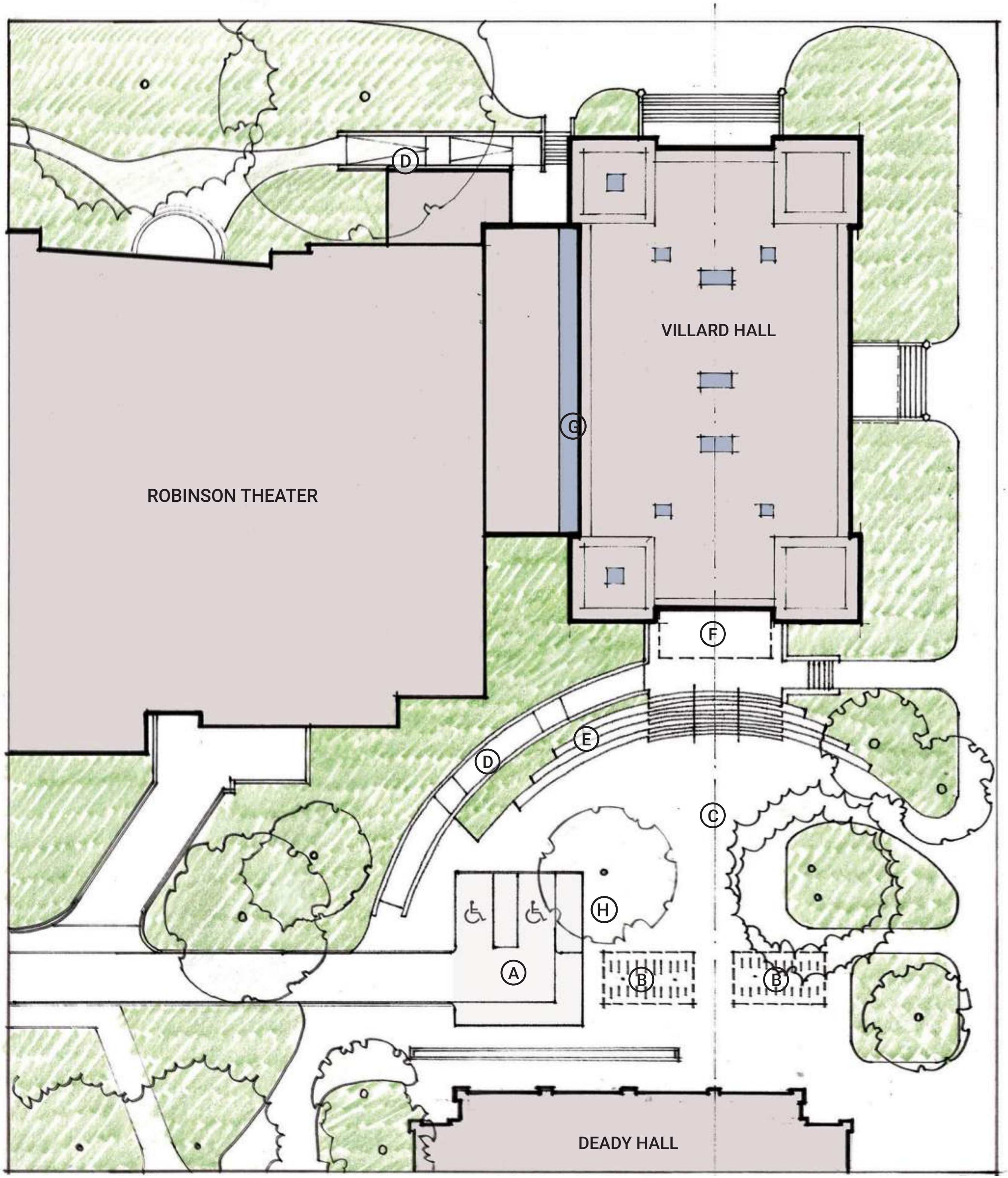
An entry canopy will be needed to provide weather protection and welcome at the new entry. The canopy design should not attempt to mimic a historic style especially because there is no original structure at the north or south façade to replicate. This canopy can be done in a simple minimal way, perhaps using steel and glass to create a slim profile with a free standing structure so as not to intrude on the historic character.

The 1949 addition of the Robinson Theater did a poor job of honoring the existing geometry in the creation of the shop connection made with Villard Hall; in the placement of the south adjoining wall connection of the theater shop, the internal fire stair tower, exterior stair and canopy located at the north.

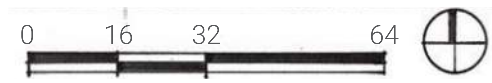
Along with the desire to preserve and restore the historic details and character of the west façade of Villard Hall, there are also a number of concerns for the adjoining shop connection with seismic resilience and water proofing. With this understanding a significant renovation of this structure will take place. The new south wall will be relocated just north of the base projection of the southwest tower element of Villard Hall. At the north end of this connector a new exterior wall will be located with a similar alignment at the northwest tower element. The 1949 stair tower will be removed and the need for vertical circulation will be absorbed into the new interior layout of Villard Hall. The exterior stair and canopy will be removed and replaced with a simple ramp and stair to accommodate egress. The linear portion of the new roof of the shop that connects to Villard Hall will be a continuous skylight so as to bring daylight into the shop area and also highlight the newly renovated historic west façade of Villard Hall. The portion of the skylight connected to Villard Hall will be located just below the horizontal decorative datum of the piano nobile located between level 1 and 2 on the façade. All of these design adjustments are intended to help to minimize the intrusion on the historic façade.

Legend

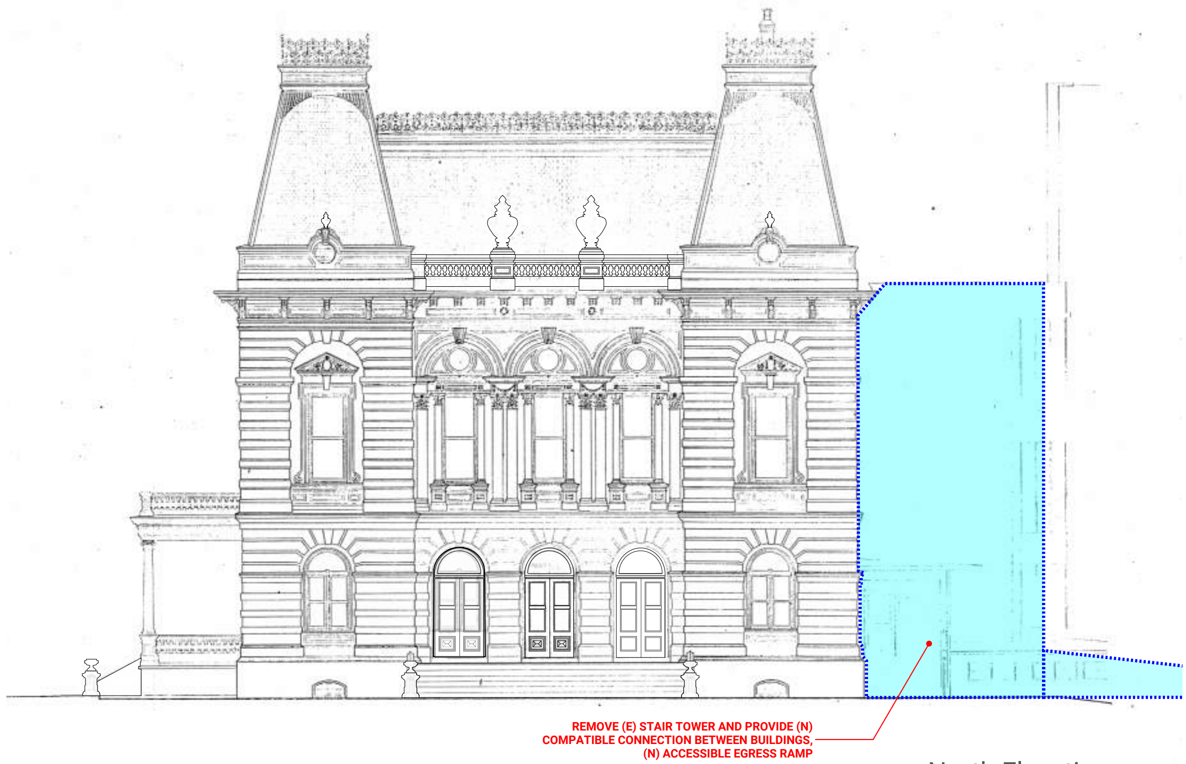
- (A) ADA parking stalls and loading areas (1400 sf)
- (B) Covered bicycle parking areas
- (C) Paver plaza (permeable pavement 3500 sf)
- (D) ADA access ramp
- (E) Terraced concrete benches
- (F) Free standing entrance canopy
- (G) Skylight
- (H) Addtional tree



Proposed Site Plan

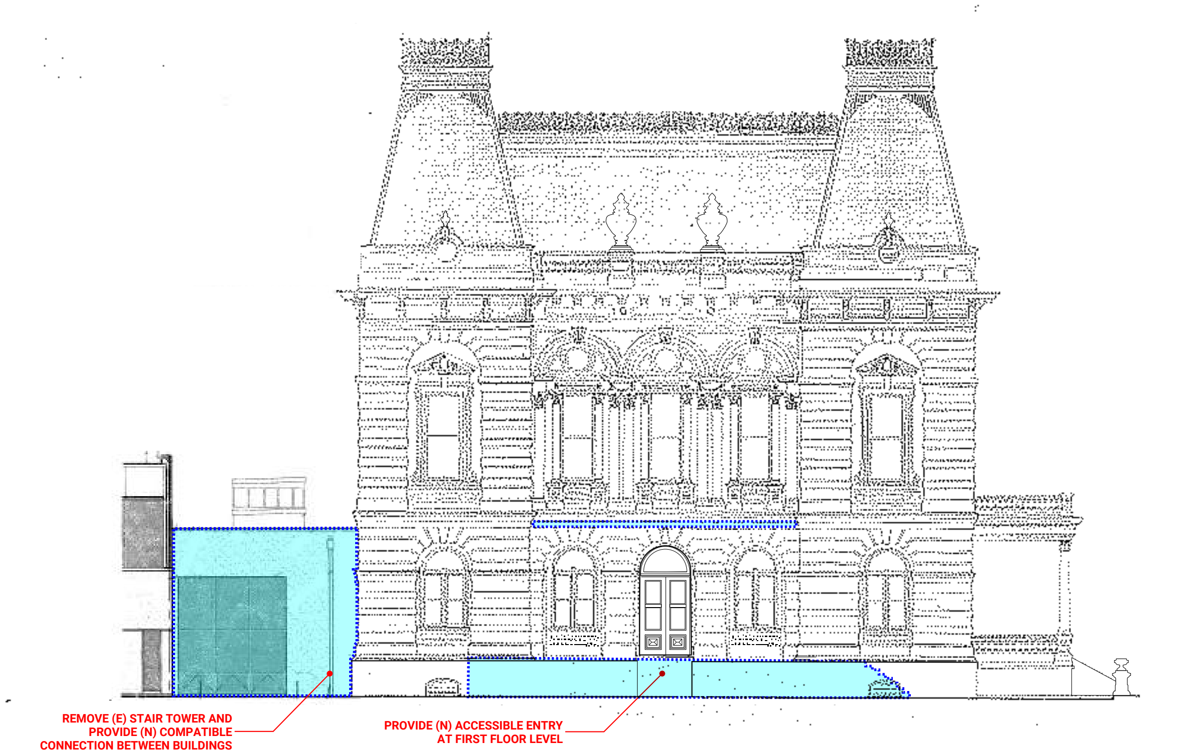


Proposed Concept Elevations

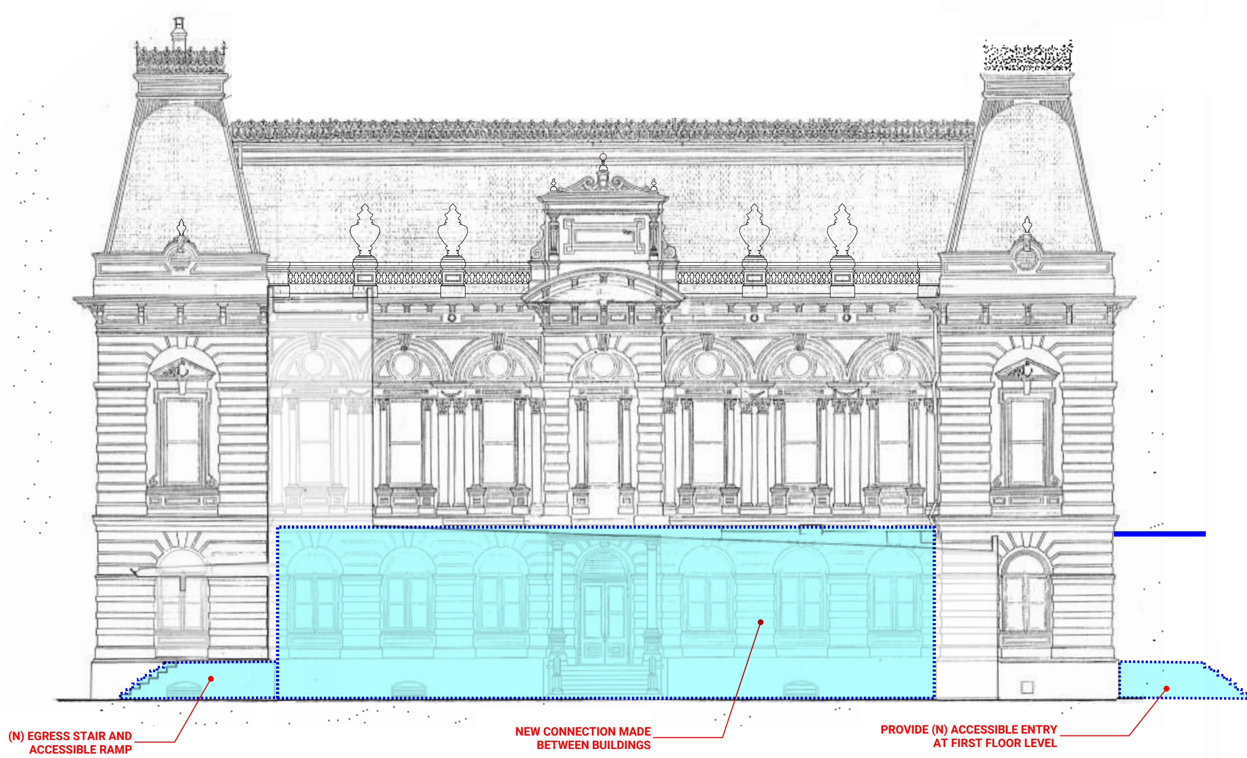


North Elevation

East Elevation



South Elevation



West Elevation

Proposed Program Concept

In the original floor plan layout, Villard's main entry was located at the north façade facing Franklin Blvd. This main entry led to a pair of monumental interior stairs located in the northeast and northwest corners which provided access to the large auditorium on level 2. The 1949 renovation and addition removed the auditorium and stairs and inserted a new level 3 floor in the building. The addition provided new, pragmatically designed concrete stairs at the south side of the building and at the northwest corner within an new exterior stair tower. The proposed design solution associated with a major deferred maintenance renovation project does not reconstruct the original stairs, auitorium or historic interior details but embraces the character of the original design within current academic program needs. New stairs designed with greater openness to surrounding spaces and daylit from above with new skylights are located within the mansard roofed towers at the northwest and southwest corners. These stairs are located to provide required egress, adjacent to new gathering areas, and to acknowledge the original character of the historic building.

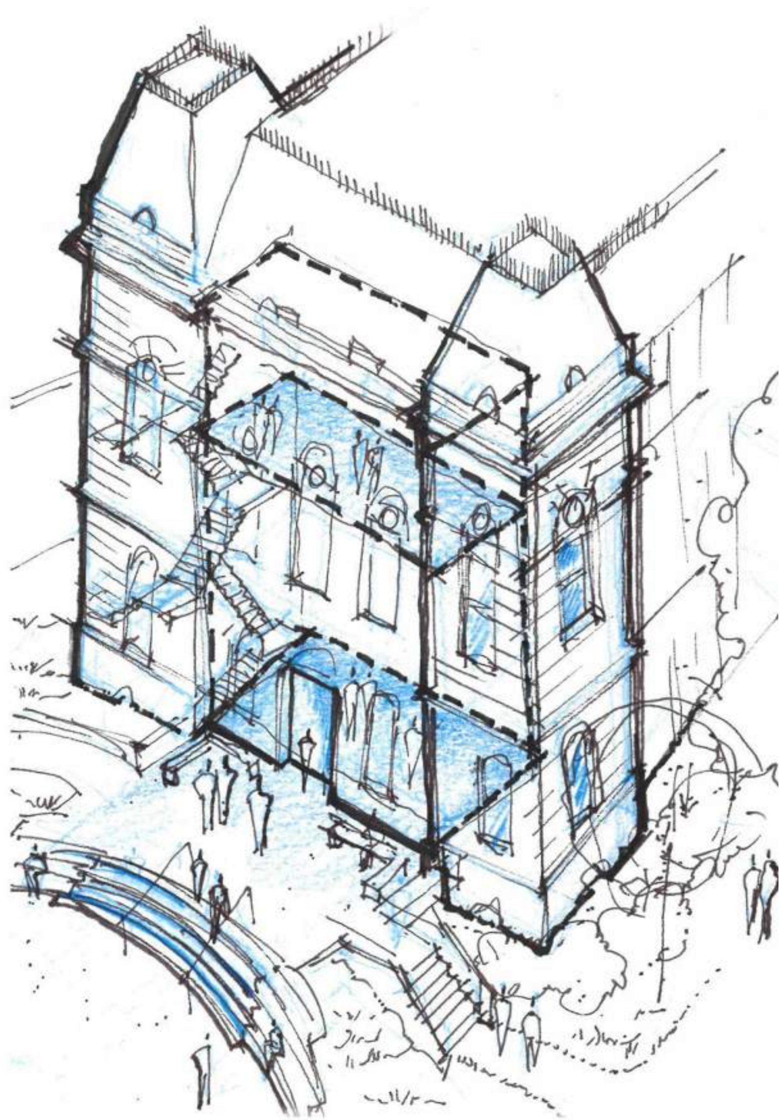
A new main entry is located at the south side of the building to provide for building circulation relative to the current campus movement patterns as well as to provide a universally accessible entry without significant impact to the primary historic north and east elevations.

A double height lobby at the south side of the building will provide a more welcoming experience while also creating a new social hearth for the building. In taking advantage of the existing building geometry, the double height lobby will reside within the piano nobile zone of the façade utilizing the tall south windows to flood the space with daylight. The entry lobby will provide a hub for the social activities of the building, surrounded by informal seating and flanked by restrooms to the east and the open stair to the west. To the north of the entry lobby, there will be an acoustically-controlled vestibule lobby for the first floor theater, elevator and the department's reception office. At the north building entry there will be a small informal lobby flanked by the new open stair and the entrance to the large multi-use classroom. On level 3 there will be a new small informal gathering space located above the main entry mezzanine.

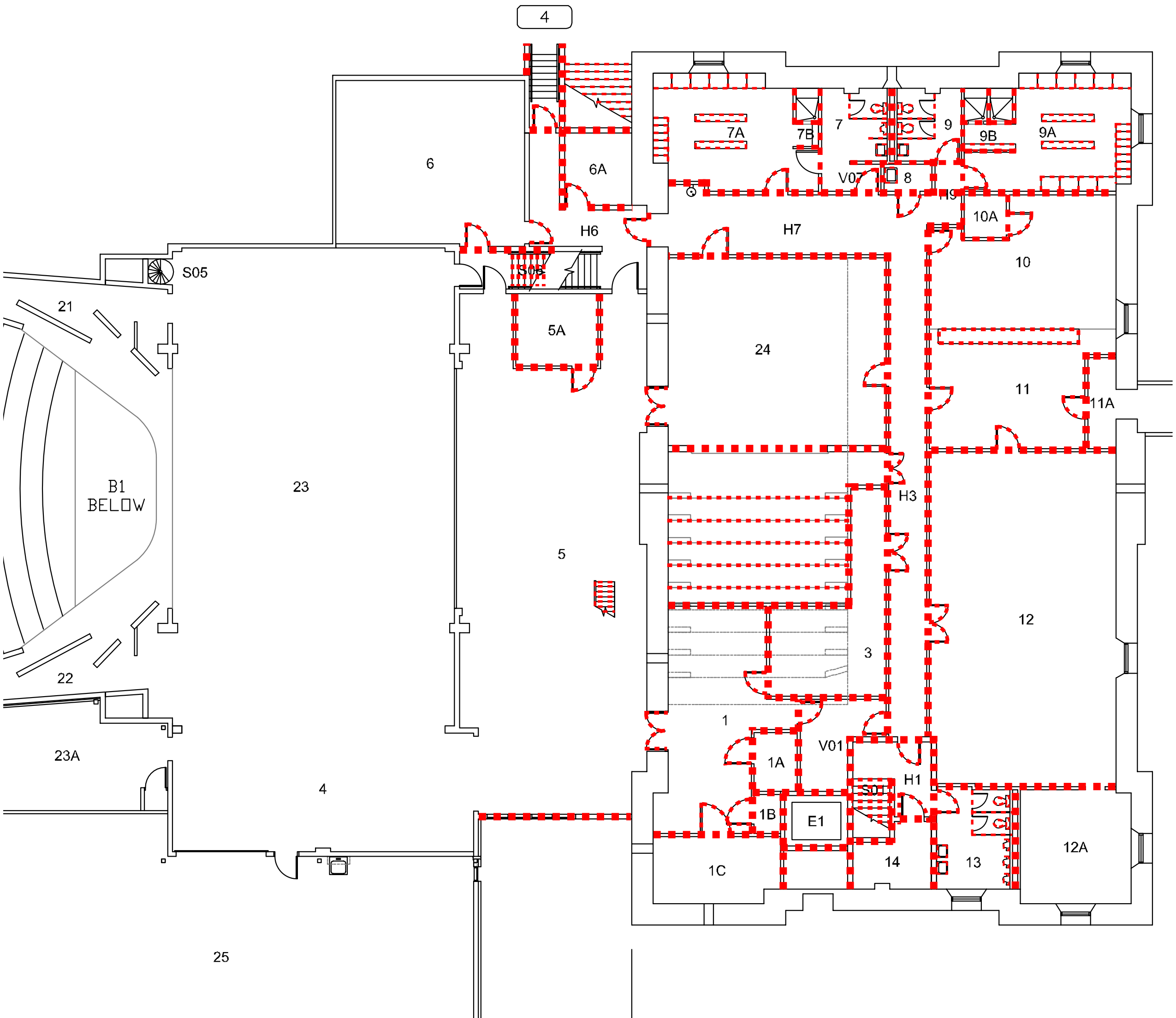
A significant portion of the remodel will be initiated by the need to seismically upgrade the building and replace antiquated mechanical, plumbing and electrical systems. On the ground floor, a new electrical room will be located near the southwest corner of Villard Hall within close proximity to the new emergency transformer, relocated existing transformer and new building electrical disconnect. A dedicated mechanical room will be located adjacent to the existing utility tunnel at the east side of the building and a new main distribution frame (MDF) room will be located on the ground floor with stacked intermediate distribution frame (IDF) rooms located above on levels 2 and 3. Gender neutral restrooms meeting accessibility requirements and campus standards will be located conveniently throughout the building on each floor. For the most part, the existing program of faculty offices, black box theater, classrooms and back-of-house theater spaces will be retained and replaced at their current locations after a complete interior demolition and seismic upgrade. Existing windows provide daylight at each building elevation but window size and configuration within thick masonry walls limits the amount of daylight reaching many of the interior spaces. The new design proposes to locate low profile skylights above the classrooms and corridors at level 3 to create both direct and borrowed daylighlight opportunities. A mechanical room will be established within the attic along the south side of the building helping to accommodate initial equipment installation and future service needs from the adjacent service drive and open paved plaza. This location will also allow the passenger elevator to provide access for people, small tools and equipment. A utility shaft will be located next to the elevator shaft to consolidate floor penetrations and for effiecient systems distribution. A comparison of existing building space dedicated to mechanical and electrical equipment with the proposed space accommodating these systems indicates an increase from 629 square feet to approximately 1003 square, a 59 percent increase. The increased area is associated with the introduction of dedicated MDF, IDF and shaft spaces as part of an upgraded systems design along with providing code required working clearances at electrical equipment.

Interior Program and Finishes

Interior wall finishes at Villard Hall are either utilitarian in nature, such as painted concrete at the ground floor level and stairways, or standard painted gypsum board at partitions, corridors, offices, classrooms and restrooms. Ceilings are typically acoustic ceiling tile of various vintages and floors are vinyl composition tile at the ground floor and lower floor corridors with linoleum at restrooms. Second and third floor corridors are carpeted along with offices and classrooms. Interior doors are a mix of painted wood in stile and rail and flush configurations along with hollow metal and metal skin in both rated and non-rated applications. Door hardware is typically satin brass with a wide range of locksets, door handles, pulls, hinges, kickplates and closers. Restroom toilet partitions are both painted metal and plastic composite. The third floor level finishes were renovated in 1997 and included oversized wall and door trim with a bright, peach colored paint scheme and faux-historic arches. With the exception of woodwork trim at exterior doors and windows and some areas of plaster, there are no indications of intact historic finishes throughout Villard Hall. As a deferred maintenance renovation approach for the interior of Villard, the project assessment team was provided direction by university staff to reimagine the entire interior of the building with a modern academic layout while incorporating existing program spaces and approximate areas. The redesigned program layouts account for necessary mechanical and electrical service spaces and structural upgrades while introducing new student gathering areas and gender-neutral restrooms at each floor. Existing corridor structural walls are replaced in their same locations but stairways are relocated to the building corners and the elevator is moved adjacent to the south student gathering areas. A primary design goal for the reorganization of building program is to emphasize the historic character of the building by exposing tall windows, introducing daylight through skylights and connecting the interior spatial experience to the exterior architectural expression. The general character of interior spaces will embrace modern detailing utilizing glass, wood and painted gypsum board surfaces but expose historic materials wherever possible.



Proposed Concept - Entry Lobby, Hearth, and Informal Gathering



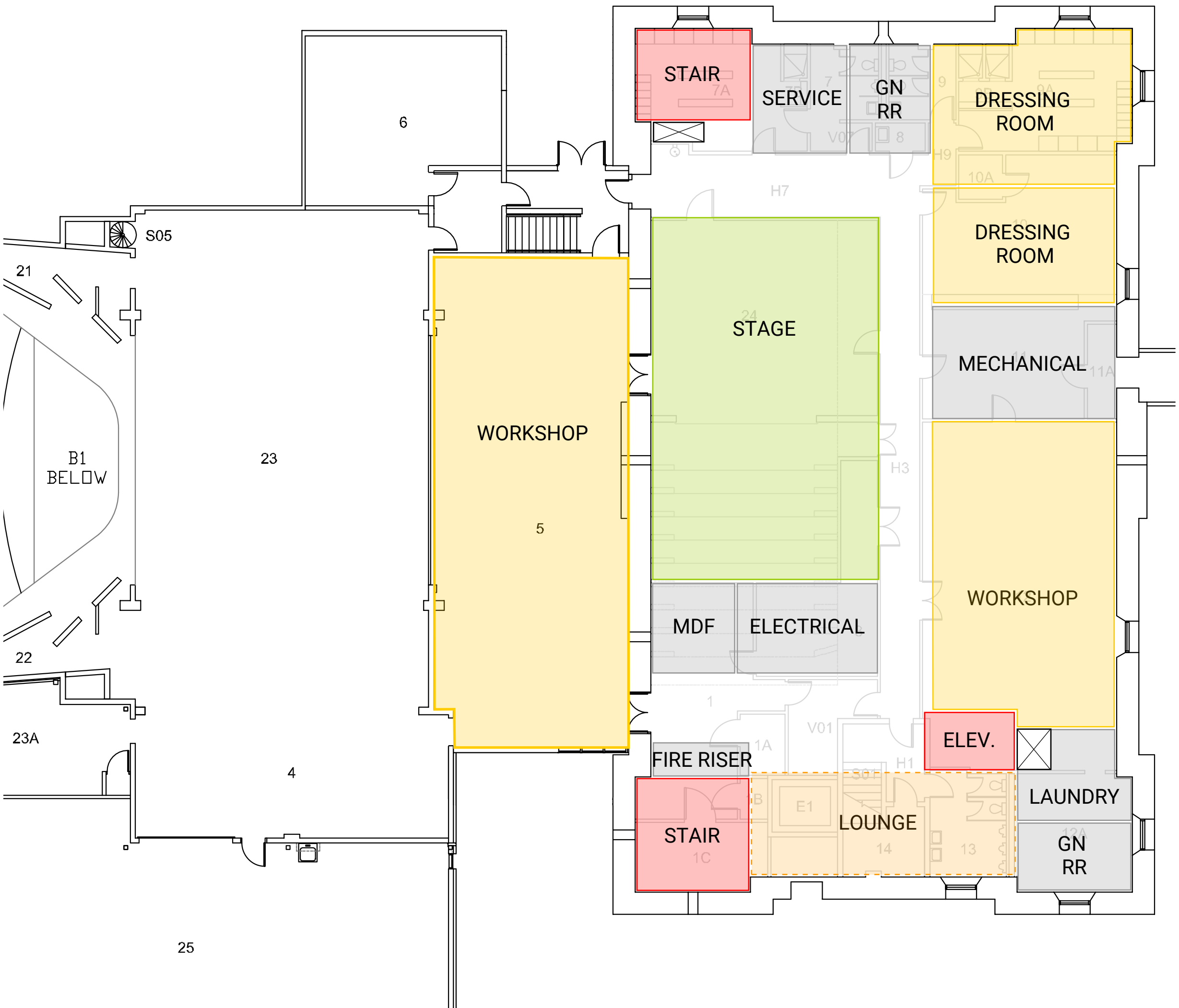
Ground Floor Demo Plan

Villard Demolition

- The entire ground floor will be renovated including partition walls, doors, ceilings, floor finishes, restroom fixtures, stairs, and the elevator
- Interior structural walls and columns will remain

Robinson Demolition

- Backstage mezzanine offices and storage rooms will be removed
- Stairs to the basement storage room will be removed
- Exterior stairs to the north of the building will be removed



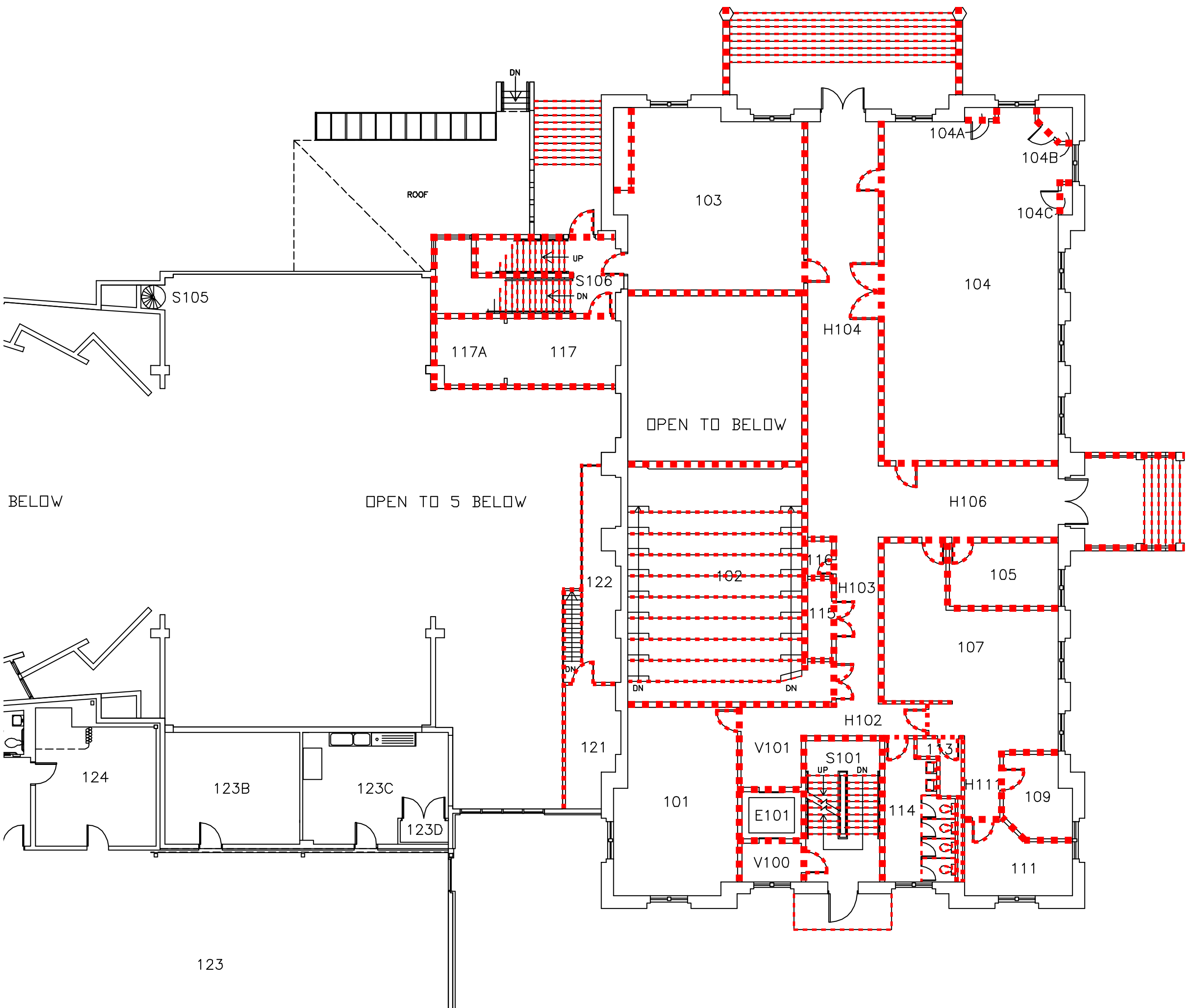
Ground Floor Program Diagram

Villard New Work

- A ground floor student lounge will be located at the south side of the floor with the new stairway and elevator connections to upper floors
- A new north stair will be located inside Villard Hall
- The ground floor theater will be rebuilt in its current location with new code-compliant accessible egress
- Vocational spaces will be renovated with upgraded finishes, lighting and exiting
- Gender neutral restrooms will be located near circulation routes and gathering areas
- Mechanical/electrical/fire riser rooms will be expanded and organized for efficiency

Robinson New Work

- The backstage workshop will be renovated to provide storage racks and stage set production areas as part of the restoration of the original west elevation of Villard Hall
- A new accessible egress route will be provided at the north side of the building



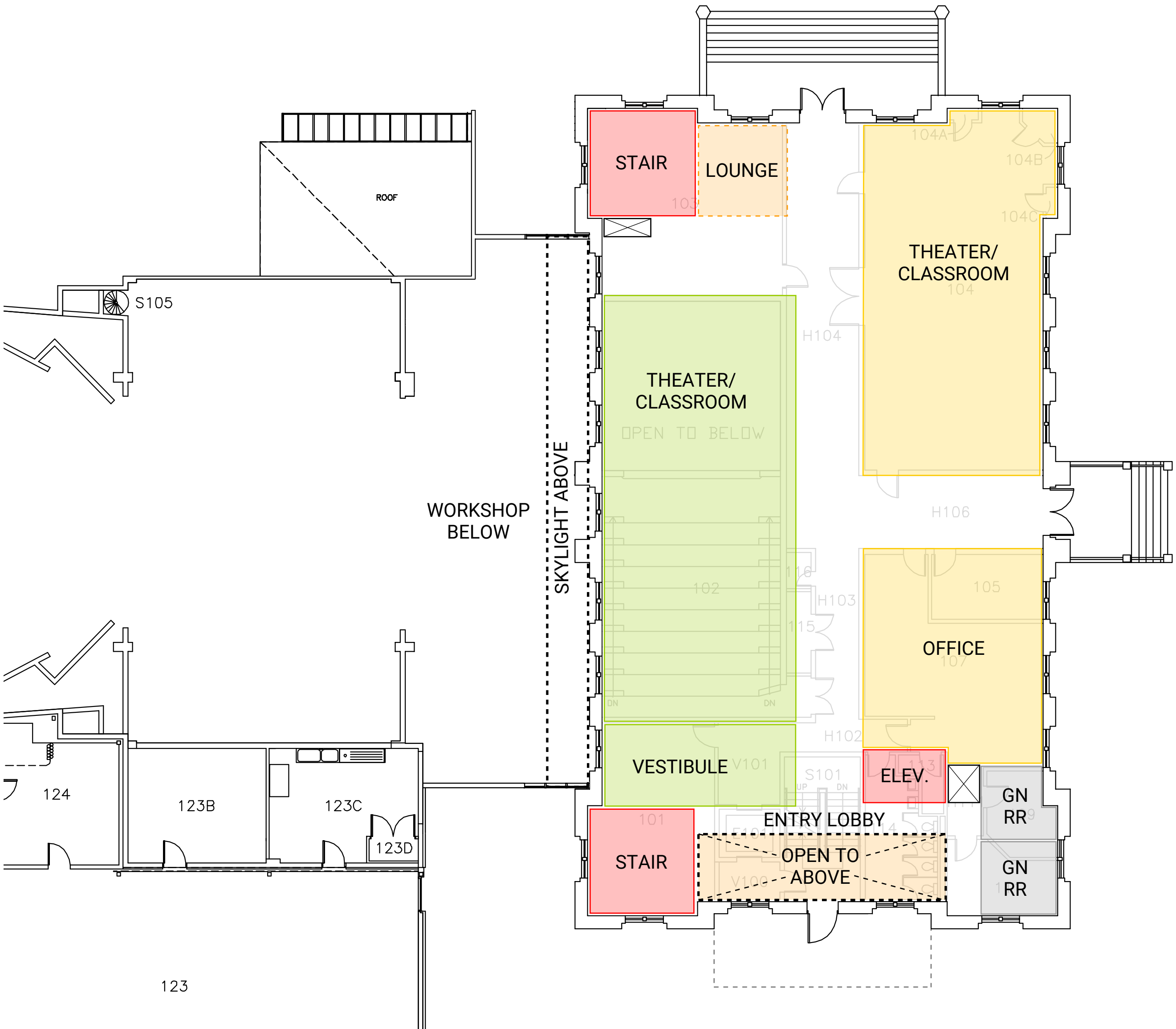
First Floor Demo Plan

Villard Demolition

- The entire first floor plan will be renovated including partition walls, doors, ceilings, floor finishes, restroom fixtures, theater seating, stairs, and the elevator
- Interior structural walls and columns will remain
- The 1949 addition modifications to the North and East exterior stairs will be removed and the stairs will be restored to their 1885 appearance

Robinson Demolition

- Backstage mezzanine offices and storage rooms will be removed
- Exterior stairs to the North of the building will be removed



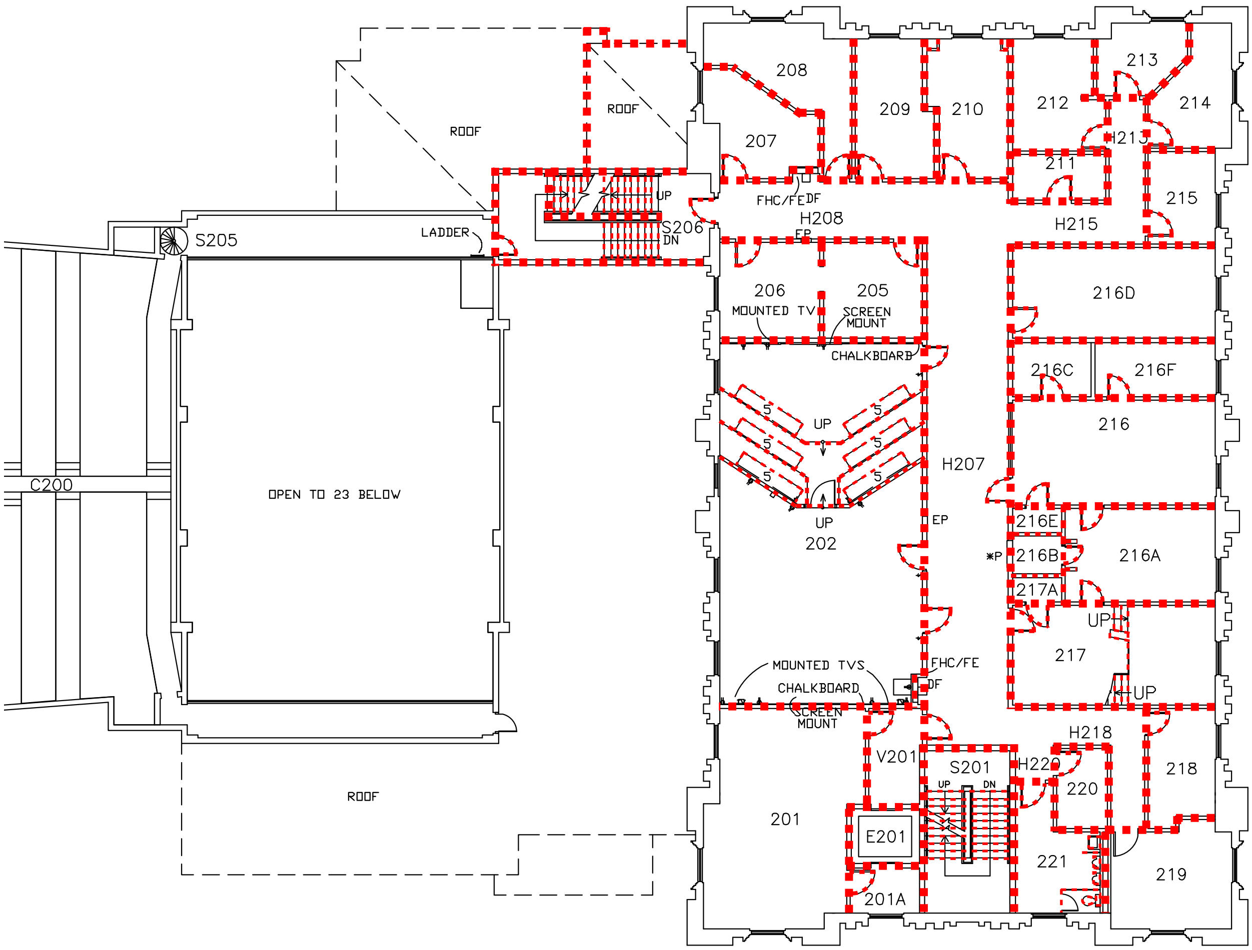
First Floor Program Diagram

Villard New Work

- An entry lobby connected to the new exterior entry will be located at the South side of the floor with new stairway and elevator connections to upper and lower floors
- A new stair and student lounge will be located at the North side of the floor
- The ground floor theater will be rebuilt in its current location with new code-compliant accessible egress and an entry vestibule sized for the performance space
- Classroom and office spaces will be renovated with upgraded finishes, lighting, and exiting
- Gender neutral restrooms will be located near circulation routes and gathering areas

Robinson New Work

- The backstage workshop will be daylit with a large skylight spanning the entire roof connection with Villard Hall



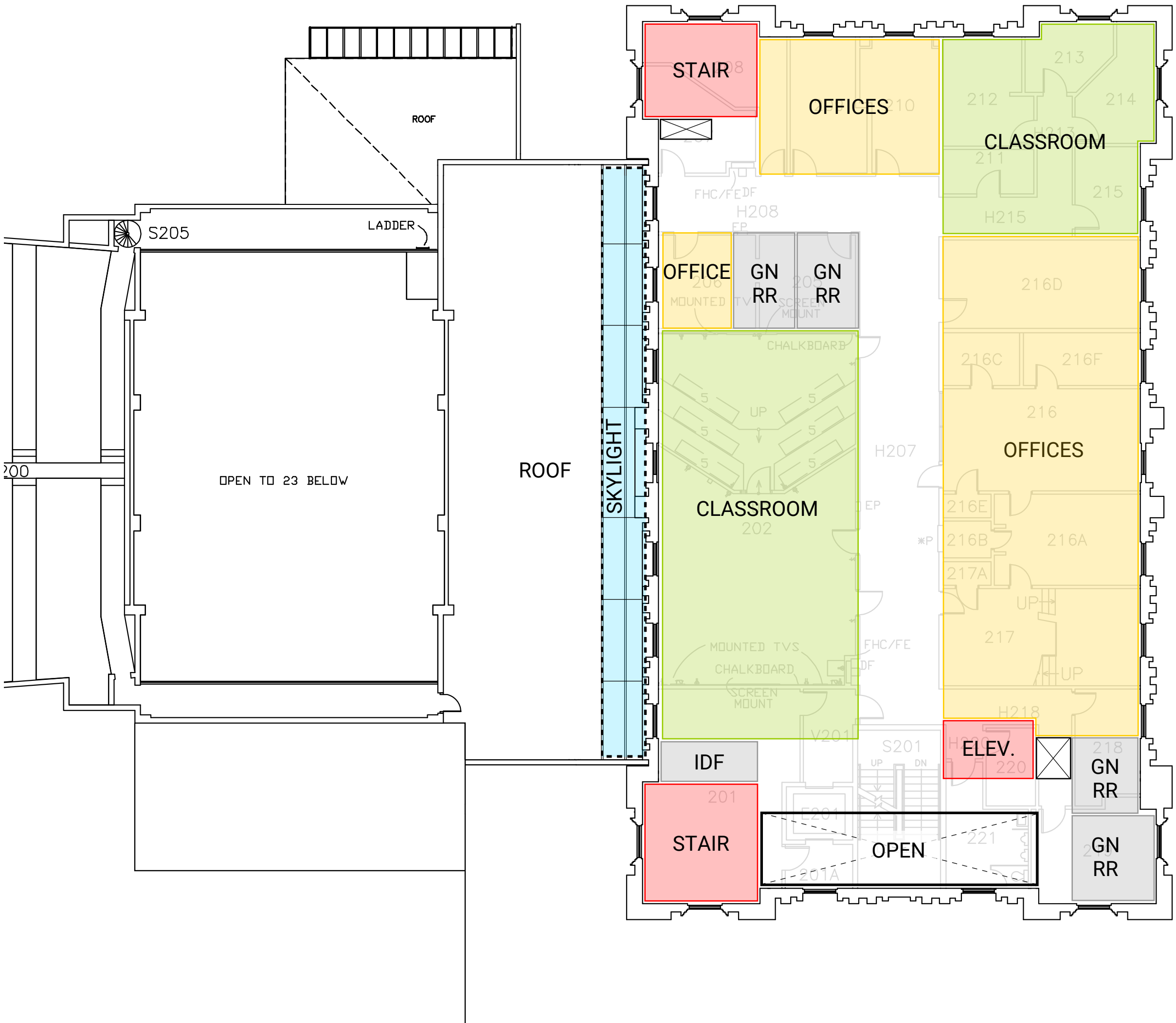
Second Floor Demo Plan

Villard Demolition

- The entire second floor will be renovated including partition walls, doors, ceilings, floor finishes, restroom fixtures, stairs, and the elevator
- Interior structural walls and columns will remain

Robinson Demolition

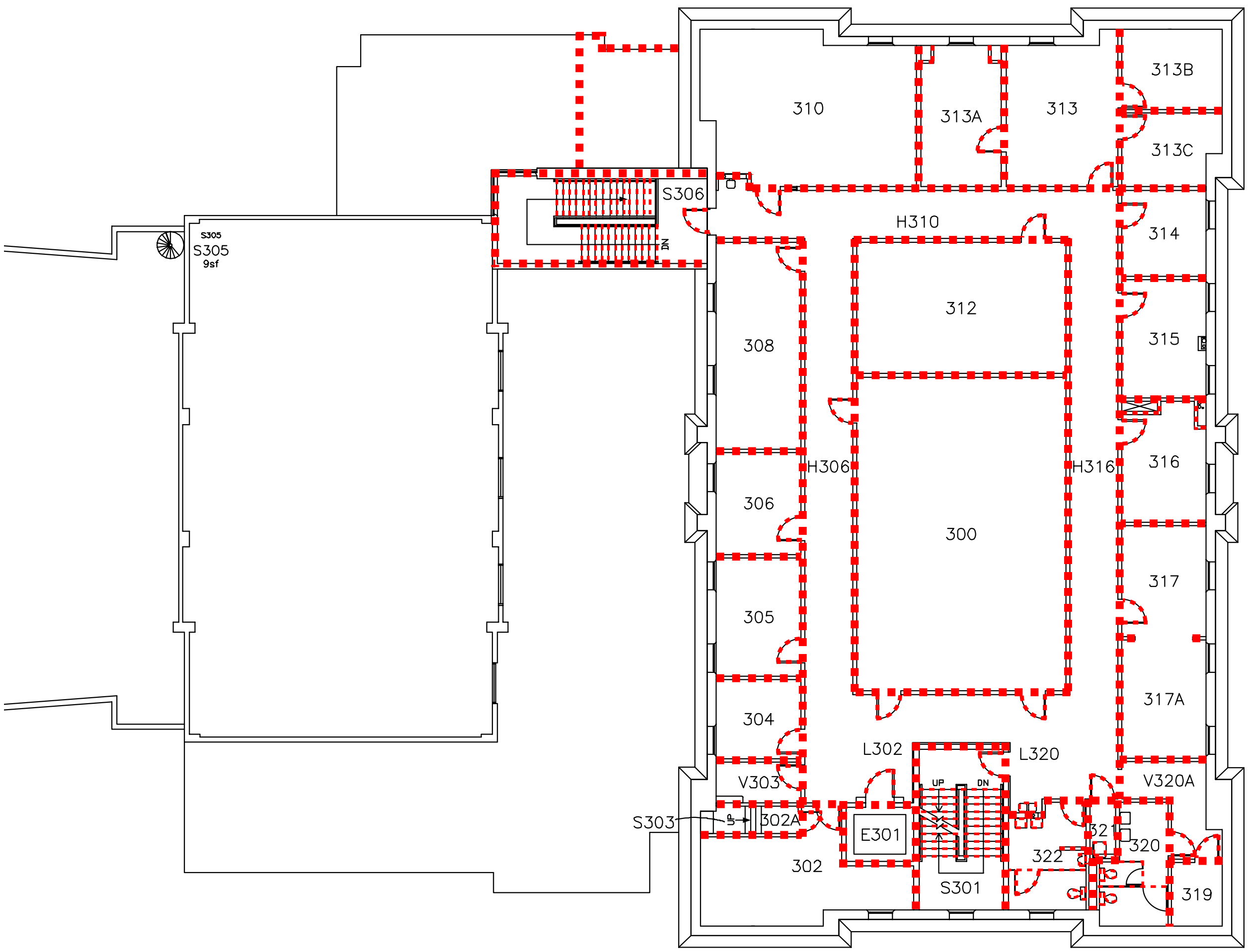
- Exterior stairtower at the north end of the building will be removed



Second Floor Program Diagram

Villard New Work

- New stairways and elevator providing connections to upper and lower floors
- Classroom and office spaces will be renovvated with upgraded finishes, lighting, and exiting
- Gender neutral restrooms will be located near circulation routes and gathering areas



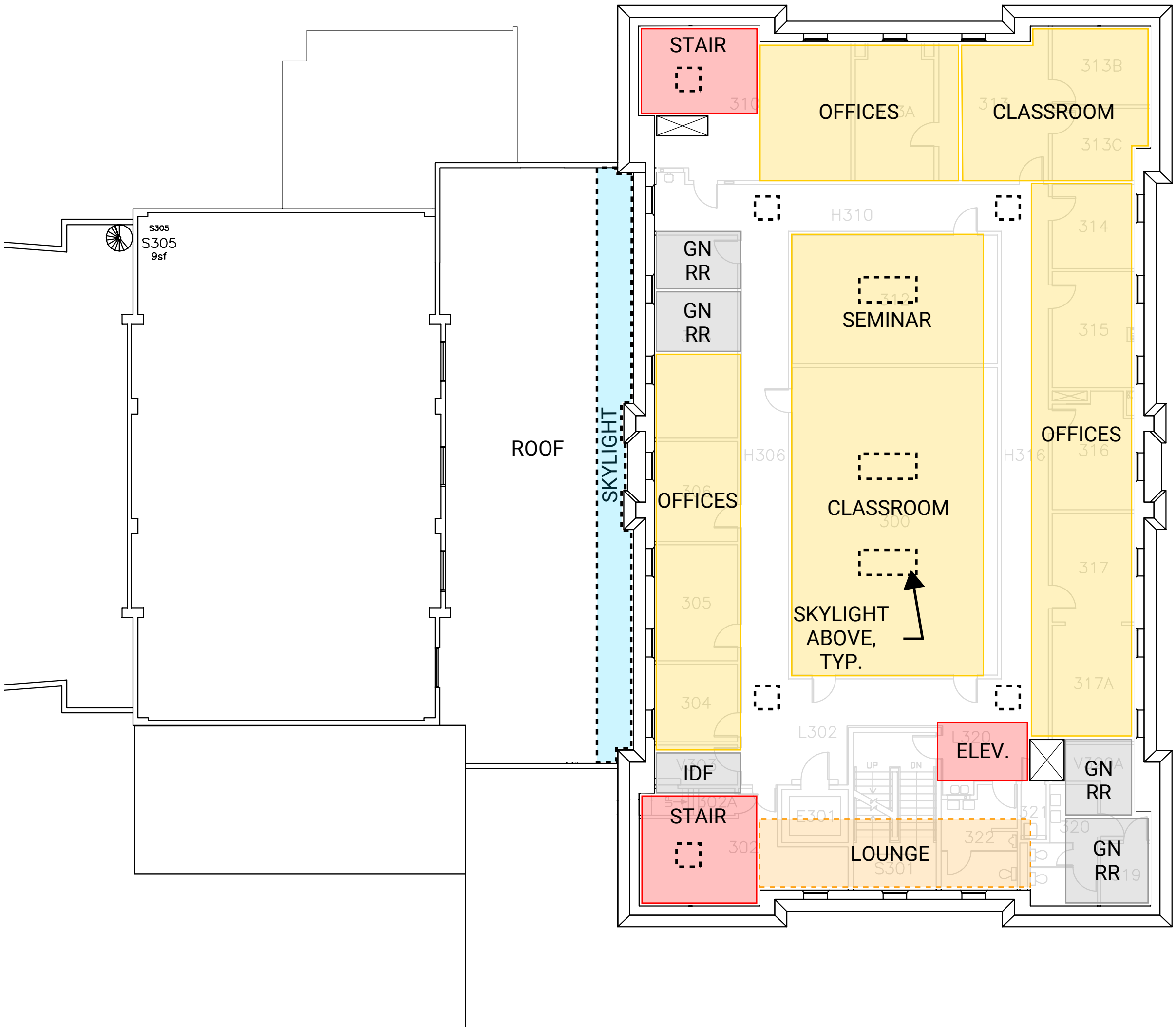
Third Floor Demo Plan

Villard Demolition

- The entire third floor will be renovated including partition walls, doors, ceilings, floor finishes, restroom fixtures, stairs, and the elevator
- Interior structural walls and columns will remain

Robinson Demolition

- Exterior stairtower at the north end of the building will be removed



Third Floor Program Diagram

Villard New Work

- New stairways and elevator providing connections to upper and lower floors
- Classroom and office spaces will be renovvated with upgraded finishes, lighting, and exiting
- Gender neutral restrooms will be located near circulation routes and gathering areas
- A new IDF room will provide upgraded and secure IT infrastructure
- Skylights will be provided to allow daylight into windowless classrooms and corridors

Building Elements Assessment

Building Envelope

Stucco finish


TFG01


TFG02


TFG03


TFG04


TFG05

The exterior walls and features of Villard Hall are primarily composed of multi-wythe brick masonry coated over with an approximately 1/2"–5/8" stucco "parging" layer applied directly over the exterior surface of the brick. The brick is the underlying substrate that provides the general form for the exterior elements. Combine this with the stucco which provides the finish surface to give the building the aesthetic of stone masonry.

Overall, the stucco parging coat is performing quite well despite the building's age. Cracking (TFG01-TFG03) and spalling (TFG04-TFG05) were noted at various areas throughout the building; however, this type of cracking of a building of this vintage is to be expected due to normal building movements and thermal expansion and contraction over time. Considering the stucco is in generally good condition, TFG recommends only spot repairs and cleaning per the recommendations noted below as opposed to an extensive tear off.

Recommendations

Cracking

- Rout out cracks to form a "V" shaped groove.
- Repair crack with a knife-grade, acrylic elastomeric patching compound.
- Feather the patching compound at the edges of the crack.

Spalling

- Identify the existing stucco primary ingredients and proportions to ensure the new replacement mortar will duplicate the existing in strength, movement capabilities, composition, color and texture. It is assumed that the existing stucco is a lime-based stucco; therefore, we recommend using a lime-based repair mortar.
- Remove loose stucco to sound, fully adhered stucco.
- Saw cut the perimeter of the spalled area and remove the additional stucco to the saw cut.
- Clean and prepare the underlying surface to receive the new stucco
- Dampen substrate and apply lime-based stucco mix deemed compatible with the existing stucco.
- Work the finish to match existing.

Corner Cracking

At four locations on the east elevation, at the interfaces of the corner elements (TFG06), the columns (TFG07), and the main wall area, there are large cracks extending up from foundation to the underside of the mansard roof and entrance roof/canopy. This cracking also occurs on the west elevation on either side of the interface with the Miller Theater Expansion. It appears as though this cracking has occurred over time, likely due to differential settling of the building.

TFG06

Recommendations

- Rout out cracks to form a consistent-width joint with straight edges. Joint should be no wider than 5/8".
- Install bond breaker tape on the face of underlying substrate
- Install silicone sealant to joint. Color to match cleaned stucco color as much as possible
- Broadcast sand into the wet sealant to provide textured aesthetic.

TFG07

Ferrous Anchors

At two locations on the east elevation, TFG noted a ferrous wedge anchor no longer being used. While the wedge anchor does not appear to be currently affecting the stucco or the underlying brick, it eventually will expand due to corrosion. When steel corrodes, it expands to eight to ten times its original volume, and imposes a lateral thrust on the abutting materials. This thrust, in turn, causes the adjacent materials to be displaced from their original locations, cracking and bulging in the process.

TFG08

Recommendations

- Remove existing wedge anchor and fill resulting hole with stucco repair mortar as referenced above.

Wooden Balustrades, Columns and Molding

The balustrades at the base of the mansard roof (TFG08), the railing at the east entry (TFG09), and columns (TFG10-TFG11) at the east entry are wood framed and coated with a cementitious waterproofing coating to provide a stone/stucco finish similar to the rest of the wall. The coating is deteriorating in the form of cracking and spalling due to loss of adhesion with the underlying wood. As a result, with the coating not providing protection at numerous areas around the building, the underlying wood as started to deteriorate. In several cases, large gaps in the wood seams and joints were observed (TFG12).

TFG09

TFG10


TFG11


TFG12


TFG13


TFG14

Recommendations

Railings/Columns at Front Entry, and All Wood trim

- Remove all cementitious waterproofing coating down to sound substrate.
- Where wood is found to be unsalvageable, replace with new wood in-kind.
- Apply new cementitious coating to all wood surfaces.

Wooden Balustrades

- Remove existing wood balustrades and replace with new, in-kind wood fiberglass balustrade with color and texture to match existing, cleaned stucco.

Mansard Roof

The steep-sloped portions of the building are covered with painted wood shingles on all sides. A coating procedure was completed reportedly back in the late 1990's. At the north mansard and the northeast/northwest corner elements, the paint is failing badly (TFG13-TFG16). This may be due to the notion that the shingles were not back primed. Spot coating failure was noted at other limited locations throughout the roof. Coating flaking and deterioration of the underlying wood shingles were noted. Other areas of the mansard roof, notably the east elevation, saw the highest concentration of moss growth on the building (TFG17).

Recommendations

Failed Coating

- Remove all shingles and coating at all areas affected by paint deterioration.
- Install new cedar shingles matching the size and profile of the existing shingles.
- Fully prime each shingle on all sides to prevent water vapor passage and deterioration of the coating.
- Apply new paint coating over all shingles. Paint to match existing in color.

Moss Growth

- Lightly power wash all areas of moss growth to remove moss.


TFG15


TFG16


TFG17

Metal flashing

The metal flashing at the second floor water table appeared to be copper sheet metal. The flashing, from our vantage point, appeared to be warped at the leading edge and along its length (TFG18). The warping may be contributing to standing water collecting on top of the flashing and resulting in increased water flow on the face of the stucco in localized areas. This increased water flow increases the chances of staining on or cracking of the stucco.

Recommendations

- Replace existing flashing with new copper flashing. Profile to match existing.

Soffit at Second floor

From the vantage point at street level, the soffit looked to be in generally fair condition with a few areas of deteriorated paint (TFG19-TFG20)

Recommendations

- Scrape all deteriorated paint to sound substrate.
- Paint all wood soffits, color to match existing.

Main roof

The main roof is a Firestone 60mil ethylene-propylene diene monomer (EPDM) roof; sometimes referred to as a rubber roof. The roof is in very good condition (TFG21-TFG24) with a few areas requiring general seam maintenance and penetration seals (TFG25). Metal flashings were generally found to be in serviceable condition.

Recommendations

- Engage a roofing subcontractor knowledgeable in Firestone EPDM systems and perform general seam/patch sealing for approximately 10-20% of the roof surface.

Basement Foundation Walls

TFG reviewed as many accessible areas of the perimeter foundation walls as possible. No signs of water leakage were found. However, at the east and north elevations, foundation louvers are present. We observed that a significant amount of leaves had accumulated in front of the these louvers and that the grade around these elements was sloping toward the building (TFG26). While there is no reported or observed water infiltration in the basement, this may present a risk in the future.

Recommendations

- Remove all leaves and debris from around the building perimeter and regrade around louver to slope away from the building.


TFG18


TFG19


TFG20


TFG21


TFG22


TFG23


TFG24


TFG25


TFG26

East Porch Roof

The porch roof over the east entry appears to be composed of the same EPDM membrane as the main roof. There appears to have been past water infiltration issues as indicated by the condition and water staining on the underside of the entry overhang and connection to the building; however, these issues appear to have been resolved with the roof replacement.

Potential Energy Efficiency Improvements

The current exterior walls appear to be insulated with fiberglass batt insulation in the furred out stud walls around the exterior of the building. The condition of the batt insulation is unknown; however, given that the interior finishes of the building are being removed and reconfigured, an opportunity is presented to increase the overall energy efficiency of the opaque walls while they are exposed. The current walls have a calculated R-value of approximately R-14. By adding in 2" open cell spray polyurethane foam to the interior face of the brick masonry prior to installation of furring, then infilling between furring studs with 3-1/2" of open cell spray foam, prior to finishes. The addition of the assembly described above would increase the R-value of the opaque wall assembly to approximately R-24, an increase of R-10 over the existing wall assembly.

Recommendations

- Upon removal of all interior finishes and studs, install 2" layer of open cell spray polyurethane foam (OCSF) to the interior face of brick masonry.
- Install 2x4 stud furring framing. By installing furring after the initial 2" OCSF, the studs remain warm and the insulation is installed as continuous as possible.
- Infill between stud furring with OCSPF to the inside face of stud framing.

Robinson Theater Roof

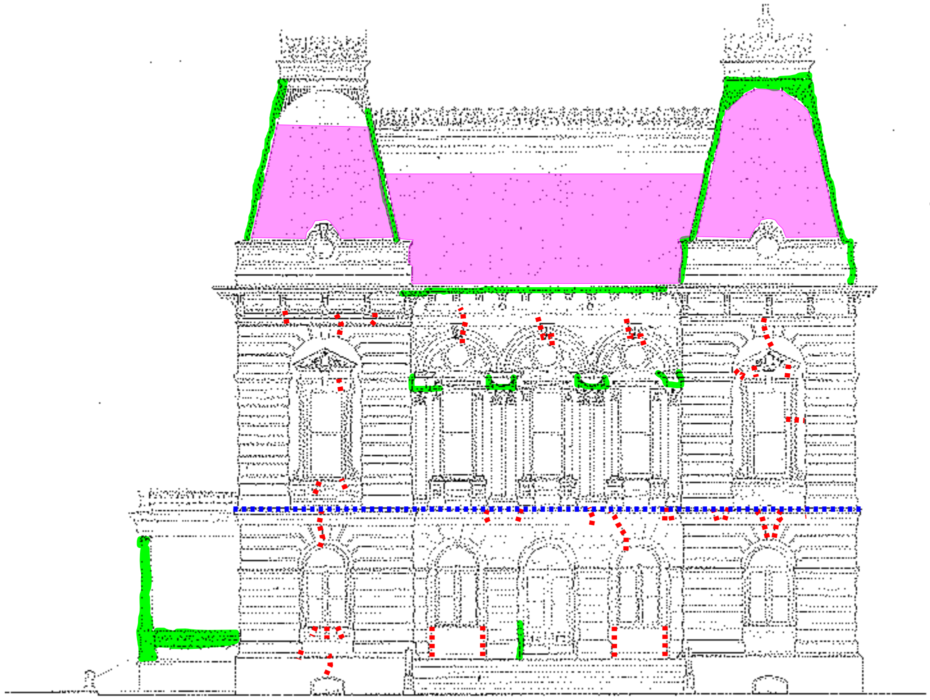
The TPO roof over the Robinson Theater expansion appears to be in generally fair condition with no apparent work required. At the mechanical curb, there may be the potential to incorporate a skylight to provide more natural light to the theater prop area below and reduce reliance on the lighting systems. These appear to be easily incorporated as the curbs are already in place and can be used as the supports for the skylight.

Recommendations

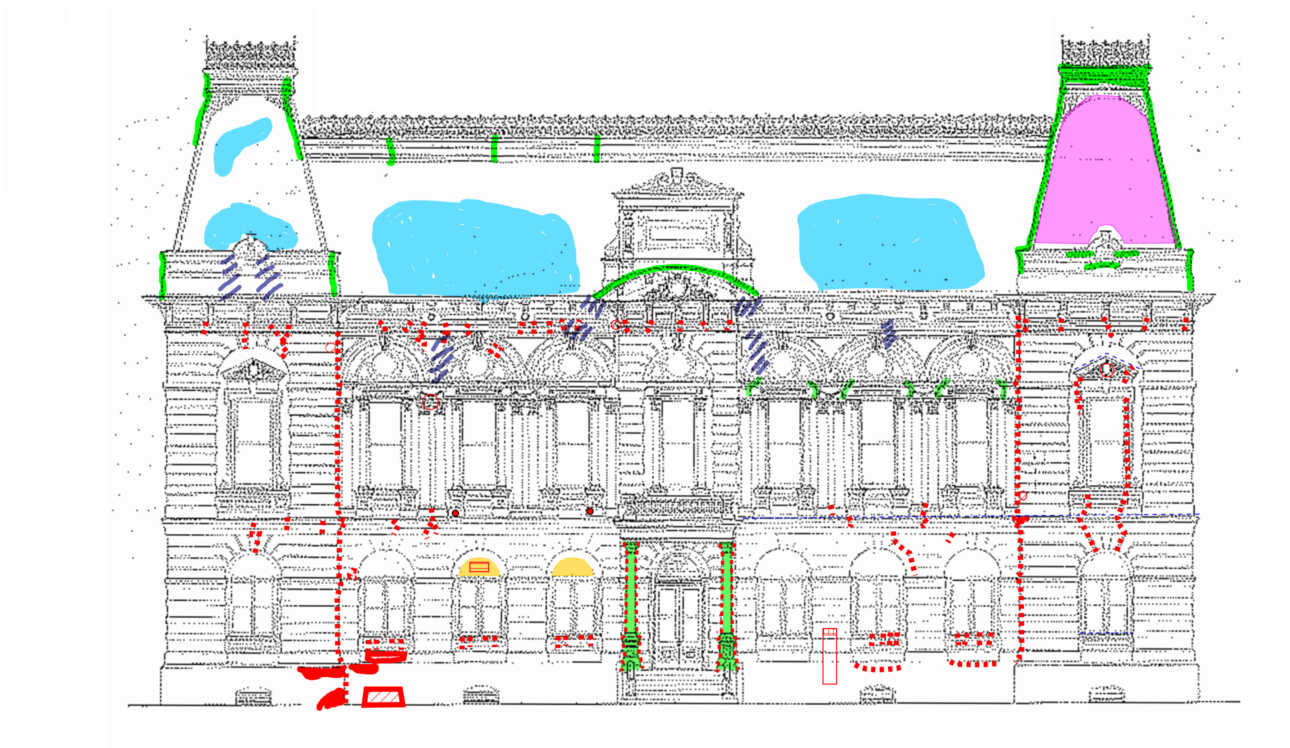
- Remove TPO roofing and structure from atop curb build out to open the space below to the exterior.
- Install a new Deamor (or equivalent) thermally broken skylight system with extruded thermal blocks, highly insulated flashings, and technoform spacers.
- Insulated glazing units to be installed as part of the skylight system with a low-E coating to provide higher thermal performance of the system overall.

Envelope Assessment Elevations

- SPOT REPAIR
- SPALL
- BIRD'S NEST AND DROPPINGS
- WEDGE ANCHOR CORRODING
- WATER STAINING
- DETERIORATING COATING ON WOOD ELEMENTS (CEMENTITIOUS)
- MOSS GROWTH
- PAINTED MANSARD SHINGLES DETERIORATING
- WINDOW BLANKED OFF
- DETERIORATING FLASHING (RUST/WARP)
- CRACKED COATING

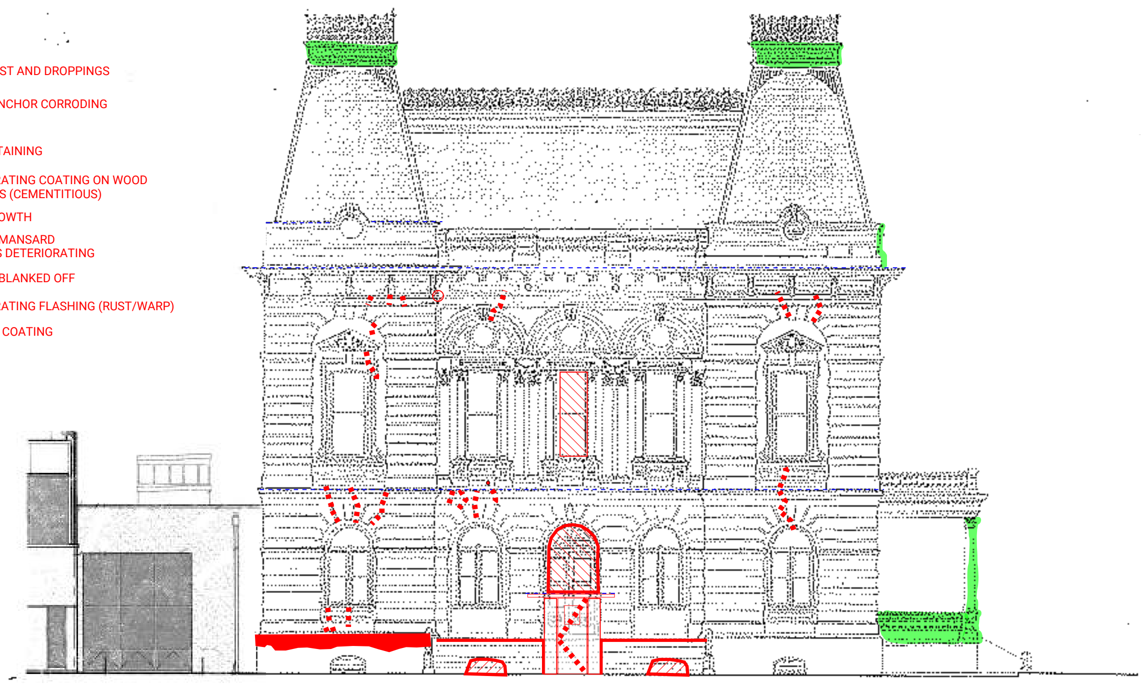


North Elevation

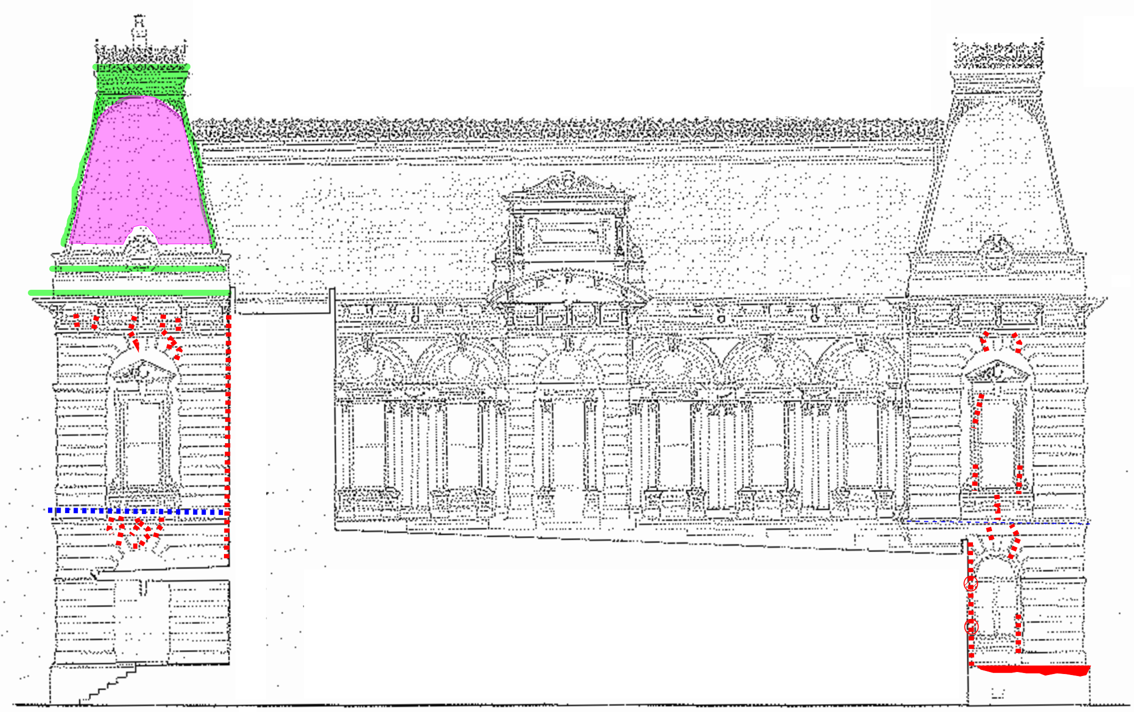


East Elevation

SPOT REPAIR
SPALL
BIRD'S NEST AND DROPPINGS
WEDGE ANCHOR CORRODING
WATER STAINING
DETERIORATING COATING ON WOOD ELEMENTS (CEMENTITIOUS)
MOSS GROWTH
PAINTED MANSARD SHINGLES DETERIORATING
WINDOW BLANKED OFF
DETERIORATING FLASHING (RUST/WARP)
CRACKED COATING



South Elevation



West Elevation

Structural

Site Investigation & Existing Structure:

Structural and architectural drawings were available for review and a structural engineer from KPFF visited the site on September 7th and 21st to review existing structural conditions where readily exposed to view. No destructive/exploratory testing and demolition was performed as part of this effort. Future upgrade work will require additional investigations to verify the framing assumptions and confirm member sizes, URM wall thickness, column sizes, etc. Additionally, as part of any seismic upgrade design, a material testing program (e.g. brick shear tests, epoxy anchor pull tests, etc.) will be required. Based on the review of existing documents and our site visits, the structural systems for each building are as follows:

The structure for Villard Hall consists of wood framed floors with sawn lumber joists, beams and posts and plywood decking. The joists span in the east-west direction with several interior bearing lines. The framing is supported on the exterior walls which consist of unreinforced brick masonry (URM). The basement floor is slab on grade and the existing foundations are also brick, however, a perimeter concrete foundation grade beam was added with the basement addition in 1946.

Proposed Renovation and Program Alterations:

Based on input from FFA, we understand that major renovations will be proposed at Villard in order to mitigate deficiencies, enhance program, and provide restoration to the west side of the building. These changes will also impact the east side of the Robinson Theater where it currently adjoins Villard.

The alterations include reconfiguring of the floor plans and adding new vertical circulation areas. This provides an opportunity to locate new seismic resisting elements including concrete shear walls. As part of the Villard restoration, the portion of the Robinson Theater connecting to the west side of the building will be re-configured with new construction and pulled back creating a new seismic joint. The entire west elevation of Villard will be renovated to restore its condition. New structural framing elements will be required for the re-built portion of the theater incorporating new skylights.

Assessment and Recommendations:

During our site visits, we did not observe any signs of significant distress or damage to the primary building frame. This includes foundation settlement, large cracks in the exterior URM walls, large cracks in the interior partition walls, significant floor deflections/sloping floors, excessive floor vibrations, etc. Some minor cracking was observed in existing concrete walls. We recommend that noticeable cracks are injected with epoxy grout to protect and preserve these elements.

As part of the new floor plan modifications in Villard, new structural floor framing will be required at the vertical circulation areas. A new elevator pit will also be required. Structural supports and opening framing will also be required at new floor openings, notably the double height lobby space at the south entrance.

Both buildings were constructed before seismic demands were considered as part of the structural design. Additionally, URM buildings have historically performed very poorly in seismic events. Therefore, it is highly likely that Villard Hall in its current state would perform poorly in an earthquake and experience significant damage. Robinson Theater would be expected to have better performance, however, still could experience significant damage, particularly due to some of the tall concrete walls and wood diaphragms which have little to no connections to the walls. Significant seismic upgrade work to both buildings (e.g. adding concrete shear walls, strengthening floor diaphragms, strong-backing of URM walls, providing connections between the wood floors and URM/concrete walls, etc.) would be required to bring the buildings up the Life Safety standards of modern building codes. Providing separation of the structures will simplify the load paths and requirement to transfer seismic demands between the buildings.

Seismic Strengthening Narrative:
The following information is intended to provide additional information for the seismic upgrade of both Villard Hall and the Robinson Theater. The performance objective anticipated for the buildings is the Life Safety Standard. Enhanced performance objectives, such as immediate occupancy can be reviewed as necessary and would require more significant upgrade work.

Shear Walls – Provide new concrete shear walls in both the north/south and east/west directions of the building from the basement level to the underside of the roof at the new vertical circulation areas as shown on the structural concept diagrams. At the contractor's option, the walls may be cast-in-place or shot-crete. Assume that new concrete walls will be epoxy doweled into existing walls with #4 bars at 4 feet on center each way.

The average thickness of the new shear walls will be 16-inches with an average reinforcing weight of 15 pounds per square foot (psf) which can be used for preliminary estimates.

Foundations – Provide new concrete spread / strip footings at each new shear wall as indicated on the preliminary diagrams. 200 lbs/cubic yard of reinforcing can be assumed for new footings. Epoxy dowels will be provided between new foundations and existing footings/walls.

Diaphragm – Each diaphragm level (First Floor, Second Floor, Third Floor, and Roof) will receive new 5/8 inch plywood sheathing throughout. Assume a nailing pattern of 12 inches in the field and 3 inches at panel edges. Assume flat 2x blocking will be required at approximately 50% of the diaphragm areas.

Collectors – Collectors (drag struts) will be required at the shear walls in each direction at each floor level. Assume each collector will be an L6 x 6 x ¾ with extents as shown on the structural diagrams. Provide an allowance for wood blocking on each collector to facilitate connections to the wood floor framing.

URM Wall Strong-Backing – At the exterior URM walls provide "strong-backs" to reinforce the walls for out-of-plane forces. The strong-backs may consist of heavy gage metal stud walls anchored to the URM, or a system of vertical steel posts (assume average size of HSS 6X6X3/8) and horizontal steel girts epoxy anchored to the URM.

URM Wall to Diaphragm Connections – Provide a positive connection between each diaphragm level (First Floor, Second Floor, Third Floor, and Roof) and the exterior URM walls. Each connection will consist of an epoxy dowel into the URM wall and a Simpson hold-down. Assume some amount of additional blocking will be required to anchor the hold-down to the existing wood framing. Assume a 3 foot spacing along the perimeter of the building.

Diaphragm Cross Ties – Provide light-gage straps that extend from the exterior URM walls towards the interior of the building and at each diaphragm level. Assume each strap is approximately 18 feet long and that they are spaced at approximately 3 feet on center (to align with the wall to diaphragm connections). Assume some amount of wood blocking will be required where the straps do not align with existing joists.

Secondary Gravity Posts – Provide new steel HSS posts to provide a secondary support where primary girders, beams, or trusses are supported on the URM walls. Each post would extend from the roof down to the foundation. At this time, it is not clear how many locations will require this work until more sufficient framing detail is obtained. We recommend carrying an allowance for (8) locations.

Girder to Column Connections – Provide a positive connection between all girder to column connections. This work will likely consist of steel plate straps lag screwed into the girders and columns. At this time, it is not clear how many locations will require this work until more sufficient framing detail is obtained. We recommend carrying an allowance for (8) locations per floor.

Roof Structures – Brace the tall mansard "pop-up" roof structures at each corner of the building. Assume a 4-sided moment frame system will be provided at each pop-up. Each moment frame will consist of (4) HSS 6x6 columns and (4) HSS 6x6 beams rigidly welded together. The existing framing that supports the pop-up structure will also need to be strengthened to resist the loads from the new moment frames. Assume new steel channels will be thru-bolted on the existing beams at (4) locations at each side of the building.

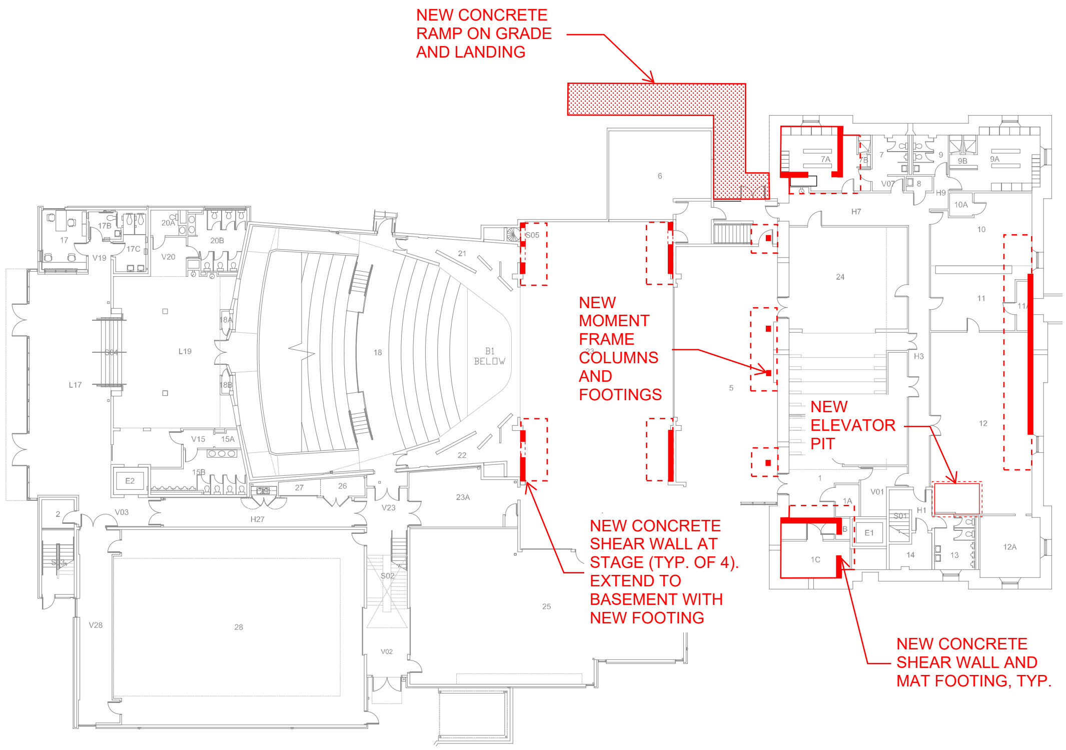
Exterior Brick – Much of the exterior brick is stacked around the outside of the building to create architectural features without any indication of positive connections to the primary bearing walls. It is anticipated that helical anchors will be required at select locations above and around exits and exterior occupied spaces to mitigate falling hazards associated with brick separating from the main building walls. Anchor spacing is anticipated to be 24-inches on center in each direction above all exit doors and exterior access extending approximately 4 feet on each side of the opening. Patching of the exterior walls will be required after the anchor installation.

Non-structural – The proposed renovations and alterations of Villard will require all new interior framing and MEP equipment and distribution. Therefore these elements will be braced and anchored as required by the current building code.

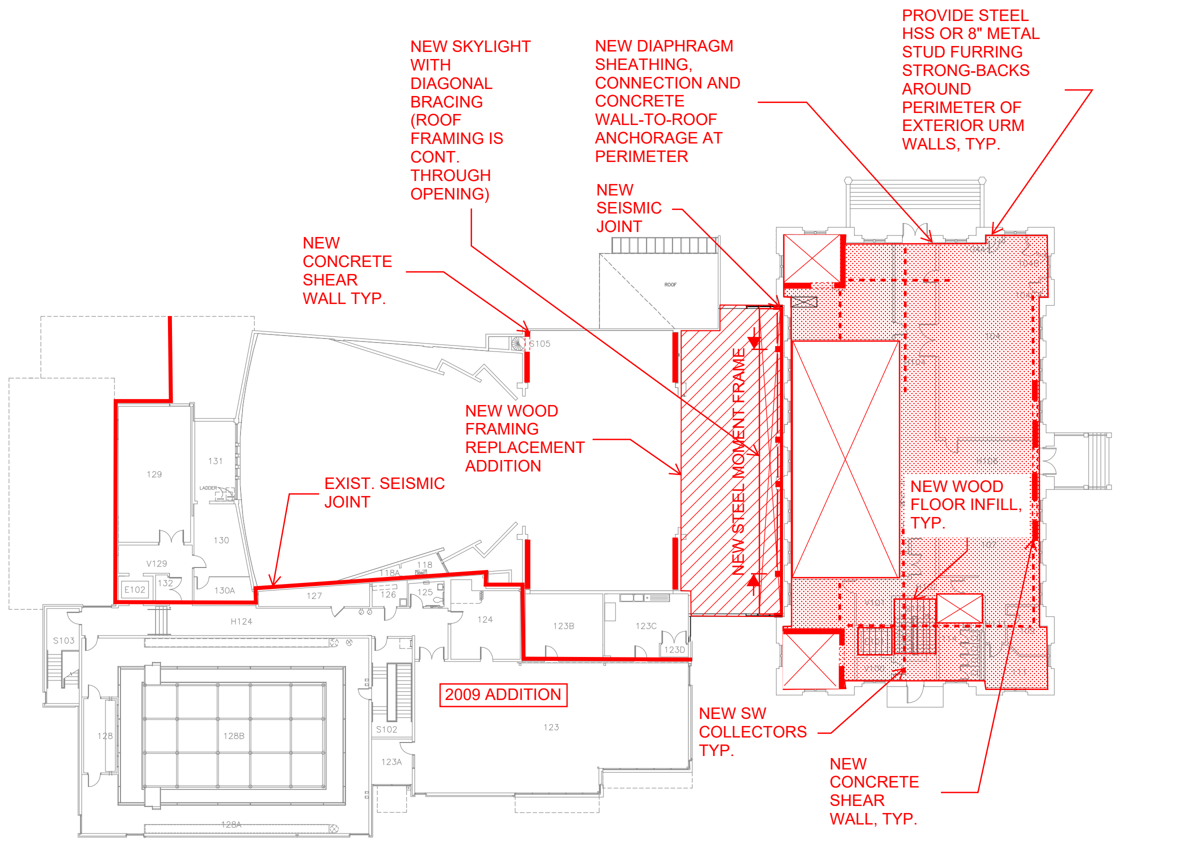
Soil Liquefaction – It should be noted that according to the hazard maps produced by Oregon's Department of Geology and Mineral Industries (DOGAMI), the building site is near an area that has a moderate risk of liquefaction. These hazard maps are very general and do not always accurately predict geological hazards at a particular site. We would recommend consulting with a qualified geotechnical engineer to verify if this is an actual risk for the site as it could have significant impacts on the foundations and building performance.

Structural Renovation Plans

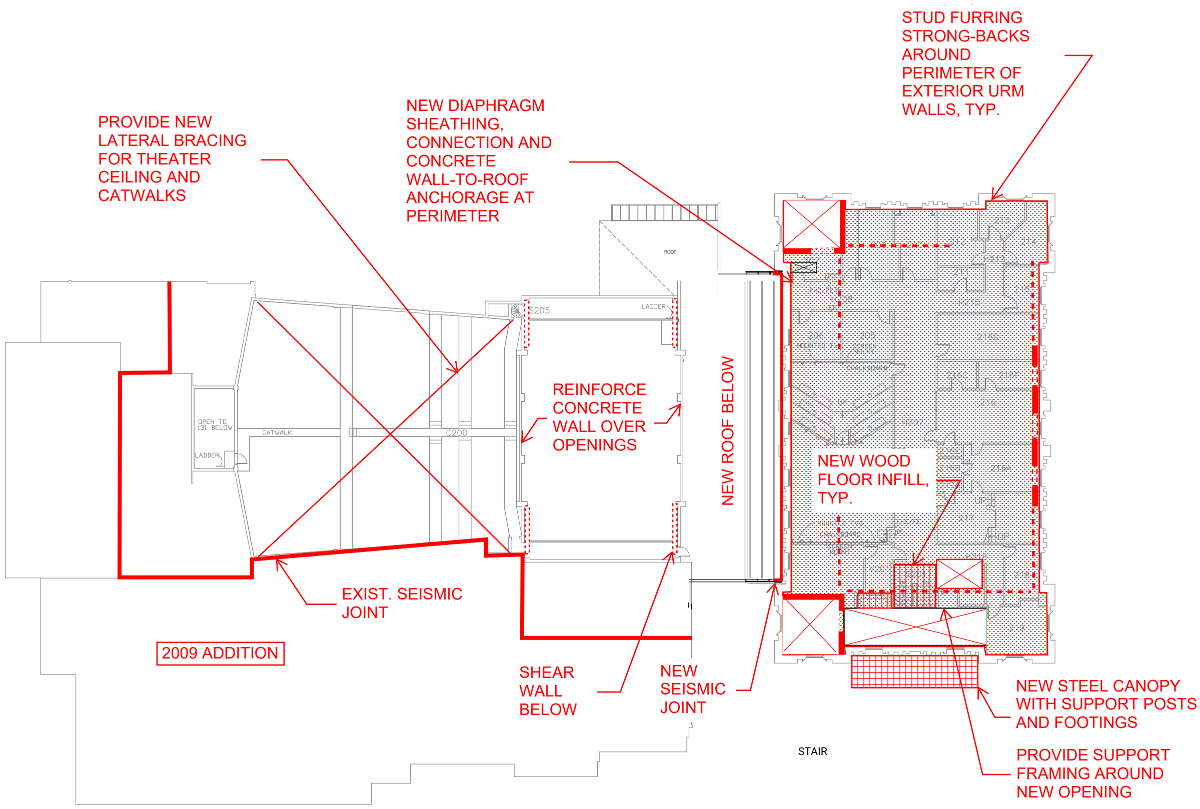
The following plans describe a general structural upgrade associated with a major deferred maintenance renovation project. Structural materials and component sizes are conceptual in nature for use in conveying a structural strategy particular to the historic Villard Hall as well as provide layout configurations for pricing purposes. Primary structural design goals are to minimize the impact on historic building fabric and provide for concealed structural elements in the finished project.



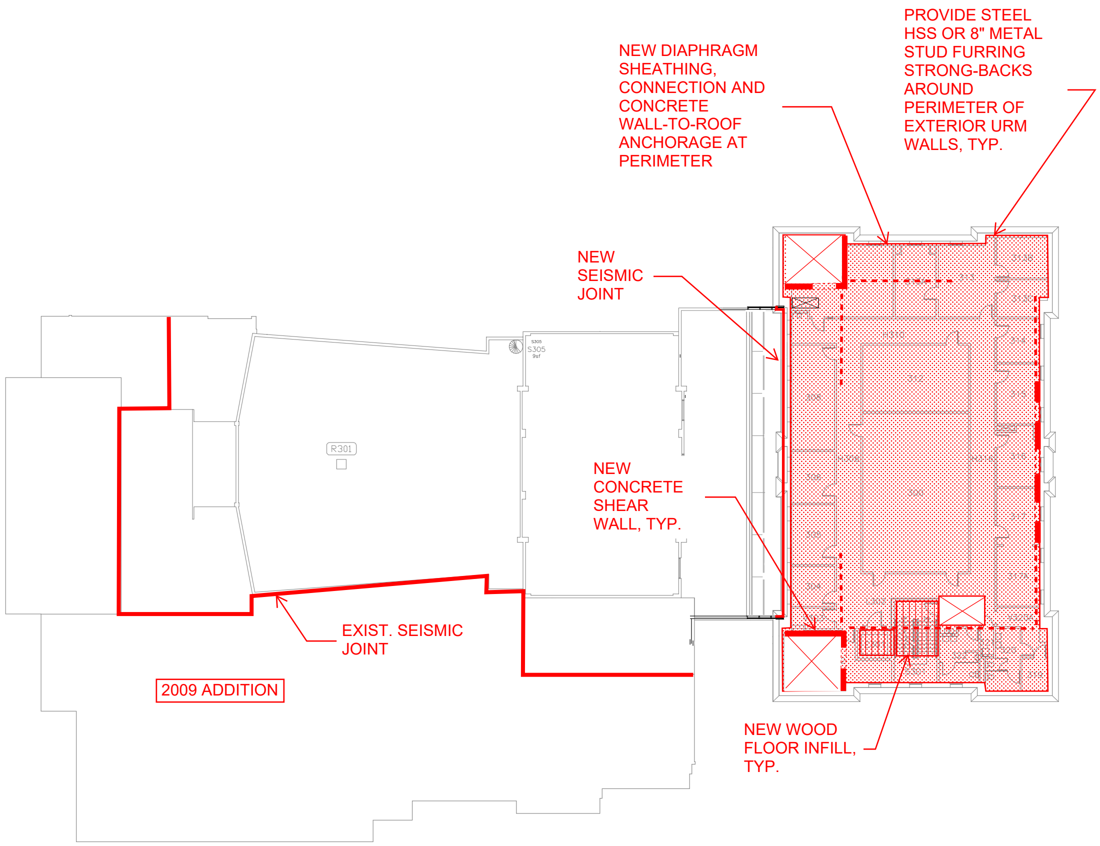
Structural Ground Floor Plan



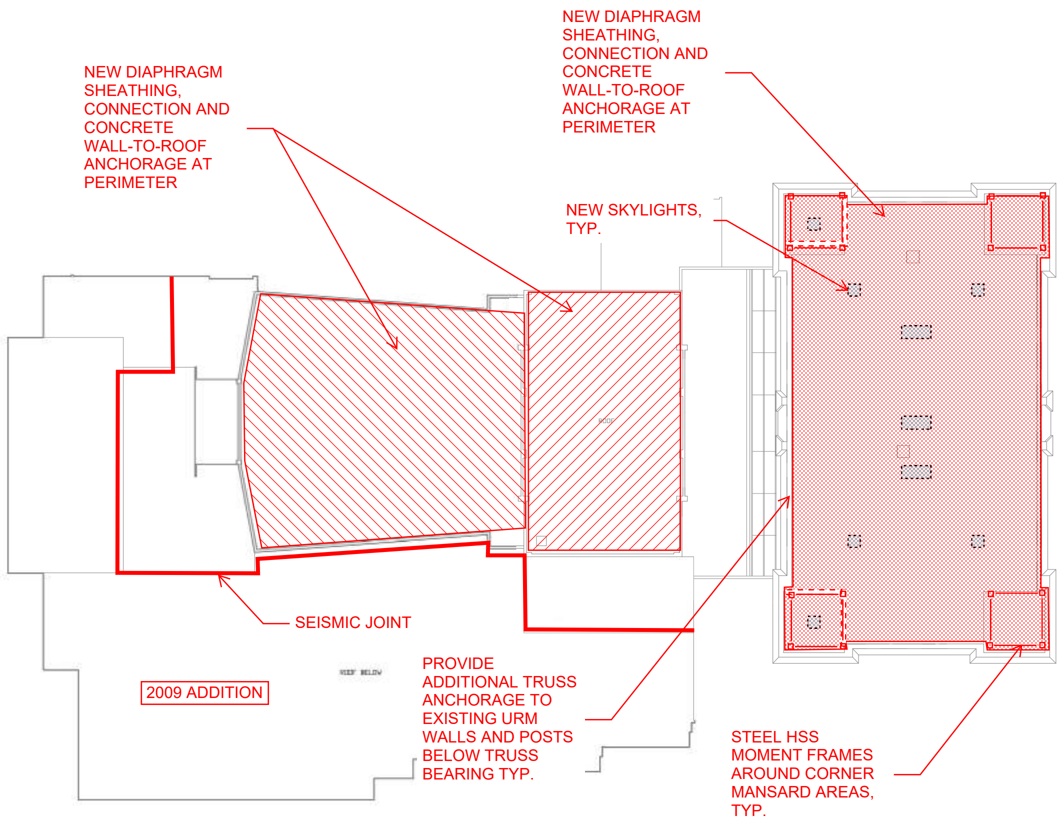
Structural First Floor Plan



Structural Second Floor Plan



Structural Third Floor Plan



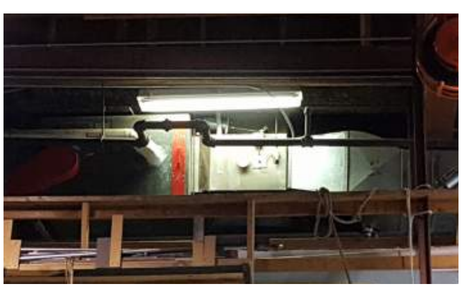
Structural Roof Plan

Chilled Water and Steam entering the building from the tunnel system

Typical AHU in Villard Hall Attic

Abandoned AHU in Villard Hall Attic

Typical Duct Mounted Heating and Cooling Coil



Minor Theater Air Handling Unit

HVAC

Heating System:

Villard Hall is connected to the campus steam system. Steam at the plant is generated at 60 psi and reduced prior to entering the building to 20 psi. Piping enters the building via the steam tunnel on the east end of the building. Steam is distributed in the building to perimeter steam radiators at the ground, first, second and third floor as well as duct mounted steam coils in the attic that serve the third floor and portions of the second floor. Condensate is pumped back to the campus boiler plant for reuse.

Cooling System:

Chilled water is provided to the building from the campus chilled water plant. Chilled water is supplied to the building between 42 and 48 degrees Fahrenheit depending on the season and outdoor conditions. Chilled water is distributed to the duct coils located in the attic of Villard Hall, which serve the third floor and portions of the second floor, and to the air handling unit serving the 2009 Miller Theater addition.

The attic of Villard Hall houses an array of ductwork and three air handling units, one of which is abandoned in-place. The air handling units serve the third floor and a portion of the second floor and were originally installed during the 1949 Robinson Theater addition. A renovation in 1965 removed these units and replaced them with new units providing both heating and cooling.

In 1997 another renovation removed all of the internal components of two of the air handlers and installed new fans and filter sections. The third air handler was abandoned in-place. The heating and cooling function of these units was moved from the air handling unit to duct mounted steam and chilled water coils. These coils provided improved zone temperature control.

Included in the 1949 renovation was a heating and ventilation unit dedicated to the “minor theater” (Theater 102). This space is still served by a heating and ventilation unit but available information does not indicate when or if it has been replaced suggesting it may be the original unit installed in 1949.

It was noted during the site investigation that Room 104 in the northeast corner of the first floor also has a ducted ventilation system. It was not obvious at the time of the visit if this unit receives both steam and chilled water and the available documentation does not indicate a date of install.

The remaining spaces in the building are heated by cast iron steam radiators with local thermostatic control valves.

Hazardous Materials

Due to the age of the mechanical systems in the buildings there is evidence of asbestos materials in the duct, piping and equipment insulation.

Recommendations:
All of the mechanical equipment in the Villard Hall is well beyond life expectancy and shows signs of fatigue and failure. The current system types are out of date and very inefficient by current standards. The university has invested significant resources into the existing campus heating and cooling systems. These systems are still a viable source for heating and cooling the building and should be utilized to improve overall HVAC performance. There are two options to consider for utilizing these systems and provide an energy efficient building system.

The two options for consideration are an all air heating and cooling system or an active chilled beam system with Dedicated Outdoor Air System (DOAS). Both options described below will replace the existing air handlers and distribution system with new equipment and distribution.

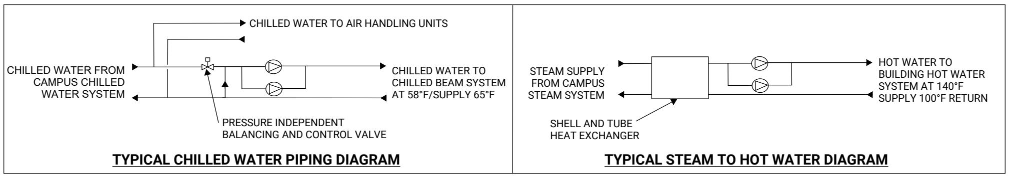
Controls (BAS)

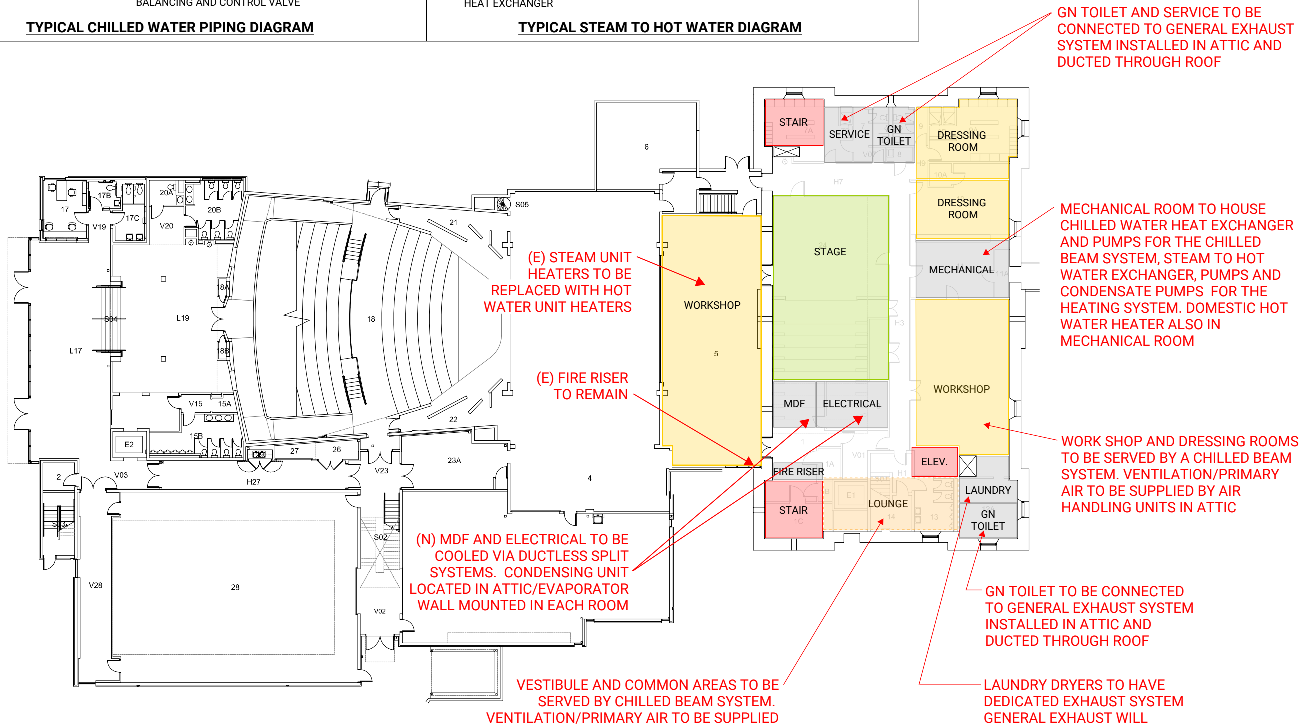
The existing controls system is a pneumatic controls system that is outdated and does not provide adequate controllability of systems resulting in operational inefficiencies. The controls system should be replaced with a new Siemens automated controls system to match and tie into the existing campus system.


Existing cast iron steam radiator

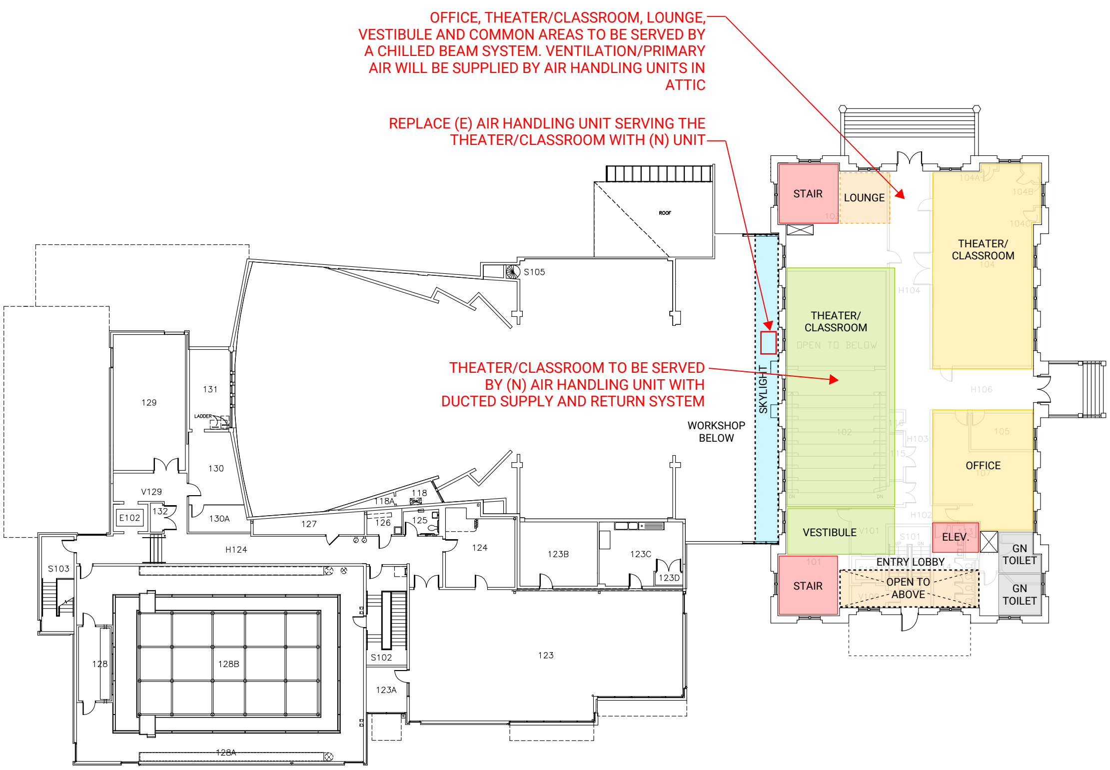
Asbestos Covered Piping


Asbestos Covered Equipment

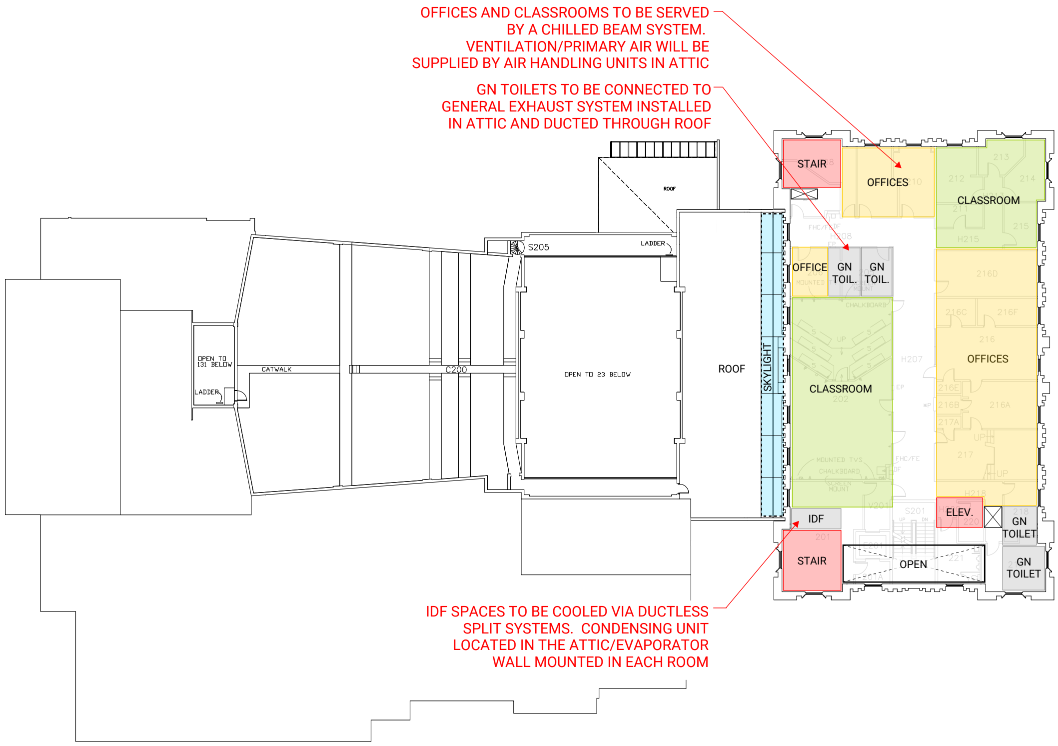




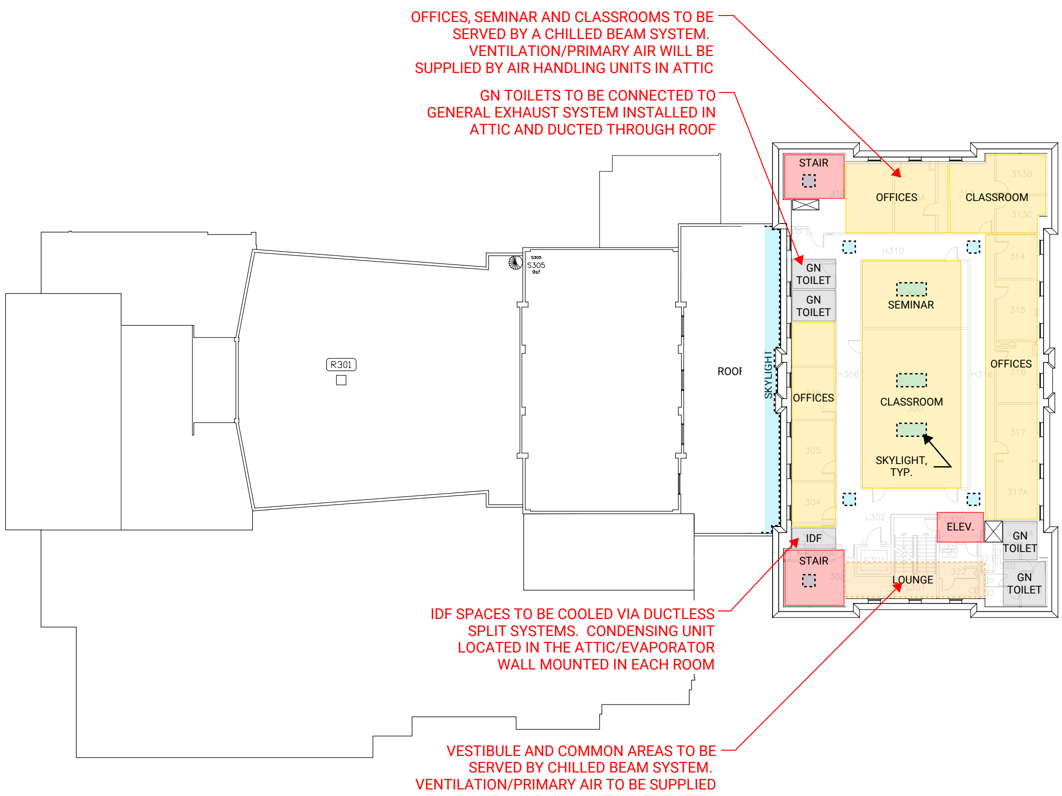
Ground Floor HVAC Diagram



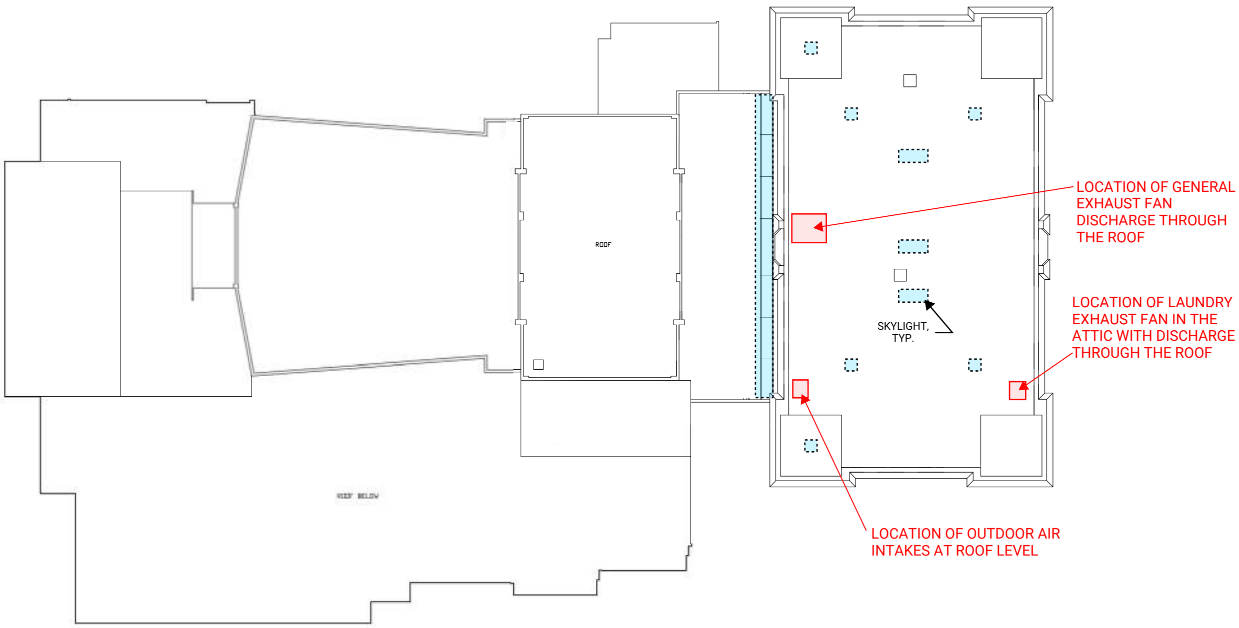
First Floor HVAC Diagram



Second Floor HVAC Diagram



Third Floor HVAC Diagram

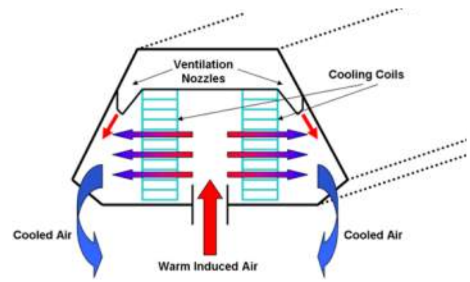


Roof HVAC Diagram

Option #1: Chilled Beam with DOAS (preferred)

An active chilled beam system is predominantly a water-based system. Chilled water, and in some cases hot water, is provided to each chilled beam to provide space temperature control. The system relies on a DOAS air handler to provide the minimum outdoor air needed for ventilation or the minimum air needed to provide induction at the chilled beam. The DOAS air handler provides ventilation air (primary air) at a temperature closer to the room design temperature to maximize efficiency. The air is supplied to the chilled beam which induces room air into the chilled beam and is then cooled or heated to provide space temperature control.

Install chilled beam



Active chilled beam

Chilled water will be delivered from the campus system and supplied to the DOAS. A tertiary set of pumps located in Villard Hall will draw a minimal amount of water from the campus system and mix it with the return chilled water from the chilled beam system to provide the chilled water at a temperature to maximize the cooling from the chilled beams and eliminate condensation.

The heating system will continue to be provided via the existing steam system however the steam will be converted to heating hot water via a steam-to-hot water heat exchanger which will be located in the basement. A set of heating hot water pumps will be installed to provide heating hot water circulation.

In some cases, supplemental heating may be required due to the existing building envelope and the limitation of the chilled beam for heating. In these cases, hot water perimeter heating will be introduced to make up for the limited heating available from the chilled beam.

The main benefits to this system beyond the energy efficiency is the reduced size of the air handler and supply ductwork, in most cases up to a 50% reduction in ductwork and equipment size as compared to an all air system. The chilled beam system is the best opportunity to meet the Advanced Energy Threshold (AET) of 35% above code minimum for this project.

Option #2: All Air Heating and Cooling System

This option is a Variable Air Volume (VAV) system. This system utilizes a main air handler(s) to provide tempered air to Terminal Units (TU's) to regulate the volume and temperature of air delivered to its respective zone. The air handling units would be sized to meet the heating, cooling and ventilation needs of the space and utilize demand control ventilation to regulate the amount of ventilation air to the space to increase energy efficiency. An air side economizer installed in the air handler will modulate the return and outdoor air dampers to mix the air streams to supply air as close to the required supply temperature to reduce the amount of heating or cooling needed in the air handler.

Chilled water will continue to be served from the main campus system to the new air handling equipment.

The heating system will continue to be provided via the existing steam system however the steam will be converted to heating hot water via a steam to hot water heat exchanger which will be located in the basement. A set of heating hot water pumps will be installed to provide heating hot water circulation.

This system will provide good zone temperature control while at the same time being an efficient system to operate. However, due to space limitations in the attic it is anticipated that additional mechanical equipment room(s) will need to be located on the lower floors and large amounts of shaft space will be needed to conceal ductwork between floors.

In addition to the two options above, the small theater located in Villard Hall will be served by a new air handler dedicated to serve that space. Heating and cooling will be provided to the air handler by the building hot water and chilled water systems, respectively.

Plumbing

Electric Hot Water Heaters in Villard Hall

Existing Drinking Water Fountain

Water service enters Villard Hall on the south side of the building (Room 11A) and is distributed to fixtures throughout the building.

Hot water in Villard Hall is currently generated by dual electric hot water heaters located in the basement Mechanical Room 11A.

Fixtures in the building are outdated and not water efficient. As a component of sustainability measures incorporated into the renovation, all plumbing fixtures are recommended to be replaced with water conserving models meeting 2014 Oregon Energy Efficiency Code requirements.

Sanitary Sewer Drain and Vent System

Provided the existing sanitary sewer system at the connection to the building is not compromised it is anticipated that the existing connection to the exterior of the building will be adequate. Due to the age of the building and the potential extent of the remodel the recommendation is to remove and replace the existing sanitary sewer system within the building with a new system to meet the needs of the renovation. All waste and vent piping will be cast iron soil pipe with no-hub fittings.

Domestic Cold and Hot Water System

The existing plumbing systems appear to be functioning properly with no obvious signs of leaking. However, the system is outdated and does not adhere to the current codes for water efficiency. Due to the age of the system it is reasonable to assume that there is some build-up of scale or corrosion on the inside of the existing piping. Selective testing would show for certain, however the recommendation is to replace the existing piping from where it enters the building to the new fixtures and equipment. This will ensure that the plumbing system is free of lead and other contaminants and installed per latest code requirements. The new system will be copper with lead free solder.

A new electric domestic hot water heater is recommended with a storage tank and circulating pump system and no dead legs. A circulating pump system will ensure that the temperature stays a constant 140 Degrees F and minimizes any potential water-borne bacteria from forming. A mixing valve at each fixture will ensure that the hot water is mixed down to 120 Degrees F to prevent scalding. As an alternate steam could be used as the heat source in lieu of electric.

Fixtures

Fixtures in the building are outdated and not water efficient. As a component of sustainability measures incorporated into the renovation, all plumbing fixtures are recommended to be replaced with water efficient models with automatic sensors meeting 2014 Oregon Energy Efficiency Specialty Code requirements.

Dual height, accessible drinking fountains with bottle fillers will be located at common use areas.

Fire Suppression

Villard Hall and the Robinson Theater are both fully sprinklered including the attic spaces. A visual inspection of the sprinkler pipe exterior shows little or no signs of exterior corrosion. An internal inspection of the pipe system should be performed as part of the renovation project. Fire water enters the building on the south end of the theater into the Scene Shop (Room 5) via a 4-inch main and includes all necessary valves and gages including check valves for the FDC. The system as installed is not configured for forward flow testing as required by NFPA 13 and NFPA 25. Forward flow testing will require the addition of a valve or means of proving full design flow is available to the building without flowing water through the heads.

Fire water service entering the building

Automatic Sprinklers

The existing fire service main entering the building will likely remain in its current location at the southeast corner of Robinson Theater, however the area surrounding the main will need to be updated to meet current code and access requirements. The existing sprinkler heads and piping will be modified as necessary to provide proper code required coverage of the spaces.

All occupied areas will be protected by automatic sprinklers. At the owner's option, individual rooms may be protected by other systems, with the approval of the building official. Such rooms could include computer/data rooms which could include clean agent gaseous suppression in lieu of or in addition to a wet sprinkler system. Automatic sprinklers will be provided throughout the building in accordance with NFPA 13. Room design densities will be in compliance with NFPA 13, Authorities Having Jurisdiction, and the Owner's insurance carrier.

Sprinkler density and supply requirements as follows:

Light Hazard Areas:

0.10 gallons per minute (gpm) per square foot density over the hydraulically most remote 1,500 square feet, with a maximum sprinkler space of 225 square feet in the following locations:

- Office Areas
- Classrooms
- Theater
- Corridors
- Restrooms

Ordinary Hazard Group I Areas:

0.15 gpm per square foot density over the hydraulically most remote 1,500 square feet, with a maximum sprinkler spacing of 130 square feet in the following locations:

- Mechanical Rooms
- Transformer and Switchgear Room
- Electric Closets

Ordinary Hazard Group II Areas:

0.20 gpm per square foot density over the hydraulically most remote 1,500 square feet, with a maximum sprinkler spacing of 130 square feet in the following areas:

- Housekeeping Supply
- Storage Rooms

Quick response sprinklers will be provided throughout Light Hazard areas. Reduction in the hydraulically most demanding areas due to hazard, ceiling construction and ceiling height will not be allowed. Sprinkler piping shall have a minimum Corrosion Resistance Ratio of 1.0 or greater. Piping shall be schedule 40 or schedule 10. No plain-end piping systems will be allowed. All new Mechanical, Plumbing and Fire Protection systems will be designed to meet or exceed current codes as adopted by the State of Oregon including:

- 2014 Oregon Energy Efficiency Specialty Code
- 2014 Oregon Mechanical Specialty Code
- 2014 Oregon Fire Code
- National Fire Protection Association (NFPA)

Electrical & IT Infrastructure

Primary electrical service is brought into the main electrical room (Room 1C) located on the Ground Floor level of the building (south exterior wall) via (4) 4" underground conduits. Like most buildings on campus, the electrical switchboard is fed from the main campus medium-voltage loop and is not individually utility metered. The 500kVA step-down transformer (12.47kV-208Y/120V, 3 phase) is located on the south side of the building exterior and sits on a concrete pad. The main transformer is campus owned (versus the local utility).

The main electrical service is rated at 1600A capacity, 208Y/120V, 3 phase, 4 wire. The main Siemens switchboard is dated 09/1993 and is 24 years old; only about 40% useful life remaining. The main switchboard has had a Square D Powerlogic PM8000 digital meter installed, possibly in 2007 when the installation was last inspected by the City (12/04/2007). The current basis-of-design for the campus metering system is the Powerlogic ION 7650. The current load observed while on site was 75 amps (serving a mostly unoccupied building).

The main service disconnect/breaker is rated lower than the full switchboard capacity at 1400A (versus 1600A). The main breaker also appears to be a non-adjustable type which most-likely is contributing to the very dangerous arc flash rating of the switchboard. The arc flash study is dated 12/18/2008 and lists the flash hazard boundary at 191 inches, over 16 feet which is far outside the boundary of the electrical room. This gear can never be worked on live and the high potential energy poses an even greater risk downstream where many of the panels are very old and most-likely not able to handle the available fault current.

The main switchboard was not able to be installed against the exterior wall due to very tight clearances and an awkward HVAC duct located directly behind the gear. This locates the gear so there is only the minimal 4 feet clearance for the front of the gear. Due to the high arc flash hazard, greater clear space is needed. There appeared to be no seismic support installed for the main gear line-up either.

The main electrical room is very constrained due to the main gear location but also as a result of a large aluminum bus-riser coming out of the main switchgear. The bus-riser routes through the building and into the theater portion finally terminating at an 800A dimming panel located under the main stage. In tracing the path of the bus-riser it appeared to be over 50% in excess routing length contributing in voltage drop for the dimming panel.

Inside the main electrical room there is no panic hardware on the main egress door and due to the size of the gear the room is required to have two exits per National Electrical Code/NFPA 70. Also, there is an open 'hole' in the room to bring in outside air without proper protection to keep water from entering the space. Any flooding on the exterior ground level will allow water to enter the main electrical room, only a few feet from the main gear, and present an electhrocution hazard to room occupants. The wall opening is next to the fire department connection (FDC) and roof drain piping increasing the potential for water infiltration and flooding in the Electrical Room.

Main gear not located on a raised equipment pad and no seismic support.

Main service conduits coming into main gear

Working clearance issues in main electrical room (Bus-riser pictured)

Opening into main electrical room

Custom made/modified distribution panelboard

Example of a 67-year-old disconnect; typical throughout the building

Current demark location for low voltage services

Exit sign variety

Exit sign variety

There is a very old panel (estimate around 55 years old) which has been custom constructed into the opposite wall of the main service switchboard. This panel is past the useful service life, poses an arc flash hazard, and does not appear to have any space for future expansion. No panel schedule exists for this panelboard and it is recommended to be replaced as soon as possible.

There is a significant quantity of old electrical equipment located throughout the site. Equipment in the range of 60-80 years old is still in use without availability of spare and replacement parts.

Egress lighting is supplied with emergency power via (2) central battery inverters. The smaller of the two inverters is mounted in the Telecom room (Room 14) located under the stairs on the south side of the building. The other larger inverter (3kVA) is located in a hallway on the Second Floor near Room 202. Both inverters are in areas inappropriate for life-safety equipment including servicing difficulty as well as a lack of notification if the equipment fails. Unlike many buildings on campus, there is no connection to the campus emergenhcy loop at Villard.

The main MDF/IDF room is located at the south side of the building beneath the Ground Floor stair flight in a space with limited head height and access. The main telecom switch for the building in located in this space as well as the Altronix power supplies, telephone gear, and low voltage control panels. The space is unconditioned and does not have the required working clearances.

Exit signs appear to be powered through local batteries; every exit sign tested while on site had failed batteries and failed to turn-on. The exit signs are also a variety of styles and finishes. Other battery-based egress lighting was observed in Theater (Room 102) and random, unplanned locations.

Automatic lighting controls appeared mostly nonexistent with the exception of infrared occupancy sensors located in a few of the classrooms. It did not appear that the coverage or quantity of sensors was adequate. In most rooms, a simple on/off wall switch was all that was available for control. No lighting zones, room dimming controls, or daylight sensors were observed anywhere in the building. This condition does not meet current energy code or campus energy/sustainability goals.

Lighting sources in the building are all fluorescent-based. Most classrooms had either lay-in 2x4 fluorescent luminaires or surface-mounted lighting.

The existing fire alarm system appears to be based on the Cerberus brand family of products with a Siemens VoiceCom panel added sometime after the fire alarm control panel (FACP) install. The Siemens panel allows tone and voice control but the horn-strobes installed throughout the building do not appear to have voice capabilities. The smoke detectors are an older style and do not meet the University's standards for fire alarm manufacturers.

Electrical Recommendations

Due to the extensive amount of issues found on site with the age of equipment, code violations, safety concerns, and operational issues, it is recommended to completely replace the Villard Hall electrical system. System replacement includes lighting and controls, technology equipment, fire alarm system and devices, electrical switching and plug devices, and all electrical panels. No system components are recommended for retention.

A new properly sized dedicated electrical room and an accompanying new conditioned MDF room will provide the necessary space for current and future performance. This would also protect the equipment and facilities personel, while minimizing arc-flash and other electrical potential hazards.

The electrical distribution system revision would depend on the level of renovation; a complete removal of all interior walls would provide an opportunity to relocate branch panels to appropriate locations which serve the building as a whole versus the existing locations which were added over the last century in random locations.

The main service should be revised to utilize the existing campus CPS emergency medium voltage loop (matching other newer campus buildings). This central generator fed system provides both life-safety emergency power as well as optional stand-by power sources through the addition of new automatic transfer switches. These new transfer switches would feature bypass isolation for ease of maintenance and 4-pole, closed transition options to ensure maximum performance. This new service line into the building would allow the removal of all emergency lighting inverters (which have been expensive to maintain), and integral battery packs in exit signs and other lighting. The optional stand-by system would provide backup power for other items desired by campus facilities including MDF/IDF rooms, elevators and building egress lighting.

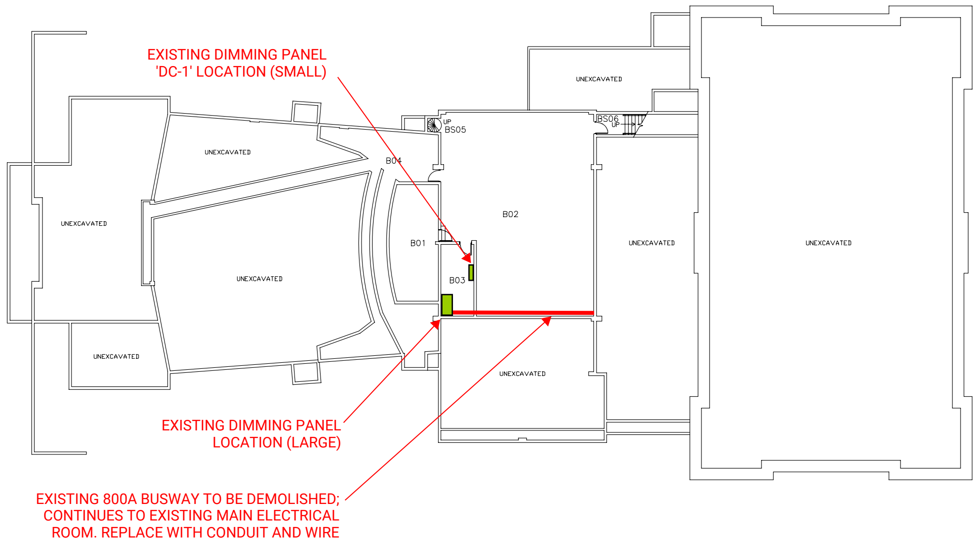
The existing main normal branch pad-mounted oil-filled transformer is recommended to be relocated to an appropriate screened/landscaped location along with the addition of the new transformer needed for the new emergency branch into the building and any associated disconnects.

New lighting controls are recommended to be of the digital style such as the Wattstopper DLM which uses low-voltage cabling to connect between all devices for ease of controllability, adaptability, and interaction with various sensors (occupancy, daylighting, time-clock, etc). Installation and future changes are simplified as the low-voltage connections do not require an electrician to do the work. The new lighting controls would also benefit from the new LED lighting installed throughout the building, providing functions such as dimming without any additional costs (versus traditional fluorescent sources). Building-mounted lighting would be minimal with only existing lighting at entrances replaced with LED sources (code required egress lighting). New exterior site lighting would be located in concert with the revised south entry design using campus standard fixtures.

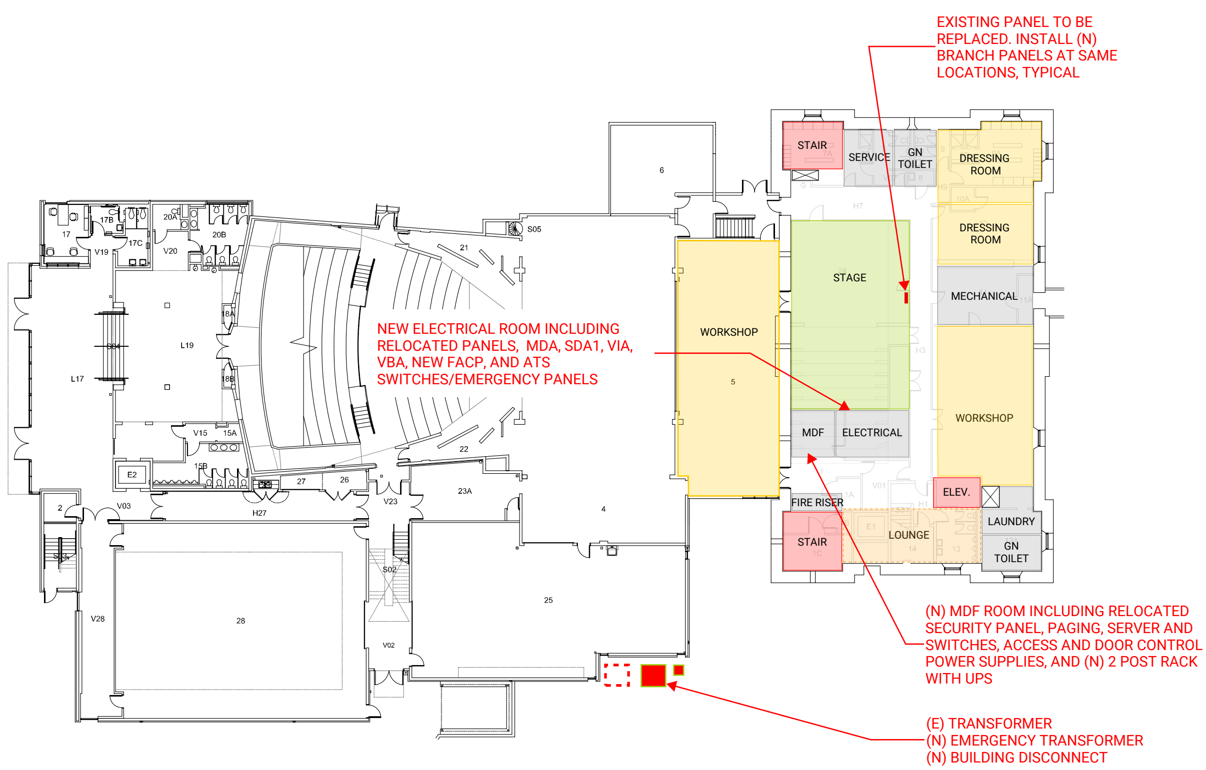

Examples of typical interior lighting


Typical fire alarm devices in building


Main fire alarm control panel

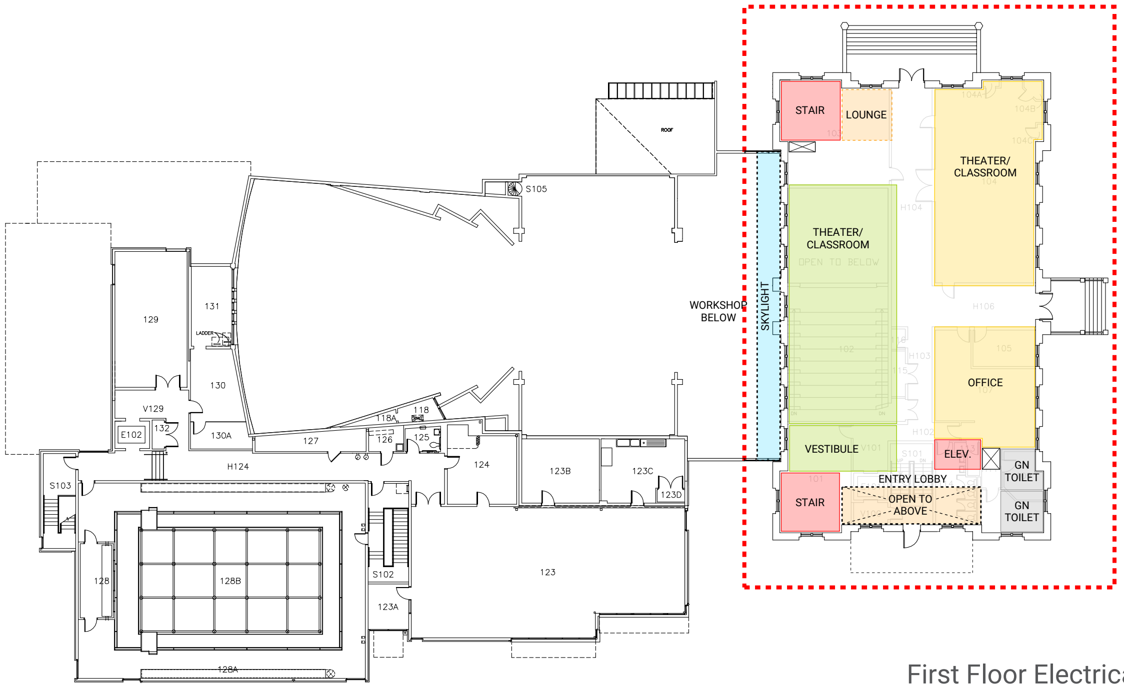


Basement Electrical Diagram

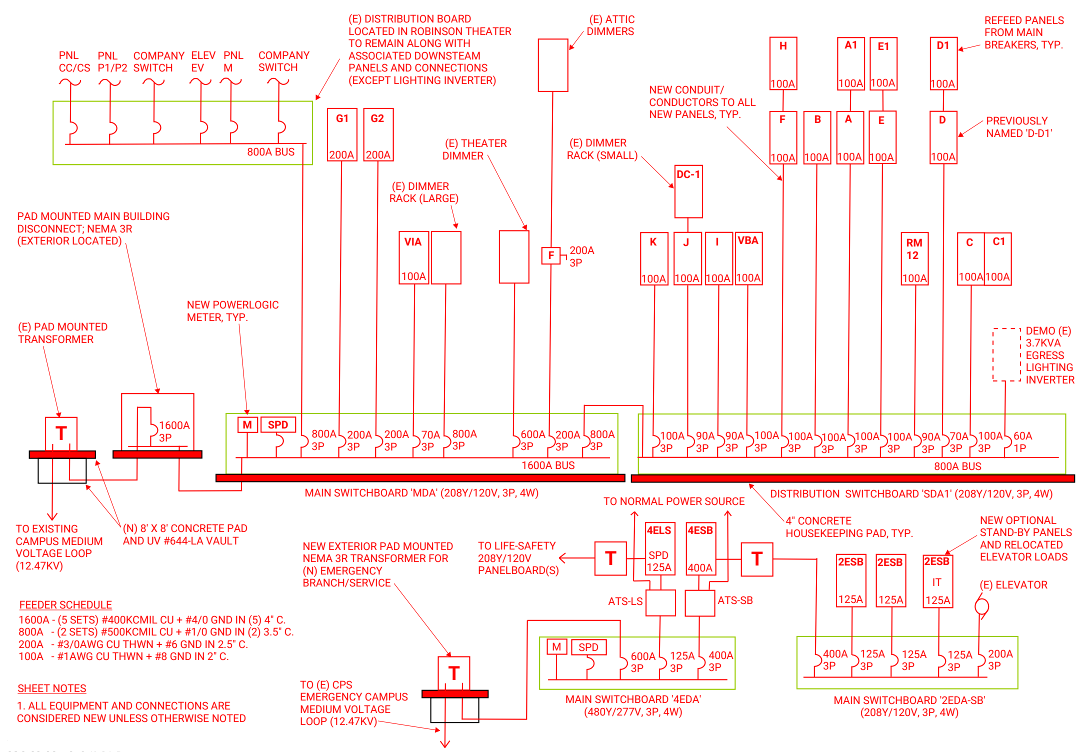


Ground Electrical Diagram

DEMO EXISTING LIGHTING AT VILLARD
(N) LED LIGHTING INSTALLED THROUGHOUT THE RENOVATED AREAS INCLUDING EXTERIOR LIGHTING, EGRESS LIGHTING, EXIT SIGNAGE AND LIGHTING CONTROLS.
(N) THEATRICAL LIGHTING AT THEATER SPACES.
EXTERIOR SITE LIGHTING TO MATCH CAMPUS STANDARDS



First Floor Electrical Diagram



FEEDER SCHEDULE
1600A - (5 SETS) #400KCMIL CU + #4/0 GND IN (5) 4" C.
800A - (2 SETS) #500KCMIL CU + #1/0 GND IN (2) 3.5" C.
200A - #3/0AWG CU THWN + #6 GND IN 2.5" C.
100A - #1AWG CU THWN + #8 GND IN 2" C.

SHEET NOTES
1. ALL EQUIPMENT AND CONNECTIONS ARE CONSIDERED NEW UNLESS OTHERWISE NOTED

One Line Diagram

Vertical Transportation

The existing elevator is an Otis hydraulic piston type rated at 2500 pound capacity serving the ground, first, second, third and attic floors of the building. As-constructed drawings from 1989 indicate its initial installation including a concrete shaft pit and sump pit, wood framed and gypsum board shaft and ground floor level machine room located adjacent to the elevator. Elevator assessment was limited to the elevator cab and floor stop areas and did not include the elevator pit, shaft, or machine room. Door and operating panel finish is brushed stainless steel with plastic laminate cab walls. Existing condition of the elevator cab and floor stop areas are good with no noted finish damage, broken or missing operation parts, operational problems or reported problems from facility personnel. There are minor accessibility issues at the elevator including missing Braille lettering at operating controls and audible controls sequencing but no issues reported for the path of travel or control mounting heights. While the existing elevator appears adequate and functional for current needs, the proposed renovation project would reorganize floor plan layouts necessitating a removal and replacement of the elevator in a new location. With a new elevator, it is recommended to install a Machine-Room-Less (MRL) traction type elevator in lieu of a hydraulic type due to greater energy efficiency, reduced space needs associated with the elimination of a dedicated machine room, and avoidance of the maintenance and environmental concerns involved with hydraulic fluid.

Site Work/Utilities

Stormwater

Existing Conditions

Villard Hall is at a relative high point in the surrounding topography. The ground surface in the vicinity of the building is generally sloped away from each face of the building. As such, surface drainage around the building is predominantly sheet drainage to the north, east, and south. There are several small areas around the perimeter of Villard and Miller where the ground surface slopes toward the building, or to an area drain or floor drain located within a depression.

Roof drainage and surface drainage collected in area drains is collected in one of the following two piped storm drain systems:

- West System: This system collects roof drainage from the west half of the Villard Hall roof and the entire Miller Theatre roof. This system was originally constructed in 1949 with the original Robinson Theater project, but has been modified over the years, including a significant modification in 2009 with the Miller Theatre Addition. As part of the Miller Theatre Addition project, a mechanical treatment manhole was retrofitted into the downstream end of this system. This manhole provides treatment for the Villard-Miller building complex and the parking lot, driveway, and walkways to the south and west of Villard (roughly 2.5 acres in total). The existing treatment structure is a Contech Vortechs system, which meets current City of Eugene requirements for mechanical treatment.
- East System: This system collects the eastern half of the Villard Hall roof. Campus utility mapping indicates this system drains to the east. The ultimate destination point for the east system is unknown, but some historical mapping indicates the system drains through a 6" pipe to a manhole located just north of Lawrence Hall. [Further investigation / coordination with UO staff is needed].

Regulatory Requirements and Stormwater Management Approach

Stormwater management requirements are set forth by Eugene Code Section 9.6790-9.6796 and the Eugene Stormwater Management Manual (2014 edition is current). The following is a summary of the requirements:

Treatment for Pollution Reduction: Runoff from new impervious surfaces are subject to stormwater treatment requirements. Stormwater treatment must be selected based on the following priority:

- Onsite Infiltration
- Onsite Filtration through Vegetated / Low Impact Development Methods:
- Onsite Mechanical Treatment with Payment of 50% LID Fee.
- No Onsite Treatment with Payment of 100% LID Fee (for Offsite Mitigation)

With the approval of City staff, site constraints (poor infiltration rates, shallow groundwater, etc.), space constraints, and topography, lower priority approaches may be selected. The LID System Development Charge (SDC) fee is significant, and is used to encourage onsite treatment.

Certain areas are exempt from the treatment requirements. It should be assumed that repair or rehabilitation of the building roof will be exempt, except where the rehabilitation changes the footprint of the roof. Sidewalks or pavements that are replaced to correct ADA deficiencies may also be exempt, depending on the configuration and reconstructed surface.

- Flow Control: The site is located entirely within the Willamette River Basin, which has not historically experienced flooding problems. As such, prescriptive flow control or detention requirements do not apply. Detention may still be appropriate for certain localized areas where the receiving storm drain system does not have the capacity to accept additional flows. However, the redevelopment project is not expected to result in a significant net increase in impervious surface so detention is not expected to be needed.

- Source Control: Source control standards include prescriptive design criteria for certain activities that present a risk of point source pollution, such as loading areas, trash collection areas, and storage of bulk materials. The recently constructed trash enclosure at the south side of Miller Theatre appears to satisfy the current City source control standards. [Further coordination with FFA to determine if any potential source controls will be created with redevelopment].

- Soils, Groundwater, and Suitability for Onsite Infiltration: Based on City of Eugene and Natural Resource Conservation Service mapping, the soils throughout the site are expected to be clayey soils with relatively low infiltration rates, classified as Hydrologic Soil Group (HSG) C or D. Groundwater is expected to be relatively shallow. Onsite infiltration is not expected to be viable based on the available soil mapping data, but this should be confirmed during the geotechnical investigation. [The geotechnical investigation performed for the 2009 Miller Theatre project should be reviewed to validate this assessment].

The following is a summary of the potential site stormwater management improvements associated with redevelopment.

- System Inspection: Cleaning, locating, and in-line video inspection (TV-inspection) should be performed for the existing West storm drain system on the north side of Miller and the East system on the east side of Villard. The investigation of the East system should extend from Villard to the north side of Lawrence. Given the age and location of these systems, it may be necessary to perform root-cutting prior to video inspection. Cleanouts may need to be installed on the system to facilitate cleaning and inspection. The cleaning, locating, and inspections of the existing East system may require significant time and resources.

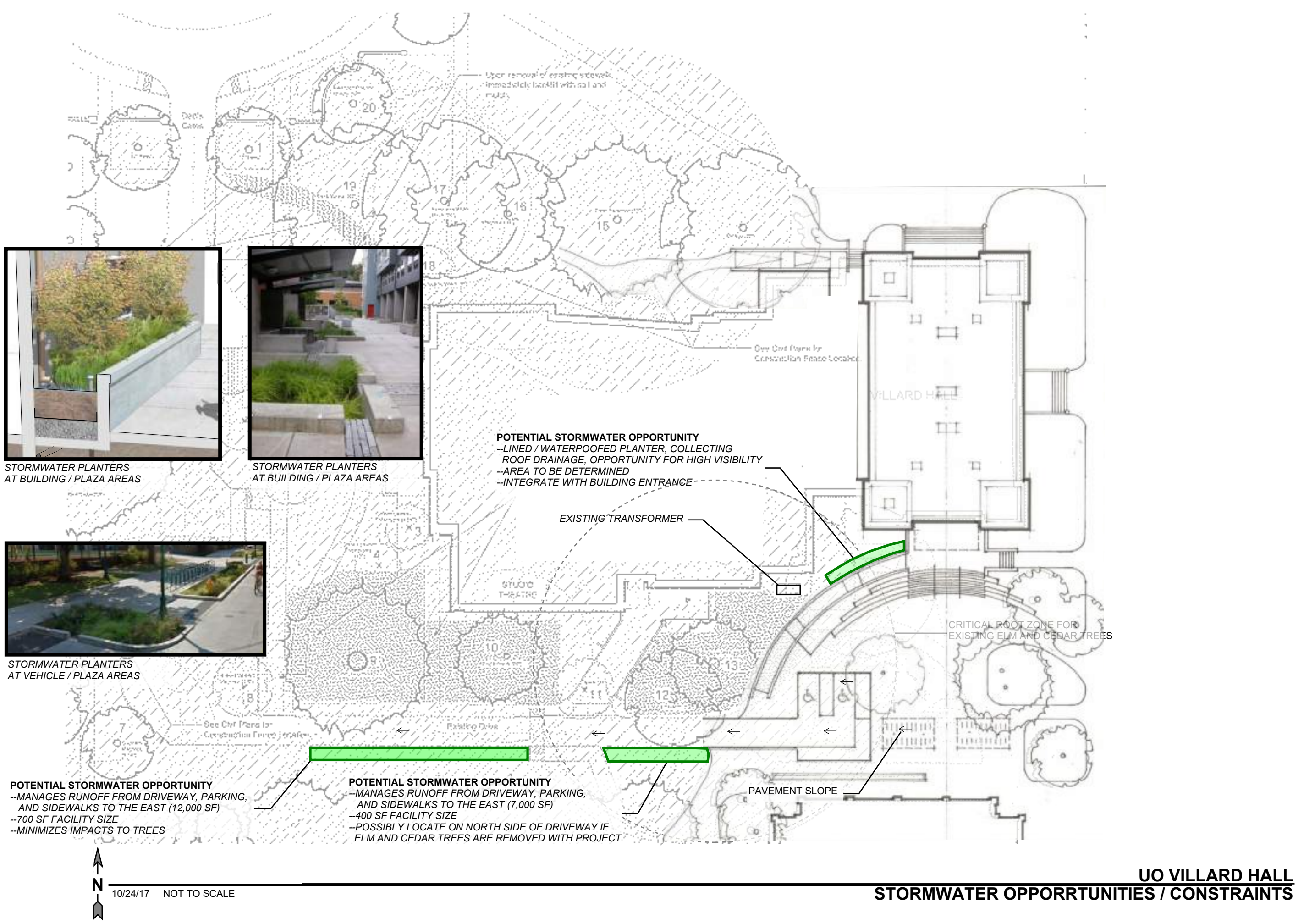
- System Repair / Reconstruction: An allowance should be included for repair of the existing storm drain system where severe pipe damage or root intrusion has occurred. Repairs are expected to be minor for the West system, but the cost for repairing the East system could be significant. As an alternative to repair, it may be preferable to reconstruct the eastern system. [scope of reconstruction tbd].

- Positive Drainage Away from Building –Miller: The ground surface around the southeastern corner of the 2009 Miller Theatre Addition is sloped toward the building, with no visible outlet at the ground surface. Although an underground perimeter foundation drain is present at this location, over time water may begin to accumulate on the ground surface and pool against the building wall. Installation of area drains and minor regrading could correct this condition.

- Positive Drainage Away from Building - Villard: There are approximately 15 ground-level louvers around the perimeter of Villard. Most of the louvers are depressed slightly below the ground surface and there are small areas within the landscaping that are sloped toward the louvers. This presents a water intrusion concern and correction is recommended. Refer to the building envelope section for further discussion. If louver reconstruction does not correct this condition, area drains could be installed to provide positive drainage away from the building.

- Surface Drainage Improvements: New area drains, catch basins, manholes, and storm drain piping may be required, depending on the layout and grading strategy for redeveloped pedestrian, vehicular, and landscape areas.

- Stormwater Treatment Improvements: Stormwater management improvements should be anticipated with redevelopment. At a minimum, stormwater treatment systems will be required for reconstructed impervious surfaces outside of the building footprint. Most of the project area is already treated by the water quality manhole installed west of Miller, so as a baseline approach, the redevelopment project may be able to utilize this existing treatment system and pay a 50% reduced LID Fee (roughly $1.00 per square foot). However, incorporating some degree of vegetated treatment systems into the project would be the preferred alternative. Vegetated filtration planters or basins should be anticipated. In keeping with the Oregon Model for Sustainable Development (OMSD), the preferred location for vegetated treatment systems would be the parking lot area on the south side of Villard / Miller.



Floodplain

The site is located outside of the 100-year floodplain.

Sanitary Sewer

Based on discussions with UO staff, the existing sanitary sewer systems for Villard and Miller Theatre have been recently reconstructed and are in good condition. Further discussion with UO engineering staff is needed to confirm age of north Miller system and confirm separation between storm and sanitary, but based on the available information, significant improvements to the sanitary sewer system aren't expected to be necessary. Backwater valves for basement level waste lines should be provided. Refer to the plumbing section for further discussion.

Fire Service

Existing System Description: The Villard and Miller Theatre fire sprinkler systems are served by a single 4" fire riser located at the southeast corner of Miller. The fire protection water is supplied by an 8" fire service that is fed from a 16" public EWEB main located in Franklin Boulevard. The 8" fire service begins at the south side of Franklin, between Villard and Lawrence Halls, and extends to a fire hydrant located to the southeast of Villard, just to the east of the tunnel. At this point, the fire line reduces to a 4" pipe and extends to the southeast corner of Miller where it enters the building. The 8" fire main historically extended to the south from the fire hydrant, along the east side of the tunnel, to serve a larger area of campus, but there was a break in the line, and the line south of the fire hydrant has since been abandoned.

Backflow Prevention: The fire service passes through an 8" double check detector assembly (DCDA) backflow preventer near Franklin, and another 4" DCDA backflow preventer near the southwest corner of Villard Hall, as shown on the 2009 Miller Theatre Addition drawings.

Fire Department Connection: The 2009 Miller Theatre project extended a fire department connection line out to the fire lane located west of Miller, to provide more direct fire department access. The 2009 Miller project drawings indicate the pre-existing FDC on the south wall of Miller was to be removed, but that FDC is still intact and appears to be fully connected to the fire riser.

Available Flow / Pressure: Based on past pressure/flow test data in the area, the static pressure within the public system is expected to range between 68-72 psi, depending on the time of day and system demands. Static pressure at the base of the riser was recently observed at 75 psi during low demand period. Flow test information should be obtained from the UO-owned hydrant near Villard to assess system characteristics. Gaging the residual pressure at the fire riser during the flow test is recommended. There is not currently a fire pump on the sprinkler system. However, due to the small supply diameter, redundant backflow preventer, and elevation of Villard, it is recommended that a fire sprinkler designer confirm the available pressure is adequate.

Fire Hydrant Availability: There is a private fire hydrant located approximately 80' southeast of Villard and a public fire hydrant on Franklin located approximately 140' north of Miller. Assuming the Miller and Villard buildings are fully sprinklered with code compliant systems, these two existing fire hydrants meet current code requirements.

Domestic Water

Existing System Description: Domestic water for the Villard and Miller buildings is supplied through a 4” pipe extending from the utility tunnel located just north of Deady Hall. The 4” line branches just to the south of Villard and enters the southeast corner of Villard at the Men’s restroom and the southeast corner of Miller adjacent to the fire riser. The supply from the utility tunnel is believed to extend from the north side of Lawrence Hall. UO staff has indicated there are no concerns with stagnation/ water quality or pressure for the domestic water line. UO EH&S staff should be consulted to determine if there are lead concerns with the domestic supply.

Backflow Prevention: Premise isolation (public/EWEB system isolation) are assumed to be located at the connection(s) to the EWEB system near the point(s) of entry to the tunnel system. Building-wide backflow preventers, isolating Villard from Deady and vice versa), do not appear to be present.

Potential Fire and Domestic Water Service Improvements

- Fire System Inspection: The existing fire service is steel piping and the condition is unknown. Given the past break in this fire main, physical inspection of the line may be prudent to assess condition and longevity.
- Fire System Repair / Reconstruction: Depending on the findings of the system inspection, system repair or reconstruction may be needed.
- Redundant FDC: The existing FDC on the south wall of Miller may need to be removed depending on the recommendations of the Fire Marshall.
- Inadequately Drained FDC: The FDC to the west of Miller is not equipped with a visible ball drip and drain-down reservoir to protect against freezing. This FDC should be filled with water and inspected to verify drain-down occurs. If it does not, a ball drip with a drain pipe or reservoir should be installed.
- Impacts of New Construction: Construction of a new building entrance at the southeastern corner of Miller could impact the existing fire and domestic water services, and relocation may be required.

1.04 Assessment - Robinson Theater

Building Elements Assessment

Envelope

Cracking at Fly Tower

The walls of the Robinson Theater Expansion are solid cast-in-place concrete walls, thickness unknown. In general, the walls are in fair to good condition with various deficiencies throughout. The most extensive deficiency appears to be cracking of the wall on the west, south and east elevations (TFG27-TFG28). The observed horizontal cracking appears to be located at control joints in the concrete and at beam locations where additional stiffening of that section would occur. The vertical cracks on the west elevation appear to be the result of thermal movements in the larger panel of the concrete wall.

Recommendations

- Rout out cracks to form a “V” shaped groove.
- Repair crack with a knife-grade, acrylic elastomeric patching compound.
- Feather the patching compound at the edges of the crack.

Parging at Fly Tower, East Elevation

Numerous areas of deterioration of the parging coat at the east elevation was noted in the form of spalled and cracked parge coat (TFG29-TFG30). While we could not get up close to most of the wall, the areas where we were able to view the parge coat, the deterioration appeared significant. In one observed area, the reinforcing steel could be seen (TFG31).

Recommendations

- Remove all parge coat down to sound concrete.
- For any areas that dow remain, saw cut the perimeter of the spalled area to square the edge off.
- Clean and prepare the underlying surface to receive the new stucco
- Dampen substrate and apply Portland cement-based stucco mix
- Work the finish to match existing, adjacent surfaces.
- Paint stucco with a vapor permeable, silicone elastomeric coating, color to match existing or that selected by the University of Oregon.

Thin Paint at Fly Tower

It was noted that the coating applied to the concrete throughout the Miller Theater expansion is shadowing the underlying paint (TFG32-TFG33), especially on the west elevation. While the paint appears to be in fair condition, it is starting to show its age. With all of the other work slated to be done to this building, it would be advisable to repaint the fly tower while the contractor is mobilized.

Recommendations

- Scrape all existing surfaces and remove all loose paint.
- Paint stucco with a vapor permeable, silicone elastomeric coating, color to match existing or that selected by the University of Oregon.

Sloped Glazing at Green Room

At the north wall of the Green Room, there is a sloped glazing element to provide light into the space (TFG34). The current glazing system is composed of wire security glass (single pane), EPDM gaskets, sealant, painted steel bar frame and metal flashing. Each of the aforementioned elements is showing some signs of deterioration (TFG35-TFG37). There is also evidence of water infiltration within the Green Room directly under the sloped glazing.

Recommendations

- Remove all sloped glazing glass, framing members and flashings.
- Installed new sloped aluminum glazing system with laminated, insulated glass. Insulated glass to have low-e coating
- Metal flashings at head, “jambs” and sill to be stainless steel


TFG27


TFG28


TFG29


TFG30


TFG31


TFG32


TFG33

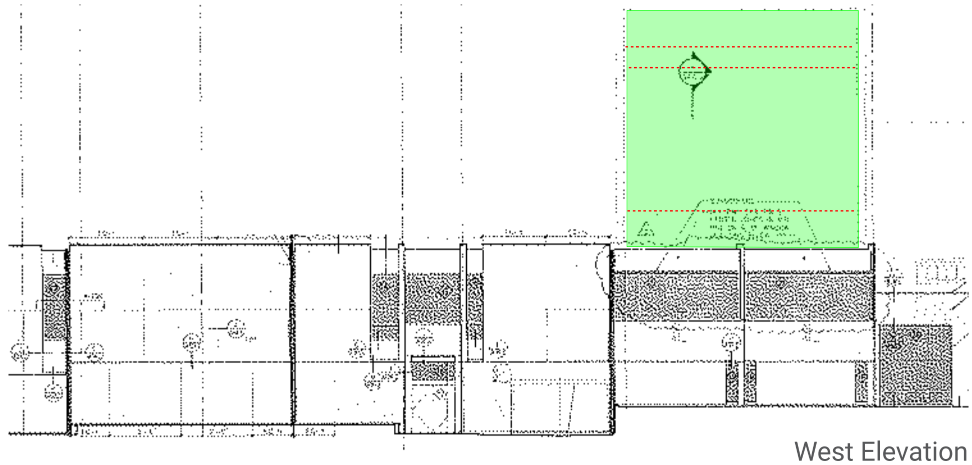

TFG34


TFG35

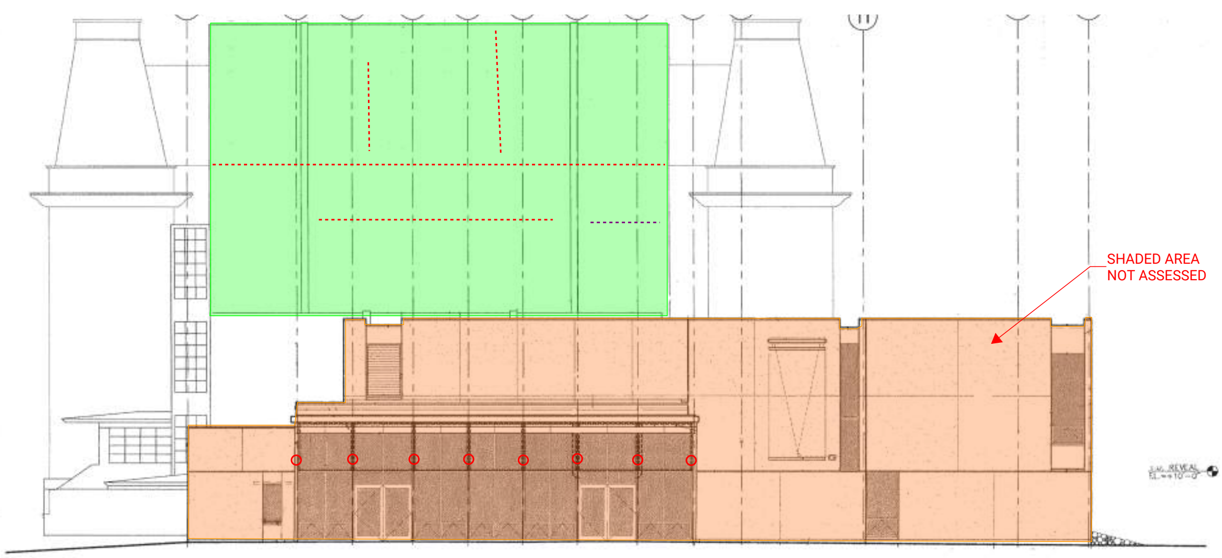

TFG36


TFG37

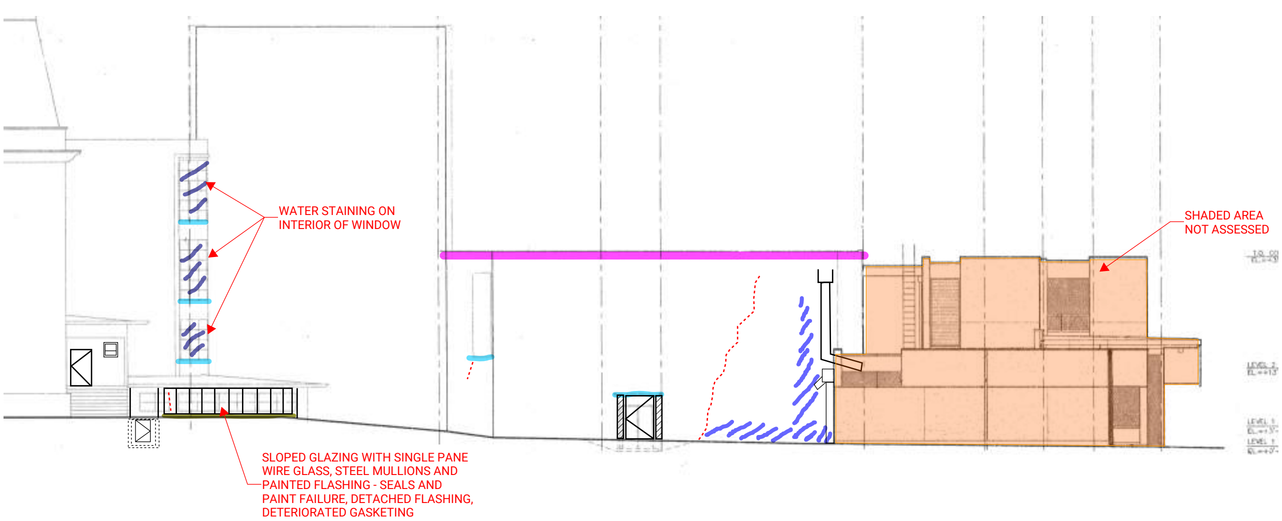
- SPOT REPAIR
- SPALL
- HOLE
- WEDGE ANCHOR CORRODING
- WATER STAINING
- DETERIORATING COATING/THIN PAINT
- MOSS GROWTH
- EFFLORESCENCE
- RUST
- DETERIORATING FLASHING (RUST/WARP)
- REPAIRED CRACKS
- CRACKS



West Elevation

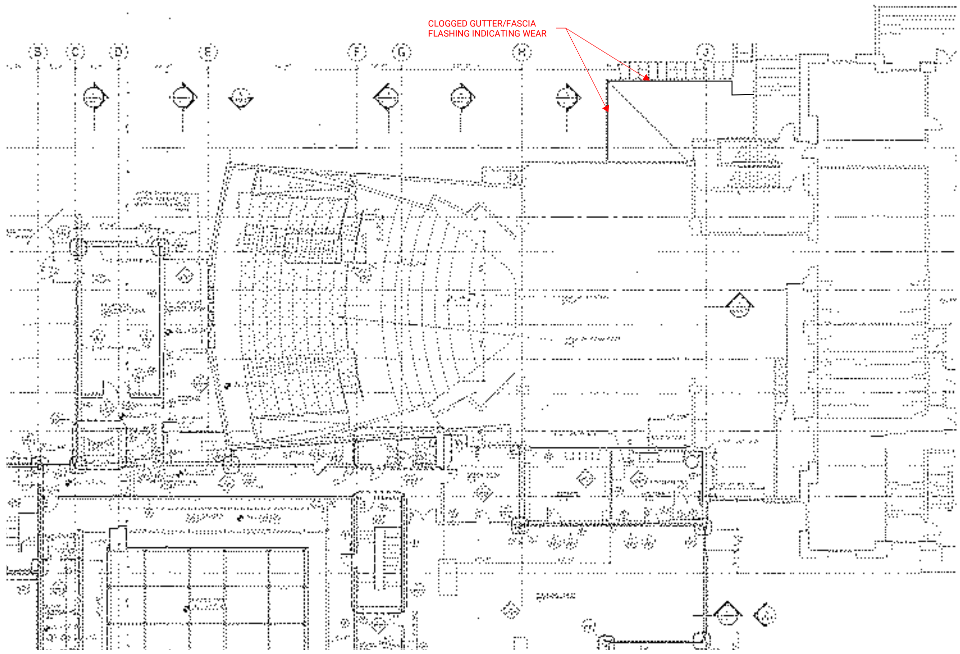


South Elevation

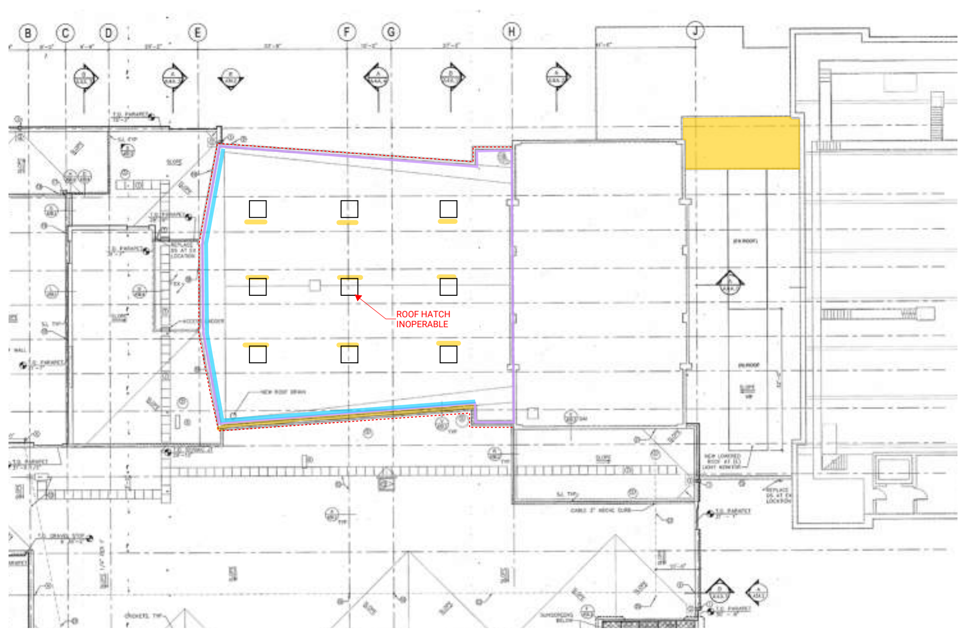


North Elevation

- WATER STAINING
- DETERIORATING SEALANT
- STANDING WATER/MOISTURE
- DETERIORATING COATING/THIN PAINT
- MOSS GROWTH
- EFFLORESCENCE
- RUST
- DETERIORATING FLASHING (RUST/WARP)
- REPAIRED CRACKS
- CRACKS



Ground Floor Plan



Roof Plan


TFG38


TFG39


TFG40


TFG41


TFG42

Roof at Green Room

The roof of the Green Room is composed of a single ply EPDM membrane with walkpads (TFG38-TFG39). The roof is sloped to drain to the north and west. The roof is in good condition and only requires regular maintenance at this point in time. An internal "hidden" gutter is present on two sides and leads to a downspout at the southwest corner of this roof (TFG40-TFG42). The gutter is provided with very little slope to drain and is filled with tree debris. Additionally, the wood fascias concealing the gutter are warped and their finishes are peeling away.

Recommendations

- Remove all components of the gutter system including the sheet metal gutter, fascia boards and tie in to the EPDM roofing.
- Replace with new, concealed stainless steel gutter and downspout. Tie in gutter to existing EPDM roofing to ensure proper seals and positively shed water into the gutter.
- Replace fascia with new wood fascia painted to match existing or color chosen by the University of Oregon.

Mechanical Well at North Elevation

There is an approximately 10-15' deep mechanical well at the north elevation (TFG43-TFG44). The well is surrounded by concrete on the soil side and has a mechanical louver at the bottom of the well on the building side. The condition of the louver is unknown as we did not have access to this area. A bar grating with deteriorating paint finish is installed atop the opening to prevent fallen objects or people. Unfortunately, there is a lot of debris and some trash at the base of the well.

Recommendations

- Remove bar grating. Scrape and paint prior to resetting.
- Clean all debris and trash from bottom of well.
- Assess mechanical louver for functionality. If not functional and needed, recommend removing and infilling the space with concrete.

North Entry Door at Theater

The entry door at the north elevation has been changed since the original construction. It is presumed that this change took place as an add-on to the 2009 expansion. The entry is composed of a single, hollow metal door and flanked on both sides by stucco infill. The door has a canopy above. While we could not access the roof directly, it was noted from other vantage points that there was considerable moss growing on the surface (TFG45).

Recommendations

- Repaint the existing door and frame.
- Repaint the stucco infill panels flanking the door.
- Clean off the moss and any other debris from the canopy roofing.

Concrete Wall at North Elevation

As with the other concrete walls throughout the expansion, the north wall is in generally good condition. There were two cracks noted, significant efflorescence at the parapet, and water staining below the overflow cow's tongue. The cracks are noted on the attached elevations and are typical for a building of this vintage. The efflorescence along the length of the parapet appears to the result of water infiltration at the unprotected concrete parapet (TFG46). The water staining at the overflow cow's tongue is indicative of a clogged roof drain on the theater roof (TFG47). Additionally, the cow's tongue is abnormally high on the wall.

Recommendations

Cracking

- Rout out cracks to form a "V" shaped groove.
- Repair crack with a knife-grade, acrylic elastomeric patching compound.
- Feather the patching compound at the edges of the crack.

Parapet Efflorescence and Cracking

- Rout out cracks to form a "V" shaped groove.
- Repair crack with a knife-grade, acrylic elastomeric patching compound.
- Feather the patching compound at the edges of the crack.
- Pressure wash all areas of the wall to remove dirt, buildup and deposits.
- Apply new vapor permeable silicone elastomeric coating throughout.

Water Staining at Cow's Tongue

- Pressure wash all areas of the wall to remove dirt, buildup and deposits.
- Apply new vapor permeable silicone elastomeric coating throughout.
- Remove cow's tongue and install stainless steel new downspout and splash block at grade.


TFG43


TFG44


TFG45


TFG46


TFG47

Roofing

All roofing at the RobinsonTheater Expansion is Firestone 60-mil EPDM roofing similar to the main roof at Villard Hall. The roofs are in generally good condition with only deferred maintenance and minor roof repairs required (TFG48-TFG51) with the exception of the connector roof covering the connection of Miller to Villard Hall. At this connector (TFG52), TFG and FFA noticed that water was under the roof system and had presumably reached that location through that hole (TFG53-TFG54). The extent of the underlying damage to the insulation is unknown as we did not open the roof membrane here; however, the substrate directly under the roof felt "spongy" which typically signals extensive moisture intrusion to the insulation layers.

The parapets each of these roofs is a continuation of the concrete wall below. At each of these roofs, cracking at approximately 6" below the top of parapet was noted and vertically in limited locations (TFG55-TFG56). This is likely due to corrosion of the reinforcing bars within the wall. Additionally, on the south and west parapet walls, the north and east facing side are exhibiting excessive moss growth signaling that water is on these surface for extended periods of time (TFG57).

Lastly, the roof hatch at the Fly Tower roof is not in compliance with any code or OSHA regulation (TFG58). The ladder is a steel bar ladder leading up to an opening cover made of plywood and 2x lumber that is lifted out of the place while on the ladder to gain access to the roof. This is a heavy covering and an awkward position for the operator to be in. Additionally, it is difficult to place the covering down gently on the EPDM roof due to the user's position on the ladder.

Recommendations

Connector roof

- Remove all components of the existing roof system including membrane, insulation, fasteners, cover boards and flashings
- Replace with a new EPDM roofing membrane, gypsum sheathing cover board, polyisocyanurate insulation, stainless steel 2-piece counterflashings and parapet copings.

Fly Tower and Theater Roofs

- While these roofs are in generally good condition, maintenance needs to be performed to address the beginnings of failed seams and patches.
- Engage a roofing subcontractor knowledgeable in Firestone EPDM systems and perform general seam/patch sealing for approximately 50% of the roof surface.

Cracking

- Rout out cracks to form a "V" shaped groove.
- Repair crack with a knife-grade, acrylic elastomeric patching compound.
- Feather the patching compound at the edges of the crack.

Moss growth

- After repairs to the concrete surfaces, power wash all concrete surfaces to remove dirt, moss and debris.
- Apply new vapor permeable silicone elastomeric coating throughout.

Fly Tower Roof Hatch

- Remove existing roof hatch and install a new, spring loaded, lockable, hinged roof hatch. Hatch should fit the opening that is currently present so as to not disrupt the roofing membrane flashings.

TFG48

TFG49

TFG50

TFG51

TFG52

TFG53

TFG54

TFG55

TFG56

TFG57

TFG58

Structural

The structure for Robinson Theater consists of cast-in-place concrete walls around the stage, fly-loft, seating area. The theater floor is framed with steel beams and sawn wood decking. The roof structure over the fly-loft is wood beams and joists connected to the concrete walls with intermediate posts supported on concrete beams that span over the stage at the rigging support level. The roof structure over the seating area consists of bow-string shaped heavy timber trusses with wood joist secondary framing and plywood decking. The ground floor consists of slab-on-grade with concrete foundations supporting the bearing walls and columns. At the connection to Villard Hall, steel posts are added to support the theater gravity support and no visible connection was observed between the two structures.

The 2009 addition consists of concrete masonry unit walls (CMU) with wood framed roof and floor structures using engineered lumber and plywood decking. The addition is seismically isolated from the original Robinson Theater structure.

Miller Theatre Complex (Excluding the 2009 Seismically Isolated Addition):

Moment Frames – As part of the new back-of-theater addition framing, provide a new steel moment frame along the east side of the theater where it is separated from Villard Hall. The new frame will consist of wide flange beams and columns with continuous footings below as indicated in the structural concept drawings. Footing reinforcing of 200 lbs/cubic yard can be used for preliminary estimates.

Shear Walls – Provide new concrete shear walls on each side of the large openings at the front and rear of the stage as shown on the structural concept diagrams. Walls will originate at the basement level below the stage and extend to the proscenium elevation. At the contractor's option, the walls may be cast-in-place or shot-crete. Assume that new concrete walls will be epoxy doweled into existing walls with #4 bars at 4 feet on center each way.

The average thickness of the new shear walls will be 12-inches with an average reinforcing weight of 15 pounds per square foot (psf) which can be used for preliminary estimates.

Diaphragms – The entire roof diaphragm will receive new 5/8 inch plywood sheathing. Assume a nailing pattern of 12 inches in the field and 3 inches at panel edges. Assume flat 2x blocking will be required at approximately 50% of the diaphragm areas.

Concrete Wall to Diaphragm Connections – Provide a positive connection between each roof diaphragm level and the concrete walls. Each connection will consist of an epoxy dowel into the wall and a Simpson hold-down. Assume some amount of additional blocking will be required to anchor the hold-down to the existing wood framing. Assume a 4 foot spacing at all roof and concrete wall intersections.

Diaphragm Cross Ties – Provide light-gage straps that extend from the concrete walls towards the interior of the building and at each roof diaphragm level. Assume each strap is approximately 10 feet long and that they are spaced at approximately 4 feet on center (to align with the wall to diaphragm connections). Assume some amount of wood blocking will be required where the straps do not align with existing joists.

Girder to Column Connections – Provide a positive connection between all girder to column connections. This work will likely consist of steel plate straps lag screwed into the girders and columns.

Non-structural – Non-structural bracing of existing ceilings, equipment, piping, and tall shelving will be required to upgrade the building. This includes the heavy ceiling over the theater seating area. Bracing will consist of a combination of cold-formed steel, structural steel, and wood.

Soil Liquefaction – Reference information for Villard Hall above.

HVAC

Robinson Theater was added onto Villard Hall during the 1949 addition. Steam service was extended through Villard Hall to supply the theater. The stage and backstage areas are heated by steam unit heaters as shown below.

The seating area is served by a fan and coil system to provide supply air, heat and exhaust air. The supply and exhaust fans are installed in a plenum on the north side of the stage. Air is returned to the plenum by low return grills and is either exhausted to the outdoors by the exhaust fan or returned and supplied back to the space via the supply fan. Supply air is directed under the stage then up a shaft to the attic space above the theater seating. A steam coil installed in the ductwork in the attic space provides the required heating. Ductwork is distributed over head and air is supplied at the ceiling level.

The roof has multiple relief hoods and dampers which are connected to the pneumatic controls system. When the dampers are opened hot air is allowed to vent out of the theater and attic through the roof.

Back Stage Unit Heaters

Typical Roof Relief Damper

Abandoned water heater and storage tank.

Theater Low Return Grills

Roof Relief Hoods

Typical Theater Electric Water Heater

Due to its high ceilings and resulting high volume a chilled beam system here is not practical. The recommended system for the theater is a VAV Air system with demand control ventilation. The VAV system will supply air at the ceiling level and return/ exhaust it at the floor level , similar tothe existing system. The notable difference will be the energy efficiency with the demand control ventilation system which utilizes the CO2 level in the space to control the amount of outside air that is brought in for ventilation. As CO2 levels increase with an occupied theater, the control system will allow more ventilation air into the building. The opposite is true as the occupancy level decreases. The CO2 levels will be monitored and controlled by CO2 monitors tied into the building and campus Building Automation System (BAS).

Chilled water will continue to be served from the main campus system to the new air handling equipment.

The hot water heating system will be extended from Villard Hall to the Miller Theater to serve the new air handling equipment.

Plumbing

Hot water in the theater was originally generated by steam then converted to electric. The steam heater has been removed however the storage tank and electric water heater are abandoned in-place as noted below.

Hot water for the theater is now provided by electric hot water heaters that were installed in the 2009 addition. One water heater serves the first floor and lobby restrooms while the other serves the second floor.

Electrical

Robinson Theater was added onto the Villard building during the 1949 addition/renovation and underwent another major renovation in 2009. The theater backstage electrical power and lighting are served by existing branch circuit panels fed out of the existing Sub-Distribution Assembly – SDA1 (ultimately fed from the Villard main service switchboard). Existing lighting in the backstage area consists of metal halide and fluorescent tube fixtures that are controlled via the breaker panel and various wall toggle switches.

As part of the 2009 remodel/expansion, an 800A electrical feed from the Main Distribution Panel was brought over to serve the addition. Along with new branch circuit panels, new fluorescent lighting and controls were provided. New egress lighting fixtures part of the 2009 remodeled are served via a centralized inverter system rather than battery packs and/or emergency bug-eye fixtures as provided in Villard Hall.

Electrical Recommendation

It is recommended that the existing branch circuit panels associated with the dated electrical equipment to be replaced with new due to age and conditions. New controls and switching should be provided for lighting at the theater backstage area rather than using circuit breakers as switching means. Although not required, but there are newly LED fixtures available for existing Metal Halide and Fluorescent fixtures that could be a saving in energy cost and maintenance. All spaces associated with the 2009 renovation appeared to be in compliance with current code and in great condition.

Existing Metal Halide and Fluorescent fixtures used at Theater backstage area

Existing Panel "I" (above) and Panel "J" (below) serving backstage lights, receptacle cord/reel, paint shop, and receptacles above the theater.

New 800A 208120v, 3-phase, 4-wire sub-distribution panel serving the theater addition

New emergency lighting inverter system provided as part of the 2009 renovation

1.05 Cost Estimate

VILLARD HALL

Conceptual Cost Model Estimate No. CM 1 Rev. 1

PROJECT:	UO Villard/Robinson Hall - Deferred Maintenance Building Assessment	**DATE:**	11/3/2017
LOCATION:	Eugene, OR	**ESTIMATE:**	COST MODEL
ARCHITECT:	FFA		
OWNER:	University of Oregon		

AREA SUMMARY:

Total existing building GSF	31,173
Building Area	**31,173**

	Description	Qty	Unit	Unit Price	Totals	$/sf	% Total
02	**DEMOLITION**				**$ 549,761**	**$ 17.64**	**3.47%**
	Sidewalks/Paving (Incl in Site)	-	sf	4.50	$ -	$ -	
	Clearing/Striping Landscaping Against Building	1	ls	2,500.00	$ 2,500	$ 0.08	
	Tree Trimming (Incl in Site)	-	ea	750.00	$ -	$ -	
	Remove Existing (S) Exterior Door and Canopy	1	ls	4,500.00	$ 4,500	$ 0.14	
	Remove Existing Connection Structure	1,690	sf	21.00	$ 35,490	$ 1.14	
	Demolition - Hard	31,173	sf	5.50	$ 171,452	$ 5.50	
	Interior Demolition - Soft	31,173	sf	6.50	$ 202,625	$ 6.50	
	Misc Demo Allowance	1	ls	10,000.00	$ 10,000	$ 0.32	
	Furniture (Excluded, by UO)	-	ea	25.00	$ -	$ -	
	Remove Elevator and Shaft	1	ea	25,000.00	$ 25,000	$ 0.80	
	Fire Sprinkler	31,173	sf	0.15	$ 4,676	$ 0.15	
	HVAC/Plumbing	31,173	sf	1.50	$ 46,760	$ 1.50	
	Electrical	31,173	sf	1.50	$ 46,760	$ 1.50	
	Hazardous Abatement (Excluded, by UO)	-	sf	-	$ -	$ -	
03	**CONCRETE**				**$ 342,396**	**$ 10.98**	**2.16%**
	Mat Footings (Assuming 3')	143	cy	600.00	$ 85,800	$ 2.75	
	Shear Walls	245	cy	650.00	$ 159,250	$ 5.11	
	Elevator Pit	1	ea	25,000.00	$ 25,000	$ 0.80	
	Slab/Wall Patch and Repair	31,173	sf	2.00	$ 62,346	$ 2.00	
	Shoring Allowance	1	ls	10,000.00	$ 10,000	$ 0.32	
04	**MASONRY**				**$ 1,168,410**	**$ 37.48**	**7.37%**
	Clean Exterior Skin	18,800	sf	2.00	$ 37,600	$ 1.21	
	Stone/Masonry Anchoring	18,800	sf	14.70	$ 276,360	$ 8.87	
	Patch Exterior Skin / Tuckpointing	18,800	sf	14.00	$ 263,200	$ 8.44	
	Refinish Stucco Application	18,800	sf	18.75	$ 352,500	$ 11.31	
	Restore East Face	650	ea	95.00	$ 61,750	$ 1.98	
	Restore Roofline Historic Detail - Large	12	ea	6,500.00	$ 78,000	$ 2.50	
	Restore Roofline Historic Detail - Small	14	ea	3,500.00	$ 49,000	$ 1.57	
	Historic Allowance	1	ls	50,000.00	$ 50,000	$ 1.60	
05	**METALS**				**$ 1,471,882**	**$ 47.22**	**9.29%**
	Structural Steel	156	tn	6,500.00	$ 1,013,123	$ 32.50	
	Metal Stairs	2	ea	75,000.00	$ 150,000	$ 4.81	
	Misc Metals	31,173	sf	1.50	$ 46,760	$ 1.50	
	Railings and Guardrails - Exterior	100	lf	350.00	$ 35,000	$ 1.12	
	Railings and Guardrails	550	lf	350.00	$ 192,500	$ 6.18	
	Safety Tie Off	4	ea	3,000.00	$ 12,000	$ 0.38	
	Roof Hatch and Ladder	1	ea	7,500.00	$ 7,500	$ 0.24	
	Shoring Allowance	1	ls	15,000.00	$ 15,000	$ 0.48	
06	**WOOD, PLASTICS AND COMPOSITES**				**$ 1,066,033**	**$ 34.20**	**6.73%**
	Wood Railing/Columns Repair/Replace - Exterior	4	loc	10,500.00	$ 42,000	$ 1.35	
	Diafram and Floor Infill	31,173	sf	18.50	$ 576,701	$ 18.50	
	Rough Carpentry	31,173	sf	1.50	$ 46,760	$ 1.50	
	Backing	31,173	sf	0.35	$ 10,911	$ 0.35	
	Casework	31,173	sf	5.50	$ 171,452	$ 5.50	
	Millwork/Paneling	31,173	sf	7.00	$ 218,211	$ 7.00	
07	**THERMAL AND MOISTURE**				**$ 146,037**	**$ 4.68**	**0.92%**
	Insulation	31,173	sf	0.85	$ 26,497	$ 0.85	
	Sealants/Caulking	1	ls	10,500.00	$ 10,500	$ 0.34	
	Replace Shingle Roofing, Copper Metal Flashing	5,640	sf	14.00	$ 78,960	$ 2.53	
	Patch EPDM Roofing Allowance	7,520	sf	4.00	$ 30,080	$ 0.96	
08	**DOORS AND WINDOWS**				**$ 611,800**	**$ 19.63**	**3.86%**
	Exterior Window Slip	48	ea	925.00	$ 44,400	$ 1.42	
	Exterior Window - Repair Allowance	48	ea	850.00	$ 40,800	$ 1.31	
	Exterior Doors - Restore Allowance	4	ea	4,500.00	$ 18,000	$ 0.58	
	Skylights	275	sf	310.00	$ 85,250	$ 2.73	
	Doors/Frames/Hardware	65	ea	2,150.00	$ 139,750	$ 4.48	
	Doors Hardware Provided by UO	-	ea	-	$ -	$ -	
	Specialty Hardware Allowance	25	ea	1,500.00	$ 37,500	$ 1.20	
	Relites/Transoms	52	ea	1,800.00	$ 93,600	$ 3.00	
	Glass Wall/Partition	2,500	sf	61.00	$ 152,500	$ 4.89	
09	**FINISHES**				**$ 1,185,230**	**$ 38.02**	**7.48%**
	Walls	25,640	sf	10.00	$ 256,400	$ 8.23	
	Shaft Wall	9,640	sf	15.00	$ 144,600	$ 4.64	
	Patch Existing Surfaces	1	ls	35,000.00	$ 35,000	$ 1.12	
	Ceilings - Drywall	24,938.40	sf	10.00	$ 249,384	$ 8.00	

	Ceilings - ACT		6,235	sf	8.00	$	49,877	$	1.60	
	Flooring - Carpet		18,704	sf	5.00	$	93,519	$	3.00	
	Flooring - Rubber Floor Product		9,351.90	sf	8.00	$	74,815	$	2.40	
	Flooring - Tile		3,117.30	sf	18.00	$	56,111	$	1.80	
	Tile Walls		1,786	sf	18.00	$	32,148	$	1.03	
	Exterior Painting Allowance		1	ls	20,000.00	$	20,000	$	0.64	
	Painting Walls		25,640	sf	2.00	$	51,280	$	1.65	
	Paint Ceilings		24,938	sf	2.50	$	62,346	$	2.00	
	Paint Door Frames		65	ea	150.00	$	9,750	$	0.31	
	Historic Allowance		1	ls	50,000.00	$	50,000	$	1.60	
10	**SPECIALTIES**					**$**	**138,720**	**$**	**4.45**	**0.88%**
	Signage		31,173	sf	0.45	$	14,028	$	0.45	
	Misc. Specialties (Restroom accessories, tack boards, ect..)		31,173	sf	4.00	$	124,692	$	4.00	
11	**EQUIPMENT**					**$**	**5,750**	**$**	**0.18**	**0.04%**
	Residential Appliances		5	ea	1,150.00	$	5,750	$	0.18	
	Owner AV Allowance - Equipment OFOI		-	sf	16.00	$	-	$	-	
	FF&E (Excluded)		-	ea	-	$	-	$	-	
12	**FURNISHINGS**					**$**	**32,832**	**$**	**1.05**	**0.21%**
	Window Coverings (Non-motorized)		3,456	sf	9.50	$	32,832	$	1.05	
	Classroom Seating (Excluded, assuming all furniture)		-	ea	310.00	$	-	$	-	
	FF&E (Excluded)		-	ea	-	$	-	$	-	
13	**SPECIAL CONSTRUCTION**					**$**	**25,000**	**$**	**0.80**	**0.16%**
	Rehab/Salvage/Reinstall Existing Building Elements		1	ls	25,000.00	$	25,000	$	0.80	
14	**CONVEYING**					**$**	**330,000**	**$**	**10.59**	**2.08%**
	New Elevator Shaft Accessories		1	ls	25,000.00	$	25,000	$	0.80	
	New Elevator		5	stops	61,000.00	$	305,000	$	9.78	
21	**FIRE PROTECTION**					**$**	**129,368**	**$**	**4.15**	**0.82%**
	Fire Protection System		31,173	sf	4.15	$	129,368	$	4.15	
22	**PLUMBING**					**$**	**286,792**	**$**	**9.20**	**1.81%**
	Plumbing Distribution and Equipment		31,173	sf	9.20	$	286,792	$	9.20	
23	**HVAC**					**$**	**1,527,477**	**$**	**49.00**	**9.64%**
	Mechanical - Hydronic System (Based on Option #1, chilled beam)		31,173	sf	49.00	$	1,527,477	$	49.00	
25	**CONTROLS**					**$**	**296,144**	**$**	**9.50**	**1.87%**
	BMS/Controls		31,173	sf	9.50	$	296,144	$	9.50	
26	**ELECTRICAL**					**$**	**1,106,642**	**$**	**35.50**	**6.98%**
	Electrical - Main Panel & Metering		31,173	sf	10.00	$	311,730	$	10.00	
	Electrical - Raceways		31,173	sf	1.50	$	46,760	$	1.50	
	Electrical - Branch Circuiting		31,173	sf	5.00	$	155,865	$	5.00	
	Electrical - Lighting & Controls		31,173	sf	14.00	$	436,422	$	14.00	
	Electrical - HVAC & Misc Equipment		31,173	sf	2.00	$	62,346	$	2.00	
	Electrical - Emergency Power		31,173	sf	3.00	$	93,519	$	3.00	
27	**COMMUNICATIONS**					**$**	**264,971**	**$**	**8.50**	**1.67%**
	Electrical - Telecom/Data/WIFI (Rough In Only)		31,173	sf	5.50	$	171,452	$	5.50	
	Audio Visual - Rough In		31,173	sf	3.00	$	93,519	$	3.00	
28	**SAFETY/SECURITY**					**$**	**171,452**	**$**	**5.50**	**1.08%**
	Electrical - Access Controls/Security		31,173	sf	2.00	$	62,346	$	2.00	
	Electrical - Fire Alarm		31,173	sf	3.50	$	109,106	$	3.50	
31 - 33	**SITEWORK**					**$**	**264,000**	**$**	**8.47**	**1.67%**
	Excavation/Backfill (Utilities)		-	cy	110.00	$	-	$	-	
	Excavation/Backfill (Elevator Pit)		140	cy	150.00	$	21,000	$	0.67	
	Excavation/Backfill (Valut)		220	cy	150.00	$	33,000	$	1.06	
	Utilities - Storm, Sanitary		-	lf	125.00	$	-	$	-	
	Utilities - Fire/Water		-	lf	125.00	$	-	$	-	
	Electrical Vault		1	ea	45,000.00	$	45,000	$	1.44	
	Tunnel Improvement Allowance		1	ea	45,000.00	$	45,000	$	1.44	
	Utilities - Electrical Service		1	ls	50,000.00	$	50,000	$	1.60	
	Transformers - By UO		-	ea	40,000.00	$	-	$	-	
	ADA Ramp (Incl in Site)		-	ea	9,500.00	$	-	$	-	
	Patch Sidewalks and Asphalt		-	sf	12.00	$	-	$	-	
	Landscaping - Patching Only		1	ls	5,000.00	$	5,000	$	0.16	
	Site Lighting and Electrical		-	ls	50,500.00	$	-	$	-	
	Open Space Improvements Allowance		1	ls	55,000.00	$	55,000	$	1.76	
	Misc Site Repairs Allowance		1	ls	10,000.00	$	10,000	$	0.32	

	CURRENT ESTIMATE SUBTOTAL (COST OF WORK)					**$ 11,120,695**	**$ 356.74**	**70.18%**
MARGINS & ADJUSTMENTS								
	GENERAL CONDITIONS	12.00%				$ 1,334,483	$ 42.81	8.42%
	TEMPORARY PROTECTION	1.00%				$ 111,207	$ 3.57	0.70%
	TEMPORARY MEP SYSTEMS	0.75%				$ 83,405	$ 2.68	0.53%
	ALL RISK INSURANCE	0.80%				$ 101,198	$ 3.25	0.64%
	SDI	1.00%				$ 111,207	$ 3.57	0.70%
	BOND	0.90%				$ 115,760	$ 3.71	0.73%
	CM/GC CONSTR.CONTINGENCY	3.50%				$ 389,224	$ 12.49	2.46%
	FEE	3.50%				$ 467,851	$ 15.01	2.95%
	ESCALATION/MARKET CONDITIONS (3.5% per yr)	14.00%				$ 1,936,904	$ 62.13	12.22%
	PRECONSTRUCTION (Fixed)		1	ls	73,500	$ 73,500	$ 2.36	0.46%
	MARGIN & ADJUSTMENT SUBTOTALS					**$ 4,724,741**	**$ 151.57**	**29.82%**
	CONSTRUCTION TOTALS					**$ 15,845,435**	**$ 508.31**	**100.00%**

NOTES/CLARIFICATIONS:

Campus tunnel improvements (piping replacements, added insulation, ect..) have typically been performed under the project scope but are reimbursed by deferred maintenance funds. These costs are usually $50,000 - $80,000. These costs are currently included in as an allowance in the project cost projection.

Typical Exclusions:

1. Supply site transformers.
2. Supply of conductors for primary service.
3. Gas, Electrical, Cable or other outside utilities.
4. Utility connection fees (i.e. Domestic Water, Sanitary Sewer, Storm Drain, Fire Water, and Electrical).
5. Water meter costs.
6. UO to pay for power, gas and water consumption costs.
7. Audio Visual equipment, programming or cabling.
8. Telecom equipment, programming or cabling.
9. Security equipment, programming or cabling.
10. Distributed Antenna System (DAS).
11. Furniture and/or soft goods.
12. Moving or relocation costs.
13. EWEB fees and permits.
14. All design fees (unless specifically listed as delegated design within the scope of work).

ROBINSON HALL

Conceptual Cost Model Estimate No. CM 1 Rev. 1

PROJECT: UO Villard/Robinson Hall - Deferred Maintenance Building Assessment
LOCATION: Eugene, OR
ARCHITECT: FFA
OWNER: University of Oregon

DATE: 11/3/2017
ESTIMATE: COST MODEL

AREA SUMMARY:

Total existing building GSF	19,980
Building Area	**19,980**

	Description	Qty	Unit	Unit Price	Totals	$/sf	% Total
02	**DEMOLITION**				**$ 248,287**	**$ 12.43**	**4.73%**
	Remove Existing Connection Structure	1,690	sf	21.00	$ 35,490	$ 1.78	
	Demolition - Hard	19,980	sf	3.50	$ 69,930	$ 3.50	
	Interior Demolition - Soft	19,980	sf	3.50	$ 69,930	$ 3.50	
	Misc Demo Allowance	1	ls	10,000.00	$ 10,000	$ 0.50	
	Furniture (Excluded, by UO)	-	ea	25.00	$ -	$ -	
	Fire Sprinkler	19,980	sf	0.15	$ 2,997	$ 0.15	
	HVAC/Plumbing	19,980	sf	1.50	$ 29,970	$ 1.50	
	Electrical	19,980	sf	1.50	$ 29,970	$ 1.50	
	Hazardous Abatement (Excluded, by UO)	-	sf	-	$ -	$ -	
03	**CONCRETE**				**$ 259,315**	**$ 12.98**	**4.94%**
	Footings	60	cy	600.00	$ 36,000	$ 1.80	
	Shear Walls	126	cy	650.00	$ 81,900	$ 4.10	
	Stage Ramp Improvements	817	sf	115.00	$ 93,955	$ 4.70	
	Slab/Wall Patch and Repair	19,980	sf	2.00	$ 39,960	$ 2.00	
	Shoring Allowance	1	ls	7,500.00	$ 7,500	$ 0.38	
04	**MASONRY**				**$ 360,000**	**$ 18.02**	**6.86%**
	Clean Exterior Skin	22,500	sf	2.00	$ 45,000	$ 2.25	
	Refinish Stucco Application	22,500	sf	14.00	$ 315,000	$ 15.77	
05	**METALS**				**$ 390,395**	**$ 19.54**	**7.44%**
	Structural Steel	50	tn	6,500.00	$ 324,675	$ 16.25	
	Moment Frames	2	ea	9,500.00	$ 19,000	$ 0.95	
	Misc Metals	19,980	sf	1.50	$ 29,970	$ 1.50	
	Railings and Guardrails	25	lf	350.00	$ 8,750	$ 0.44	
	Shoring Allowance	1	ls	8,000.00	$ 8,000	$ 0.40	
06	**WOOD, PLASTICS AND COMPOSITES**				**$ 663,508**	**$ 33.21**	**12.65%**
	Wood Framed Addition - Complete	1,690	sf	220.00	$ 371,800	$ 18.61	
	Diafram and Bracing	19,980	sf	12.75	$ 254,745	$ 12.75	
	Rough Carpentry	19,980	sf	1.50	$ 29,970	$ 1.50	
	Backing	19,980	sf	0.35	$ 6,993	$ 0.35	
	Casework	-	sf	5.50	$ -	$ -	
	Millwork/Paneling	-	sf	7.00	$ -	$ -	
07	**THERMAL AND MOISTURE**				**$ 53,165**	**$ 2.66**	**1.01%**
	Sealants/Caulking	1	ls	10,500.00	$ 10,500	$ 0.53	
	Clean/Pacth Roofing Elements	12,190	sf	3.50	$ 42,665	$ 2.14	
08	**DOORS AND WINDOWS**				**$ 119,350**	**$ 5.97**	**2.28%**
	Skylight	385	sf	310.00	$ 119,350	$ 5.97	
09	**FINISHES**				**$ 219,780**	**$ 11.00**	**4.19%**
	Interior Finish Allowance	19,980	ea	11.00	$ 219,780	$ 11.00	
10	**SPECIALTIES**				**$ -**	**$ -**	**0.00%**
	None	-	sf	-	$ -	$ -	
11	**EQUIPMENT**				**$ -**	**$ -**	**0.00%**
	Owner AV Allowance - Equipment OFOI	-	sf	-	$ -	$ -	
	FF&E (Excluded)	-	ea	-	$ -	$ -	
12	**FURNISHINGS**				**$ -**	**$ -**	**0.00%**
	Classroom Seating (Excluded, assuming all furniture)	-	ea	-	$ -	$ -	
	FF&E (Excluded)	-	ea	-	$ -	$ -	
13	**SPECIAL CONSTRUCTION**				**$ 25,000**	**$ 1.25**	**0.48%**
	Rehab/Salvage/Reinstall Existing Building Elements	1	ls	25,000.00	$ 25,000	$ 1.25	
14	**CONVEYING**				**$ -**	**$ -**	**0.00%**
	None		ls	-	$ -	$ -	
21	**FIRE PROTECTION**				**$ 59,940**	**$ 3.00**	**1.14%**
	Fire Protection System (System Distribution)	19,980	sf	3.00	$ 59,940	$ 3.00	
22	**PLUMBING**				**$ 59,940**	**$ 3.00**	**1.14%**
	Plumbing Distribution and Equipment (System Distribution)	19,980	sf	3.00	$ 59,940	$ 3.00	
23	**HVAC**				**$ 779,220**	**$ 39.00**	**14.85%**

	Mechanical - Hydronic System (System Distribution)		19,980	sf	39.00	$	779,220	$	39.00	
25	**CONTROLS**					**$**	**139,860**	**$**	**7.00**	**2.67%**
	BMS/Controls		19,980	sf	7.00	$	139,860	$	7.00	
26	**ELECTRICAL**					**$**	**509,490**	**$**	**25.50**	**9.71%**
	Electrical - Main Panel & Metering		-	sf	10.00	$	-	$	-	
	Electrical - Raceways		19,980	sf	1.50	$	29,970	$	1.50	
	Electrical - Branch Circuiting		19,980	sf	5.00	$	99,900	$	5.00	
	Electrical - Lighting & Controls		19,980	sf	14.00	$	279,720	$	14.00	
	Electrical - HVAC & Misc Equipment		19,980	sf	2.00	$	39,960	$	2.00	
	Electrical - Emergency Power		19,980	sf	3.00	$	59,940	$	3.00	
27	**COMMUNICATIONS**					**$**	**109,890**	**$**	**5.50**	**2.09%**
	Electrical - Telecom/Data/WIFI (Rough In Only)		19,980	sf	5.50	$	109,890	$	5.50	
	Audio Visual - Rough In		-	sf	3.00	$	-	$	-	
28	**SAFETY/SECURITY**					**$**	**109,890**	**$**	**5.50**	**2.09%**
	Electrical - Access Controls/Security		19,980	sf	2.00	$	39,960	$	2.00	
	Electrical - Fire Alarm		19,980	sf	3.50	$	69,930	$	3.50	
31 - 33	**SITEWORK**					**$**	**10,000**	**$**	**0.50**	**0.19%**
	Landscaping - Patching Only		1	ls	5,000.00	$	5,000	$	0.25	
	Misc Site Repairs Allowance		1	ls	5,000.00	$	5,000	$	0.25	
	CURRENT ESTIMATE SUBTOTAL (COST OF WORK)					**$**	**4,117,030**	**$**	**206.06**	**78.48%**
MARGINS & ADJUSTMENTS										
	GENERAL CONDITIONS	0.00%				$	-	$	-	0.00%
	TEMPORARY PROTECTION	1.00%				$	41,170	$	2.06	0.78%
	TEMPORARY MEP SYSTEMS	0.75%				$	30,878	$	1.55	0.59%
	ALL RISK INSURANCE	0.80%				$	33,513	$	1.68	0.64%
	SDI	1.00%				$	41,170	$	2.06	0.78%
	BOND	0.90%				$	38,374	$	1.92	0.73%
	CM/GC CONSTR.CONTINGENCY	3.50%				$	144,096	$	7.21	2.75%
	FEE	3.50%				$	155,618	$	7.79	2.97%
	ESCALATION/MARKET CONDITIONS (3.5% per yr)	14.00%				$	644,259	$	32.25	12.28%
	PRECONSTRUCTION (Fixed)		-	ls	-	$	-	$	-	0.00%
	MARGIN & ADJUSTMENT SUBTOTALS					**$**	**1,129,078**	**$**	**56.51**	**21.52%**
	CONSTRUCTION TOTALS					**$**	**5,246,108**	**$**	**262.57**	**100.00%**

NOTES/CLARIFICATIONS:

Campus tunnel improvements (piping replacements, added insulation, ect..) have typically been performed under the project scope but are reimbursed by deferred maintenance funds. These costs are usually $50,000 - $80,000. These costs are currently included in as an allowance in the project cost projection.

Typical Exclusions:

1. Supply site transformers.
2. Supply of conductors for primary service.
3. Gas, Electrical, Cable or other outside utilities.
4. Utility connection fees (i.e. Domestic Water, Sanitary Sewer, Storm Drain, Fire Water, and Electrical).
5. Water meter costs.
6. UO to pay for power, gas and water consumption costs.
7. Audio Visual equipment, programming or cabling.
8. Telecom equipment, programming or cabling.
9. Security equipment, programming or cabling.
10. Distributed Antenna System (DAS).
11. Furniture and/or soft goods.
12. Moving or relocation costs.
13. EWEB fees and permits.
14. All design fees (unless specifically listed as delegated design within the scope of work).

SITE IMPROVEMENTS

Conceptual Cost Model Estimate No. CM 1 Rev. 1

PROJECT: UO Villard/Robinson Hall - Deferred Maintenance Building Assessment
LOCATION: Eugene, OR
ARCHITECT: FFA
OWNER: University of Oregon

DATE: 11/3/2017
ESTIMATE: COST MODEL

AREA SUMMARY:

Site GSF	14,900
Site Area	**14,900**

	Description		Qty	Unit	Unit Price	Totals	$/sf	% Total
02	**DEMOLITION**					**$ 53,275**	**$ 3.58**	**7.76%**
	Sidewalks/Paving		5,490	sf	4.50	$ 24,705	$ 1.66	
	Clearing/Striping Landscaping		9,410	sf	2.00	$ 18,820	$ 1.26	
	Tree Trimming		3	ea	750.00	$ 2,250	$ 0.15	
	Misc Demo Allowance		1	ls	7,500.00	$ 7,500	$ 0.50	
03	**CONCRETE**					**$ -**	**$ -**	**0.00%**
	None		-	cy	-	$ -	$ -	
04	**MASONRY**					**$ -**	**$ -**	**0.00%**
	None		-	sf		$ -	$ -	
05	**METALS**					**$ 60,750**	**$ 4.08**	**8.85%**
	Entrance Canopy		360	sf	125.00	$ 45,000	$ 3.02	
	Railings and Guardrails - Exterior		45	lf	350.00	$ 15,750	$ 1.06	
06	**WOOD, PLASTICS AND COMPOSITES**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
07	**THERMAL AND MOISTURE**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
08	**DOORS AND WINDOWS**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
09	**FINISHES**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
10	**SPECIALTIES**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
11	**EQUIPMENT**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
12	**FURNISHINGS**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
13	**SPECIAL CONSTRUCTION**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
14	**CONVEYING**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
21	**FIRE PROTECTION**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
22	**PLUMBING**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
23	**HVAC**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
25	**CONTROLS**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
26	**ELECTRICAL**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
27	**COMMUNICATIONS**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
28	**SAFETY/SECURITY**					**$ -**	**$ -**	**0.00%**
	None			sf	-	$ -	$ -	
31 - 33	**SITEWORK**					**$ 424,451**	**$ 28.49**	**61.86%**
	Excavation/Backfill (Utilities)		45	cy	110.00	$ 4,950	$ 0.33	
	Utilities - Storm, Sanitary		120	lf	125.00	$ 15,000	$ 1.01	
	ADA Ramps		2	ea	10,500.00	$ 21,000	$ 1.41	
	Concrete Benches - Curved		289	lf	250.00	$ 72,250	$ 4.85	

	Concrete Stairs - Large		1	ea	21,000.00	$ 21,000	$ 1.41	
	Concrete Stairs - Small		2	ea	12,100.00	$ 24,200	$ 1.62	
	Asphalt Paving and Markings		1,400	sf	9.00	$ 12,600	$ 0.85	
	Paver Plaza		3,500	sf	14.50	$ 50,750	$ 3.41	
	Bike Shelter - Covered		594	sf	81.00	$ 48,114	$ 3.23	
	Bike Racks		40	ea	450.00	$ 18,000	$ 1.21	
	Trees		1	ea	750.00	$ 750	$ 0.05	
	Landscaping and Irrigation - New		8,922	sf	8.50	$ 75,837	$ 5.09	
	Landscaping - Patching Only		1	ls	5,000.00	$ 5,000	$ 0.34	
	Site Lighting and Electrical		6	ea	7,500.00	$ 45,000	$ 3.02	
	Open Space Improvements Allowance (Incl in Villard)		-	ls	55,000.00	$ -	$ -	
	Misc Site Repairs Allowance		1	ls	10,000.00	$ 10,000	$ 0.67	
	CURRENT ESTIMATE SUBTOTAL (COST OF WORK)					**$ 538,476**	**$ 36.14**	**78.48%**
MARGINS & ADJUSTMENTS								
	GENERAL CONDITIONS	0.00%				$ -	$ -	0.00%
	TEMPORARY PROTECTION	1.00%				$ 5,385	$ 0.36	0.78%
	TEMPORARY MEP SYSTEMS	0.75%				$ 4,039	$ 0.27	0.59%
	ALL RISK INSURANCE	0.80%				$ 4,383	$ 0.29	0.64%
	SDI	1.00%				$ 5,385	$ 0.36	0.78%
	BOND	0.90%				$ 5,019	$ 0.34	0.73%
	CM/GC CONSTR.CONTINGENCY	3.50%				$ 18,847	$ 1.26	2.75%
	FEE	3.50%				$ 20,354	$ 1.37	2.97%
	ESCALATION/MARKET CONDITIONS (3.5% per yr)	14.00%				$ 84,264	$ 5.66	12.28%
	PRECONSTRUCTION (Fixed)		-	ls	-	$ -	$ -	0.00%
	MARGIN & ADJUSTMENT SUBTOTALS					**$ 147,675**	**$ 9.91**	**21.52%**
	CONSTRUCTION TOTALS					**$ 686,151**	**$ 46.05**	**100.00%**

NOTES/CLARIFICATIONS:

Campus tunnel improvements (piping replacements, added insulation, ect..) have typically been performed under the project scope but are reimbursed by deferred maintenance funds. These costs are usually $50,000 - $80,000. These costs are currently included in as an allowance in the project cost projection.

Typical Exclusions:

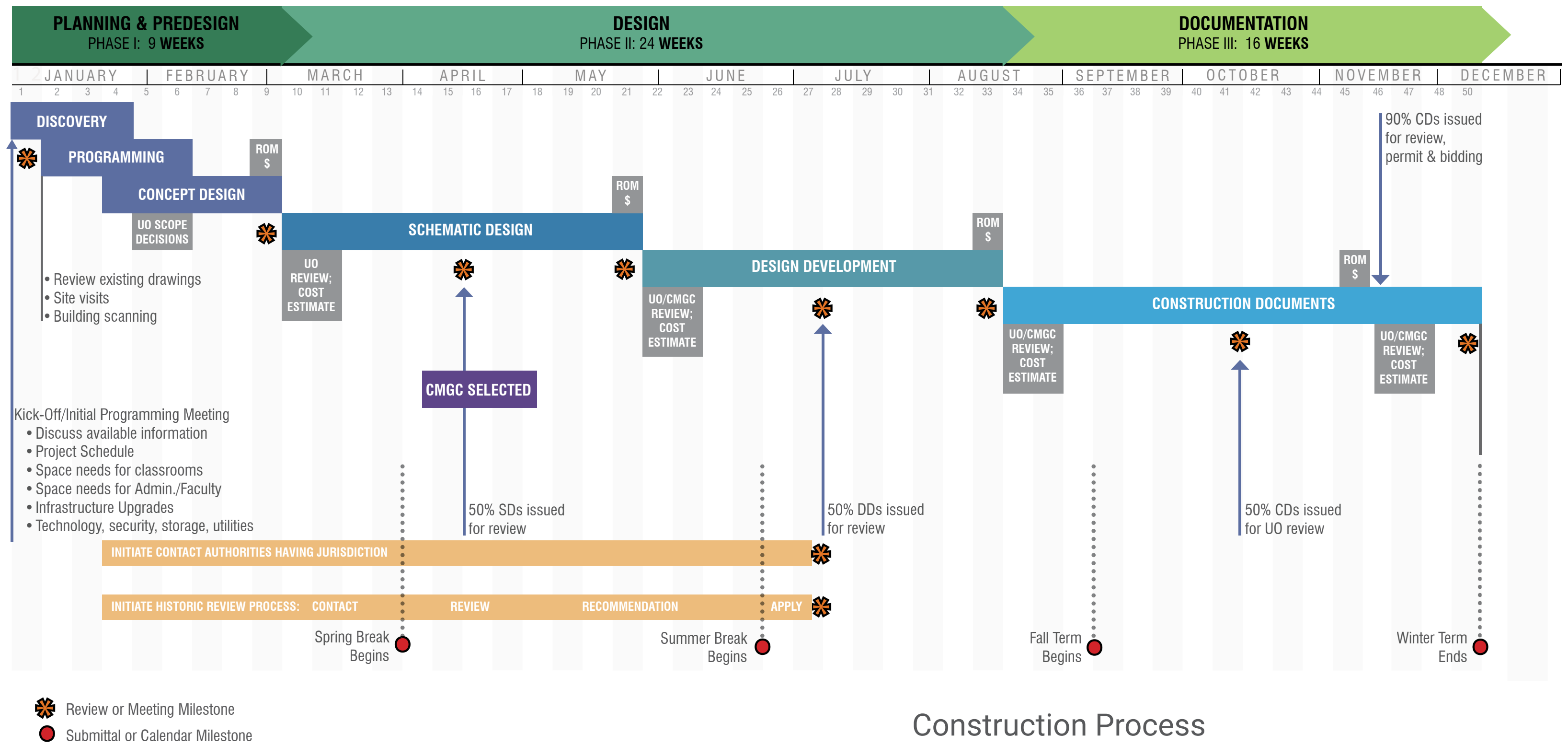
1. Supply site transformers.
2. Supply of conductors for primary service.
3. Gas, Electrical, Cable or other outside utilities.
4. Utility connection fees (i.e. Domestic Water, Sanitary Sewer, Storm Drain, Fire Water, and Electrical).
5. Water meter costs.
6. UO to pay for power, gas and water consumption costs.
7. Audio Visual equipment, programming or cabling.
8. Telecom equipment, programming or cabling.
9. Security equipment, programming or cabling.
10. Distributed Antenna System (DAS).
11. Furniture and/or soft goods.
12. Moving or relocation costs.
13. EWEB fees and permits.
14. All design fees (unless specifically listed as delegated design within the scope of work).

Furniture Estimate			
Estimate includes material cost and labor to install			
Private Office	**Qty**	**Cost Each**	**Estimated Cost**
Ht. Adj. Desk (30x60) with Return	1	$1,800	$1,800
Box/Box/File	1	$350	$350
Bookcase	1	$350	$350
Task Chair	1	$550	$550
Guest Chair	2	$200	$400
Cost per space		**$3,450**	
Total Private Offices	**34**		**$117,300**
Theatre/Classroom - Tablet Arm Chairs	**Qty**	**Cost Each**	**Estimated Cost**
KI Learn 2 Tablet Arm Chair	33	$400	$13,200
Ht. Adj Table	1	$425	$425
Bariatric Chair	1	$400	$400
Blackboards, multiple walls	5	$750	$3,750
Teaching Station	1	$1,100	$1,100
Cost per space		**$18,875**	
Total Active Learning Classroom- Tablet Arm C	**3**		**$56,625**
Active Learning Classroom - Tables/Chairs	**Qty**	**Cost Each**	**Estimated Cost**
Chair with Casters	60	$400	$24,000
Tableswith Casters	29	$450	$13,050
Ht. Adj Table	1	$425	$425
Bariatric Chair	1	$400	$400
Whiteboards, multiple walls	6	$750	$4,500
Teaching Station	1	$1,100	$1,100
Cost per space		**$43,475**	
Total Active Learning Classroom - Tables/Chair	**4.5**		**$195,638**
Medium Conference Room	**Qty**	**Cost Each**	**Estimated Cost**
Conference Table (36x72)	1	$850	$850
Multi-Purpose Chair	10	$300	$3,000
Cost per space		**$3,850**	
Total Small Conference Rooms	**4**		**$15,400**
Dressing Room/Workshop	**Qty**	**Cost Each**	**Estimated Cost**
Workbench	10	$2,200	$22,000
Chairs	10	$400	$4,000
Dressing Room Acc (mirrors, hooks, etc)	1	$2,500	$2,500
Cost per space		**$28,500**	
Total Dressing Room/Workshops	**4**		**$114,000**
Break Room	**Qty**	**Cost Each**	**Estimated Cost**
Round Table (36" Dia)	2	$450	$900
Guest Chairs	8	$250	$2,000
Cost per space		**$2,900**	
Total Break Rooms	**1**		**$2,900**
Lounge Area	**Qty**	**Cost Each**	**Estimated Cost**
Sofa	2	$2,100	$4,200
Lounge Chair	8	$1,200	$9,600
Occasional Table	4	$600	$2,400
Cost per space		**$16,200**	
Lounge Areas	**3**		**$48,600**
Lactation Room	**Qty**	**Cost Each**	**Estimated Cost**
Occasional Table	1	$400	$400
Chair	1	$850	$850
Cost per space		**$1,250**	
Total Lactation Rooms	**1**		**$1,250**
Miscellaneous Items			
Large Whiteboards	5	$1,100	$5,500
Chalkboards (in corridors)	0	$750	$0
		Sub-total	**$557,213**
		Contingency (25%)	**$139,303**
		Install & Delivery (15%)	**$83,582**
		Escalation (4% per year for 4 yrs)	**$124,816**
		Estimated Budget Total	**$904,913**

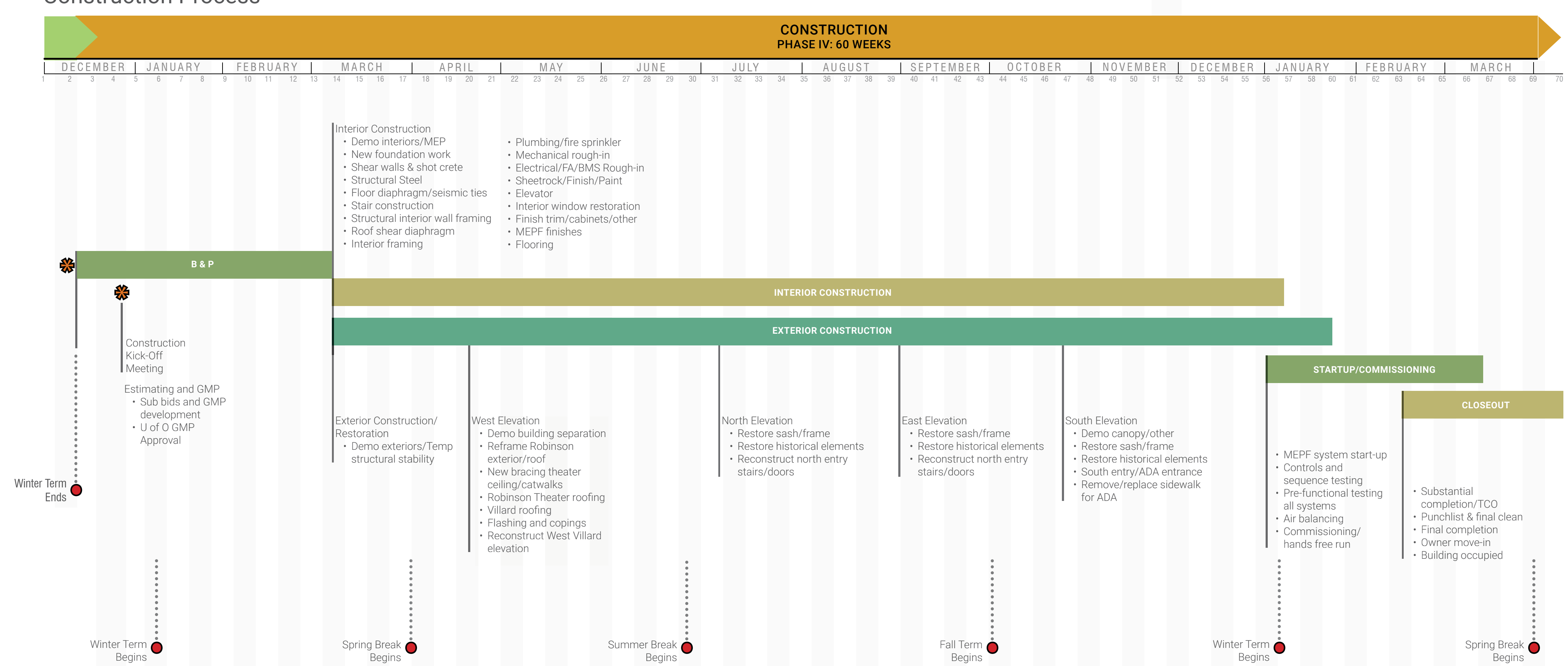
Signage Estimate				
Estimate includes material cost and labor to install				
Level/Area/Suite:				
Item	**Qty**	**Cost Each**	**Est. Cost**	**Notes**
Room # w/ Braille	5	$25	$125	
ID Room Sign w/ Thumb Slider	65	$75	$4,875	
ID Room Sign w/ Thumb Slider & backplate	0	$95	$0	
Restroom/Stair/Elev Sign	79	$65	$5,135	Includes area of rescue signs, 'in case of fire signs' & fire escape route signs
Flag Sign	21	$115	$2,415	
General Directory	11	$300	$3,300	
Building Directory	8	$450	$3,600	
Graphics, etc	12	$250	$3,000	Entry wayfinding, if needed
Sub-total			**$22,450**	**This worksheet to be used for budgetary purposes only. Installed product cost is an estimate based on previously quoted/completed projects from ImageKing*
Install			**$5,613**	
Escalation (4% for 4 years)			**$4,490**	
Estimated Budget Total			**$28,063**	

1.06 Scheduling & Phasing

Design and Documentation Process



Construction Process



Appendices

Appendix A
National Register of Historic Places – Nomination Form (1972)
Appendix B
University of Oregon Book Plans - Villard Hall/Miller Theatre Complex
Appendix C
Historic American Building Survey (HABS) Form (1964)
Appendix D
Historic American Building Survey (HABS) - Exterior Elevations (c. 1988)BB
Appendix E
University of Oregon Historic Resource Survey Form, Villard Hall (2006)
Appendix F
"h, University of Oregon, Eugene, Oregon" (2007)
Appendix G
ADA Facility Assessment Report (2017)